Project Information Modeling & CAD Standards

Version 1.2

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Prepared for

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REVISION HISTORY

Revision Date	Version	Sections Changed/ Updated/ Added	Description of Changes
07.05.2022	1.0	-	Initial release
09.30.2022	1.1	3.1 PIM, 4.1 Approved CAD/BIM Software, 8.2 File Naming, Appendix 15.3.1 ORD (Project Set Up Workflow)	Updated ORD version to 2021 R1. Updated PIM definition. Updated examples for file naming convention to include abbreviated project number. Updated names of zipped files for ORD project workflow setup.
02.15.2023	1.2	3.6.2.6, 5.8.3.9 Guiderail, 5.8.3.10 Barrier Transitions and End Pieces, 7.1.3 PDF Plan Sets, 7.7 Full Project Length PDFs, 10.1 Collaboration Strategy, 10.2.1 Folder Structure, 10.2.2 Subfolders, Appendix 15.7.1.6	Revised verbiage with advertisement, added guiderail sections for ORD and C3D, revised CDE and Document Management collaboration, updated folder structure and added abbreviations for subfolders, updated appropriate appendix for barrier and transitions.

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1. EXECUTIVE STATEMENT

The Pennsylvania Turnpike Commission's (PTC) Project Information Modeling & CAD Standards purpose is to provide CADD (Computer-Aided Design and Drafting) and PIM (Project Information Modeling) standards and guidelines for all design and construction consultant's working on PTC project's or within their right-of-way.

The standard includes sections for general deliverables, workflows, and standards agnostic of authoring software applicable for all PTC projects. For specific software workflows, PTC supports Civil 3D, OpenRoads Designer, and Revit.

Adherence to this standard ensures that all divisions of PTC, as well as, outside consultants will produce data in a consistent format throughout the project life cycle.

This document is intended to be an addendum to all consultant contracts.

1.1 REVISIONS TO THIS STANDARD

The Project Information Modeling & CAD Standards will be reviewed and updated on a regular basis. Any feedback, request for clarification, or suggestions can be completed by emailing digitaldelivery@paturnpike.com.

1.2 GOALS AND OBJECTIVES

The PTC's Project Information Modeling & CAD Standards sets forth requirements for the preparation of contract documents, including model files. As PTC progresses towards Digital Delivery, this document will be updated to reflect the most current requirements in line with PTC's goals and objectives for Digital Delivery. PTC's Digital Delivery Program impacts final deliverables and project handover as deliverables move towards smart, paperless, 3D electronic models. The following are goals and objectives:

- Provide a digital representation of the physical and functional characteristics of an infrastructure asset
- Develop an accurate, data rich, virtual 3D representation of existing and proposed elements for construction projects
- Capture asset information and authoritative data for critical infrastructure assets
- Provide collaboration for various stakeholders at different phases of the life cycle of an infrastructure asset
- Reduce design errors with clash detection reports
- Exchange data/information from project information models to other systems

2. PROJECT TEAM ROLES AND RESPONSIBILITIES

The Commission and Consultant project team members are the foundation for a successful project. The following standard roles and responsibilities are detailed as they relate to the PIM process for effective project deliverables.

2.1 PTC ROLES AND RESPONSIBILITIES

The Commission will review all project deliverables in accordance with the Project Information Modeling & CAD Standards. The Commission may provide support, comments, and feedback pertaining to any technology standards content in relation to a project.

2.1.1 PTC PROJECT MANAGER

The PTC Project Manager is the leader for a specific project and oversees all project deliverables. The PTC Project Manager will coordinate with the PTC Design Services Unit for anything pertaining to a project and specific technology standard needs. The PTC Project Manager will also coordinate with the Consultant Project Manager to ensure the standards are implemented on a project. Responsibilities include, but are not limited to, the following:

- Review and approve the Project Execution Plan (PxP) in coordination with the Design Services Unit.
- Review submitted deliverables in relation to the Project Information Modeling & CAD Standards.
- Attend all Technology, CAD, or PIM related meetings including any kickoffs.
- May request additional documentation, files, support in relation to PIM content a part of project deliverables to assist with project reviews.

2.1.2 PTC DESIGN SERVICES UNIT

The Design Services Unit oversees all digital deliverables and requirements related to CADD/PIM. They will support the PTC Project Manager to ensure successful implementation of these standards on all PTC projects. Responsibilities include, but are not limited to, the following:

- Answer and provide clarifications to all consultant teams regarding the Project Information Modeling & CAD Standards
- Setup the project's collaboration and Common Data Environment standards
- If applicable, provide existing conditions and survey files
- Setup project coordinates and location settings
- Provide developed Standard files and the PxP Template
- Facilitate and lead a PIM Kickoff meeting at the start of major project phases
- Provide targeted end user training on PTC specific workflows
- Execute Standards Compliance Checker for all submitted Engineering Technology files.
- Approve and signoff PIM deliverables at major submission including but not limited to:
  - PxP
  - Design/Construction Intent PIM's
  - Coordination process
  - Drawing production methods
- Complete Quality Control reviews
- Host and/or attend any PIM related meetings on an as-needed basis
- Host a closeout kickoff meeting to review final deliverables and turnover

2.2 CONSULTANT ROLES AND RESPONSIBILITIES

The general roles and responsibilities of the Consultant Team are as follows. Note that PTC does not require specific titles to be filled if the team completes their technology responsibilities.

2.2.1 CONSULTANT PROJECT MANAGER

The Consultant Project Manager and their team will be responsible for leading the Engineering Technology efforts under the direction of PTC's Design Services Unit. In addition to the responsibilities under the "Consultant Project Team", the Project Manager has the following extra responsibilities:

- Understand and achieve PTC's Engineering Technology goals and requirements.
- Collaboratively fill out and lead the Project Execution Planning (PxP).
- Conduct Engineering Technology Kick-off meetings.
- Lead and facilitate Engineering Technology coordination meetings.
- Develop a 3D coordination schedule that complies with the project schedule.
- Lead and facilitate the 3D coordination.
- Review and approve the Engineering Technology deliverables submitted by the Consultant Project Team.
- Identify, lead, and implement a QA/QC plan in compliance with this document.
- Effectively communicate with the Commission on status of all project content in relation to the Project Information Modeling & CAD Standards.

See section 3 Deliverables and Requirements for more information on individual requirements.

The Consultant Project Manager will furnish an individual or team to be the spokesperson for the Engineering Technology Requirements. It is recommended that the Consultant Project Manager, or a lead part of the Consultant Project Manager's team, has a minimum of 5 years of relevant CAD/PIM experience, demonstratable competency with approved design authoring software, and experience leading the 3D coordination effort using software to identify clash detections.

2.2.2 CONSULTANT PROJECT TEAM

All other project team members not included in the list above, but with Engineering Technology and other information deliverables will provide the following functions:

- Manage the daily Engineering Technology project activities, modeling staff, and other requirements for their project scope and discipline.
- Deliver the level of development and information requirements, in accordance with the LOD Matrix, the Asset Information Requirements, approved PxP, industry norms, and all other contract requirements.
- Ensure the release of Engineering Technology deliverables in accordance with the approved schedule.
- Monitor and report issues or internal coordination conflicts within their work and others on the Project Team.
- Prepare and share their project models for coordination and collaboration in accordance with the publish schedule in the PxP.
- Routinely perform Quality Assurance and maintenance on their own models, especially around major submissions and publish schedule.
- Attend Engineering Technology Coordination meetings as required to review and address deliverable issues.
- Attend project coordination/3D coordination meetings as required to review and address project conflicts and coordinate the design/construction models.
- Prepare all Engineering Technology deliverables in accordance with the closeout procedures.

It is recommended that the individual or team responsible for providing these functions has a minimum of 3 years of relevant CAD/PIM experience, demonstratable competency with the approved design authoring software, and experience participating on teams performing 3D coordination with Navisworks or similar software.

3. DELIVERABLES AND REQUIREMENTS

3.1 DIGITAL DELIVERY INITIATION

All projects are required to participate in the digital delivery initiation process for each project. This consists of holding Engineering Technology Kickoff meetings and documenting the results in multiple documents. These documents include:

- Project Execution Plan (PxP)
- Level of Development (LOD) scope matrix
- Custom Engineering Technology process and workflow diagrams (part of PxP)
- Design / Construction intent model breakdown and deliverable schedule

3.2 PROJECT INFORMATION MODEL (PIM)

Project information modeling (PIM) is the act of virtually modeling the 1:1 equivalent of a built asset. PIM is ISO standards terminology for project information models, which align with the vertical industries current BIMs (building information models) that when combined with a robust Asset Information Model (AIM) represents BIM (building information modeling) as defined by FHWA and ISO 19650 or CIM (civil integrated management). The requirements and deliverables for the consultants are broken into two sections, Design Intent and Construction Intent. See sections below for requirements and deliverables.

3.2.1 DESIGN INTENT

3.2.1.1 USE

All planning and design teams will create intelligent Project Information Models, depending on the scope, to convey design intent. The following requirements apply:

- All models will be produced using approved design authoring software and version listed in section 4.1 Approved CAD and BIM software.
- For typical model Level of Development and responsibilities, reference the LOD Matrix. Subject to change during project execution planning (PxP).
- All elements will be accurately modeled in terms of quantities, size, and location depending on their required LOD.
  - See section 5.4 Level of Development (LOD) Definitions

3.2.1.2 DELIVERABLE

At predetermined sharing schedules, major submissions, and project closeout, the final deliverable of Design Intent Model will be a PIM at the correct LOD, with the correct content, coordinated, and in the version indicated in the project's PxP.

3.2.1.3 FEDERATED MODEL

During design, the Consultant Project Management Team will create and maintain a federated model of all Design Intent PIMs. The federated model is a master model file referencing all modeled elements appropriately. This model will be kept up to date during construction with any changes to the Record Models. The strategy how consultants plan to create and manage this will be described in the project's PxP.

3.2.1.4 RECORD MODELS

Under development….

3.2.2 CONSTRUCTION INTENT

3.2.2.1 USE

Under development….

3.2.2.2 DELIVERABLE

Under development….

3.2.2.3 AS-BUILTS

Under development….

3.3 2D GRAPHICAL DRAWING PRODUCTION

3.3.1 CONSTRUCTION/CONTRACT DOCUMENTS

3.3.1.1 USE

During design, all appointed parties will produce their construction/contract documents utilizing the Design Intent PIMs. This includes all phases, packages, and submissions of design with a drawing set as a deliverable.

All construction documentation must be derived from the PIMs unless agreed upon by PTC Project Manager or Design Services Unit. Deviations where 2D information derived from the PIMs would be acceptable are for diagraming, details larger than 1”=1’ – 0”, and elements with an LOD of 100.

3.3.1.2 DELIVERABLE

Outputs will be a complete drawing set in accordance with section 7 Drawing Production.

3.3.1.3 RECORD DRAWINGS

Under development….

3.3.2 CONSTRUCTION SHOP DRAWINGS

Review and acceptance by the Commission as specified, stated, or indicated in the contract will be made on the basis of limited, general inspections. It is understood that, because of such limited reviews, ultimate responsibility for the satisfactory completion of the project, including sufficiency, correctness, and accuracy of all working or shop drawings rests solely with the Contractor.

Notwithstanding review and/or acceptance, save and hold harmless the Commission from the consequences of all defective work as well as all defects, errors and omissions in the working or shop drawings and plans of every other kind prepared by the Contractor.

For specific requirements on shop drawings, refer to section 7.5 Working and Shop Drawings.

3.3.3 AS-BUILT DRAWINGS

Upon completion of the project, the As-Built Drawings become the property of the Commission. For specific requirements on As-Built drawings, refer to section 7.6 As-Built Drawings.

3.4 2D NON-GRAPHICAL INFORMATION

3.4.1 GIS REQUIREMENTS

Under development….

3.4.2 ASSET INFORMATION REQUIREMENT (AIR)

Under development….

3.5 VIRTUAL DESIGN AND CONSTRUCTION

3.5.1 DESIGN PHASE - CLASH AVOIDANCE

3.5.1.1 USE

During the design phase, the Consultant Project Manager will use the Design Intent PIMs and the Federated Model to perform 3D Coordination. The purpose is to identify, coordinate, and resolve major conflicts and constructability issues during the Design Phase. The rest of the Consultant Project Team will participate in the 3D Coordination process as required. The coordination schedule and strategy will be documented in the PxP.

3.5.1.2 DELIVERABLE

The following are typical deliverables expected from the Virtual Coordination PIM Use. Exact deliverables may vary based on the approved PxP.

1. The Consultant Project Manager will document the coordination process in the PxP. Processes will include but not limited to:
   a. Coordination meeting schedule and cadence
   b. Manage the submission, export and appending of design PIMs into a federated model suitable for coordination. (See section 3.2.1.3 Federated Model.)
   c. Review the Federated Model for issues and produce and distribute clash reports prior to Coordination meeting
   d. Facilitate and run coordination meetings
   e. Submit coordination meeting minutes
   f. Track clash resolution status and trends
   g. Coordination signoff
2. The Consultant Project Manager will create and maintain the schedule of coordination events, at the agreed upon frequency and submissions.
3. Design Consultant Teams will be expected to participate in multi-disciplinary coordination meetings and track coordination issues within their own work.
4. The Design Phase coordination cycle for an area of work will repeat itself until one of the following conditions are met:
   a. All clashes and issues are resolved
   b. The Consultant Project Manager or PTC Project Manager has signed off on all outstanding clashes and issues.

3.5.2 CONSTRUCTION PHASE – CLASH DETECTION

3.5.2.1 USE

The Construction team will use the Design Intent PIMs and the Federated Model to construct the site. If significant design changes occur or further model coordination is necessary during construction, then an updated PIM and Federated Model reflecting the changes are required to perform 3D Coordination. The purpose is to identify, coordinate, and resolve major conflicts and constructability issues. 3D coordination and deliverables are required whenever there is an update to the PIM, which is dependent on field and/or design changes. The PTC Project Manager or PTC Construction Manager may also request 3D coordination and clash detection reports based on field/design changes. The coordination strategy will be documented in the PxP.

3.5.2.2 DELIVERABLE

The following are typical deliverables expected from the Virtual Coordination PIM Use. Exact deliverables may vary based on the approved PxP.

1. A BIM facilitator, identified by PTC prior to construction or via the Contractor, will document the coordination process in the PxP. Processes will include but not limited to:
   a. Coordination meeting schedule and cadence
   b. Manage the submission, export and appending of the updated PIMs reflecting field/design changes into a federated model suitable for coordination. (See section 3.2.1.3 Federated Model.)
   c. Review the Federated Model for issues and produce and distribute clash reports prior to Coordination meeting
   d. Facilitate and run coordination meetings
   e. Submit coordination meeting minutes
   f. Track clash resolution status and trends
   g. Coordination signoff
2. The Contractor will create and maintain the schedule of coordination events, at the agreed upon frequency and submissions.
3. The construction coordination cycle for an area of work will repeat itself until one of the following conditions are met:
   a. All clashes and issues are resolved
   b. The PTC Project Manager or PTC Construction Manager has signed off on all outstanding clashes and issues.

3.6 DELIVERABLE SCHEDULE AND SUBMISSIONS

Each project's deliverable schedule and submissions are specified in the PxP. This section outlines the typical submissions for a project, which may vary depending on what is dictated by the PxP.

3.6.1 DELIVERABLE STANDARDS

Consultants will submit their entire folder structure directly to PTC. All electronic submittals will include all model files in DWG, DGN, or RVT format in conformance with the version in use by the Pennsylvania Turnpike Commission during the design phase. The electronic submission will be virus free and contain no broken links with references. All model files will be properly geolocated. Reference section 14.1 Design Submittal Process for more information.

Consultants are required to submit model files accompanied with PDF format files electronically to PTC every time a project reaches a submission in accordance with section 7 Drawing Production.

3.6.2 SUBMISSIONS

The following section briefly describes each submission. Submission phases will be determined by PTC as they are dependent on the scope, size, and complexity of the project. All modeled content must follow the design requirements specified by the LOD matrix for each submission corresponding with the submittal phase. The phases listed below give a brief overview of the anticipated deliverables and the expectation for the PIM with respect to each Digital Delivery submission phase. For deliverables that do not include model files or PDF plan sets, refer to PTC's Design Operation Manual (DOM) for further information. For further details on PDF plan set submittals, refer to section 7.1.3 PDF Plan Sets.

3.6.2.1 DESIGN FIELD VIEW (DFV)

Design Field View (DFV) occurs at approximately 30% design submission and deliverables are expected to have the conceptual design of the project. DFV includes a detailed report, plans, and cost estimate, along with all other supporting documents from preliminary engineering. All model files must be submitted at Design Field View (30% design) before proceeding with 60%-Over the Shoulder (OTS) Review. If comparing alternative designs, then PIMs are not necessary for submittal until a design has been finalized. If included a part of the preliminary design, intelligent

alignment and profile models must be submitted with this submission at a minimum. All existing topography and survey drawings must be finalized and submitted a part of the DFV.

3.6.2.2 60% OVER THE SHOULDER (OTS) REVIEW

60% Over the Shoulder (OTS) Review occurs at approximately 60% design completion and includes steps to further develop the chosen design concept. Roll plots, important cross sections and any details that are completed must be included in this review in addition to reviewing the current status of the PIM. All model files must be submitted at 60% OTS to ensure standards compliance see section 12.3 Quality Control for further details.

3.6.2.3 75% SUBMISSION

75% Submission addresses all comments from the 60% OTS Review and furthering design to 75% completion. This submission provides an update on the progress of final design. This submission includes, plans, specifications, and a construction cost estimate, along with all other supporting document from final design. All model files must be submitted to PTC along with the current PDF plan set.

3.6.2.4 PRE-FINAL PS&E SUBMISSION

Pre-Final PS&E Submission consists of fully completed plans, specifications, and construction cost estimate, along with all other supporting documents from final design. All comments from the 75% Submission will be addressed for Pre-Final PS&E.

3.6.2.5 FINAL PS&E SUBMISSION

The final design effort includes finalization of contract documents that will be used for construction. This submission will be submitted electronically as if it were for advertisement. This is the final review where all previous comments from the Pre-Final PS&E submission are addressed. PTC will conclude with one final review and provide any remaining comments that needs to be addressed before advertisement. All contract documents and model files are required to be at 100% design and completion. A standards compliance check is required a part of final review, see section 12.3 Quality Control for further information.

3.6.2.6 ADVERTISEMENT

Upon completion of the 100% design review, consultants will update any remaining comments and create the final signed set for advertisement.

The next two sections describe how to make any necessary updates to the Advertisement Plan sets dependent upon addendums.

3.6.2.7 ADDENDUM

The addendum set contains drawings or models that have been modified after the original “As Advertised Signed Set” was signed and issued. Not all addenda files contain drawings; some may only contain specifications. The addendum submissions do not contain the entire set of model files, only the addenda files.

For making any revisions to models and drawing files, utilize the revision procedures detailed in section 7.4 Drawing Revisions.

3.6.2.8 AS-BID

The As-Bid set is the bid and awarded set of drawings which incorporates all the addenda that have been issued. This is a complete set of files that includes all PDF and model file updates.

3.6.2.9 POST AWARD CONTRACT CHANGES

The Post Award Contract Changes contain drawings and models that have been modified or new drawings/models that have been issued after the contract was awarded.

For making any revisions to drawing files, utilize the revision procedures detailed in section 7.4 Drawing Revisions. At this submission, any requirements to update model files will be dictated by the PxP.

3.6.3 DELIVERABLE FILE TYPE

Table 3-1 Digital Delivery Initiation Deliverables

Deliverable	File Type	Cadence/Schedule	Responsible
PxP Template	Word Doc	Available upon award	PTC
PxP	Word Doc + PDF	First draft due 30 days after notice to proceed	Consultant Project Manager
Engineering Technology Kickoff Meeting	Meeting – As frequently as needed	Dictated in PxP	Consultant Project Manager
LOD Matrix	PDF	Issued upon award	PTC

Table 3-2 Project Information Model Authoring

Deliverable	File Type	Cadence/Schedule	Responsible
Design Intent Models	Civil 3D (.dwg) OpenRoads (.dgn) Revit (.rvt)	Major submissions and regular collaboration schedule as dictated in the PxP	Consultant Project Manager, Consultant Project Team
Federated Model	Civil 3D (.dwg) OpenRoads (.dgn) Revit (.rvt) Navisworks (.nwd)	Major submissions and per the 3D coordination schedule/strategy as dictated in the PxP	Consultant Project Manager
Record Models	Civil 3D (.dwg) OpenRoads (.dgn) Revit (.rvt) Industry Foundation Class (.ifc)	Provided as project turnover or closeout, dictated in the PxP	Consultant Project Manager, Consultant Project Team

Table 3-3 2D Documentation (Drawing Sets) / Contract Documents Deliverables

Deliverable	File Type	Cadence/Schedule	Responsible
Drawing/Building Construction Documents	PDF	Dictated in the PxP	Dictated in the PxP
Specifications	PDF	Dictated in the PxP	Dictated in the PxP

Table 3-4 3D Coordination Deliverables

Deliverable	File Type	Cadence/Schedule	Responsible
Discipline Specific 3D Coordination Model	Navisworks (.nwc) Civil 3D (.dwg) OpenRoads (.dgn)	Dictated in the PxP	Dictated in the PxP
Coordination/Clash Reports	PDF	Dictated in the PxP	Consultant Project Manager (design phase) Dictated in PxP (construction phase)

Table 3-5 QAQC Deliverables

Deliverable	File Type	Cadence/Schedule	Responsible
Technology Standards Review Report	PDF	Dictated in the PxP	PTC Design Service Unit

4. TECHNOLOGY STANDARDS

The technology standards will outline all software, collaboration applications, and tools approved for use by PTC. Any additional software applications will be reviewed and approved by PTC.

4.1 APPROVED CAD AND BIM SOFTWARE

All approved PIM software and tools are listed below. Any additional or proposed software to be used by the consultants will be reviewed and approved by PTC. See section 4.1.1 Version Control and Upgrades for more information.

Table 4-1 Approved CAD BIM Software

Software	Description of Use	Version
AutoCAD	Design Intent Models, Drawing production	2021
Civil 3D	Design Intent Models, Drawing Production	2021
OpenRoads Designer	Design Intent Models, Drawing Production	10.10.01.03 (2021 R1)
Autodesk Revit	Design Intent Models, Drawing Production	2021
Autodesk Infraworks	Design Intent Models, Design Reviews, Visualization	2021
Autodesk Inventor	Design Intent Models	2021
Navisworks	Federation Models, 3D Coordination, 4D Simulation	2021+

4.1.1 VERSION CONTROL AND UPGRADES

All projects will be on the same version of the approved software and only PTC can authorize upgrades or deviations. It is the Consultant Project Manager's responsibility, at the completion of a project phase, to review the PTC's Project Information Modeling & CAD Standards for latest updates on supported versions by PTC. If a version of software has been updated, then the Consultant Project Manager will discuss with PTC's Design Services Unit about any necessary software/project updates.

If a project requires a different version that deviates from the standards listed, consultants will submit a request for PTC approval of any software upgrades or changes. If approved, any software versions need to be agreed upon by all project stakeholders and noted in the PxP.

4.2 SUPPORT FILES

PTC support files include all standards and custom content as described by this document. The support files are intended to be used at the beginning of a project to ensure all modeled content is adhering to the standards.

For Roadway and Horizontal Construction, support files were created for the software listed below. Refer to the appendices listed below for installation procedures:

- Civil 3D Appendix 0 PTC Standard Civil 3D Configuration

- All Consultants shall utilize the PTC Standards configuration. Before the start of project work, the consultant must execute the provided PTC_CIVIL3D_2021_Standards_Setup_v1.1.exe file on their workstations. This will generate a series of support folders located in "C:\Users\Public\Documents\". Contained within the folders is everything needed to create a Civil 3D drawing to PTC Standards. A Desktop Shortcut will be generated that will automatically utilize a PTC Civil 3D Profile that will point to the support folders generated by the .exe file enabling use of the required template, survey database files, linetypes, blocks, tool palettes, plotter configurations, plot styles, and pipes catalog. The profile will be pre-set, so no further setup is required in Civil 3D upon opening the program via the Desktop Shortcut. **Please note that this requires Civil 3D version 2021 to be installed first.**

Figure 15-3 Desktop Shortcut

- Civil 3D Resource Files
- OpenRoads Designer Appendix 15.2.3 OpenRoads Designer Resource Files

For Facilities and Vertical Construction, Revit Templates were created for the following:

- Revit General
- Revit Architecture
- Revit Structural
- Revit MEP

5. MODELING STANDARDS

5.1 EXISTING CONDITIONS MODELS

PTC will supply existing condition information or models of all project sites. The exact information provided, format, and other considerations will be documented in the PxP. If applicable, the Consultant Project Manager may be required to obtain updated survey information. All data collection methods must follow section 13 Survey Data Collection.

An existing conditions model must be created for all sites and saved under the Base Data folder within the project directory structure specified in section 0 The Commission has a standard folder structure for the organization of projects to be used internally and externally by outside consultants. The central goals of this structure are to improve coordination between groups and to facilitate the use of electronic information beyond the initial contract.

Data being transferred to the Pennsylvania Turnpike Commission should be organized in accordance with the standard folder structure described in section 0. It is each consultant's responsibility to organize data such that no model links or references are lost or broken. It is imperative for outside consultants to organize files on their server in accordance with the PTC folder structure so that reference model links are maintained between files when the project files are uploaded to the Commission's Common Data Environment storage location.

Folder Structure.

5.2 UNITS AND COORDINATES

5.2.1 COORDINATE SYSTEM

For horizontal and vertical datums and coordinate systems, refer to sections 13.2.1 Horizontal Datum and 13.2.2 Vertical Datum.

5.2.2 UNITS

5.2.2.1 ROADWAY AND HORIZONTAL UNITS

For horizontal projects, all units in model files will be set to U.S. Survey Feet per the coordinate system specified in section. The following unit formats will be used for common project properties:

Table 5-1 Common Horizontal Project Units

Common Project Units			
Property	**Unit**	**Format**	**Rounding**
Length	Foot	123.56’	2 decimal places
Area	Square Foot	1235 SF	2 decimal places
Elevation	Foot	95.80’	2 decimal places
Volume	Cubic Yard	1234.57 CY	2 decimal places
Angle	Degree	12.3567 °	4 decimal places
Stationing	Foot	275+56.75	2 decimal places
Grid Coordinate	Foot (Northing, Easting, etc.)	N 75˚98’ 43”	6 decimal places
Grade/Slope	Percent	4.50%	2 decimal places
Currency	US Dollar	$1234.57	2 decimal places
Speed	Mile/Hour	60 MPH	0 decimal places

5.2.2.2 VERTICAL STRUCTURES AND FACILITIES UNITS

For vertical structures and facilities, the following units and formats will be used.

Table 5-2 Common Vertical Project Units

Common Project Units			
Property	**Unit**	**Format**	**Rounding**
Length	Foot - Inch	1’ – 5 1/16”	Nearest 1/16”
Area	Square Foot	1235 SF	2 decimal places
Volume	Cubic Foot	1234.57 CF	0 decimal places
Angle	Degree	12.35 °	2 decimal places
Slope	Inch/Inch	17 ½” / 12”	Nearest 1/2"

Currency	US Dollar	$1234.57	2 decimal places
Mass Density	Pound/Cubic Foot	1234.57 lb/ft³	2 decimal places

5.3 DATUM STANDARDS

5.3.1 GRIDS

All structural grid lines will run through the center of the structural element unless otherwise noted. Grids will be numbered according to the numbering conventions in section 8.5.1 Datum Naming / Numbering.

5.3.2 LEVELS

Every major building or structural story requires a Level. All project levels are to be documented in each project's PxP. Levels will be named according to the naming conventions in section 8.5.1 Datum Naming / Numbering.

Level standards are as follows:

- Levels are dimensioned to the top of structural slab, not finish floors, unless otherwise noted.
- New levels will not be created when there is a step in the slab. Elevation change markers will be used in floor plans to denote these elevation changes.

5.4 LEVEL OF DEVELOPMENT (LOD) DEFINITIONS

The Level of Development (LOD) definitions for PTC are derived from the BIM Forum's "Level of Development Specification Part 1" with additional custom PTC specific elements that are relevant to PTC projects. The following LOD definitions are an excerpt from the BIM Forum's document. The LOD matrix identifies the minimum LOD requirement for a specific object throughout PTC's various submission phases. See PTC's LOD Matrix for a full report.

5.4.1 LOD 100

LOD 100 elements are not geometric representations. Examples are information attached to other model elements or symbols showing the existence of a component but not its shape, size, or precise location. Any information derived from LOD 100 elements will be considered approximate.

5.4.2 LOD 200

LOD 200 elements are generic placeholders. They may be recognized as the components they represent, or they may be volumes for space reservation. Any information derived from LOD 200 elements will be considered approximate.

5.4.3 LOD 300

LOD 300 elements contain the quantity, size, locations, and orientation of the element as designed and can be measured directly from the model without referring to non-modeled information such as notes or dimension callouts. The project origin is defined, and the element is located accurately with respect to the project origin.

5.4.4 LOD 350

LOD 350 elements contain parts necessary for coordination of elements with nearby or attached elements modeled. These parts will include such items as supports and connections. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension callouts.

5.4.5 LOD 400

LOD 400 elements are modeled at sufficient detail and accuracy for fabrication of the represented component. The quantity, size, shape, location, and orientation of the element as designed can be measured directly from the model without referring to non-modeled information such as notes or dimension callouts.

5.4.6 LOD 500

LOD 500 relates to field verification and is not an indication of progression to a higher level of model element geometry or non-graphic information, this specification does not define or illustrate it.

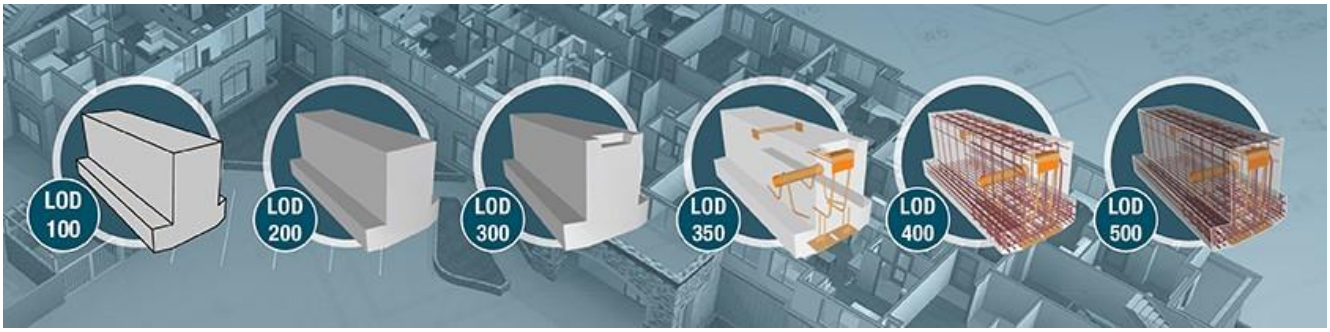


Figure 5-1 LOD Diagram

5.5 SPACE/PARCEL MANAGEMENT

Under development….

5.6 PROJECT INFORMATION MODELS (PIM)

5.6.1 DESIGN INTENT

All design intent models will adhere to the following standards:

- Project Models must be named according to the PTC file naming conventions. See section 8.2.1 Project Information Model File Naming.
- Project Models must be broken down logically for each project and documented in the PxP.
- Project Models are not to exceed 1GB in size. If model size increases to over 1GB, the model is to be broken down by different systems, coordinates, or levels. This will be documented in the PxP.
- Project Models must be created using the authorized software and version specified in section 4.1 Approved CAD and BIM software.
- Project Models must adhere to LOD requirements documented in the PxP and LOD Matrix.
- Project Models must maintain the same coordinate system.

5.6.1.1 FEDERATED DESIGN INTENT MODEL

The Design team will maintain a federated model for coordination purposes and will contain all project models as links or imports.

All federated design intent models will adhere to the following standards:

- Models must be named according to the PTC file naming conventions. See section 8.1 General Naming Codes.
- Federated Models and any files linked/imported will be created using the authorized software and version in section 4.1 Approved CAD and BIM software.
- Files linked/imported into the Federated model will use the same coordinate system.

- The federated model will be kept up to date throughout the entire delivery phase of the project and in accordance with the project schedule in the PxP.

5.6.1.2 MODEL REVISIONS

If revisions are required to any 3D model content during the advertisement period, it is the Consultant's responsibilities to update the models appropriately. The construction awarded contract must have the most up to date project information models. The updated models must be saved as a new version and resubmitted a part of the addenda files with updated dates and time stamps associated with the file. Additionally, a memo must be included that identifies what model files were updated and logs a description of all changes. All changes must be captured appropriately within the contract documents, see section 7.4.4 Model and Electronic File Revisions7.4 for further details.

Any updates to model files during construction must be updated following similar processes by the responsible party.

Any updates to individual model files that are included within the federated model, require an official update to the federated model. For revisions to drawing sheets, refer to section 7.4 Drawing Revisions.

5.6.1.3 RECORD MODEL

Under development….

5.6.1.4 AS-BUILT MODELING STANDARDS

Under development….

5.6.2 MODELING TOLERANCES

Modeled geometry will be accurately and correctly sized to the highest precision the modeling software allows. For drawing and dimension precision, see section 6.2 Dimension and Precision.

5.6.3 MODELING EXCLUSIONS

Any Modeling Exclusions outlined in the PxP supersedes this section. There is no requirement to model the following objects:

Table 5-3 Model Exclusions

Discipline	Objects
Structural	Rebar
Piping	Under 2" not to be modeled
Fire Protection	Hangers
HVAC	Hangers
Electronics	Hangers
Electrical	Hangers Wires
Plumbing	Hangers

5.7 ASSET INFORMATION MODELS (AIM)

Under development….

5.8 CIVIL 3D / OPENROADS MODELING STANDARDS

The following standards are applicable only to Civil 3D and OpenRoads applications intended for horizontal design.

5.8.1 GENERAL

5.8.1.1 MODELED OBJECTS

The following object types will be 3D intelligent elements, as indicated in the LOD Matrix, and not 2D linework:

5.8.1.1.1 SURFACES / TERRAINS

Topography is described as either a surface in C3D or terrain in ORD. Surfaces/Terrains are TIN surfaces, displayed with a style/feature definition that reads the surface data and depicts the elevations dynamically. Contours lines are not drawn manually. Labels will be dynamically linked to the surface/terrain. For all proposed road work, users will create a TIN surface for the top surface of roadway, including curb, medians and sidewalks, as well as the Datum surface (the underside of the proposed roadway).

5.8.1.1.2 ALIGNMENTS AND PROFILES

Alignments and profiles representing horizontal and vertical surveyed and proposed construction elements will be 3D model objects. Stationing and labeling will be dynamically linked to the objects they are labeling.

5.8.1.1.3 UNDERGROUND PIPES AND STRUCTURES

For all proposed work, underground pipes will be created as connected pipe networks, even if depicted as a single line style in plan view. Any existing underground pipes that cross the path of the proposed work will also be represented with pipe networks. Structure and pipe labels will be dynamically linked, reading the invert, station, offset, Northing and Easting, and naming information, etc. directly from the modeled content. For C3D, pipe networks will be created using the 'PTC Pipes Catalog', and for ORD, pipe networks will be created via the Drainage and Utilities workflow tools.

5.8.1.1.4 CORRIDORS

Corridors will be constructed from corridor model objects, assemblies (C3D) or template drops (ORD), dynamically from the horizontal (alignment) and vertical (profile) baseline. Corridor objects will be used for all design roadways. It is recommended that corridors be split into a maximum of two miles per drawing. Corridors will be projected dynamically into the cross-section views and all cross sections will be created in their own drawing.

Corridor drawings must be generated using the provided PTC Standard Content. For Civil 3D, refer to section 5.8.3.8 Assemblies and for ORD, refer to section 5.8.4.7 Template Drops.

5.8.1.2 MODEL BREAKDOWN STRATEGY

The following standards will be used for breaking down the PIMs into smaller files.

5.8.1.2.1 SEPARATING ELEMENTS

For data management purposes, it is necessary to separate the different types of elements into their own DWG/DGN file. This includes:

- Alignments
- Corridors

- Cross Sections
- Pipe Networks
- Plan-Profile Sheets
- Profiles (C3D Only)
- Surfaces/Terrain
- Survey
- Utilities

Depending on project scale, smaller projects permit multiple element types to reside in the same model file. This must be documented in the PxP and approved by the PTC's Design Services Unit.

5.8.2 CROSS SECTIONS

Cross Sections must be generated at a minimum of 50 ft intervals, and at 25 ft intervals in areas of development and where the existing ground is non-uniform. For areas consisting of complex geometry, such as intersections and superelevated curves, cross sections can be created at intervals lower than 25 feet. Cross Sections must be generated at the beginning and end of superelevation transitions and full superelevation. They must be denoted as such on the plans.

Due to the limitations with 3D models, cross sections will no longer have projections of 2D drainage facilities at various stations. Cross Sections must be created at the exact stationing of the drainage facility and included within the cross-section sheets. These include inlets, endwalls, manholes, pipes, catch basins, etc. If there are skewed pipe runs that do not display appropriately within the cross-section sheets, then pipe profiles must be prepared to show the drainage/utility information. It is up to the Consultant Project Manager's best engineering judgement for how to effectively display drainage information on either cross section or separate pipe profile runs.

5.8.3 CIVIL 3D MODELING

The following information is specific to the standards developed for Autodesk Civil 3D Software and its use for modeling.

5.8.3.1 PROJECT SET UP

Project set up must follow the folder structure outlined in section 10.2 Project Organization and naming conventions specified in section 8 Naming Conventions. For C3D workflow on setting up a project to comply with these standards, see Appendix 15.3 Project Set Up Workflow.

5.8.3.2 PTC C3D TEMPLATES

PTC has provided Civil 3D templates which contain the styles and settings to be used in Civil 3D drawings. These include the units (including precisions), coordinate system, layers, Civil 3D settings (object layer assignments, command specific settings), and styles. Plan-production Civil 3D templates for plan, profile, plan and profile, and section sheets, including the associated Title block with attribute data to be filled in via Sheet Set Manager. All Civil 3D drawings are required to be created from the provided Civil 3D Template (DWT). Creating a drawing from a generic AutoCAD or Civil 3D file is forbidden as the file will contain only the "Standard" styles, and all object layers will be set to layer 0.

5.8.3.3 GENERAL CIVIL 3D SETTINGS AND STYLE CONTROLS

The Civil 3D templates for PTC contain the settings and content required to standardize the dynamic design and annotation features of Civil 3D software.

In general, Civil 3D style properties are controlled by the assigned layer including plot style, color, and line type. The standard text styles used for existing and proposed styles are E-PTC-0.12 and PTC-0.12 respectively. The full list of Civil 3D styles along with descriptions and layer controls is shown in Appendix 15.9 Civil 3D Styles, and includes the following styles:

- Appurtenance and Appurtenance Label Styles

- Alignment and Alignment Label Styles
- Cant View Styles
- Catchment and Catchment Label Styles
- Corridor Styles
- Intersection Style
- Fitting and Fitting Label Styles
- General Marker, Feature Line, and Code Set Styles
- General Note, Line, Curve and Marker Label Styles
- Grading Object Styles
- Grading Object Criteria Sets
- Gravity Pipe Network and Gravity Pipe Network Label Styles
- Parcel and Parcel Label Styles
- Pressure Pipe Network and Pressure Pipe Network Label Styles
- Profile and Profile Label Styles
- Profile View, Profile View Label and Profile Band Styles
- Sample Line and Sample Line Label Styles
- Section and Section Label Styles
- Section View, Section View Label, Section View Sheet and Section View Band Styles
- Superelevation View Styles
- Surface and Surface Label Styles

5.8.3.4 REFERENCE FILES

5.8.3.4.1 DATA SHORTCUTS

Data shortcuts will be created within each project's designated shortcuts folder, assigned automatically by setting the working folder. It is necessary to create data shortcuts when referencing C3D objects into other drawing files.

5.8.3.4.2 EXTERNAL REFERENCES

Files that are "attached" using AutoCAD and Civil 3D's XREF command will always use the coordinate 0,0,0 as the insertion point and a zero-rotation angle. All externally referenced files are inserted at a uniform scale.

All external reference drawings are attached as "Overlay". The path type will be set to "Relative Path" for both external reference drawings and external reference images. Note: any data transferred to PTC will have no broken links between drawings and reference files.

5.8.3.5 OBJECT LAYERS

Within the provided Civil 3D templates for PTC, Civil 3D objects will be created on the layers shown below.

Table 5-4 Civil 3D Object Layers

Object	Layer		Object	Layer
Alignment	C-ALGN		Pipe-Labeling	C-STRM-TEXT
Alignment-Labeling	C-ALGN-TEXT		Pipe and Structure Table	C-STRM-TEXT
Alignment Table	C-ALGN-TEXT		Pipe Network Section	C-STRM-SCTN
Appurtenance	C-WATR-APPT		Pipe or Structure Profile	C-STRM-PROF
Appurtenance-Labeling	C-WATR-TEXT		Point Table	C-ANNO-PNTS
Assembly	C-ROAD-ASSM		Pressure Network Section	C-WATR-SCTN

Building Site	C-BLDG
Cant View	C-RAIL-CANT-VIEW
Catchment	C-HYDR-CTCH
Catchment-Labeling	C-HYDR-CTCH-TEXT
Corridor	C-ROAD-CORR
Corridor Section	C-ROAD-CORR
Feature Line	C-TOPO-FEAT
Fitting	C-WATR-FITT
Fitting-Labeling	C-WATR-TEXT
General Note Label	C-ANNO-NOTE
General Segment Label	C-ANNO-TEXT
Grading	C-TOPO-GRAD
Grading-Labeling	C-TOPO-TEXT
Grid Surface	C-SURF
Grid Surface-Labeling	C-SURF-TEXT
Interference	C-ANNO
Intersection	C-ROAD-INTS
Intersection-Labeling	C-ROAD-INTS-TEXT
Mass Haul Line	C-ROAD-MASS-LINE
Mass Haul View	C-ROAD-MASS-VIEW
Match Line	C-ANNO-MATC
Match Line-Labeling	C-ANNO-MATC-TEXT
Material Section	C-ROAD-SECT-VIEW
Material Table	C-ANNO-TABL
Parcel	C-PROP-PARC-BNDY
Parcel-Labeling	C-PROP-PARC-TEXT

Pressure Part Profile	C-WATR-PROF
Pressure Part Table	C-WATR-TEXT
Pressure Pipe	C-WATR-PIPE
Pressure Pipe-Labeling	C-WATR-TEXT
Profile	C-ROAD-PROF
Profile-Labeling	C-ROAD-PROF-LABL
Profile View	C-PROF
Profile View-Labeling	C-PROF-TEXT
Sample Line	C-ROAD-SAMP
Sample Line-Labeling	C-ROAD-SAMP-TEXT
Section	C-ROAD-SECT
Section-Labeling	C-ROAD-SECT-TEXT
Section View	C-ROAD-SECT-VIEW
Section View-Labeling	C-ROAD-SECT-VIEW-TEXT
Section View Quantity Takeoff Table	C-ANNO-TABL
Sheet	C-ANNO-VFRM
Structure	C-STRM-STRC
Structure-Labeling	C-STRM-TEXT
Subassembly	C-ROAD-ASSM
Superelevation View	C-ANNO-TABL
Surface Legend Table	C-ANNO-TABL
Survey Figure	V-SURV-FIGR
Survey Figure-Labeling	V-SURV-LABL
Survey Figure Segment Label	V-SURV-LABL
Survey Network	V-SURV-NTWK
Tin Surface	C-SURF

Parcel Segment	C-PROP-PARC-LINE		Tin Surface-Labeling	C-SURF-TEXT
Parcel Segment-Labeling	C-PROP-PARC-TEXT-BRNG		View Frame	C-ANNO-VFRM
Parcel Table	C-PROP-PARC-TEXT		View Frame-Labeling	C-ANNO-VFRM-TEXT
Pipe	C-STRM-PIPE			

5.8.3.6 C3D STYLES AND DEFINITIONS

To control the display of Civil 3D objects, a C3D style must be applied from the PTC Standard template files. The display for modeled objects will not be controlled by the layering scheme, but the C3D style.

5.8.3.7 SURVEY & COGO POINT AND LABEL STYLES

The PTC Civil 3D template contains Point Styles for placing Survey and COGO points. The COGO points are placed on layer "V-NODE" and assume the layer properties they are assigned in the "PTC-PEN-SURVEY" Descriptor Key Set. Points are assigned symbols for display purposes, as outlined in Appendix 15.7.1.5 Survey Cogo Symbols. These symbols are utilized for Survey Points and can also be utilized when placing COGO points.

Point label styles can be assigned independently or through the "PTC-PEN-SURVEY" Description Key Set. Several keys in the description key set have their label settings set to "default", which permits any label style be assigned to the point group. The Label Styles annotate various content such as "Point_number/Elevation/Description", "Northing/Easting", "Latitude/Longitude", and other options for specific point needs.

5.8.3.8 ASSEMBLIES

Corridors are to be created utilizing the provided roadway template assemblies and subassemblies. The roadway template tool palette contains pre-set Assemblies that use PTC standard subassemblies with their properties set, including subassembly names, point codes, pavement course depth and material. The roadway templates are a starting point for design, and once placed in the drawing, can be manipulated by removing, replacing, or adding subassemblies and manipulating the assembly and subassembly properties. Within the subassembly properties, there is an associated help file which can be accessed via the parameters tab.

Guide Rail assemblies shall utilize their own baselines, due to their variable nature.

The assemblies and subassemblies do not contain daylighting. All grading from the corridors shall be created via the grading tools by extracting corridor feature lines.

5.8.3.9 GUIDERAIL

The provided assemblies for guiderail are intended to be utilized by creating a baseline apart from the main corridor assembly (either as its own corridor or as an additional baseline to a corridor). The provided assemblies are provided as being on the left or the right side, which will depend on the direction of the baseline itself. It is recommended that grading work be done off the roadway corridor. Additionally, it is recommended that the elevations of the guiderail baseline are generated from the grading surface, either as a featureline or surface profile.

The guiderail subassemblies contain various options, including if the section is curved or tangent. It is important to select the correct options for the guiderail subassemblies within the subassembly properties to ensure that the correct coding and styles gets utilized. Each frequency line of the guiderail corridor will generate a post, while the W-Beam will be extruded from frequency to frequency, generating the overall shape.

When setting the spacing of the posts, it is important to consider that the spacing is fixed as per design, so steps will need to be taken to ensure the spacing is as intended. To control the spacing of the posts perform either of the following options within the Edit Frequency dialogue of corridor properties:

1) Control the spacing of the frequency lines by ensuring that the spacing is assigned to the horizontal baseline and the "at horizontal geometry points" and "at superelevation critical points" are turned off. Turn off all

other options. If there are no vertical curves on the baseline for the guiderail, then this would allow for any value of the "along vertical curves" to be acceptable. However, if there are vertical curves, then assign an increment value longer than the total length of the baseline. Next, manually add the frequency lines at the ends where the spacing becomes more varied.

2) Control the spacing of the frequency lines by creating vertices within the baseline that match the desired spacing by turning on "at horizontal geometry points" along the horizontal baseline, then choosing "No" for all other options. Change all of the increment lengths to something larger than the total length to ensure that no additional posts are generated.

5.8.3.10 BARRIER TRANSITIONS AND END PIECES

To create transitions between 52" single face barriers and their 34" counterparts, PTC has provided a tool palette entitled PTC CORRIDOR TRANSITIONS within the custom PTC Tool Palette. This palette includes barrier to guiderail transitions and abutment/pier to barrier transition pieces. The transitions are multi-view blocks (2D block in plan view and 3D block in model view) that can be placed by selecting the block on the palette and then using the endpoint object snap (in a 3D view) to attach to a coded point within the corridor.

For transitioning between two regions of a barrier:

1. Create a transition region utilizing an assembly that does not contain the object to be transitioned.
2. Place the appropriate barrier transition block in the correct location.
3. Rotate as appropriate.

The blocks are listed in section 15.7.1.6

5.8.3.11 CODE SET STYLES

The following Code Set Styles are to be used for corridor modeling:

- PTC_NO DISPLAY – code set style to turn off the display of the corridor when working with other aspects of the model.
- PTC_ALL CODE – displays all link, point, and shape codes in the corridor model.
- PTC_ALL CODE WITH LABL – displays all link, point, and shape codes with grade labels of the link codes curb, daylight cut/fill, finished grading of pavement, and sidewalk; elevation labels of the point codes for back of curb, daylight, edge of paved shoulder, and edge of travel way; and area label of the shape code subbase.
- PTC_BASC – display basic style for any default code styles for a simplistic view of the corridor.
- PTC_PLAN PRODUCTION – displays feature lines of corridor model used for plan production.
- PTC_VIEW-EDIT – displays code set styles for links, points, and shapes with various labels utilized for viewing and editing the corridor model.
- PTC_VIEW-EDIT WITH SHADE – displays code set style of PTC_VIEW-EDIT with shading of the shape codes.

5.8.4 OPENROADS DESIGNER MODELING

The following information is specific to the standards developed for OpenRoads Designer and its use for modeling.

5.8.4.1 PROJECT SET UP

Project set up must follow the folder structure outlined in section 10.2 Project Organization and naming conventions specified in section 8 Naming Conventions. For ORD workflow on setting up a project to comply with these standards, see Appendix 15.3 Project Set Up Workflow.

5.8.4.2 SEED FILES

All DGN models will start from a seed file provided in the standards. All seed files are in your respective organizations location of the configuration files ending with "\Organization-Civil\PTC CAD Standards\Seed". The PTC Seed files

contain the specifications for the coordinate system, working units, precision, and color table. There are four seed files a part of the standard listed in the table below:

Table 5-5 PTC Seed Files

Seed Files
PTC Seed2D PA83-NF.dgn
PTC Seed2D PA83-SF.dgn
PTC Seed3D PA83-NF.dgn
PTC Seed3D PA83-SF.dgn

The PTC seed file coordinates are default set to "PTC Seed2D PA83-SF.dgn", as specified in section 13.2.1 Horizontal Datum. If a 3D seed file or a different coordinate system is necessary, then the seed file will be changed when creating a new DGN or update the configuration to point to the alternative DGN seed file.

3D seed files are ONLY used for Survey and Terrain models. All other files use the 2D Seed files (including Geometry, Corridor, Superelevation, Cross Sections, etc.). All geometry and elements will be created in the Default 2D model and the OpenRoads software will create and manage the 3D Models from the 2D files.

5.8.4.3 DGN LIBRARIES

Each time the ORD software is launched with the PTC CAD Standards Workspace, it will load all DGN Libraries (DGNLIB) to the DGN file. Libraries are the collection of DGNLIB files that are associated with the ORD project. Table 5-6 PTC Customized DGN Libraries lists all customized DGNLIBs for the PTC CAD Standards.

Note:

- No standards or settings are copied into the design file. They are only copied into the design file once a standard has been used or assigned to an element within that file.
- There are additional DGNLIBs that come with the Bentley software that have not been modified (i.e. design standards).

Table 5-6 PTC Customized DGN Libraries

DGNLIB	Location	Comments
PTC_Features_Annotations_Levels_Elem Temp Imperial.dgnlib	*\Organization-Civil\PTC CAD Standards\Dgnlib\Feature Definitions*	Contains feature definitions, symbology, annotation groups, annotation definitions, element templates, levels and line styles.
PTC_Survey_Settings_Features_Annotations_Elem Temp Imperial.dgnlib	*\Organization-Civil\PTC CAD Standards\Dgnlib\Feature Definitions*	Contains all feature definition, symbology, element templates, etc. pertinent to survey models.
PTC_Text Favorites_Text Styles_Dimension Styles Imperial.dgnlib	*\Organization-Civil\PTC CAD Standards\Dgnlib\Feature Definitions*	Contains text favorites, text styles, and dimension styles
PTC_Custom Linestyles.dgnlib	*\Organization-Civil\PTC CAD Standards\Dgnlib\Line Styles*	Contains all custom line styles

PTC ANSI D - Scale 50 - Sheet Seed.dgnlib*	*\Organization-Civil\PTC CAD Standards\Dgnlib\Sheet Seeds*	Contains all sheet definition files.

**For the complete list of Sheet sizes and scales available, refer to* Appendix 15.13.3 Plan Production Templates*.*

5.8.4.4 EXTERNAL REFERENCES

DGN reference files must be attached as a relative path with 'Coincident – World' selected in the Orientation list box.

A link between a data element in a reference file creates a dependency. When detaching references, the ORD software will inform if there are dependencies between the current file and the reference file.

When referencing files in ORD, self-referencing (i.e., circular referencing) files are forbidden as they create difficulties across various platforms.

5.8.4.5 COLOR TABLE

The provided "PTC_ColorTable.tbl" will be used to depict all levels as defined in Appendix 15.12 Color Mapping Table**.** The color table will set up the DGN file to match AutoCAD's color palette, associating the proper RGB values with designated numbers in OpenRoads. The color table is in your respective network's location of *\Configuration\Organization-Civil\PTC CAD Standards\Color Table*s. The color table will automatically be attached if starting a drawing from the seed files provided in the CAD Resources files.

5.8.4.6 FEATURE DEFINITIONS

Feature definitions must be utilized to control the styles of the modeled elements in ORD. They can be displayed within the Project Explorer under the OpenRoads Standards tab.

All custom PTC feature definitions and symbology are defined by the preface 'PTC_' as the nomenclature. Any feature definition without the 'PTC_' prefix, is part of Bentley's content, where there are only updates to the associated levels. For a complete list of feature definitions refer to Appendix 15.11 OpenRoads Designer Feature Definitions**.**

5.8.4.7 TEMPLATE DROPS

Corridors are to be created utilizing the provided PTC custom template drops and components. The "PTC CUSTOM LIBRARY.itl" library contains pre-set typical template drops that use PTC standard components with their properties set including component names, point codes, pavement course depth and material. The roadway templates are a starting point for your design. The "PTC Custom" folder contains components for most common elements that can be used to build whatever section is needed to complete the design. The "PTC Typical Sections" folder contains several standard sections that can be utilized as-is or customized to meet modeling needs.

If customization of the "Typical Sections" is necessary or creating variations with different values, then it is recommended to create a copy of one that is similar to the design needs, provide a unique name and then alter the properties as needed. If a desired typical section is completely unique from the provided library, then it is recommended to create a new template and then use the custom components provided to complete the new template. Lastly, if unique items are necessary that are not available as a custom component, use the standard software tools to create your component parts, ensuring that after each component is defined, the Point Name List is utilized within the properties to assign standard PTC point names. Also, ensure that the feature definition has been properly set by the point name and if not, then choose the proper feature definition for all points and component shapes.

5.8.4.8 GUIDERAIL

Various methods of creating guiderails have been provided in the PTC OpenRoads Workspace. Template drops for extruded guiderails along a corridor model have been provided for left and right roadside placement so that parallel guiderails can be included in corridors models. These template drops can be found in the "PTC CUSTOM LIBRARY.itl", under "Linear Templates\Guiderails". For 3D cells of guiderails to be included in a Template drop, Feature Definitions have been provided, these Feature Definitions can be found in "Feature Definitions\Linear\Template Points\Guiderail and Barrier".

For non-uniform guiderail layouts, Feature Definitions have been provided and are located in “Feature Definitions\Linear\Guiderail and Barrier”. These Feature Definitions can be utilized by selecting them and setting them as the default definition as you create the layout geometry or can be assigned to an object after it has been placed by selecting the feature and then using the properties pallet to change the feature assignment.

5.8.4.9 DRAINAGE AND UTILITY FEATURES

The current drainage and utility definitions utilize the OpenRoads standards library ‘Drainage and Utilities Features Annotations Imperial.dgnlib’. Updates were made to the levels for each feature definition to match what is in the Appendix 15.10.2 Drainage and Utility Dgnlib. Custom drainage and utility features are under development. Therefore, the creation of additional drainage features is permitted.

5.9 REVIT MODELING STANDARDS

The following modeling standards are applicable vertical construction primarily using Revit.

5.9.1 REVIT MODEL ORGANIZATION

This section will explain the standards for organizing the models and how they are broken down.

5.9.1.1 MODEL BREAKDOWN

Each project or building’s model breakdown is to be documented in the PxP. Depending on the type, size of the project, or team structure, the BIM Manager will decide how to break up the models. Best practices apply when creating model organization and strategy and are subject to approval from the BIM Team.

5.9.1.2 WORKSETS

The standards for Worksets are:

- Levels and Grids are place on their own Workset.
- Each linked file is placed on its own individual Workset to minimize disruption as files are turned on and off.
- Elements are organized by construction / discipline type.
- See section 8.5.3 Workset naming for Workset naming convention.

5.9.1.3 PTC REVIT TEMPLATES

PTC will provide the following 4 templates for the consultant project teams.

Standards Template: includes all general standards, including graphics, and can be used to transfer project stands.

Architecture Template: includes architectural specific standards.

Structure Template: includes structural specific standards.

MEP Template: includes MEP specific standards.

The models are starting points and the consultant project teams are expected to add content as necessary per project. The MEP template contains Revit link placeholders from other disciplines. These placeholders are represented in the view templates but are placed only “as a suggestion” as to the way the visibility graphics for these links should be set. The user has broad discretion as to how the visibility settings for the links are set.

5.9.1.4 VIEW TYPES

The following standards apply for typical view types within Revit. For view naming, see Use view types to quickly apply graphics properties and view templates to new views. A view type defines some graphics properties and will be used to specify a view template to apply to a new view. See section 8.5.7 View Naming.

5.9.1.4.1 LIVE VIEWS: PLAN, ELEVATION, SECTION, CALLOUT, AND 3D VIEWS

Live Views are created from horizontal or vertical cuts of the model and change as the model changes. All drawings courser than scales 1/4"=1'-0" will be created from a live view. Any drawings or details referencing elements in the model will be created using a live view. The only exception is for detail views at scales finer than ½"=1'-0" which can be created in a drafting view.

5.9.1.4.2 DRAFTING VIEWS

Drafting Views are used to create unassociated, view-specific details that are not part of the model design such as typical details. Drafting views are used for a detail condition where the model is not needed.

5.9.1.4.3 SCHEDULES

Schedules will be generated from within Revit, linking a schedule from AutoCAD/Equivalent is not acceptable. Schedule will be generated from elements placed within the model and generated from parameters hosted within the families. Please refer to section 8.5.6 Parameter Naming for more information.

5.9.1.4.4 LEGENDS

Legends will be used to for representing building elements, annotations, or symbols on the sheet. Any symbol used in a drawing will be referenced and defined in an appropriate legend issued with the set. A Legend is a View type that can be placed on multiple sheets.

5.9.1.5 VIEW TEMPLATES

Within the PTC Revit Template, all new views created from existing view types will be automatically assigned a corresponding view template. The assigned view template can be located (and modified) within the *Properties* window. This assigned template will govern the visibility and graphics of the view until it is removed.

The PTC Revit template will include a view template for each view type in use. Note that the minimum acceptable view scale standard size is ¼". However, it can be updated to a larger size when necessary. Additional view templates may be required while working through a project and can be added as needed if they do not conflict or overlap with an existing view template. See section 8.5.8 View Title Naming.

5.9.1.6 PROJECT BROWSER

The PTC Project Browser organization is first organized by Category (View Group) and then View type. See PTC Revit Template for Project Browser Organization.

For the project browser to be correctly organized, view's will be named correctly per section 8.5.7 View Naming.

5.9.2 REVIT PARAMETER MANAGEMENT.

Parameter Names should be representative of the data inside. When generating schedules, please ensure properly names parameters are used. PTC currently has no required shared parameters or shared parameter file at this time.

5.9.3 GENERAL REVIT MODEL STANDARDS

The following section describes the overview of Revit modeling standards applicable to all disciples within Revit.

5.9.3.1 SHARED COORDINATES

Shared coordinates will be established at the start of a project and aligned with section 5.2.1 Coordinate system. Shared coordinates will be accurate to the true geographic location of where the project resides. The shared coordinates will be acquired by a survey or civil .dwg file provided by PTC.

5.9.3.2 PROJECT BASE POINT & TRUE NORTH

The Project Base Point and True North will be specified and documented in the PxP. It is recommended that the project base point is on the lower left corner of the site and if possible, aligned with a grid intersection. True North will be specified to align with the true geographic orientation of the project.

5.9.3.3 PROJECT LOCATION

The Project location will be set according to a PTC provided address and documented in the PxP

5.9.3.4 COPY / MONITOR STANDARDS

Any elements requiring the use of Copy/Monitor will be outlined in the PxP.

Any element being copy/monitored must be reviewed and updated at every model exchange submission outlined in the PxP.

5.9.3.5 LEVELS AND GRIDS

Levels and Grids will be established at the start of a project and coordinated across all project teams. Levels and Grids 3D extents will cross the entire building and will be pinned in place so that they are not moved. For datum modeling standards see section 5.3 Datum Standards. For naming and numbering conventions see section 8.5.1 Datum Naming / Numbering.

If a levels and grids model is used, then all levels and grids will be copy/monitored from the corresponding model. See section 5.9.3.4 Copy / Monitor .

5.9.3.6 SCOPE BOXES

The Consultant Project Manager will create major site and building scope boxes. If the site or building is divided by sectors, a scope box will be created for each sector. Scope boxes will be used across teams to crop views.

5.9.3.7 DESIGN OPTIONS

The following standards will be followed when using Design Options:

- Use Design Options on temporary basis and clean them after every major submission.
- The “Primary” option will always reflect the most likely selected design candidate.
- The Option Set Names and the Option Names will be named after their location and scheme respectively so they can be easily identified by other team members.
- Preserve Design Options only if they are useful to the project. Even though options may not be active and visible, when changes are made within the main model all Design Options will update to maintain the model’s consistency.
- Design Options will not be used for purposes other than “design options” such as phasing, demolition, or division of discipline models.
- On project turnover, only the “Primary” option should be left within the project.

5.9.3.8 PHASES

Revit phases will not be used for purposes other than construction phases, submissions, and site logistics. Using them for design options or division of labor will not be permitted.

All projects will have these default Phases:

- Existing
- New Construction

Any additional phases will be agreed upon by PTC’s Design Services Unit and added to the PxP.

5.9.3.9 FAMILIES

Any loaded component family not provided by PTC will adhere to the following standards:

- Named according to section 8.5.4 Family Naming
- Appropriate content and detail:
  - Families will be checked for any embedded or nested families.
  - Small items such as Screws & Springs not listed in the LOD Matrix will also be removed.
  - Families will correspond to the correct Level of Detail as required per element. This includes accurate size, shape, and quantities.
  - Any interior, unseen, or unneeded models and detail will be removed.
- Appropriate Parameters
  - Models will be purged of unnecessary parameters and required parameters will be added.
  - The required parameters can be found in section 5.9.2 Revit Parameter Management
- Space Ownership
  - Clearance zones are defined as a manufacturer required service/safety area around a given unit. An Access Zone is defined as any additional space required to be able to reach the unit.
  - All models that have clearance requirements will have the clearance zone modeled and placed on the sub-category of “Clearance Zone”. Clearance zones will appear on plan view as a dashed line and in 3D as a transparent red zone.
  - Access panels, zones, and areas will be modeled and placed on the sub-category of “Access Zone”. Access zones will appear on plan view as a dashed line and in 3D as a transparent red zone.
  - Models must be representative of size in real life for proper space ownership and coordination.

5.9.4 REVIT ARCHITECTURE MODELING STANDARDS

Under development….

5.9.4.1 ARCHITECTURAL MODELING STANDARDS

5.9.5 REVIT STRUCTURE MODELING STANDARDS

Overview of Revit modeling standards applicable to only Structure

5.9.5.1 TYPE CATALOGS

Any family derived from an OOTB (out of the box) Revit structural family will have a type catalogue (.txt file) associated with it. Type catalogues must align with industry standard shapes and sizes.

Any costume structural families, both for vertical and lateral framing, must include a type catalogue to maintain accurate sizing.

5.9.6 REVIT MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION (MEP) MODELING STANDARDS

5.9.6.1 GENERAL

The general modeling standards for MEP trades:

- All MEP systems will be completed with native Revit Family (.RFA) files. Teams will not use imported model geometry from other programs to represent an MEP system.
- All elements or equipment that connects to an MEP system is required to have a connector in the family and be connected to the appropriate system in Revit
- Physical MEP Systems (Pipe, Duct, Conduit, Cable Tray) will be connected to each other and all equipment they interact with. There will be no open ends or disconnected systems.
- All connections for future will be capped.
- Refer to PxP for ownership of specific element locations and types (Lighting Fixtures, Plumbing Fixtures).
- Associated Accessories will exist in their proper Element Category. For example, a fire damper will be a “Duct Accessory” not “Specialty Equipment”. A Ball Valve will be a “Pipe Accessory” not “Specialty Equipment”.

5.9.6.2 MECHANICAL

The following systems will have their own set of views and Workset unless superseded by the PxP.

- HVAC Ductwork
- Mechanical Pipe

Mechanical Modeling Standards:

- All pipe is required to be modeled. Refer to the LOD Matrix and PxP for any additional requirements or exclusions.
- All Valves, dampers, air terminals, inline units, inline accessories, air and water accessories, and associated equipment will be modeled

5.9.6.3 ELECTRICAL

The following systems will have their own set of views and Workset unless superseded by the PxP. Project Execution Plan

- Lighting
- Power
- Fire Alarm
- Security
- Communications (Data, Signal, Telcom, Audio Visual)

Electrical Modeling Standards:

- Electrical elements will be connected through use of the “Power” tool in Revit. Elements will be able to trace feed from device, to distribution, to generation and to anything else they may be connected to. For items that have multiple connections, this may require multiple connectors to be added to the element or family
- Appropriate schedules will be provided for all distribution panels, boards, and gear in the model.
- All conduit size 1 - 1/2” and up will be modeled in accordance with the LOD Matrix. If a rack of small conduit exists, that totals a width of 1 – ½” or greater, the conduit rack must be represented
- All underground conduit, regardless of size, will be modeled
- All cable trays will be modeled
- All pull and junction boxes will be modeled

5.9.6.4 PLUMBING

The following systems will have their own set of views and Work set unless superseded by the PxP. If models have minimal plumbing work, teams may request to issue combined sheets. Project Execution Plan

- Domestic Water
- Sanitary
- Storm Drainage
- Misc Systems (Fuel Supply, Hydronics)

Plumbing Modeling Standards:

- All pipe sizes will be modeled.
- Sloped pipe will be modeled as such. This includes, but not limited to:
  - Storm
  - Sanitary
  - Vent Piping
- All Valves, P-Traps, drains, accessories, assemblies, and associated equipment will be modeled.

5.9.6.5 FIRE PROTECTION

The following systems will have their own set of views and Workset unless superseded by the PxP. Separate views for Wet & Dry Systems are not required but allowed if needed.

- Fire Protection Wet
- Fire Protection Dry

Fire Protection Modeling Standards

- All Fire Sprinklers will be connected to the overall system
- All size Fire Protection pipe will be modeled
- All Valves, drains and drain valves, fire protection accessories, assemblies, and associated equipment will be modeled.

6. GRAPHIC STANDARDS

All graphic content is provided in the support files. The following sections describe the graphics styles for various drawing and model components.

6.1 TEXT STYLES AND HEIGHTS

Ten text styles are part of this standard. The first 8 are all Arial font type and are to be utilized for all drawings and files.

The second two of the text styles provided (PTC-Title, and Line font) are used for title sheet, drawing information or line type definitions, but are not permitted for other use. The text styles are provided in the table below.

Note: OpenRoads Designer has variations of these text styles for correctly positioning text. All variations comply with Arial font and the plotted heights listed below.

Table 6-1 Text Heights

		Roadway & Horizontal Construction		Facilities & Vertical Construction
Description of Usage	**Font**	**Plotted Height**	**Annotative**	**Plotted Height**
Normal Text	Arial	0.12”	Yes	3/32”
Headings	Arial	0.15”	Yes	1/8”
Titles	Arial	0.2”	Yes	3/16”
Alternate Titles	Arial	0.25”	Yes	1/4”
Existing Normal Text	Arial-Italics	0.12”	Yes	3/32”
Existing Headings	Arial-Italics	0.15”	Yes	1/8”
Existing Titles	Arial-Italics	0.2”	Yes	3/16”
Existing Alternate Titles	Arial-Italics	0.25”	Yes	1/4”
Title Sheet	Arial	0.5”	No	1/2"
Line type Definitions	RomanS.shx	0.1”	No	N/A

6.2 DIMENSION AND PRECISION

The following precision and tolerances for dimensions are used for permitting and construction documentation. These are not to be mistaken for modeling or clash detection tolerances.

For roadway and horizontal construction, the precision is set to a minimum of 2 digits for the decimal place.

Table 6-2 Facilities and Vertical Construction

Drawing Scale	≥ ¼” = 1’-0”	< ¼” = 1’-0” and > 1 ½” = 1’-0”	≤ 1 ½” = 1’-0”
Precision	1/4”	1/8”	1/16”

Dimensions are taken to the face of components unless otherwise noted. When dimensions are to the center of an object or run, the centerline symbol will be used.

6.3 LINEWEIGHTS

Lineweights are the thickness of a line on a printed document or drawing. All line weights are pre-defined in the PTC templates for ANSI D. Any changes to line weights must be approved by PTC.

Approved PTC line weights.

Design Weight (Bentley only)	Thickness (in.)
0	0.007
1	0.010
2	0.014
3	0.020
4	0.024
5	0.028
6	0.033
7	0.039
8	0.045
9	0.049
10	0.055
11	0.059
12	0.065
13	0.069
14	0.075

6.4 PATTERNS

Hatches/Filled Regions determine the cut or surface pattern of elements or materials and are pre-defined in the PTC templates. Any changes to the Patterns must be approved by PTC.

Refer to Appendix 15.7.3 Patterns for standard PTC Patterns.

6.5 ANNOTATIONS & SYMBOLS

Annotations & Symbols will be used to communicate non-dimensional information about elements on drawings. Any annotations associated to, describing, and referencing model elements need to be created as parametric information linked to the element and then represented as an annotation on the drawing.

All annotations reside in model space except for notes, contract border attribute annotations, north arrows, scale bars, location maps, sheet indexes, engineer's seals, and title sheet annotations.

Refer to Appendix 15.7 Symbology for standard PTC annotations and symbols.

6.6 CIVIL 3D / OPENROADS GRAPHIC STANDARDS

The following standards are applicable only to Civil 3D and OpenRoads applications intended for all infrastructure design.

6.6.1 LAYERS AND LEVELS

All layers/levels contained within the Project Information Modeling & CAD Standards have been defined using variations of the National CAD Standard layer guidelines. All assigned colors, line styles, and line weights are to be used according to the specified layer/level, unless using a C3D style/ORD feature definition that may differ. Reference section 8.4.2 Layers/Levels Naming for naming convention.

6.6.2 LINETYPES AND LINESTYLES

Standard PTC line types (C3D) and line styles (ORD) have been created for use with all C3D and ORD drawings. These line types have been assigned to their respective layers within the standard template files.

All line types/line styles are displayed in Appendix 15.6 Linetypes.

6.6.2.1 AUTOCAD AND CIVIL 3D

To ensure correct line type scaling settings for plot sheet files the "LTScale" and "PSLTScale" variables will be set to "1". This ensures all line types will be scaled based on the paper space viewport scale factor.

For model files, which utilize model space, users will set the "LTScale" variable to the drawing scale.

6.6.2.2 OPENROADS DESIGNER

All line styles are created with a scale factor of 1.0 and design file settings are set to a global line style scale factor of 1.0. All seed files are set up with the Global Line Style Scale set to 1.0.

There are AutoCAD/Civil 3D line types within the Appendix 15.6 Linetypes named 'DGN Style #', referring to one of the eight standard OpenRoads line styles. In these instances, OpenRoads utilizes the out of the box eight standard styles and not the recreated DGN Style from the AutoCAD/Civil 3D line types. All Linestyles in ORD that are listed as '0' are equivalent to AutoCAD/Civil 3D's Continuous linestyle.

6.6.3 PLOTTED LINEWEIGHTS

All levels are assigned a design weight that coordinates with a 'WeightMap' within the print driver configuration file. When using 'PTC_PDF.pltcfg' file, the line weights match the thickness is listed in Section 6.3 Lineweights. All plotted line weights are intended for sheet size ANSI D.

6.6.4 ANNOTATIVE SCALING

In model space, annotative text and annotative objects will adopt the current model space drawing scale. This also allows for annotations to be created in model space, not just paper space. The table below shows the annotative scales that are available in the PTC drawing templates.

Table 6-3: Available Scales in Model Space

Scales to be Utilized	
1:1	1”=100’
1”=10’	1”=200’
1”=20’	1”=500’
1”=25’	3”=1’
1”=30’	6”=1’
1”=40’	1”=1’
1”=50’	

6.6.5 CREATING SYMBOLS

New symbols that are desired to be added to the Engineering Technology Standard will be documented and supplied to PTC’s Design Services Unit in digital format as either a single AutoCAD drawing file or OpenRoads drawing file, accompanied by a plot of the symbol, and a request to change standard.

PTC’s Design Services Unit will make the final decision on whether the symbol will be added to the Project Information Modeling & CAD Standards. Any newly created symbols for plans must comply with the requirements below.

6.6.5.1 CREATING SYMBOLS IN AUTOCAD AND CIVIL 3D

Any new symbols must comply with the following:

- Symbols will be created on Layer “0”.
- Colors and line types will always be set to “bylayer”, except for pen color 253 for the use of background solid hatch only.
- Text within the symbol will use one of the text styles provided within this standard so that it is legible upon plotting.
- The symbol will be drawn so that the insertion point is located appropriately and is at 0,0,0.
- The “base” of the drawing will be set to 0,0,0.
- The symbol drawing will be purged of all unused blocks, layers, line types, text styles, etc.

6.6.5.2 CREATING SYMBOLS IN OPENROADS

Any new symbols must comply with the following:

- Symbols will be created on the Default Level.
- Colors and Line styles will always be set to “by level” except for pen color 253 for the use of background solid hatch only.
- Text within the symbol will use one of the text styles provided within this standard so that it is legible upon plotting.
- The symbol will be drawn so that the insertion point is located appropriately and is 0,0,0.
- The “base” of the drawing will be set to 0,0,0.
- The symbol drawing will be compressed of all unused cells, levels, line styles, text styles, etc.

6.7 REVIT GRAPHIC STANDARDS

The following Graphic standards are applicable to vertical construction primarily using Revit.

6.7.1 REVIT GENERAL GRAPHIC STANDARDS

6.7.1.1 OBJECT STYLES

Element's graphics, such as line weight, line style, and color must be set by the element's corresponding object style.

The baseline object styles are built into the PTC Template.

6.7.1.2 VISIBILITY AND GRAPHIC OVERRIDES

Visibility and Graphic Overrides must be incorporated into a view template when visibility and graphic settings apply to multiple views or view sets.

6.7.1.3 FILTERS

Filters must be used to override the graphic display and control the visibility of elements that share common properties in a view. Including their line color, line style, line weight, and whether the group of elements is visible. If a filter is required for multiple views or view sets than it must be incorporated into the View Template. For filter naming see section 8.5.10 Filter Naming.

6.7.1.4 MATERIALS

Sub-categories must first be used to assign general materials across many elements/families. If these setting need to me overridden, use material parameters to assign materials.

Materials must be unique with unique material assets. For material naming see section 8.3 Material Naming.

6.7.1.5 COLOR SCHEMES

Color Schemes must be used when graphically displaying information associated with rooms, areas, spaces, zones, pipes, or ducts.

6.7.1.6 MATCHLINES AND SECTOR INDENTIFIERS

Drawing sets that include sector plans will have uniform match lines referenced by all disciplines. The match lines, also referred to as sector lines, will be documented in the PxP. The building key plan in the title block will also refer to these sectors, as necessary.

6.7.1.7 ANNOTATIONS

Text may not be used to represent data that should be stored within a parameter. Tags must be used to annotate parametric information on a drawing.

Model elements may be represented with a Symbol as long as there is a 3D element that also exists to the proper LOD as defined in section 5.4 Level of Development (LOD) Definitions, and the symbol(s) are used consistently through the project.

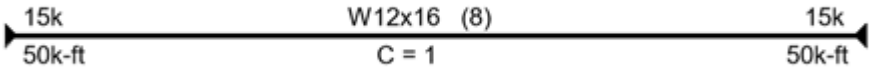
6.7.2 STRUCTURE

Overview of Revit graphic standards applicable to only Structure.

6.7.2.1 ANNOTATING AND TAGGING STRUCTURAL ELEMENTS

The template has several preloaded tags for columns, footings/piers, beams, and walls. How they are used will vary based on the project type and construction materials. See the images below for examples of how tags are applied to structural Framing components.

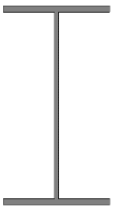
Figure 6-1 Beam with tags for type, studs, camber, and start/end reactions



6.7.2.2 STRUCTURAL ELEMENT DETAIL LEVEL

Structural Framing and other elements must be modeled to change with the Revit detail level of the view. For example, structural framing must appear as sticks in coarse detail level and then increase in level of detail for Medium and Fine detail level.

Table 6-4 Structural Framing Detail Level

Course	Medium	Fine
		

6.7.3 MEP

This section details specific requirements for the MEP team in relation to the overall graphic standards.

Tags

Built in Revit Shared Parameters (Comments, Mark, etc) will not be used for storing project data. These may be used for any internal purpose relevant to the specific team, but any data require by PTC will be hosted in the proper parameters as defined in section 5.9.2 Revit Parameter Management.

The tags listed below will be viewed as a “bare minimum”. All elements that are required for construction to occur will be noted and tagged.

Table 6-5 MEP Tags

Element Type	Required Tags
Equipment	Equipment ID Tag
Pipe & Ductwork	Size Tag, System tag, Elevation Tag (If Applicable)
Conduit & Cable Tray	Size Tag, System Tag (If Applicable)
Powered Elements	Circuit Tag, Panel Tag, Switch Tag (If Applicable)

Clearance Zones & Access Zones

Clearance Zones will display as a dashed line on Plan Views. In 3D views they will appear 85% transparent and be colored Red. Please refer to section 5.9.3.10 Families under the heading “Space Ownership” for more details.

7. DRAWING PRODUCTION

7.1 GENERAL STANDARDS

7.1.1 SHEET SIZES

All sheets will be plotted to full size ANSI D 22" x 34". All support files include the Title Block for ANSI D Sheets.

7.1.2 TITLE SHEET

Every plan set is required to have a title sheet as the topmost sheet with contents specified in section 7.2.1 Title Sheet.

7.1.3 PDF PLAN SETS

PDF files will be submitted as multi-sheet files at every submittal submission of the project and will be created:

- From the current set of plot sheet files
- Full size: ANSI D (22x34)
- In black and white
- 300 dpi
- No Layers
- In consecutive order

NOTE: If a project requires "Full Project Length PDF" refer to section 7.7 of this document for further guidance and information.

7.1.4 PLAN PRODUCTION FILES

7.1.4.1 DRAWING SHEETS

All drawing sheets must reference the Project Information Model. All modeled elements, components, and annotation must be taken directly from the model. Refrain from any manual insertion in the drawing sheets unless the information is unable to be a modeled component (i.e., revision clouds, etc.).

7.1.4.2 PLAN PRODCUTION TEMPLATES

All plan production template files are provided in the support files. For workflows utilizing the support files refer to Appendix 15.13 Plan Production for Civil 3D, Appendix 15.13.2 OpenRoads Designer Plan Production for OpenRoads.

All Revit template files include a cartoon set of sheets with standard symbols and annotations for drawing production provided in the support files.

7.2 ROADWAY AND HORIZONTAL CONSTRUCTION DRAWINGS

All plan set submittals will have all contents specified in the following sections.

7.2.1 TITLE SHEET

- Headings and title of plan
- WBS Number
- County or Counties
- Township, Borough or City
- Milepost range to the nearest hundredth

- Location of project on state map
- Engineer's Seal - Plans prepared by consultants will have a small block at the bottom of the Title Sheet indicating the name and address of the consultant, the signature, title and seal of the person responsible for the preparation of the plans and the date.
- Surveyor's Seal when applicable

7.2.2 INDEX SHEET

- Index Map – the index map needs to be placed on the index sheet, using a scale no smaller than 1"=400' and will show the following data, where applicable:
  - Construction centerline and stations identified at maximum 500 ft intervals
  - Edge of existing pavement
  - Turnpike Number, State Routes and Township Roads (show posted traffic route numbers)
  - Local road names
  - Railroads
  - Edge of streams (identify major streams)
  - Outline of proposed and existing bridges
  - Political subdivisions
  - Milepost labels containing milepost number and stations
  - Limit of workstations on the Turnpike
    - Ex: LIMIT OF WORK
      - STA 675+00.00
      - MP 29.62
      - SPRING RUN TOWNSHIP
      - FRANKLIN COUNTY
  - Temporary roadways
  - "Stop Work" and "Start Work" stations on all "Also" routes, crossroads, temporary roadways, temporary connections, service roads, railroad-Turnpike grade crossings, reconditioning of abandoned state highways and Turnpike mainlines where the first work starts, and the last work stops.
    - Ex: STOP WORK
      - STA 240+50.00
      - MP 101.95
  - Equality stations
  - Property lines and owners' names. Property owners' names will be spelled out exactly as shown on the deed. Parcel identification numbers corresponding to those assigned on the plan sheet will appear in their proper location. When the scale is too small and/or properties are too numerous, code properties with the parcel identification number and tabulate the property owners' names elsewhere on this sheet
  - Sections of roadway to be abandoned or vacated needs to be shown and identified.
  - Limits of project covered within each plan sheet with the plan sheet number identified in the legend.
  - Legend with symbols identifying plan, profile, etc.
  - Tabulation of overall length – will include a table of mainline and ramp stations and the lengths of roadway they represent including a total length.
  - North arrow and bar scale
  - Abandonment notes (same as on the right-of-way plan)
  - Straight line diagram data
  - If the project only requires one plan sheet and the above information can be shown, then an index map is not required.

7.2.3 LIST OF CONTRACT DRAWINGS AND GENERAL NOTES SHEET(S)

- General Notes
- Utility Notes
- Tabulation of Station Equalities
  - Station Equations for same alignment
    - Example: Station Back 145+38.90 = Station Ahead 1000+00
  - Station Equations for two alignments

  - Example: Ramp D Station 100+50.75 = SR0015 Station 237+87.77, 34’ RT
- Standard Drawings List – include Standard Drawing Number, Description, and Drawing Date
- Electronic Files Identified as For Information Only
- Earthwork Summary Entire Project *(Figure 7-1)*
- List of Contract Drawings *(Figure 7-2)*
- Electronic Files Identified as For Information Only *(Figure 7-3)*
- Special Details – can be placed on subsequent sheets
- Summary of Quantities including:
  - All items with their respective quantities payable under the Construction Contract will be tabulated on a Summary of Quantities Sheet and be made part of the Plan Set.

Figure 7-1 Example Earthwork Summary Table

EARTHWORK SUMMARY ENTIRE PROJECT

THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS.

CUBIC YARDS OF EXCAVATION							CUBIC YARDS OF COMPLETED EMBANKMENT	CUBIC YARDS OF BORROW EXCAVATION	CUBIC YARDS OF SELECT BORROW	CUBIC YARDS OF WASTE
CLASS 1 (ROCK)	CLASS 1	CLASS 1A	CLASS 1B	CLASS 2	CLASS 3	CLASS 4				
2	290	12	48	21	0	0	0	0	0	373

Figure 7-2 List of Contract Drawings Example

LIST OF CONTRACT DRAWINGS

DESCRIPTION	SHEET
TITLE SHEET	1
INDEX MAP	2
LOCATION MAP	3
TYPICAL SECTIONS	3 TO 6
SUMMARY SHEETS	7 TO 9
TABULATION SHEETS	10 TO 14
PLAN SHEETS	15 TO 37

Figure 7-3 Example Electronic Files Identified as For Information Only

ELECTRONIC FILES IDENTIFIED AS FOR INFORMATION ONLY

FILE NAME	FILE DESCRIPTION	DATE/TIME
T283.3-C-AL-GTE	ALIGNMENT	6/1/2022 10:35:15 AM
T283.3-C-GR-GTE-SWM	STORMWATER GRADING	6/2/2022 12:40:23 AM

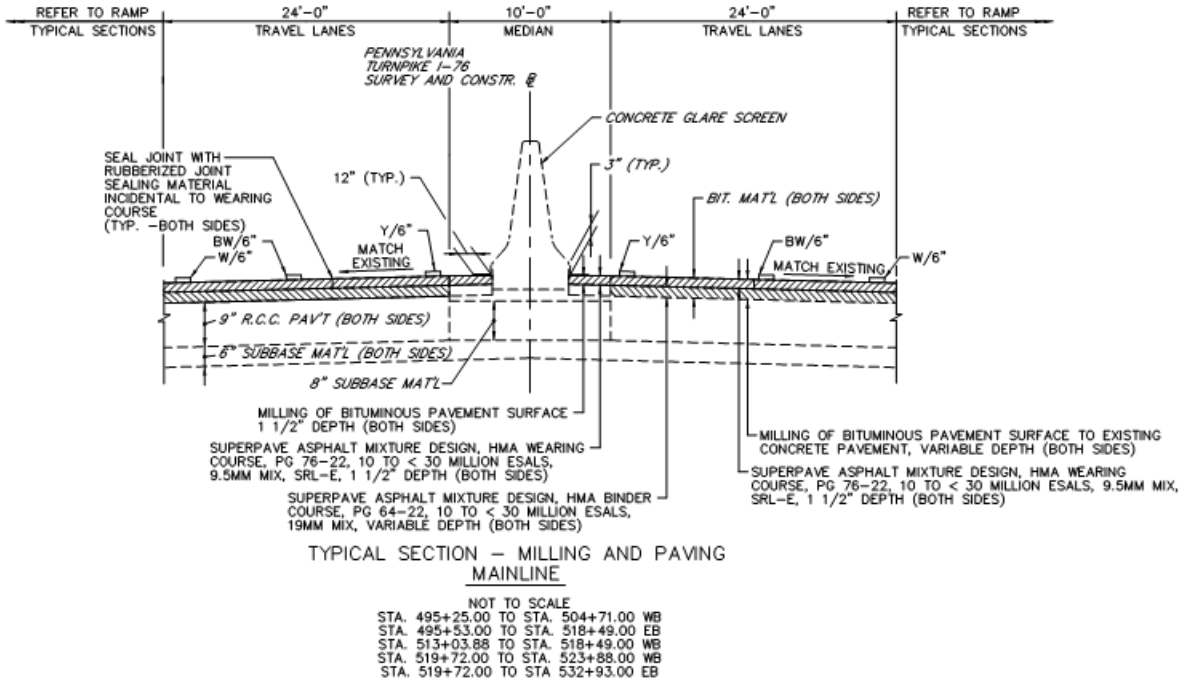
7.2.4 ELECTRONIC FILES IDENTIFIED AS PLAN SHEET(S)

Under Development…

7.2.5 TYPICAL SECTION SHEET(S)

- All detailed typical sections in the project including station ranges.

Figure 7-4 Example of Typical Section



TYPICAL SECTION – MILLING AND PAVING
MAINLINE

NOT TO SCALE
STA. 495+25.00 TO STA. 504+71.00 WB
STA. 495+53.00 TO STA. 518+49.00 EB
STA. 513+03.88 TO STA. 518+49.00 WB
STA. 519+72.00 TO STA. 523+88.00 WB
STA. 519+72.00 TO STA 532+93.00 EB

7.2.6 TABULATION OF PROJECT COORDINATES SHEET(S)

- Tabular summary of project coordinates including:
  - Coordinate System (state plane)
  - Note describing any scale factors to convert coordinates, if applicable
  - Route
  - Station
  - Point Type
  - Coordinates (Northing and Easting)
  - Bearing

7.2.7 SUMMARY AND TABULATION OF QUANTITIES SHEET(S)

- Pay Items
- Item Numbers
- Quantities
- Reference Special Provisions
- Reference Supplemental Plans
- Alternates

7.2.8 CONSTRUCTION PLAN SHEETS

- Identification Blocks
- Construction and Survey Baselines with geometry labels indicating station and point type (PC, PT, etc.), station labels at 100' increments with ticks at 50' increments, and Curve Data Labels
  - Curve Data Label Example:
    - PI STA 5119+46.78
    - $\Delta = 32^{\circ}34'29"$
    - T = 558.02'
    - L = 1085.82'
    - R = 1909.86'

        - E = 76.65’
        - SE = 8.00%
    - Spiral Curve Data Label Example:
        - PI STA 283+10.29
        - Δ = 51°45’41” RT
        - Δc = 41°06’41”
        - D = 3°00’00”
        - Rc = 1909.86’
        - Lc = 1370.38’
        - θs = 5°24’00”
        - Ls = 360.00’
        - Ts = 1111.00’
        - Es = 217.40’
        - k = 179.95’
        - p = 2.83’
        - xc = 359.68’
        - yc = 11.30’
        - LT = 240.11’
        - ST = 120.10’
        - LC = 359.86’
        - SE = 8.00%
- Superelevation Table – indicates the superelevation stations including transition locations.
- Structure Data
- Bearings
- Benchmarks
- Construction and Survey Profiles – Determine whether the plan and profile can be displayed on the same sheet. If this cannot be achieved then enclose a rectangle at the bottom inside border of the sheet with referenced text “FOR PROFILE, SEE SHEET XX”. All profiles will include the information listed below for ‘Construction and Survey Profile Sheets’.
- Limits of Work via Stations
- Existing Topography including roads, streets, driveways, utilities…
- Intersection baseline and curve data
- Milepost Labels including Milepost number and station
- Proposed Work
- Right-of-Way lines and Easements – Labeled with Station and Offset
- Property Lines and Owners
- Utilities – Drainage utilities will include labels containing Station, Offset, Rim Elevation, Invert Elevation, Pipe Size, Pipe Material (if known)
- North Arrow
- Bar Scale
- Abandoned, Removed, or Vacated
- Match Lines
- Engineer’s Seal - Plans prepared by consultants will have a small block at the bottom of the Title Sheet indicating the name and address of the consultant, the signature, title and seal of the person responsible for the preparation of the plans and the date.

7.2.9 CONSTRUCTION AND SURVEY PROFILE SHEETS

- Proposed Roadway
- Stationing
- Elevation Range
- Existing ground line
- Proposed ground line

- Vertical Curve Data Labels
  - PVI Station
    - Elevation
    - VC
    - K
    - SSD or HLSD
  - PVC
  - PVT
  - Low/High Point Station
  - Low/High Point Elevation
- Percentage of Grade
- Vertical Curve Data
- Sight Distances
- Pipes*
- Inlets and Manholes*
- Channel Grade Line
- Structures
- Datum Elevations
- Limits of Work and Start/Stop Work Limits
- Engineer's Seal
- Scale

**Note: A separate profile may be created for pipe runs due to limitations with 3D modeling software and cross section display. In this instance drainage information must be displayed as noted in the section below for cross section sheets. See section 5.8.2 Cross Sections for specifics on when a pipe profile run may be included in a plan set.*

7.2.10 CROSS SECTION SHEETS

- Proposed Roadway
- Station
- Existing ground line
- Proposed ground line
- Drainage Facilities – Pipes, Inlets, and Manholes*

  Drainage structures shall be labeled to display the station, location left or right and a description, as shown in the manner below:
  STA 10+08.25 18.90' LT
  1 EA TYPE S TOP UNIT AND GRATE
  1 EA STANDARD INLET BOX, HEIGHT ≤ 10'
  INVERT ELEV 601.38

  The invert elevations for transverse pipes that cross the centerline shall be labeled, as well as the invert for parallel pipes. An arrow indicating the direction of flow shall be shown on transverse pipes. However, on a single run of pipe with a straight grade, it is not required to show more than two station and invert elevation labels.

- Channel Grade Line
- Structures
- Right-of-Way Line
- Proposed Grade Line Elevations
- Proposed Offset
- Slope Labels
- Material Volume Table
- Scale
- Engineer's Seal

**Note: Drainage facilities will no longer be projected onto cross section sheets at the required 25' or 50' intervals. A cross section must be added for each drainage facility at its correct stationing and included within the set. See section 5.8.2 Cross Sections for specifics on cross section modeling.*

7.2.11 RIGHT-OF-WAY PLAN SHEETS

- Required and Legal Right-of-Way Lines – labeled with station and offset
- Survey and Right-of-Way Baselines or Survey and Right-of-Way Centerlines
- Easements
- Property Lines and Ownership
- Milepost Labels including Milepost number and station
- Limit of Slope Lines
- Railroads and Utilities
- Topography
- Edge of existing and proposed pavement for free access facilities
- Survey references and survey book numbers
- Right-of-Way Fence
- Survey references and survey book numbers
- Curve Data, Profile, Limits
- Driveway Adjustments
- Structure Data
- All drainage, particularly locations that affect the project where inlets and outlets are coming from or distributing to properties.
- Location of existing of proposed facilities and trails
- Abandoned, Removed or Vacated
- Intersection baseline and curve data
- North Arrow
- Bar Scale
- Match Lines
- Professional Engineer or Professional Land Surveyor's Seal – who is responsible of the work will be shown. Plans prepared by consultants will have a small block at the bottom of the Title Sheet indicating the name and address of the consultant, the signature, title and seal of the person responsible for the preparation of the plans and the date.

7.3 FACILITIES AND VERTICAL CONSTRUCTION

7.3.1 ELEMENTS ON SHEETS

- No annotations will be placed directly on a sheet except for revision clouds and revision cloud tags.
- All annotations will be placed directly in the views.
- All views will be annotated with a Revit View Title that relay the View's 'Title on Sheet' parameter and scale.

For drawing revisions, see section 7.4 Drawing Revisions.

7.3.2 DISCIPLINE DRAWING REQUIREMENTS

- Geotechnical Investigations and Reports
  - Inconsistency with the preliminary soil's information
  - Vehicle Pavements
  - Certification
- Civil Site and Utilities Design Contents
- Structural Systems
- Architectural Design Contents
  - Introduction

- Title Sheet
- Index Sheet
- Plan Sheets
- General Site Plan
- Building Elevations
- Cross Sections
- Details

- Landscape Design
  - Plan Sheets
  - Plant Materials
- Right of Way Plans
- Interior Design Contents
  - Structural Interior Design Requirements
    - Format and Schedule
    - Structural Interior Design Documents
  - Furniture, Fixtures, and Equipment Requirements
    - Scope and Design Requirements
    - Acquisition and Procurement
    - Format and Submittal Requirements
    - Submittal Components
    - Furniture Specifications
    - Warranties
- Plumbing Systems
  - Design Analysis
  - Plumbing Floor Plans
  - Plumbing Diagrams
  - Details
- HVAC Systems
  - Design Analysis
  - Mechanical Floor Plans
  - Equipment Schedule
  - Details
  - Controls
- Fire Protection and Life Safety
  - Fire Protections / Suppression Analysis
  - Fire Protection and Life and Safety Code Review
- Electrical Systems
  - Design Analysis
  - Floor Plan
  - Building Riser Diagram
  - Load Center Panelboard Schedules
  - Lighting Fixture Schedule
  - Details
- Telecommunications and Security
  - ATFP
  - Cybersecurity
- Specialty Equipment
  - Elevators
  - Corrosion Control and Prevention Systems

7.3.3 PLAN PRODUCTION ADDING SHEETS

7.3.3.1 DEFAULT SHEETS IN REVIT TEMPLATES

The default sheets in the Revit Templates are listed below.

- PTC Standard-Arch Revit 2021

A-000	SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
A-010	CODE INFORMATION
A-011	CODE INFORMATION & ACCESSIBILITY REQUIREMENTS
A-012	BUILDING EGRESS PLANS
A-015	WALL TYPE SCHEDULE + DETAILS
A-016	WALL TYPE SCHEDULE + DETAILS
A-100	OVERALL PLAN
A-101	FIRST FLOOR PLAN
A-140	OVERALL ROOF PLAN
A-141	ROOF PLAN
A-142	ROOF DETAILS
A-160	ENLARGED TOILET AND LOCKER ROOM PLANS
A-180	PLAN DETAILS
A-200	OVERALL FIRST FLOOR REFLECTED CEILING PLAN
A-201	FIRST FLOOR REFLECTED CEILING PLAN
A-210	CEILING DETAILS
A-300	EXTERIOR ELEVATIONS - OVERALL
A-301	EXTERIOR ELEVATIONS - OVERALL
A-400	BUILDING SECTIONS
A-401	BUILDING SECTIONS
A-430	WALL SECTIONS
A-440	SECTION DETAILS
A-441	SECTION DETAILS
A-500	STAIR - ENLARGED PLANS + SECTIONS
A-501	STAIR + RAILING DETAILS
A-600	DOOR SCHEDULE
A-601	DOOR DETAILS
A-610	WINDOW ELEVATIONS
A-611	WINDOW DETAILS
A-700	MISCELLANEOUS DETAILS AND ELEVATIONS
A-800	FINISH MATERIAL LEGEND + FINISH NOTES
A-801	FINISH PLAN
A-850	FURNITURE + EQUIPMENT PLAN - SCHEDULE
A-860	FURNITURE + EQUIPMENT ELEVATIONS

- PTC Standard-Struct Revit 2021

S-001	STRUCTURAL NOTES I
S-002	STRUCTURAL NOTES II

S-005	TYPICAL DETAILS I
S-006	TYPICAL DETAILS II
S-100	FOUNDATION PLAN
S-140	OVERALL ROOF PLAN
S-200	FIRST FLOOR FRAMING PLAN
S-300	ROOF FRAMING PLAN
S-400	SECTIONS I
S-401	SECTIONS II
S-402	SECTIONS III
S-403	SECTIONS IV
S-500	SPECIFICATIONS I
S-501	SPECIFICATIONS II
S-600	SCHEDULES
S-700	TYPICAL DETAILS

- PTC Standard-MEP Revit 2021

	MECHANICAL
M-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - MECHANICAL
M-001	SITE PLAN - MECHANICAL
M-101	FIRST FLOOR PLAN - MECHANICAL PIPING
M-140	ROOF PLAN - MECHANICAL
M-201	FIRST FLOOR PLAN - MECHANICAL DUCTWORK
M-300	CONTROLS - MECHANICAL
M-400	ENLARGED PLANS - MECHANICAL
M-500	SCHEMATIC/RISER DIAGRAMS - MECHANICAL
M-501	SCHEMATIC/RISER DIAGRAMS - MECHANICAL
M-600	SCHEDULES - MECHANICAL
M-601	SCHEDULES - MECHANICAL
M-700	DETAILS - MECHANICAL
M-701	DETAILS - MECHANICAL
	PLUMBING
P-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - PLUMBING
P-001	SITE PLAN - PLUMBING
P-100	FOUNDATION PLAN - PLUMBING
P-101	FIRST FLOOR PLAN - PLUMBING
P-140	ROOF PLAN - PLUMBING
P-400	ENLARGED PLANS - PLUMBING
P-500	RISER DIAGRAMS - PLUMBING
P-501	RISER DIAGRAMS - PLUMBING
P-600	SCHEDULES - PLUMBING
P-601	SCHEDULES - PLUMBING
P-700	DETAILS - PLUMBING
P-701	DETAILS - PLUMBING
	ELECTRICAL

E-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - ELECTRICAL
E-001	GENERAL NOTES - ELECTRICAL
E-002	FUEL SERVICING SITE PLAN - ELECTRICAL
E-101	FIRST FLOOR PLAN - LIGHTING
E-140	ROOF PLAN - ELECTRICAL
E-201	FIRST FLOOR PLAN - POWER
E-301	FIRST FLOOR PLAN - MECHANICAL POWER
E-400	ELEVATIONS - ELECTRICAL
E-401	SPECIFICATIONS - ELECTRICAL
E-500	ONE-LINE DIAGRAMS - ELECTRICAL
E-501	ONE-LINE DIAGRAMS - ELECTRICAL
E-600	LIGHTING FITXTURE SCHEDULES
E-601	PANEL SCHEDULES - ELECTRICAL
E-602	PANEL SCHEDULES - ELECTRICAL
E-700	DETAILS - ELECTRICAL
E-701	DETAILS - ELECTRICAL
E-800	DETAILS - LIGHTING
E-801	DETAILS - LIGHTING
	TELECOM
T-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - TELECOM
T-101	FIRST FLOOR PLAN - TELECOM
T-400	ENLARGED PLANS - TELECOM
T-500	RISER DIAGRAMS - TELECOM
T-501	SCHEMATIC DIAGRAMS AND RISERS - TELECOM
T-700	DETAILS - TELECOM
T-701	DETAILS - TELECOM
T-703	DETAILS - SECURITY
	FIRE ALARM
FA-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - FIRE ALARM
FA-101	FIRST FLOOR PLAN - MAINTENANCE - FIRE ALARM
FA-700	DETAILS - FIRE ALARM
FA-701	DETAILS - FIRE ALARM
	FIRE PROTECTION
FP-000	SYMBOLS, LEGENDS, AND ABBREVIATIONS - FIRE PROTECTION
FP-101	FIRST FLOOR PLAN - FIRE PROTECTION
FP-700	DETAILS - FIRE PROTECTION
FP-701	DETAILS - FIRE PROTECTION

7.3.3.2 ADDING PLACEHOLDER SHEETS TO REVIT TEMPLATE/PROJECT

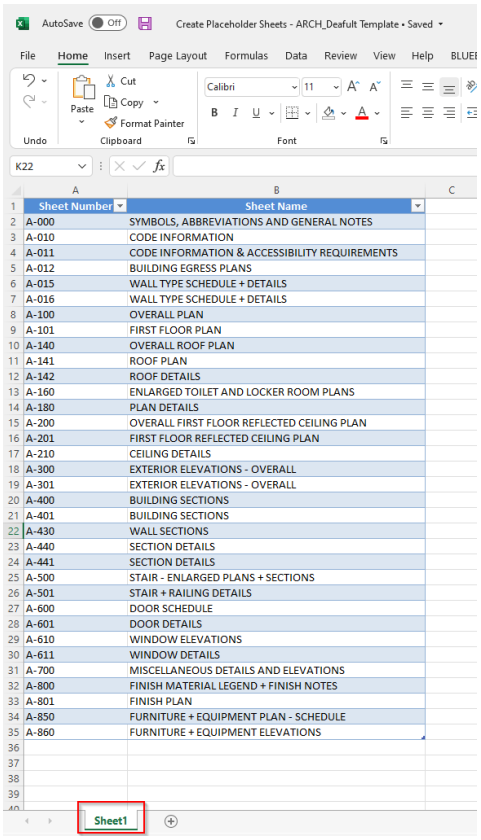
The following are the tools required to automate the process of creating several placeholder sheets.

- Revit 21
- Dynamo
- Excel

Workflow

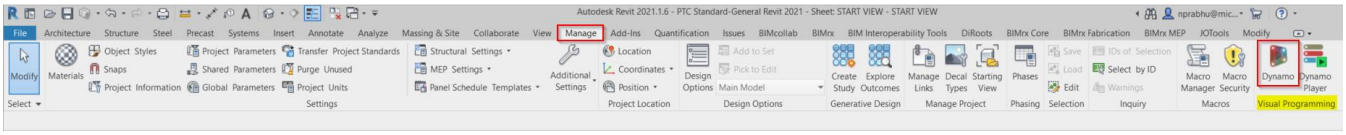
Note: This process is intended for BIM Managers, Coordinators, or Specialists who have an intermediate mastery of the tools indicated above.

- **Excel**
  - Copy/Paste and rename the default excel "Creating Placeholder Sheets – ARCH/STRUCT/MEP" to the appropriate project folder
  - Update the list by adding the required sheets
  - **DO NOT** rename the excel tab "Sheet1"

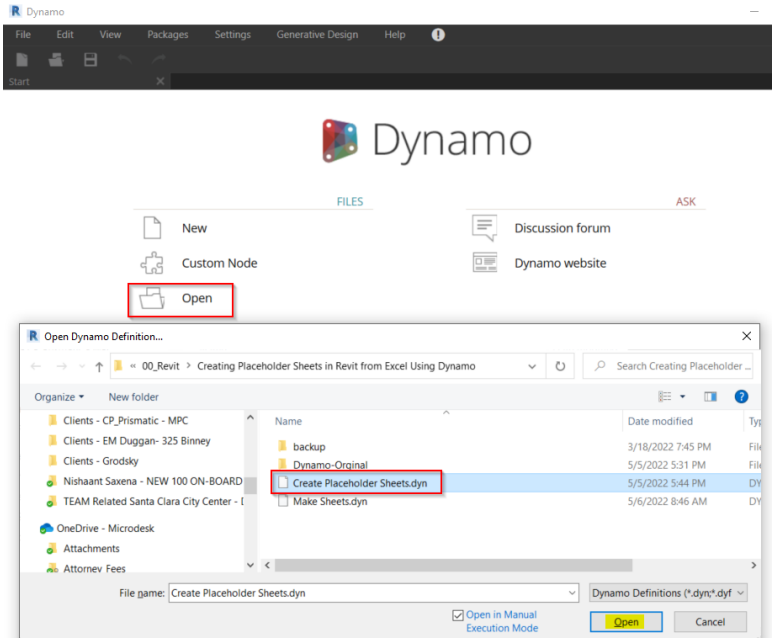


Sheet Number	Sheet Name
A-000	SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
A-010	CODE INFORMATION
A-011	CODE INFORMATION & ACCESSIBILITY REQUIREMENTS
A-012	BUILDING EGRESS PLANS
A-015	WALL TYPE SCHEDULE + DETAILS
A-016	WALL TYPE SCHEDULE + DETAILS
A-100	OVERALL PLAN
A-101	FIRST FLOOR PLAN
A-140	OVERALL ROOF PLAN
A-141	ROOF PLAN
A-142	ROOF DETAILS
A-160	ENLARGED TOILET AND LOCKER ROOM PLANS
A-180	PLAN DETAILS
A-200	OVERALL FIRST FLOOR REFLECTED CEILING PLAN
A-201	FIRST FLOOR REFLECTED CEILING PLAN
A-210	CEILING DETAILS
A-300	EXTERIOR ELEVATIONS - OVERALL
A-301	EXTERIOR ELEVATIONS - OVERALL
A-400	BUILDING SECTIONS
A-401	BUILDING SECTIONS
A-430	WALL SECTIONS
A-440	SECTION DETAILS
A-441	SECTION DETAILS
A-500	STAIR - ENLARGED PLANS + SECTIONS
A-501	STAIR + RAILING DETAILS
A-600	DOOR SCHEDULE
A-601	DOOR DETAILS
A-610	WINDOW ELEVATIONS
A-611	WINDOW DETAILS
A-700	MISCELLANEOUS DETAILS AND ELEVATIONS
A-800	FINISH MATERIAL LEGEND + FINISH NOTES
A-801	FINISH PLAN
A-850	FURNITURE + EQUIPMENT PLAN - SCHEDULE
A-860	FURNITURE + EQUIPMENT ELEVATIONS

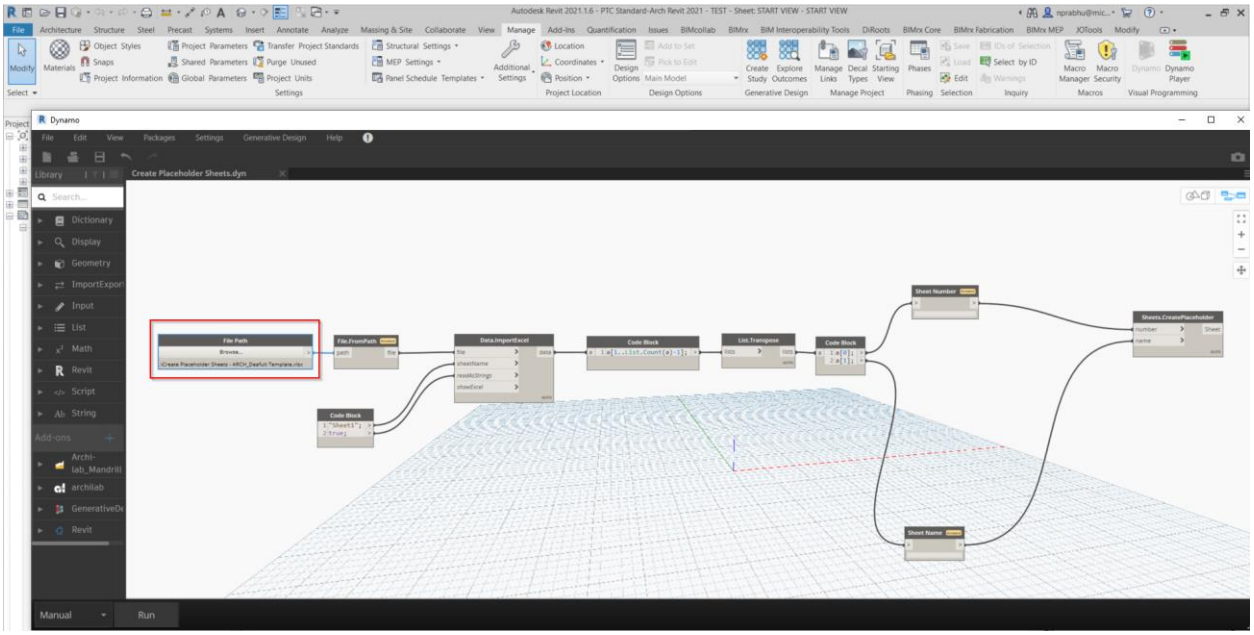
- **Dynamo**
  - Copy/Paste the dynamo script "Create Placeholder Sheets.dyn" to the appropriate project folder
- **Revit 21**
  - Open the Revit template or the project where the additional sheets will be added
  - Navigate to Manage Tab>> Ribbon Panel "Visual Programming">>Dynamo

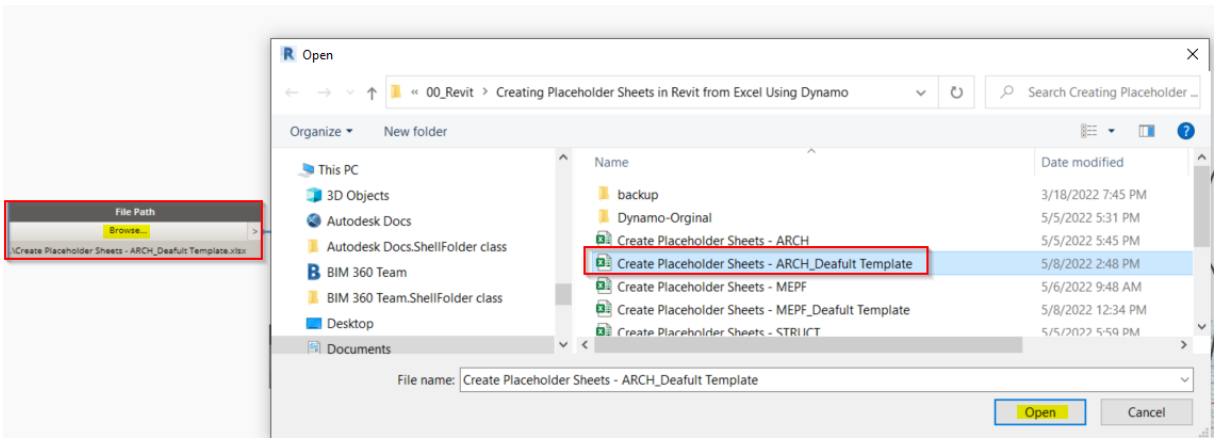


  - In Dynamo Dialogue box, click Open and navigate to the dynamo script folder to create placeholder sheets.
  - Select the dynamo script "Create Placeholder Sheets.dyn" and click open
    For Example –

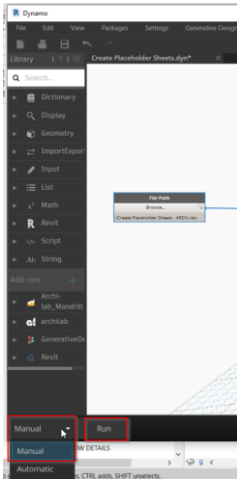


- In Dynamo, click “File Path” node and navigate to the excel file to create additional placeholder sheets. For Example -

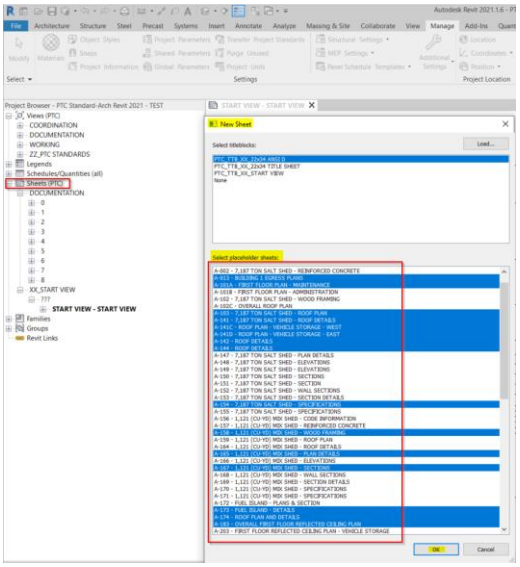




- To allow the script to run just when the "Run" button is pressed, make sure the bottom left tab is set to "Manual." in dynamo. When ready click “Run”



- All the new placeholder sheets will be created in Revit. Please see “New Sheet” dialogue box below -



- To convert “Placeholder Sheets” to “Sheets”, select all or only desired placeholder sheets and the desired Title Block and click OK.
- Please note that teams must adjust necessary settings such as Sheet Type, Sheet Function, View Type, and any other parameters that are required according to the project setup in order to organize the sheets in the project browser as per standards.

7.4 DRAWING REVISIONS

There are two types of drawing revisions described in the table below.

Table 7-1 Revision Types and Nomenclature

Revision Type	Description	Nomenclature
Addendum	Revisions that occur during the contract advertisement period	1, 2, 3, 4

Modification	Revisions made after the award of a construction contract	A, B, C, D

Revision clouds and revision cloud tags will only be placed directly on sheets. Each revision must be tagged appropriately with either the number or character nomenclature, matching the corresponding revision block in the contract border.

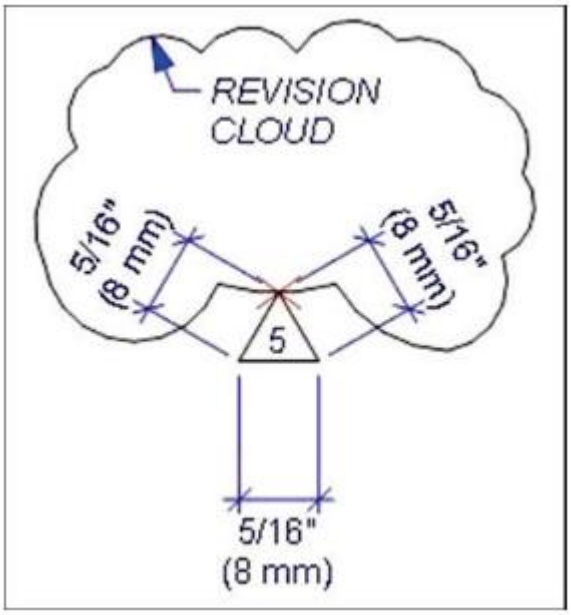
7.4.1.1 REVISION BLOCK

The revision block will be updated for the contract border for each sheet containing revisions. The following information will be added to the revision block: NO., REVISIONS, DATE, APPR.

NO.	REVISIONS	DATE	APPR.

- **NO.** The NO. column contains either a numeric Addendum character (1, 2, 3, etc.) or an upper-case alphabetic Modification character (A, B, C, etc.). These characters match the revision symbols with the same corresponding character. This is specific to the revision on a sheet. The first revision shall be placed at the highest line with subsequent revisions entered directly below.
- **REVISION.** The REVISION column contains a brief description related to the change in the drawing sheet denoted by the revision symbol.
- **DATE.** The DATE column notes the date the revision was released in the change documentation. All dates shall be in the following format MM/DD/YY.
- **APPR.** The APPR column will contain the initials of the Engineer who stamped the original plan, indicating they approve the revision to the original plan.

7.4.1.2 REVISION SYMBOL



Further items to note with revisions:

- New details or sections which are added to a drawing will be clouded and a revision symbol placed by the detail or section title.
- In areas where space is limited, cross out and cloud the incorrect data and direct it to a new detail of the area.
- For changes to schedules, a revision symbol will be placed either by the schedule heading or by the change in the schedule.

7.4.2 FOR PARTIAL REVISIONS

All partial revisions will be marked by a revision symbol and an equilateral triangle noted with the proper revision nomenclature, Table 7-1 Revision Types and Nomenclature. A revision cloud will be placed in paper space surrounding the area of the drawing where changes were made. The stamp triangle will be placed near the location of the revision cloud with or without leaders.

7.4.3 FOR SHEET REVISIONS

Under development….

7.4.4 MODEL AND ELECTRONIC FILE REVISIONS

If a revision is required to a model or electronic file that is included a part of either 'Electronic Files Indicated as For Information Only' or 'Electronic Files Indicated as Plans', then a new sheet must be produced with the updated date and time stamp for the revision within their designated tables. Additionally, the revision block must be updated on the sheet indicating a change to the model file. A revision symbol with the appropriate number must be placed next to each electronic file that was updated a part of that revision. Please note, all federated models need to be included a part with any model changes.

7.4.5 REVISION WORKFLOW

Under development….

7.5 WORKING AND SHOP DRAWINGS

Prepare drawings using standard ANSI D size, 22-inch by 34-inch sheets with 1 1/2-inch margin on the left side and 1/2-inch margins on remaining three sides. All lines on the drawing are to be of sufficient density and width so as to have residual density when reduced by 50% or electronically scanned. Use at least 0.120-inch high lettering. Make details clear and uncluttered. Show complete details, dimensions, materials, notes, sequences, and any other required information.

Provide a title block in the lower right-hand corner of each drawing that indicates the county, route, station, Turnpike construction contract number, name of Contractor, name of Fabricator, title of drawing, drawing number, structure number, initials of the drawer, initials of the checker, and date of the drawing. Include a revision block to the left of the title block and an empty block, approximately 4-inch by 3-inch above the title block to be used by the Representative for the shop drawing stamp.

No work called for by these drawings is to be done until the acceptance of the Representative is obtained, which will be given or refused within 30 days after delivery of the drawings.

The acceptance of shop drawings by the Representative will not relieve the Contractor of the responsibility for the accuracy of these drawings.

Thoroughly check each shop drawing or other required submission before submission to the Representative. Place the following certification on every sheet of every submission.

"WE HEREBY STATE THAT WE HAVE REVIEWED, INSPECTED, AND CHECKED THE INFORMATION SUBMITTED AND CERTIFY ITS ACCURACY AND COMPLIANCE WITH THE PLANS, SPECIFICATIONS, AND SURROUNDING CONDITIONS."

_____
Contractor

(per) _____
Signature

_____
Date

Properly label samples, drawings and catalog cuts submitted for review to indicate the specific service for which materials or equipment are to be used and the referenced section, page and paragraph number of the specifications.

If any aspect of a submittal deviates from the requirements of the contract drawings or specifications, note such deviation in writing at the time of submission.

All drawings and calculations for formwork, shoring or load-bearing falsework submittals are to be signed and sealed by a Professional Engineer, registered in the State.

Prepare, unless otherwise specified, final reproducible shop drawings showing any as-noted conditions and submit to the Representative upon completion of affected operations, but prior to the completion of the project work. These reproducible drawings may be prepared in ink on 3 mil. minimum thickness Mylar sheets or as will be acceptable to the Representative and satisfactory for permanence and reproduction.

Submissions must be electronic portable document format (PDF) files. Prepare drawings in accordance with the requirements of the design drawings, standards, design manuals, and the contract documents unless otherwise specified.

Prepare original drawings using pencil or ink, or prepare drawings electronically (CAD).

Scan original drawings, or convert electronic drawings, to produce a portable document format (PDF) file for each drawing. Include Turnpike construction contract number, item description, and drawing number in the file name. The PDF files must be created with the "end user commenting" and "digital signature" features enabled. These features allow electronic comments to be added directly to the PDF using only reader software and create a log of comments that cannot be changed once the digital signature is added.

Submit PDF files to the Representative for review and acceptance. All working or shop drawing submissions must be submitted electronically via the Commission's project collaboration system. PDF files will be returned with corrections noted. Modify original or electronic drawings as required, scan or convert into new PDF files, and resubmit. Continue until PDF files are accepted.

7.6 AS-BUILT DRAWINGS

7.6.1 AS-BUILT REQUIREMENTS

Final As-Built plans will include all Contract Drawings. The "As-Built" drawings shall consist of a complete PDF set of the "As-Bid" PDF file. They shall be maintained in the field office and updated via a PDF editor program for the purpose of showing all approved field construction changes. The working copy of the PDF As-Built markups must be up-to-date and uploaded to PTC's Construction record site. However, they are not intended to replace or be a part of the documented project records. Therefore, no reference to project records shall be made thereon.

All changes to these plans are to be made in red via a PDF editor by the Inspector-In-Charge or his designee as work is completed. However, periodic progress markings and periodic changes to the quantities shall not be recorded on the As-Built drawings.

The As-Built drawings should be clean, neat, and accurately prepared. All field changes should be made at the earliest possible date and not trusted to the memory of the recorder.

As-Built drawings should be kept current as portions of the work are completed. This will spread this workload out during the life of the project and enable the As-Built drawings to be completed in a timely fashion and not create a hardship when the project work is completed.

All mechanical and electrical changes due to field Request for Information (RFI) process, equipment shop drawings reflecting modified data due to submittal and approval process, and contract field and design modifications shall be incorporated in the working As-Built drawings.

During total reconstruction projects or projects involving right-of-way takes PTC Right-of-Way Monument Attestation/Certification Certificate Plan should be created as per Commission Specification 686.3 Construction Subsection (i).

The Contractor shall also maintain a complete PDF set with red line markups created via a PDF editor program that shows the As-Built conditions during the execution of the project as specified in the Construction Operations Manual Section 105.02. As-Built PDF files will be kept up to date on a weekly basis. As-Builts should be kept current as portions of the work are completed.

As-Built plans must comply with the following minimum requirements:

- All plans must be a PDF consisting of electronic red lines created by a PDF editor program.
- All sheets must be legible and of a quality acceptable for archiving.
- No erasure of original information is permitted.
- All changes must be shown in RED.
- Changes are indicated by adding the correct data and crossing out incorrect data.
- All mechanical and electrical changes due to field Request for Information (RFI) process, equipment shop drawings reflecting modified data due to submittal and approval process, and contract field and design modifications shall be incorporated in the working As-Built drawings.
- The Inspector-In-Charge's As-Built drawings and the Contractor's As-Built drawings will be jointly reviewed for accuracy and completeness by the Inspector-In-Charge prior to submission.

7.6.2 AS-BUILT PLAN REVISIONS

All As-Built Revisions must include the following:

7.6.2.1 TITLE SHEET

On the Title Sheet upper left-hand corner, list the following project data:

- Notice to Proceed
- Start Date and Completion Date
- Final Inspection Date
- Contractor's Name and Address
- List all Subcontractors and Operations Performed
- List Sources of Material
- List all Inspectors on the Project
- Final Inspection Attendees
- Chief Engineer
- Assistant Chief Engineer – Construction

7.6.2.2 QUANTITY SHEETS

It is not necessary to revise the quantities on the Summary of Quantities, Tabulation of Quantities Sheets, Structure Tabulation of Quantities Sheets, and the Bridge Summary of Quantity Sheets to match the final quantities in the estimate book. However, the following note shall be placed on the Quantities Sheets:

"THE QUANTITIES LISTED ON THIS SHEET MAY NOT MATCH THE QUANTITIES FOR THE AS-BUILT PLAN REVISIONS."

A *FINAL CONTRACT COMPARISON AND SUMMARY ANALYSIS REPORT* will be generated from the Commission's CDS application and included with the As-Built Drawings.

7.6.2.3 MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) PLAN

The MPT plan sheets shall not be revised as As-Built drawings. MPT drawings that are revised will be made as part of the contract documents and approved by the Designer of Record. However, if the MPT is changed without changing the contract drawings, all letters approving changes to MPT shall be noted by date, correspondence number, and phase on the MPT drawings.

7.6.2.4 ITEMS TO BE RECORDED ON AS-BUILT DRAWINGS

The following items must be recorded on all As-Built Drawings:

- Mark "Final" on all Limits of Work. If the project Limits of Work were changed by an approved change order, identify the revised Limits of Work, date, and the approved change order number.
- Mark any on-site waste or borrow locations.
- Show changed roadway lighting depths, conduit locations, or foundation locations.
- Indicate any changes to landscaping seeding or plantings.
- Note changed access gate or R-O-W Fence locations.
- Note any site changes different than existing conditions shown on bid plans such as topsoil stockpiles, pipe extensions, etc.
- Identify and locate any research products installed within the project limits.
- Correct grade, elevations, cross section, or alignment of roads, earthwork, structures, or utilities if any changes were made from contract plans.
- Record any changes in details of design or additional information obtained from Shop Drawings specified to be prepared and/or furnished by the Contractor; including but not limited to changes in fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- Record changes in topography, invert elevations and grades of drainage installed or affected as part of the project construction.
- Record changes or modifications which result from the final inspection.

- Where contract drawings or specifications present options, only the option selected for construction shall be shown on the completed As-Built drawings.
- If borrow material for this project is from sources on Commission property, or if Commission property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations. Update the drawings including changes to the cross sections.
- The Final As-Built Ground Line (Finish Grade) is to be shown on the Cross Sections.
- Sketches may be added that clarify or document new findings or field modifications that need to be recorded.

Drainage:

- Show changed limits for Guide Rail and Shoulder Barrier installation
- Note additional underdrain locations and outlets.

Guide Rail:

- Note pipe and inlet relocations, extensions, size, and depth changes.
- Note any end treatment changes.

Utilities:

- The actual location, kinds and sizes of all subsurface utility lines and pipes not shown on the plans should be located, sized, and identified where possible.
- In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, these drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes, and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

Structures:

- Note if Stay-in-Place Forms were used and if Styrofoam inserts were incorporated.
- Note Reinforcement Bar changes to size and configuration.
- Show pile location changes and note tip elevations.
- Note any sheeting or shoring material not removed from excavations.
- Show changed zone paint limits.
- Record location and dimensions of any changes for the structure or within the building structure.

Foundations:

- Note any footing elevation changes.
- Note any reinforcing changes.
- Note any pile location, batter or length changes.
- Note any pile tip elevation changes.

Facilities:

- Include, as supplementary drawings, any systems designed or enhanced by the Contractor, such as, but not limited to, HVAC controls, fire alarm, fire sprinkler, irrigation systems, pumping equipment, hydraulic operating system, fuel system, electrical controls, one-line diagram, telemetry and SCADA system, conduit, and piping layout, etc.

7.6.2.5 AS-BUILT REVISION MARK-UPS

7.6.2.5.1 AS-BUILT PARTIAL REVISIONS

Since no erasure of original information is permitted, changes for minor revisions are to be made by adding the new information and crossing out the incorrect data. In areas where space is limited, cross out (X) and cloud the incorrect data and direct it to a new detail of the area. For more details on revisions, refer to section 7.4.1.1 Revision Block.

7.6.2.5.2 AS-BUILT SHEET REVISION

If a revised sheet is needed, the new sheet shall be sealed and signed by the Designer of Record (PE) making the revision. The original As-Bid sheet is not discarded. An "X" must be drawn from corner to corner of the borders.

All revisions must be clouded. The revised sheet is numbered with the same sheet number and includes an update to the revision block in the contract border for NO., REVISIONS, DATE, APPR described in section 7.4.1.1 Revision Block. If a single sheet is being revised several times, an "X" must be drawn on the original sheet and all subsequent sheets until the last revised sheet has been submitted. Label the sheet with the number and next letter in the alpha designation sequence using uppercase alpha characters (i.e., 18A, 18B, etc.) in the title block.

7.6.3 AS-BUILT DRAWING PROCESS

7.6.3.1 IN-HOUSE INSPECTION

For projects with in-house inspection, the Inspector-In-Charge shall forward the red-lined electronic As-Builts to the PTC Project Manager and/or the Construction Engineering Manager for a Quality Control review at the end of each project.

The Inspector-In-Charge shall complete and forward the Field Red-Line Checklist, the Final Contract Comparison and Summary Analysis Report, the As-Built drawings (or As-Built electronic files), and the original permanent shop drawings provided by the contractor to the PTC Project Manager for a Quality Control review.

7.6.3.2 CONSULTANT INSPECTION

The Consultant Project Manager and the Inspector-In-Charge will consult to determine which process will be used to create the project As-Built plans and specify the process within the PxP. The PTC Project Manager must agree with the process. They can choose one of two options:

1. A copy of the As-Bid plan set is Red-Lined electronically.
   a. PTC Automation Coordinator will create a Bluebeam session for all As-Built information to be recorded.
   b. PDF files must be saved without layer information.

2. The Consultant Project Manager transcribes all red-lines electronically onto the plans using the As-Bid CADD drawing files.
   a. As-Built information to be placed on a layer named "As-Builts".
   b. As-Built information to be recorded in RED.
   c. PDF files to be plotted at 300 dpi and without layer information.
   d. Publish a PDF set of As-Built plans.

The As-Built set will be completed in a maximum of 60 days from the date the red-lined electronic As-Builts are received from the Contractor. When the Consultant Project Manager has received the red-lined electronic plans, they will send a notification indicating the date the Inspector-In-Charge received the documents. This notification shall be used to document the completion deadline.

The Inspector-In-Charge will compare the Contractor's red-lined electronic plans against the Inspection maintained red-lined plans for completeness and accuracy.

Once the Red-Lines are converted into the As-Built set and the Field Red-Line Checklist is completed, the Inspector-In-Charge will notify the Consultant Project Manager, that the As-Builts have been completed. The Consultant Project Manager will perform a Quality Control review.

The Consultant Project Manager will notify the PTC Project Manager and the Inspector-In-Charge that the As-Built plans are complete and approved. The PTC Project Manager may review the approved As-Built plans at his discretion prior to submitting to CAB Construction.

7.6.3.3 COMPLETION OF AS-BUILT DRAWINGS

The completed working As-Built drawings shall be completed as follows:

When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" and the DATE in letters, in ARIAL font, minimum 18 size font or 3/16 inch high.

All other contract drawings shall be marked either "AS-BUILT" drawing denoting no revisions on the sheet or "REVISED AS-BUILT" denoting one or more revisions. The AS-BUILT/REVISED AS-BUILT markings shall be placed in the lower right corner of the plan sheet near the title block.

7.7 FULL PROJECT LENGTH PDFS

Projects may require a full project length pdf to be included within the plan set. If a project requires full project length pdfs, then there are various sheet lengths available within PTC's standard workspace. It is ultimately up to the Consultant Project Manager and Consultant Design Lead to determine the appropriate sheet lengths for the full project length PDF files. The following sheet sizes are available for PTC Full Project Length PDFs:

- 34"x48"
- 34"x60"
- 34"x72"
- 34"x96"
- 34"x108"
- 34"x120"

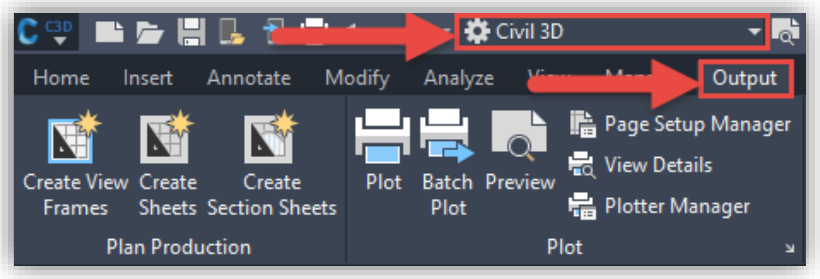
Once this length has been determined by the Consultant Project Manager and Consultant Design Lead, it must be approved by PTC's Design Services Unit. This recommendation and approval must be documented within the PxP.

The following sections below outline the steps for creating full project length PDF sheets. Workflows and requirements will remain the same for Revisions and As Built Drawings as stated in the above sections. The purpose of this sample print is to be viewed on a desktop or tablet at a 1"=50' scale and is not intended to be plotted for printing purposes. If plot sheets are requested, cut sheets can be created at various sizes that are only provided in the PTC Plan Sheet-C3D.dwt/PTC ORD drawing files, and as directed by the PTC PM. These sheets, despite being various sizes, shall also be at a 1"=50' scale to produce enough sheets to encompass the entire project plan set.

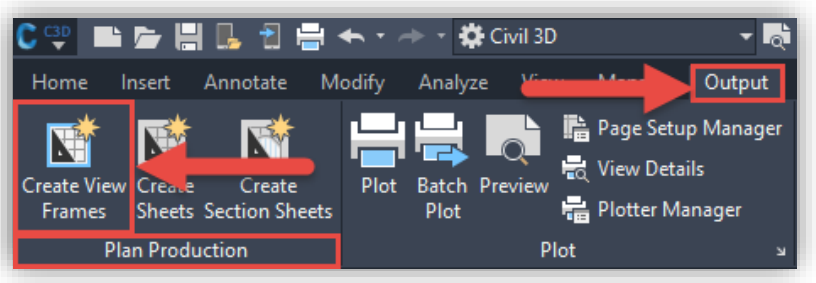
7.7.1 CIVIL 3D FULL PROJECT LENGTH PDF PLAN CREATION AND PRINTING

Step 1: Create a View Frame

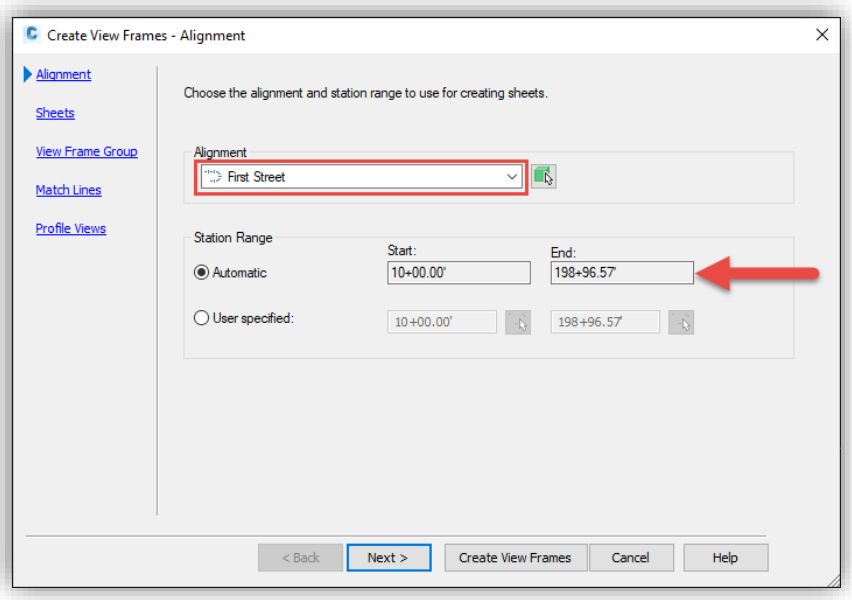
Begin with a 2D plan view of your project. From the "Civil 3D" Workspace, select the "Output" ribbon tab.



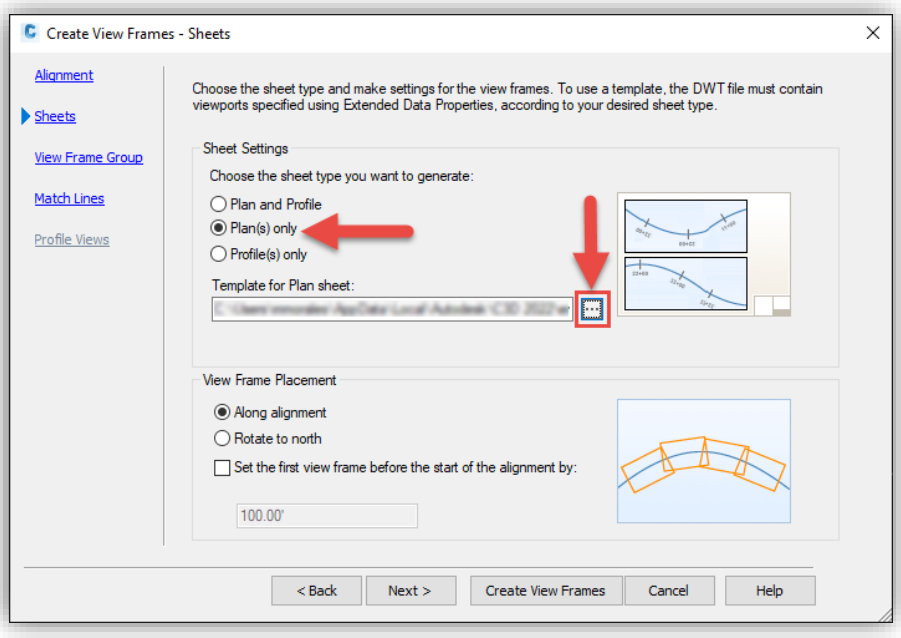
From the "Output" ribbon tab, select the "Create View Frames" tool from the "Plan Production" panel.



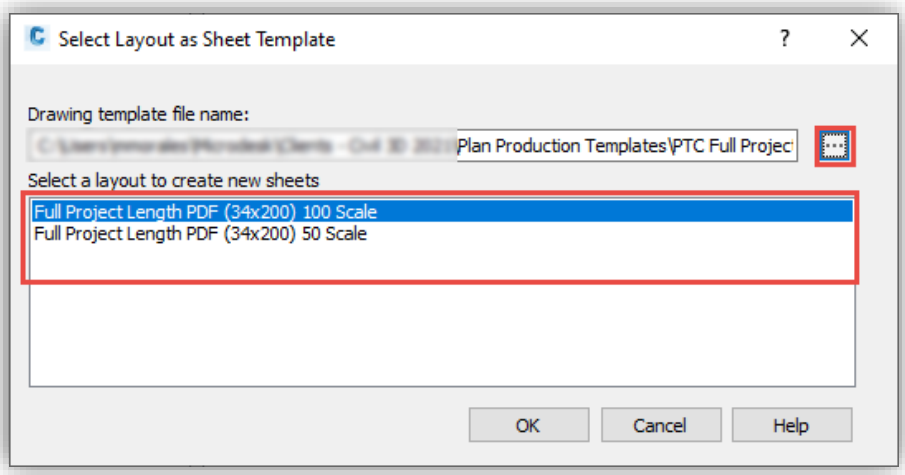
In the “Create View Frames” dialog box, select the desired “Alignment” from the Alignments pull down menu and specify the station range to be include (or leave it on Automatic to include the entire alignment) and choose “Next”.



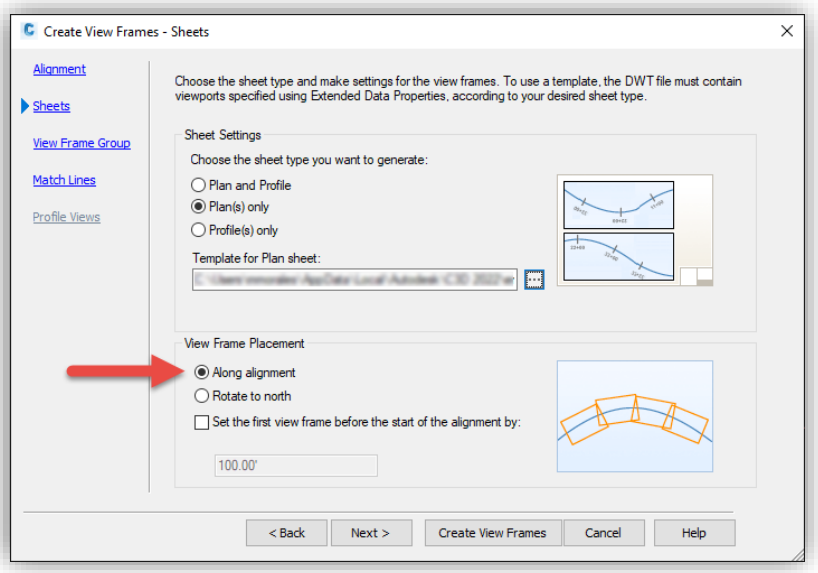
On the “Sheets” tab, choose the “Plan(s) only” option and then in the “Template for Plan sheet:” cell, select the ellipsis button to browse.



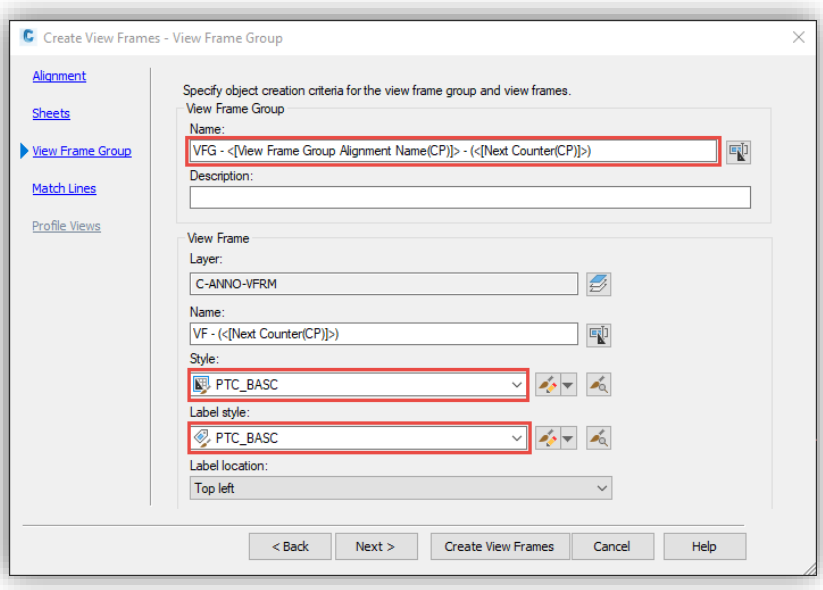
In the “Select Layout as Sheet Template” select the ellipsis once again and browse to where you have stored your PTC content and select “PTC Full Project Length PDF-C3D.dwt” and choose “Open”. You will then be returned to the previous dialog box and in the bottom pane you choose from the available scales and then choose “OK”.



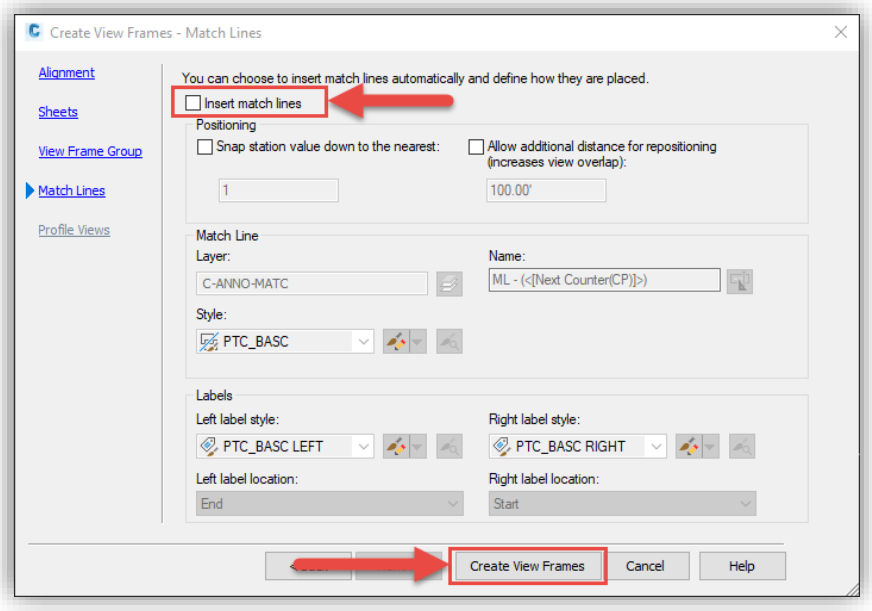
You will then be returned to the “Sheets” tab of the “Create View Frames” dialog box. In the “View Frames Placement” portion of the dialog box, select “Along alignment” so that your sheet rotates to accommodate your design and choose “Next”.



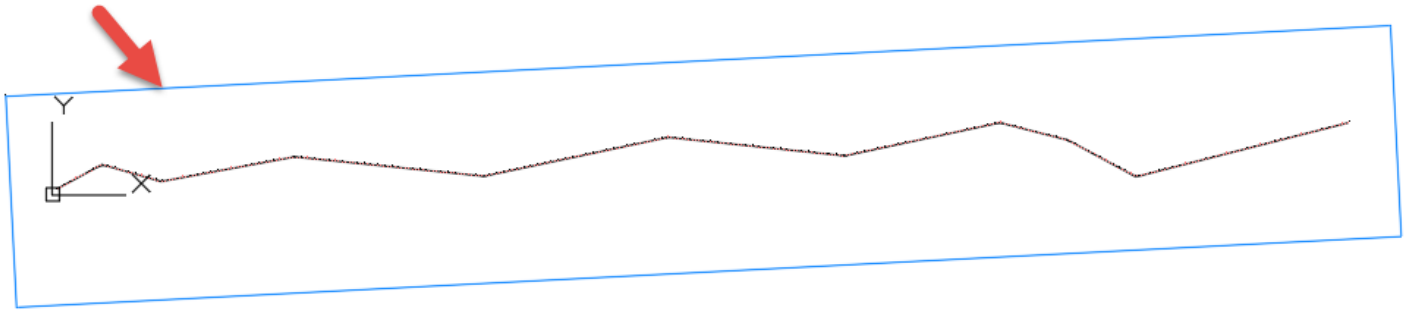
In the “View Frame Group” tab provide a name for the View Frame Group and choose a View Frame style and label if desired (otherwise leave as is to use the PTC Default). Choose “Next”



In the “Match Lines” tab, **disable** the “Insert match lines” and select “Create View Frames”.

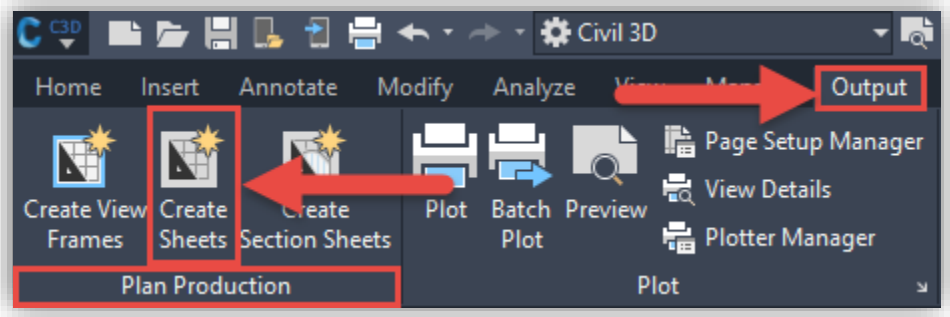


A View Frame will now have been placed around your design. Select the View Frame and use the grips to move or rotate the View Frame to your desired placement.

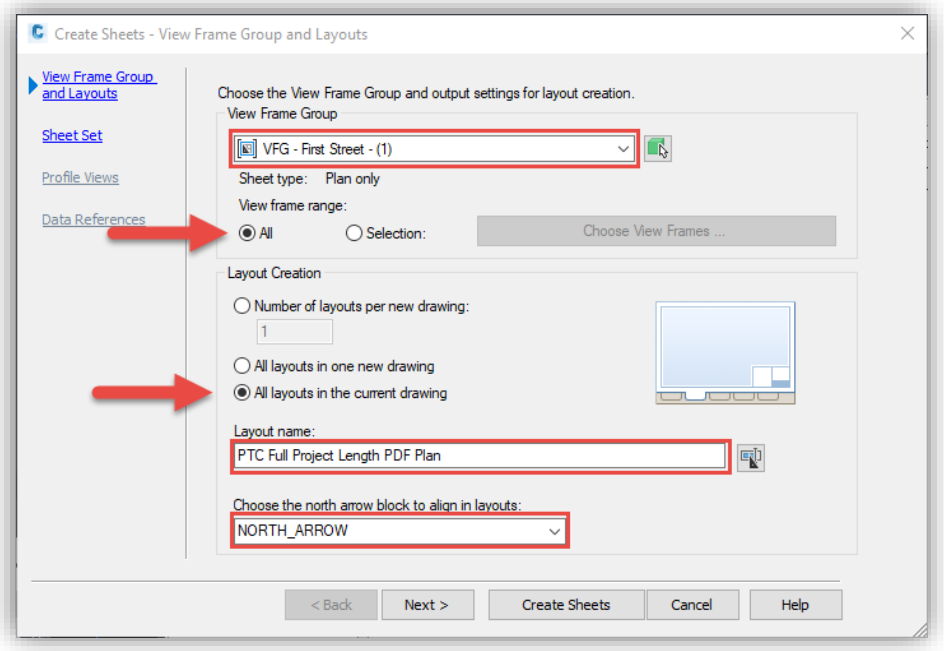


Step 2: Creating a Drawing

After you have completed the previous step and have placed your View Frame, you can now create your sheet. To do this, select the “Create Sheets” button from the “Output” ribbon tab on the “Plan Production” panel.

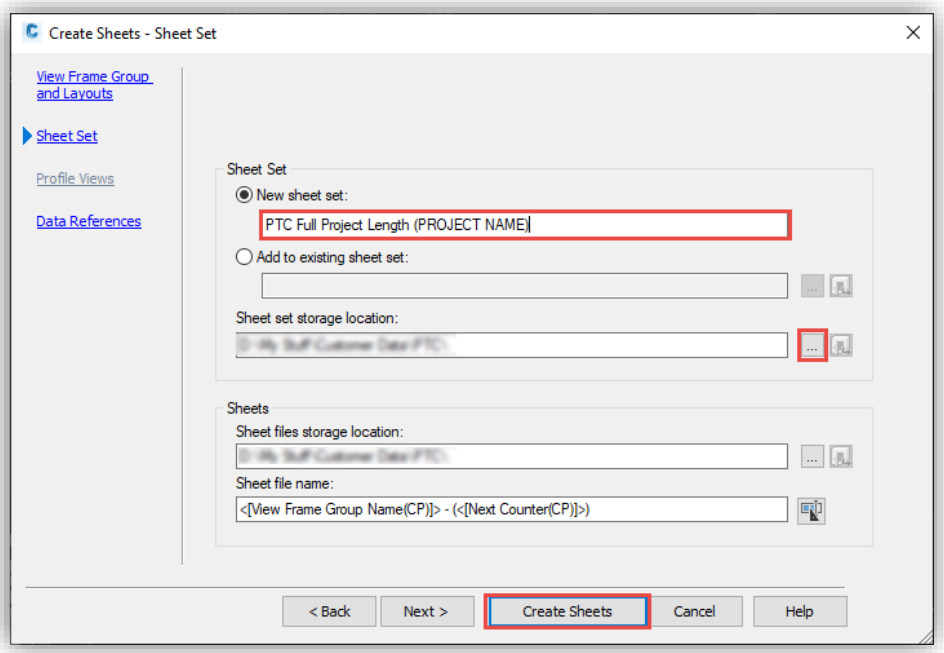


In the “Create Sheets” dialog box, choose the View Frame Group created in the previous step and set the View Frame Range to “All”. Next choose to have the new sheet created in this drawing or as a New Drawing. Provide a name for the Layout and choose the “NorthArrow” block from the drop down menu to have the north arrow inserted and rotated to the proper orientaion once your sheet is created, then choose “Next”.

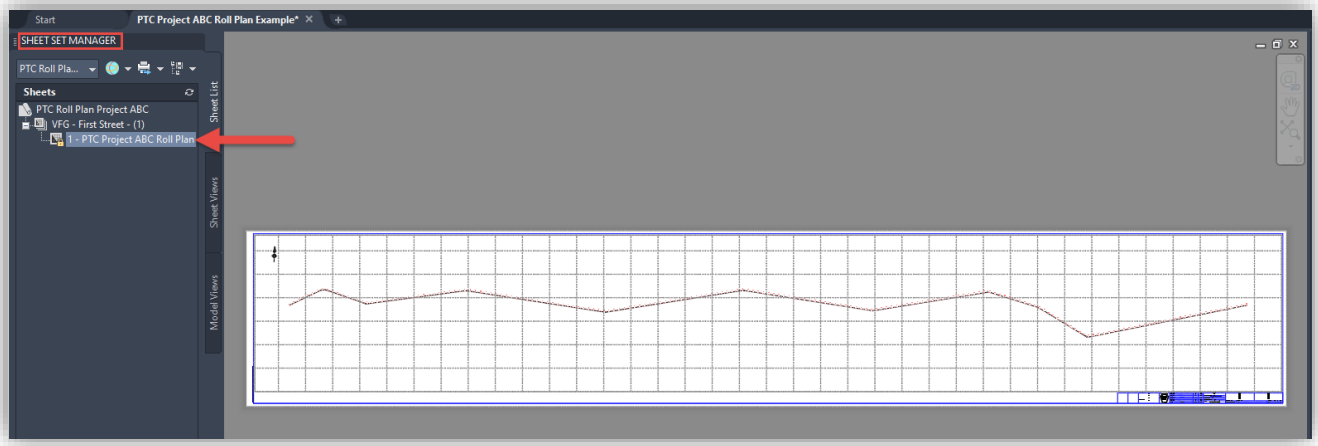


In the “Sheet Set” tab choose to add this sheet to an existing sheet set already created or create one if none exist. Choose a location to store the sheet set file and choose “Create Sheets”.

***Note: If you chose to have the sheet created in a separate file you will have an additional tab to review which will created and reference Data shortcuts into the new file. Except the defaults and choose “Create Sheets”.*



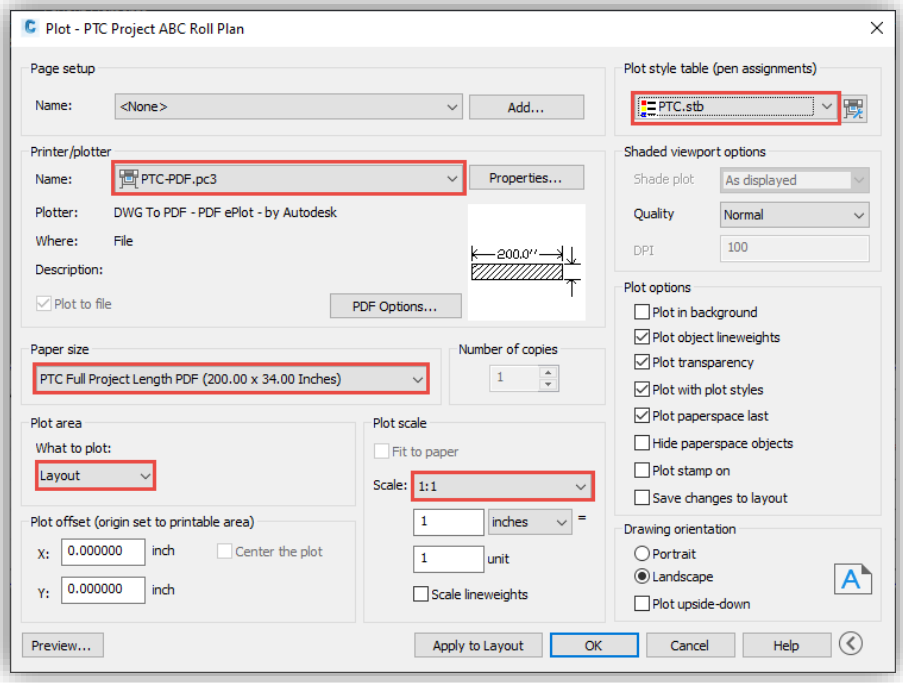
Your new sheet is now created and can be accessed by the Layout tabs within the software. Additionally, your Sheet Set Manager will have opened displaying your new sheet name. Double-clicking on the new sheet name will navigate you to your new sheet.



Step 3: Printing

Begin by selecting Print button from the Application Button or the Quick Access Toolbar along the top of the screen.

From within the Print dialog box, make sure that you have selected the “PTC-PDF” Printer/plotter driver and the PTC.stb Plot style table and then choose the “PTC Full Project Length PDF (200.00 x 34.00 Inches) Paper size. Set your Plot area to “Layout” and your scale to “1:1” and choose “OK”.



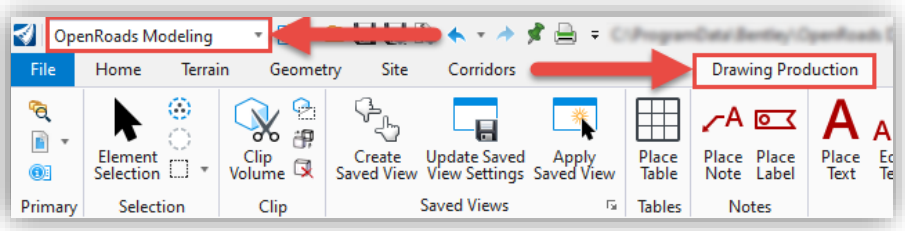
When prompted, choose a name and location to save your file and then choose “Save”.

Once the PDF print is complete, the file will open in your PDF viewing software so that you can review your file.

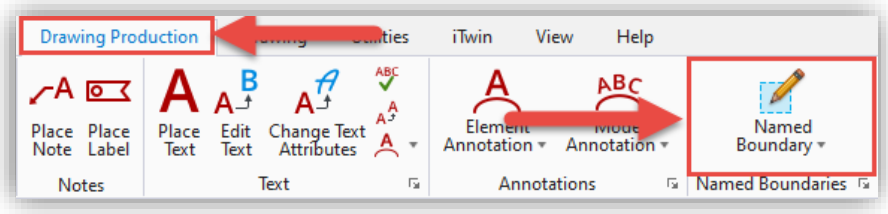
7.7.2 OPENROADS DESIGNER FULL PROJECT LENGTH PDF CREATION AND PRINTING

Step 1: Placing a Named Boundary

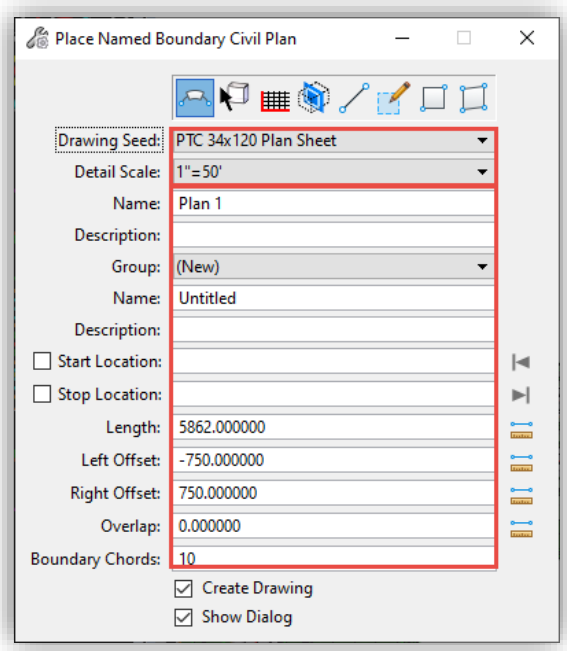
Begin with a 2D plan view of your project. From the “OpenRoads Modeling” Workflow, select the “Drawing Production” ribbon tab.



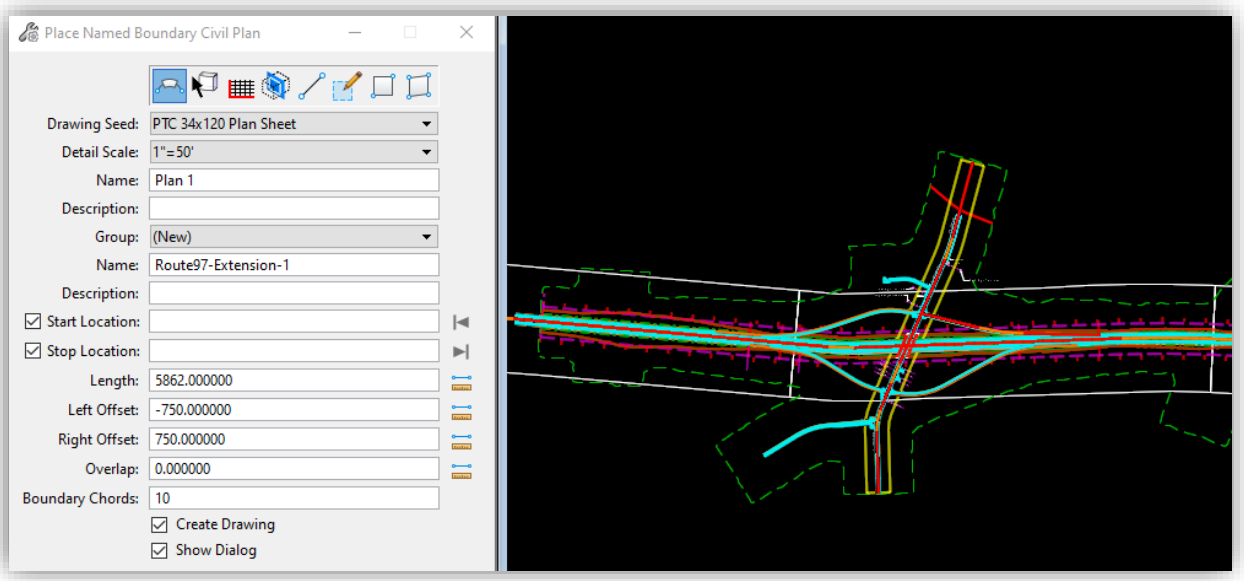
From the “Drawing Production” tab select the “Place Named Boundary” tool from the “Named Boundaries” panel.



In the “Place Named Boundary” dialog box, select the “Civil Plan” tab and on the Drawing Seed drop down select one of the extended PTC Sheet definitions. Next set your scale to 1” = 50’ and then complete the rest of the information as it relates to your project such as Plan Name, Description, and View Size. Also, make sure that the “Create Drawing” is checked.

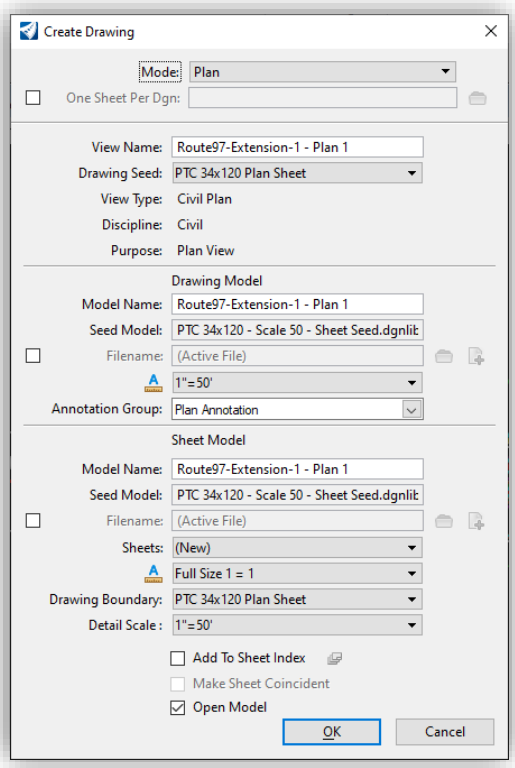


Next select your alignment from the View and specify your Start & Stop locations. Left-click twice near the start point of the alignment to place a boundary. Left-Click a third time to complete the process and open the “Create Drawing” dialog box.

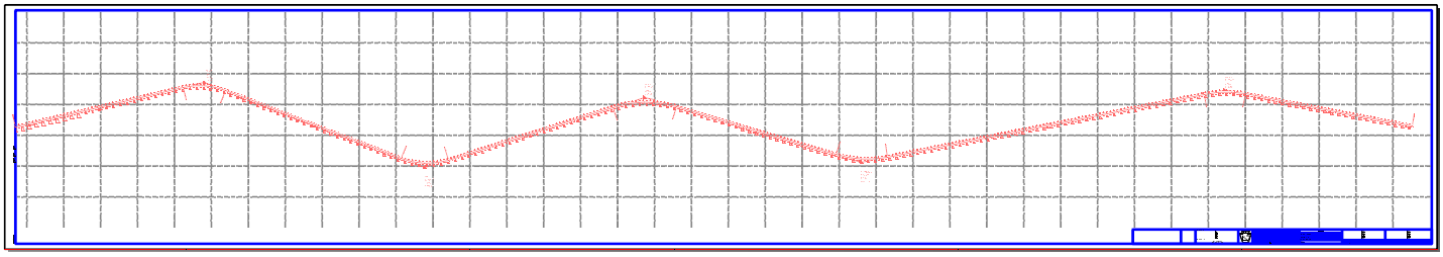


Step 2: Creating a Drawing

After you have completed your 3 left clicks over your alignment the “Create Drawing” dialog box will open. In this dialog provide a name and ensure that it is using an extended sheet Drawing Seed. The Drawing and Sheet Models should be already populated to use the PTC pre-setup Drawing and Sheet files. Choose an “Annotation Group” and check the “Add to Sheet Index” button along the bottom and Choose “OK”.

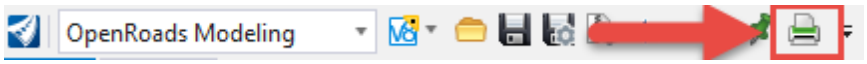


If you checked the “Open Model” button along the bottom, your new sheet should be displayed on the screen, if you didn’t check that box you can open the sheet by navigating to it from the Sheet Index Panel.

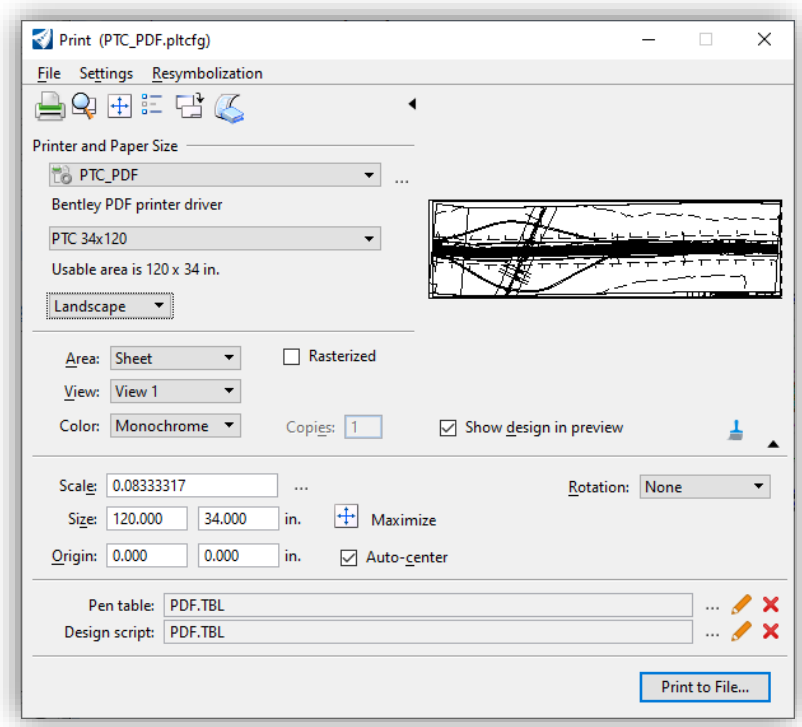


Step 3: Printing

Begin by selecting Print button from the Application Button or the Quick Access Toolbar along the top of the screen.



From within the Print dialog box, make sure that you have selected the “PTC_PDF” Printer driver and then choose the “Roll Plan” option from the paper size pull down. Verify the rest of the settings in this dialog and then choose “Print to File”.



When prompted, choose a name and location to save your file and then choose “Save”.

8. NAMING CONVENTIONS

All naming conventions and Project organization for PTC is in this section.

8.1 GENERAL NAMING CODES

8.1.1 PROJECT NUMBER

Every file must include the project number as part of its naming convention. PTC will provide a 'shortened project number' to be used for file naming that typically consists of the route abbreviation and mile post. The project number used for file naming will be documented in the PxP.

8.1.2 ORIGINATOR

The originator is a designation to represent the Consultant's organization, which created the file. The originator must be listed a part of every file's name. The originator's designation may be abbreviated depending on the organization's name and length. For example, Pennsylvania Turnpike Commission will be designated as "PTC". If using an abbreviation, then the abbreviation must be listed in the PxP and must stay consistent across all future projects.

8.1.3 DISCIPLINE CODE

The discipline designator consists of one character and is listed in the table below.

Table 8-1 Discipline Designator Codes

Discipline	Designator
Architectural/Interiors	A
Civil	C
Contractor/Shop Drawings	Z
Electrical	E
Fire protection	F
General	G
Geotechnical	B
Hazardous Materials	H
Information Technology/ Telecommunications	I

Discipline	Designator
Landscape	L
Mechanical	M
Operations	O
Other disciplines	X
Plumbing	P
Resource	R
Structural	S
Survey/Mapping	V
Traffic	T

8.1.4 USER DEFINABLE DESIGNATOR

The user definable designator is a custom descriptor to describe the file and is added to the end. The user definable designator consists of 4 characters or more. For example, if creating a model of a state road, then the description will

be the state road's abbreviation and numbers in its entirety (i.e. 'SR4052'). The file name will be 'A75.0-C-RC-SR4052.dwg'.

8.2 FILE NAMING

8.2.1 PROJECT INFORMATION MODEL FILE NAMING

PTC's standard naming convention for PIMs is listed in the table below:

Table 8-2 File Naming Convention

Project Number	Delimiter	Discipline Designator	Delimiter	Model File Type Designator	Delimiter	Originator	Delimiter	User Definable Designator	File Extension
T352.1R	-	C	-	FC	-	PTC	-	XXXX	.dwg
Example: T352.1-C-FP-PTC-STIL.dwg Example: T352.1-A-FC-PTC-SHED.dwg									

An example of this naming convention, given a corridor model of a roadway street named Stiles will have the model file name of 'T352.1-C-RC-PTC-STIL.dwg' with 'C' representing a Civil project (discipline designator) and 'RC' representing Roadway Corridor (model file type designator). The User Defined option in this case was 'STIL' to represent the street name Stiles. PTC is the organization who created the file.

8.2.1.1 MODEL FILE TYPE DESIGNATOR

The Model File Type Designator consists of two characters with examples listed the table below. This table is used as an example and is not limited to the characters listed.

Table 8-3 Model File Type Codes

Model File Type	Designator
Alignments	AL
Bridge	BR
Buildings	BD
Cross Sections	XS
Demolition	XD
Drainage	DR
Existing Conditions	EC
Earthwork	EW
Equipment	EQ
Erosion & Sediment Control	ES
Facilities	FC
Grading	GR
Highway Lighting	HL
Interiors (Architectural)	IN

Landscaping	LP
Maintenance and Protection of Traffic	MPT
Other	XX
Right of Way	RW
Roadway Corridor	RC
Property Lines	PL
Signing & Pavement Marking	SP
Traffic Signal	SG
Traffic Signing	SN
Transportation Site	TS
Utilities	UT
Wetlands	WL

8.2.2 PDF SHEET FILE NAMING

8.2.2.1 SINGLE SHEET PDF

For a single sheet PDF file, this will be named the same as the plot file from which they were created, with an additional sheet number (i.e. T256.4-1-RD-001.pdf). All sheet numbers must be shown as three digits within the file name. Therefore, sheet 1 will be shown as '001'. See section 8.4.1 Plot File Naming.

Table 8-4 Single Sheet PDF File Naming

Project Number	Delimiter	Sheet Designator	Delimiter	Plan Designator	Delimiter	Originator	Delimiter	Sheet Sequence Number	File Extension
T256.4R	-	1	-	BO	-	PTC	-	001	.pdf
Example: T256.4-1-HL-PTC-001.pdf									

8.2.2.2 MULTI-SHEET PDF

A multi-sheet PDF that is discipline specific and does not include the entire drawing will be named according to the following table. All sheet numbers must be shown as three digits within the file name. See section 8.4.1 Plot File Naming for the Sheet Designator and Plan Designator descriptions.

Table 8-5 Multi-Sheet PDF File Naming

Project Number	Delimiter	Sheet Designator	Delimiter	Plan Designator	Delimiter	Originator	Delimiter	First Sheet #	Delimiter	Last Sheet #	File Extension
T256.4R	-	3	-	RD	-	PTC	-	001	_	125	.pdf
Example: T256.4-2-DR-001_125.pdf											

8.2.2.3 PROJECT SET

Project Sets are a combined document of all drawings from the project and will be named according to the project number and the submission/package designator.

If submitting a PDF project set outside of the submission submittal, then a unique description must be added to the PDF set in place of the submission/package designator. Any unique descriptions require approval by the PTC's Design Services Unit.

Table 8-6 Project Set Naming

Project Number	Delimiter	Submission/ Package Designator	File Extension
T256.4R	_	DFV	.pdf
Example: T256.4_DFV.pdf			

The table below lists the designators for submission/packages to be used a part of the PDF project set's file name.

Table 8-7 Submission/Package Designator

Submission	Designator
Design Field View	DFV
Over the Shoulder	OTS
75% Design	75Design
Pre-Final PS&E	PrePSE
Final PS&E	PSE
Addendum	Addendum#
Bulletin	Bulletin#
As Bid	AsBid
As-Built	AsBuilt

8.3 MATERIAL NAMING

Under development….

8.4 CIVIL 3D / OPENROADS NAMING CONVENTIONS

8.4.1 PLOT FILE NAMING

See the following table for plot file naming within Civil 3D or OpenRoads:

Table 8-8 Plot File Naming

Project Number	Delimiter	Sheet Designator	Delimiter	Plan Designator	Delimiter	Originator	Delimiter*	Sheet Sequence Number or Range*	File Extension
T256.4R	-	1	-	BO	-	PTC	-	001	.dwg
Example 1: T256.4-1-HL-PTC.dwg Example 2: T256.4-1-HL-PTC-001.dwg Example 3: T256.4-1-HL-PTC-001_010.dwg *If applicable, sheet number and ranges are only required when there are multiple plot files with the same name.									

Notes:

- If required, an additional Sheet Sequence Number will be added to the end.
- Sheet number and ranges are only required when there are multiple plot files with the same name. In this instance, a sheet range must be denoted in the file name. The range is entered with an underscore i.e., '001_007'.

For Project Number see section 8.1.1 Project Number.

For Sheet Designator see section 8.4.1.1 Sheet Designator.

For Plan Designator see section 8.4.1.2 Plan Designator.

8.4.1.1 SHEET DESIGNATOR

The Sheet Designator, which describes the type of sheet, is listed in the following table:

Table 8-9 Sheet Designator

Sheet Type	Designator
General (symbols legend, notes, etc.)	0
Plans (horizontal views and combination plan and profile)	1
Elevations and profiles (vertical views)	2
Sections (sectional views, cross sections, etc.)	3
Maps or Aerial Views	4
Details	5
Schedules and diagrams	6
Typical Sections	7
3D Representations (isometrics, perspectives, photographs)	8

8.4.1.2 PLAN DESIGNATOR

The Plan Designator, which describes the type of plan set such as Roadway and Stormwater, is listed in the following table.

Table 8-10 Plan Designator

Sheet Type Designator (for reference)	Plan Description Designator	Description
0 (General)	GL	General Information
	GN	General Notes
	TL	Title Sheet
1 (Plans)	BO	Boring Plan
	CR	Contamination and Remediation Plan
	DR	Drainage Plan
	DP	Detour Plan
	EN	Environmental Plan
	ES	Erosion and Sediment Control Plan
	HL	Highway Lighting Plan
	ITS	Intelligent Transportation Systems Plan
	LP	Landscaping Plan
	MPT	Maintenance and Protection of Traffic Plan
	PC	Pollution Control Plan
	RW	Right of Way Plan
	RD	Roadway Plan
	SM	Signing and Pavement Marking Plan
	SP	Soil Profile Plan
	SW	Stormwater Management Plan
	ST	Structures Plan
	TS	Traffic Signal Plan
	UR	Utility Relocation Plan
	WM	Wetland Mitigation Plan
2 (Elevations, Profiles)	BO	Boring Elevations
	DR	Drainage Profile

	RD	Roadway Profile
	SP	Soil Profile
	ST	Structures Profile
	UR	Utility Relocation Profile
3 (Sections)	RD	Roadway Cross Sections
4 (Maps, Aerials)	BO	Boring
	DP	Detour
	DR	Drainage
	EN	Environmental
	GL	General Information
	ITS	Intelligent Transportation Systems
	LP	Landscaping
	RD	Roadway
	SW	Stormwater Management
	TS	Traffic Signal
	UR	Utility Relocation
	WM	Wetland Mitigation
5 (Details)	BO	Boring Details
	CR	Contamination and Remediation Details
	DP	Detour Plan Details
	DR	Drainage Details
	EN	Environmental Details
	ES	Erosion and Sediment Control Details
	HL	Highway Lighting Details
	ITS	Intelligent Transportation Systems Details
	LP	Landscaping Details
	MPT	Maintenance and Protection of Traffic Details

	PC	Pollution Control Details
	RD	Roadway Details
	SM	Signing and Pavement Marking Details
	SP	Soil Profile Details
	SW	Stormwater Management Details
	ST	Structures Details
	TS	Traffic Signal Details
	UR	Utility Details
6 (Schedules)	GL	General Information
	GN	General Notes
7 (Typical Sections)	RD	Roadway Typical Sections
8 (3D Visuals, Photographs)	BO	Boring
	CR	Contamination and Remediation
	DP	Detour Plan
	DR	Drainage
	EN	Environmental
	ES	Intelligent Transportation Systems
	LP	Landscaping
	RD	Roadway
	SM	Signing and Pavement Marking
	SW	Stormwater Management
	ST	Structures
	TS	Traffic Signal
	UR	Utility Relocation
	WM	Wetland Mitigation

8.4.2 LAYERS/LEVELS NAMING

All layers/levels contained within this Engineering Technology Standard have been defined using variations of the National CAD Standard layer guidelines.

All layers and levels must be named as follows:

Table 8-11 Layer/Level Naming Convention

Discipline	Delimiter	Major	Delimiter	Minor	Delimiter	Description 1	Delimiter	Description 2
C	-	CATV	-	LINE	-	OHVD	-	XXXX
Example: C-CATV-LINE-OVHD (Cable TV – Overhead Lines)								

For the layer discipline code, see section 8.1.3 Discipline Code. For a full list of layers/levels and their descriptions, refer to Appendix 15.5 Layer Scheme by Discipline.

If additional layers are required, they can be added to the layering scheme. The major components of a standard layer/level name for the Pennsylvania Turnpike Commission are defined in the table below. All new additions must follow the layer/level scheme standard as closely as possible.

Table 8-12 National CAD Standard Components for Layer Naming Conventions

Acronym	Description
Discipline	Discipline Code
Major	Major grouping of features that have common characteristics
Minor	Subgrouping of Major category
Description1	Extended description of layers for clarity (optional)
Description2	Further description of layers for clarity (optional)

8.4.3 ALIGNMENT NAMING

Alignment naming convention is determined by the type of alignment: primary, secondary, access road, or state/township roads. All alignments include a milepost a part of its naming convention. Each milepost must consist of three digits.

If creating an alignment outside of these categories, advise with the PTC Automation Coordinator for appropriate naming convention.

8.4.3.1 ROUTE ABBREVIATION

All alignments must include the route apart of their naming convention. The following table lists all routes with their corresponding roadway.

Route Abbreviation	Route Name
A	Northeast Extension
B	Beaver Valley Expressway
G	Amos K. Hutchinson Bypass *(a.k.a. Greensburg)*
H	Interstate 95 Connector

M	Mon-Fayette Expressway
S	Southern Beltway
T	Mainline Turnpike

8.4.3.2 PRIMARY ALIGNMENT NAMING

Primary alignment is an alignment that is part of the mainline. Naming convention is as follows:

Table 8-13 Primary Alignment Naming

Route Abbreviation	Start Milepost	Delimiter	Route Abbreviation	End Milepost	Delimiter	Owner
T	024.7	-	T	032.8	_	PTC
Example: T024.7-T032.8_PTC						

8.4.3.3 SECONDARY ALIGNMENT NAMING

Secondary alignments are alignments a part of an interchange including ramps and toll plazas. Ramps must be named as shown in Table 8-14 Ramp Alignment Naming and toll plazas must be named as shown in Table 8-15 Toll Plaza Alignment Naming.

Table 8-14 Ramp Alignment Naming

Route Abbreviation	Interchange Milepost	Delimiter	"RAMP"	Delimiter	Ramp Name
M	048.0	_	RAMP	_	C
Example: M048.0_RAMP_C					

Table 8-15 Toll Plaza Alignment Naming

Route Abbreviation	Interchange Milepost	Delimiter	TP
M	048.0	_	TP
Example: M048.0_TP			

8.4.3.4 ACCESS ROADS ALIGNMENT NAMING

Access roads are smaller alignments connecting roads from the primary and secondary roadways to either state, township, or other various roadways. Utilizing the access road abbreviations, all access roads will be named as follows:

Table 8-16 Access Road Alignment Naming

Route Abbreviation	Milepost	Delimiter	Access Road Abbreviation	Delimiter	Direction or Name
T	152.2	_	EAR	_	WB
Example 1: T152.2_EAR_WB Example 2: T186.7_SER_4					

The access road abbreviations are as follows:

Table 8-17 Access Road Abbreviations

Abbreviation	Description
EAR	Emergency Access Road
MR	Maintenance Road
SER	Service Road
SPR	Service Plaza Road
TA	Turn Around
XOR	Cross Over Road

8.4.3.5 STATE AND TOWNSHIP ALIGNMENT NAMING

State and township roads will utilize the abbreviation and designated route number. All state roads must list 4 digits and all township roads must list 3 digits for the route number, as shown in the examples below. The alignment naming convention is as follows:

Table 8-18 State and Township Roads Alignment Naming

PTC Route Abbreviation	PTC Milepost	Delimiter	State/Twp. Road Abbreviation	State Route/Township Route Number
T	286.1	_	SR	1059
Example 1: T286.1_SR1059 Example 2: A046.5_TR032				

Table 8-19 State and Township Roads Abbreviation

Abbreviation	Description
SR	State Route/Road
TR	Township Road

8.5 REVIT NAMING CONVENTIONS

Naming conventions specific to Revit elements such as families, parameters, subcategories, etc.

8.5.1 DATUM NAMING / NUMBERING

8.5.1.1 LEVELS

Levels must include a location designator followed by a level number. This table is used as an example and is not limited to the locations listed.

Table 8-20 Level Location Designator

Location	Designator
Top of Structural Slab	TOS
Top of Roof	TOR
Top of Finish Floor	TOFF
Structural Steel Level	SSL
Bottom of Ceiling	BOC

Table 8-21 Occupiable Levels Example

Location	Name
Roof	ROOF
Second Floor	SECOND FL.
First Floor	FIRST FL.
Ground Floor	GROUND FL.
Basement Level	BASEMENT

Example: TOS_GROUND FL.

Level Naming will vary by project. See PxP for detailed Level naming.

8.5.1.2 GRIDS

Horizontal Grid lines have an alphanumerical format and start with A.

Vertical Grid lines have a numerical format and start with 1.

Grids between major grid lines will include a period(.) and start a numerical format. For example, vertical grids will follow A.1, A.2, etc.., and horizontal grids will follow 1.1, 1.2, etc.

Grid numbering will vary by project. See PxP for detailed grid numbering.

8.5.2 SHEET NUMBERING

PTC's standard naming convention for sheet files will begin with a Discipline Code, followed by a hyphen (-), the building number, a hyphen (-), and a three-character or larger sheet code as defined below. This can be followed by a user defined code if necessary for transmittal of the file.

Sheet numbering on sheets will begin with the discipline code followed by a hyphen (-), then the building number, hyphen (-), followed by a 3 digit or larger sheet code, unless otherwise specified in the PXP**.** All code values can be found in the table below. The purpose of this sheet numbering scheme is to keep all plans associated of a similar level together.

Table 8-22 Sheet Numbering

Discipline Code		**Building Number**		**Sheet Code**			
				Plan Type	Level	Drawing Type	Area / Modifier (Optional)
A	-	1	-	1	0	1	A
A-1-101A							

For example sheet numbering please see the below. Each sheet number has been broken into its parts for reference.

A-1-101A

ARCH – BUILDING 1 – FLOOR PLAN / GROUND FLOOR / PARTIAL PLAN / AREA A

A-1-100

ARCH – BUILDING 1 – FLOOR PLAN / GROUND FLOOR / OVERALL PLAN

A-1-700D

ARCH – BUILDING 1 – DETAILS / GROUND FLOOR (GENERAL) / OVERALL PLAN / SHEET 4

Please see the below for Discipline, Plan type, and Drawing type designators as related to the table above. These will be used for all sheet numbering scenarios unless otherwise stated in the PXP.

Discipline - AIA standard values

	Cover Sheet
G	General
H	Hazardous Materials
V	Survey / Mapping
B	Geotechnical
C	Civil
L	Landscape
S	Structural
A	Architectural
I	Interiors
Q	Equipment
F	Fire Protection
P	Plumbing
D	Process

M	Mechanical
E	Electrical
W	Distributed Energy
T	Telecommunications
R	Resource
X	Other Disciplines
Z	Contractor / Shop Drawings
O	Operations

Plan Type Designator –

	ARCH	MEP	STRUCT
0	Cover Pages		
1	Floor Plans		Foundation Plan
2	Reflected Ceiling Plans		Framing Plan
3	Elevations	Controls	User Defined
4	Enlarged Plans & Sections		
5	Stairs	Schematics / Riser Diagrams	Specifications
6	Doors & Windows	Schedules	User Defined
7	Misc. Details & Elevations	Details	User Defined
8	Finish Plans	User Defined	User Defined
9	Furniture Plans	User Defined	User Defined

Drawing Type Designator - AIA standard values / May be numerical for detail or nonconforming sheets

0	Overall Plan
1	Partial Plans
2	User Defined
3	User Defined
4	User Defined
5	User Defined
6	User Defined
7	User Defined
8	User Defined
9	User Defined

8.5.3 WORKSET NAMING

There are two Workset naming typologies:

- Linked models
- Live geometry/non-links

Table 8-23 Workset Naming - Links

"_Link"	Delimiter	Discipline Code	Delimiter	Firm Designator	Delimiter	Link Description
_Link	_	A	-	PTC	-	Mechanical

Example: _Link_M-PTC-Mechanical

Table 8-24 Workset Naming - Live Geometry/non-links

Discipline Code	Delimiter	Firm Designator	Delimiter	Function / System	Delimiter	Subtype / Subsystem
A	-	PTC	-	Interior	-	Furniture
Example: A-PTC-Interior-Furniture						

For Discipline Code see section 8.1.3 Discipline Code.

For Firm Designator see PxP

8.5.3.1 FUNCTION/SYSTEM

The table below is an example for Function/System and Subtype/Subsystem but is not limited to this list.

Table 8-25 Workset Function/System and Subtype/Subsystem

Function/System	Subtype/Sub-system
Exterior	• Entourage • Landscape • Roof • Site • Walls
Interior	• Ceilings • Equipment • Fixtures • Furniture • Lighting • Slabs • Vertical Circulation • Walls
Electrical	• Auxiliary Power • Grounding • Lighting • Lightning • Power
Mechanical	• Chill Water • Controls • Ductwork • Equipment • Hot Water • Steam
Plumbing	• Compress Air • Domestic Cold Water

	• Domestic Hot Water • Domestic Hot Water Return • Fixtures • Natural Gas • Sanitary Sewer • Sanitary Ventilation • Storm
Structural	• Columns • Foundation • Framing • Slabs
Fire Protection	• Equipment • Sprinklers • Piping Wet • Piping Dry • Piping Preaction
CoreShell	Linked model of Gensler's Core and Shell
Structure	Linked model of Thornton Tomasetti's Structural model
Workset1	Created by default by Revit. Do not rename or delete this Workset.

8.5.4 FAMILY NAMING

Families will be named using a Firm Designator, then the Category Designator, then the Placement Designator, and last the Description. An underscore (_) will divide all designators.

Table 8-26 Family Naming

Firm Designator	Delimiter	Category Abbreviation	Delimiter	Placement Abbreviation	Delimiter	Description
PTC	_	WA	_	FB	_	Single
Example: PTC_WA_Concrete 4" or PTC_WN_FB_Single						

Table 8-27 Revit Category Abbreviation

Category	Abbreviation
Annotation Symbols	AN
Annotation Tags	TG
Casework	CA

Category	Abbreviation
Ceilings	CE
Columns	COL
Curtain Panel	CP

Category	Abbreviation
Detail Components	DTL
Doors	DR
Floors	FL
Furniture	FR
Generic Models	GM
Lighting Fixtures	LF
Mass	MS
Mullions	MUL
Profile	PR
Railings	RL
Rebar Coupler	RC
Rebar Shape	RS

Category	Abbreviation
Roofs	RF
Specialty Equipment	SE
Stairs	ST
Structural Columns	STR_COL
Structural Foundations	STR_FN
Structural Framing	STR_FR
Structural Stiffeners	STR_S
Structural Trusses	STR_TR
Title Block	TTB
Windows	WN
Walls	WA

Table 8-28 Placement Abbreviation

Placement	Abbreviation
Ceiling Based	CB
Face Based	FB
Floor Based	FL
Line Based	LB
Roof Based	RB
Wall Based (Basic Wall)	BW
Wall Based (Curtain Wall)	CW
General	XX

8.5.5 SYSTEM NAMING

Systems built in the model will be named for the type of function they serve followed by an underscore and sequential numbering starting at 1 for multiple of the same type of system.

Example: Plumb_Toilets_1, Plumb_Toilets_2, Plumb_SupplyToilets_1, Mech_ReturnHVAC_1, etc.

8.5.6 PARAMETER NAMING

Parameter names will be descriptive of both the specific element being manipulated and the dimension, quantity, or property being assigned. The parameter naming convention is designed to group parameters manipulating similar or the same elements together when they are sorted alphabetically.

Table 8-29 Parameter Naming

Assembly	Delimiter	Unit / Part	Delimiter	Dimension / Quantity / Property
Door	_	Opening	_	Width
Example: Door_Opening_Width or Door_Panel_Left_Offset				

Depending on the complexity of the family or the level of nesting of components within the family, additional levels of assembly level description may be added, or superfluous fields may be omitted, as necessary.

Materials and finishes will not be permitted in the naming of parameters, as these are subject to change as the project develops.

8.5.7 VIEW NAMING

The PTC view naming standard is as follows:

Table 8-30 View Naming

View Group Designation	Delimiter	View Type Designation	Delimiter	Location Designation	Delimiter	Description
DOC	_	PLN	_	BLDG	_	Level 01
Example: DOC_PLN_BLDG_Level 01 or WRK_ELEV_INT_Bathroom						

The following tables are examples for the View Group, View Type, and Location Designations but are not limited to these lists.

Table 8-31 Revit View Group

View Group	Designation
Working	WRK
Documentation	DOC
Presentation	PRES
Coordination	COR
Quality Control	QC

Table 8-32 Revit View Type

View Type	Designation
Floor Plan	PLN

Elevation	ELE
Section	SEC
Reflected Ceiling Plan	RCP
Detail	DTL
3D	3D
Legends	LGD
Drafting Views	DFT

Table 8-33 Revit Location

Location	Designation
(Full) Building	BLDG
Enlarged	ENL
Interior	INT
Exterior	EXT
Partial	PART
Stairs	STA

8.5.8 VIEW TITLE NAMING

View Titles should describe the view and not include any abbreviations or designators. View titles should reference the Parameter “Title on Sheet” not the View Name.

8.5.9 VIEW TEMPLATE NAMING

The PTC View Template naming standard is as follows:

Table 8-34 View Template Naming

Discipline Code	Delimiter	View Group Designation	Delimiter	View Type Designation	Delimiter	Description
A	_	COR	_	PLN	_	Construction
Example: A-_COR_PLN_Construction or S_DOC_ELEV_Framing						

For Discipline Code see section 8.1.3 Discipline Code.
For View Type Designation see section 8.5.7 View Naming.

8.5.10 FILTER NAMING

The PTC Filter naming standard is as follows:

Table 8-35 Filter Naming

Category Designation	Delimiter	Filter Function	Delimiter	Description
WA	_	LifeSafety	_	2hr
Example: WA_LifeSafety_2hr				

For Category Designation see section 8.5.4 Family Naming.

The Filter Function is a brief description of the intended function of the filter.

The Description is a brief explanation of the target of the filter.

8.5.11 DOOR NUMBERING

Door numbers will correspond to the room that they open into. If there are multiple doors to a room, a letter will be appended to the door number. For example, doors opening into room 101 will be 101 or 101A and 101B.

8.5.12 SUB-CATEGORY NAMING

Sub-Categories must be named after the element they are being assigned to. For example, Mullions, Frame, Panel, Glass are all Sub-categories of Windows.

8.5.13 PROGRAMMING NAMING / NUMBERING

Rooms, Spaces, Zones, and Areas will be numbered with a 3-digit number. The first number will correspond with the level. Meaning, rooms at level 1 will start at 100, rooms at level 2 will start at 200, and so on.

8.5.14 SCOPE BOX NAMING

Scope boxes will be named based on the Area or Zone. For example, Overall, Sector 01, Area 01, Zone 01, Part 01.

If there are multiple building in the same model than a building name must Prefix the Area / Zone.

Examples: Tollbooth_Overall or CAB Building_Area A

9. INFORMATION STANDARDS

Under development….

9.1 GEOGRAPHIC INFORMATION SYSTEM (GIS) STANDARDS

Under development….

9.2 ASSET INFORMATION STANDARDS

Under development….

9.3 INFORMATION EXCHANGE STANDARDS

Under development….

10. COLLABORATION STANDARDS

Standards and procedures for how projects will collaborate.

10.1 COLLABORATION STRATEGY

Review on what platforms and how project teams will collaborate.

10.1.1 COMMON DATA ENVIRONMENT (CDE)

CDE's are critical for the project as the single source of information used to collect, manage, and disseminate documentation, 3D models, and non-graphical information. The Common Date Environment is being utilized by PTC to conduct model reviews and utilized for project submittals. The CDE system being utilized for project submittals and other coordination will be identified in the PxP.

10.1.1.1 DOCUMENT MANAGEMENT

BIM360 will be used as a source option for sharing content. PTC will be the Host for this CDE and setup the appropriate permissions and security requirements on a per project basis. If additional permissions are needed, then the Design Consultant Project Manager must list this in the PxP with a request to PTC's Design Services Unit.

CDE:	Autodesk BIM 360
Host:	PTC
Purpose:	• Live Authoring platform • File Sharing • 2D & 3D Coordination • Shared 3D Content • Model Reviews

NOTE: CDE Systems are being investigated and implemented on Digital Delivery projects. The PxP will list which CDE system will be utilized for submittals model reviews. For all other submissions, the default CDE system for model submittals is Autodesk BIM360.

10.1.1.2 BIM 360 PLATFORM ACCESS

PTC can approve access to the BIM 360 platform. To gain access to this platform:

1. Initiate an email request to PTC Project Manager or the Design Services Unit. Include in your request:
    - Name
    - Email
    - Role (ie. Engineer, Designer, Contractor)
    - Project you will access
2. Accept membership to the project in the autogenerated email invitation from Autodesk. Save this email for future reference. You will need to confirm membership using your Autodesk Account. If you have never used your Autodesk credential, create one that is associated with your email.
3. If you are authoring your files in Revit, secure a BIM 360 Design Collaboration entitlement from your organization. PTC will not provide a Design Collaboration seat to external consultants. If AutoCAD is your authoring platform, you can skip this step.

10.1.1.3 CDE FOLDER STRUCTURE

CDE folder structure must follow standard PTC project folder structure, see section 10.2 Project Organization. PTC will setup the overall folder structure for submittals, however, it is the responsibility of the Design Consultant to add the

appropriate subfolders that reflects their file organization listed within the PxP following the structure listed in the following section.

10.2 PROJECT ORGANIZATION

The Commission has a standard folder structure for the organization of projects to be used internally and externally by outside consultants. The central goals of this structure are to improve coordination between groups and to facilitate the use of electronic information beyond the initial contract.

Data being transferred to the Pennsylvania Turnpike Commission should be organized in accordance with the standard folder structure described in section 0. It is each consultant's responsibility to organize data such that no model links or references are lost or broken. It is imperative for outside consultants to organize files on their server in accordance with the PTC folder structure so that reference model links are maintained between files when the project files are uploaded to the Commission's Common Data Environment storage location.

10.2.1 FOLDER STRUCTURE

All projects will be assigned a unique Project ID Number by PTC and distributed to all team members including outside consultants. This project number is **NOT** the 'shortened file number' used for file naming but includes the entirety of the Project ID. The following folder structure outlines the required folders that will exist on PTCs BIM 360 storage location for all projects:

- PROJECT ID #/WBS
  - SUBMITTALS
    - 30-DFV
      - FIO
      - MODELS
        - _Shortcuts* (this folder is only for Civil 3D projects)
        - BASE DATA
        - FEDERATED MODEL
      - PDF
    - 60-OTS
    - 75 DESIGN
    - PRE-FINAL PS&E
    - PS&E
  - WIP

*Note: there are additional optional subfolders that can be added to this structure which will be described in section **Error! Reference source not found.**.*

The structure and hierarchy of these folders will be included with every project submission. The following information describes what type of files are included within each folder:

- PROJECT ID is the top-level folder for a project. It will have 2 subfolders: SUBMITTALS and WIP (Work In Progress). The folder name will consist of the entirety of the Project ID.
  - SUBMITTALS will contain several subfolders, one for each phase of submission: 30-DFV, 60-OTS, 75 DESIGN, PRE-FINAL PS&E and PS&E. This is where the PxP will reside.
    - 30-DFV/60-OTS/75 DESIGN/PRE-FINAL PS&E/PS&E folders will each contain the subfolders described in detail below. The appropriate folder should be chosen based on the phase of submittal and the required model deliverables.

      - FIO stands for "For Information Only". This folder should contain any models or electronic files containing supplemental information to the MODELS and PDF folders for this phase of submission.

      - MODELS folder will contain all model files that pertain to the project that is being submitted for the current phase.

        This folder houses all model files and PIM data regarding specific elements such as alignments, surface/terrains, etc. These are the files that will develop the 3D models, as well as any 2D models or information that support project design. A BASE DATA folder must also reside in this location for

all existing model files (further explained below). For Civil 3D, this is where the Data Shortcuts folder will reside. *Note: additional subfolders as laid out in the PxP should also exist at this level, see section* ***Error! Reference source not found.*** *for more details.*

- _Shortcuts contain all data shortcuts for Civil 3D files. *This folder will automatically be created when setting up Data Shortcuts for your project, thus, it does not need to be manually created within the project directory. Contents in this folder are managed through the Civil 3D platform. Therefore, data and files are not permitted for editing from within this folder. *Note: This folder is only required for Civil 3D.*
- BASE DATA contains all existing information from survey, topo, existing drawing models, etc. The folder will include any survey files such as point files, tin surfaces/terrains, and any other information provided by the surveyor. The purpose of this folder is to house any existing information that is displayed on plot sheets as existing conditions. The existing condition files are not modified throughout the design phases. If a Civil 3D Survey Database is used for a project, then its location needs to reside under this folder. Drawings in the BASE DATA folder are for reference and will not serve as the Legal Document.
- FEDERATED MODEL is a combined project information model that is compiled from several PIMs from different disciplines into one. In other words, a federated PIM model is an assembly of distinct discipline PIM models to create one single, complete model of the project.
- Any optional subfolders described in the PxP will also appear at this level. These will contain drawings/models that are included in the project submittal. These subfolders should follow the rules dictated by Section **Error! Reference source not found.**

- PDF contain all electronically plotted plan sets in portable document format. This includes any PDF document that is included a part of the project submittal.

- WIP stands for Work in Progress. This folder should be used for the consultant to send any files needed to communicate to PTC between submittals. Nothing in this folder will be considered a submittal or legal document.

10.2.2 SUBFOLDERS

The folder structure must be determined by all project teams and specified in the PxP. Subfolders are not a requirement as part of the project directory folders, however additional subfolders are permitted for better organization of the project files. It is not necessary for each project file directory to have all subfolders listed in this section. The Consultant Project Team may add any that are applicable up to their discretion and adhering to the following criteria:

- The MODELS folder is permitted to have subfolders additional to those listed in section 0 The Commission has a standard folder structure for the organization of projects to be used internally and externally by outside consultants. The central goals of this structure are to improve coordination between groups and to facilitate the use of electronic information beyond the initial contract.

Data being transferred to the Pennsylvania Turnpike Commission should be organized in accordance with the standard folder structure described in section 0. It is each consultant's responsibility to organize data such that no model links or references are lost or broken. It is imperative for outside consultants to organize files on their server in accordance with the PTC folder structure so that reference model links are maintained between files when the project files are uploaded to the Commission's Common Data Environment storage location.

- Folder Structure. If working on larger projects that require specific discipline folders, then the subfolders listed below should be utilized.

  These folders are based on disciplines and varying components of a project design. It is not required to have all these folders listed within the shared folder. There are two options for additional folders based on Horizontal or Vertical design/construction projects.

The following folders are optional for **Horizontal Projects**:

Folder Code	Folder Description	Folder Code	Folder Description
DRAN	Drainage	ROAD	Roadway
ENV	Environmental	ROW	Right of Way
EROS	Erosion and Sediment	SHTM	Sheet Models
GEOT	Geotech	STRC	Structures
LDSC	Landscaping	TRAF	Traffic
LITE	Lighting	TRAN	Transportation Site
MPT	Maintenance and Protection of Traffic	UTIL	Utilities

The following folders are optional for **Vertical Projects**:

** Indicates Subfolder beneath Bridge Folder*

Folder Code	Folder Description	Folder Code	Folder Description
ARCH	Architectural	ENV	Environmental
BRDG	Bridge	EROS	Erosion and Sediment
ABUT	*Abutment	GEOT	Geotech
SLAB	*Approach Slab	LDSC	Landscaping
BEAM	*Beam	LITE	Lighting
BEAR	*Bearing Pad	MEP	Mechanical, Electrical, Plumbing
DECK	*Deck	ROW	Right of Way
DPHM	*Diaphragm	SHTM	Sheet Models
PIER	*Pier	STRC	Structures
PSRN	*Polystyrene	TRAN	Transportation Site
CIVL	Civil	UTIL	Utilities
DRAN	Drainage		

- The SUBMITTALS folder may have additional subfolders for any other required submissions as required by the PxP and deliverables listed in section 3.6.3 Deliverable file type.

10.3 INTEROPERABILITY

If projects require multiple software, then it is imperative for the Consultant to ensure all models function correctly when exchanging data across multiple platforms. There should be no loss of model or asset information when transferring models. When applicable, all models must remain geolocated in the proper, defined coordinate system. It is the Consultant's responsibility to ensure the interoperability of information exchanged across platforms.

11. COORDINATION STANDARDS PROCEDURES

This section will include standards and procedures for coordination.

11.1 GENERAL COORDINATION STANDARDS

Each project is coordinated based on a regular, iterative process. Throughout the project, the Consultant Project Team is required to hold regular Virtual Design and Construction (VDC) Coordination Meetings. During design, these meetings will be led by the Consultant Project Manager, or a person appointed by the Consultant Project Manager. During construction, it will be led by the General Contractor. These meetings will be used to review model and documentation progress, highlight constructability issues that have developed in the model, and coordinate model usage (such as model structure, linking of models, and collaboration views).

A 3D Coordination Schedule will be established by the Consultant Project Manager, or person appointed by the Consultant Project Manager, for the entire Design 3D Coordination effort, as outlined in the PxP.

Should a formal clash detection exercise with corresponding schedule be agreed upon among the project team, Autodesk Navisworks is the recommended platform. The creation of clash reports for distribution to the team may be produced using Navisworks.

11.1.1 OWNER REVIEW

PTC will be utilizing Navisworks to perform reviews on all coordination activities at each submission deliverable. PTC will set up a series of coordination views in Navisworks for specific sections and areas of importance. All 3D civil, architectural, structural, and MEP elements with the LOD matrix are expected to be shown in these views for coordination purposes.

11.1.2 CLASH SETS

The table below shows the different clash sets that will be determined applicable on a per project basis.

Table 11-1 Clash Sets

Search set name	Disciplines
CIVIL-STRUCT	Civil vs. Structural
CIVIL-ARCH	Civil vs. Architectural
CIVIL-MECH	Civil vs. Mechanical
CIVIL-ELECT	Civil vs. Electrical
CIVIL-PLUMB	Civil vs. Plumbing
CIVIL-TCOMM	Civil vs. Telecommunications
CIVIL-FP	Civil vs. Fire Protection
STRUCT_ARCH	Structural vs. Architectural
STRUCT-MECH	Structural vs. Mechanical
STRUCT-ELECT	Structural vs Electrical
STRUCT-PLUMB	Structural vs. Plumbing

STRUCT-TCOMM	Structural vs. Telecommunications
STRUCT-FP	Structural vs. Fire Protection
ARCH-MECH	Architectural vs. Telecommunications
ARCH-ELECT	Architectural vs. Fire Protection
ARCH-PLUMB	Architectural vs. Electrical
ARCH-TCOMM	Architectural vs. Telecommunications
ARCH-FP	Architectural vs. Fire Protection
MECH-ELECT	Mechanical vs. Electrical
MECH-PLUMB	Mechanical vs. Plumbing
MECH-TCOMM	Mechanical vs. Telecommunications
MECH-FP	Mechanical vs. Fire Protection
ELECT-PLUMB	Electrical vs. Plumbing

11.1.3 CLASH TERMINOLOGY

Clashes

A clash is the result of two 3D elements occupying and/or passing through one another in the same relative space within the model(s).

Single Discipline Clash

A single discipline clash is the process of performing coordination within a single discipline model. Individual disciplines must coordinate their own work before sharing with the rest consultant project team. Single discipline clashing is not part of the coordination process, and any impacts of improper single discipline clashing after coordination will be on the individual discipline to make correct.

Cross Disciplinary Clash

A cross-discipline clash is the process of aggregating multiple discipline model or model elements and performing a clash detection against those models or model elements.

Clash Report

A clash report is a document that contains all information pertaining to the clashes found during the clash detection. This information will be reviewed and edited by the Consultant Project Manager, or person appointed by the Project Manager, before publishing to the team and includes but is not limited to the following:

- Specific location, including images.
- Elements IDs of the objects in question.
- A description of the problem.
- Details of the date/revision/origin of the linked information being cross-referenced.
- Suggested solutions or actions to be taken, by whom and by what date.
- Author of the issue and the distribution list for information or resolution.
- Confirmation that the resolution has been tested in the model.
- Issue status: Pending Response, Overdue, Unsuitable, Response, Closed.

11.2 DESIGN COORDINATION

Design coordination standards within a singular discipline model file.

11.2.1 DESIGN REVIEW

It is necessary for the project to perform clash detection, the Consultant Project Manager shall appoint a Lead to collect consultant models, compile a coordination model for clash detection, and issue a clash report to all consultants prior to each coordination meeting. During coordination meetings, a virtual walkthrough of the model shall be conducted. Responsibility for correcting each critical clash will then be assigned and tracked as part of the meeting minutes.

11.2.2 CLASH TOLERANCE

Clashes should meet the tolerances listed in the table below. Clashes that are less than these tolerances may be ignored.

Table 11-2 Clash Tolerances

Clash Tolerance by System					
CIV	Civil	2”	**UTL**	Utilities	2”
MDC	HVAC Duct	2”	**MPI**	HVAC Piping	2”
PLU	Plumbing	2”	**SDP**	Fire Stand-Pipe	2”
SPK	Fire Sprinkler	2”	**ELC**	Electric	2”
FAM	Fire Alarm	2”	**BMS**	BMS	2”
COM	Communication	2”	**SEC**	Security	2”
STR	Structure	2”	**ARC**	Architecture	2”
MEC	Mechanical Equipment Clearance	2”	**SPI**	Sloped Pipes	2”

During coordination meetings, clash reviews will follow these procedures:

- Tolerances: Hard Clashes 6”, 3”, 1”
- Group Clashes by Level
- 5-10 Issues Per meeting

11.2.3 CLASH HIERARCHY

11.2.3.1 CIVIL AND STRUCTURE

Disciplines will be coordinated first and take precedence over other disciplines. For Civil, subsurface elements shall prioritize for clashes and issues addressed accordingly. If utility clashes are present, then it will be determined if the proposed design can be altered or if an existing utility can be relocated.

11.2.3.2 ARCHITECTURE AND STRUCTURE

Disciplines will be coordinated first and take precedence over other disciplines, this includes ceiling, walls, soffit framing, and king studs at doors etc. with the following exceptions:

- Ceilings should only be lowered (per an RFI request) if all other design alternatives have been exhausted.
- Architecture should be less significant in mechanical areas (e.g., Special/Main, Comm rooms, Mech rooms, primary/Main Electrical rooms, etc.) look for clear path requirements first.

11.2.3.3 STRUCTURE AGAINST MEP

Structural elements take priority to Mechanical, Electrical, and Plumbing elements in most cases. GC will dictate the MEP trader order.

11.3 CONSTRUCTION COORDINATION

11.3.1 INTERFERENCE CHECK / CLASH DETECTION

Under development….

11.3.2 CONSTRUCTION MODEL COORDINATION

Under development….

12. QUALITY ASSURANCE / QUALITY CONTROL

The quality of PTC Digital Delivery projects is a constant process of collaboration between the project team and the technology attempting to represent real-world assets. The following sections detail how to perform QAQC processes for all PIM deliverables.

12.1 QA/QC STRATEGY

The responsibility, software used, and frequency is dictated in the PxP.

Check	Description	Responsibility	Software Used	Frequency
Visual	*Ensure all model elements are intentionally modeled following the design, with no missing elements and removing all extra components.*	*All users*	*Civil 3D, OpenRoads Designer, Revit*	*Daily*
Clash	*Ensure all modeled elements in a single model are free of collisions between linked models, regardless of severity.*	*Consultant Project Manager or appointee by Consultant PM*	*Civil 3D, OpenRoads Designer, Revit, Navisworks, Glue*	*Agreed Upon*
Maintenance	*Ensuring models are set up appropriately, periodic audit & compacting the model, vetting links and references, and maintaining file size.*	*All users*	*Civil 3D, OpenRoads Designer, Revit*	*Weekly*
Standards*	*Ensure that the Project Information Modeling & CAD Standards are followed in all models.*	*Consultant Project Team*	*Civil 3D, OpenRoads, Designer, Revit*	*Before Submissions*
Integrity	*Ensure that the Project Facility Data has no undefined, incorrectly defined, or duplicated elements*	*Consultant Project Team*	*Civil 3D, OpenRoads, Designer, Revit*	*Before Submissions*

**Standards will also be checked by PTC's Design Services Unit to validate compliance with this document. A Customized Standards Checker specific to PTC projects will be executed at the 60% Design submission and 100% Design submission. See section 12.2.3 Consultant Quality Assurance for further information.*

12.2 QUALITY ASSURANCE

This section will outline quality assurance procedures to maintain quality Digital Delivery Models.

12.2.1 MODEL MAINTENANCE

The Consultant Project Team is responsible for maintaining models to assure high quality performance to avoid degradation of file performance, slowness in overall navigation, and corruption. The recommended model maintenance plan is suggested below, each project is required to list their model maintenance plan in the PxP.

• Function	• Recommended Frequency
• *Audit*	• *Once a week at the beginning of the week*
• *Compact*	• *Once a week at the end of the week*
• *Purge elements*	• *At major submissions & when transmitting file to consultants*
• *Purge Views*	• *At major submissions & when transmitting file to consultants*
• *Review Links & References*	• *When links are received, periodically there after*
• *Warnings Management*	• *Weekly – bi-weekly*

12.2.2 MODEL ARCHIVING

At key stages of the design process, a complete version of model data shall be compiled and copied into an archive folder to be managed by the Consultant Project Team. This subfolder shall be named according to the date of the archive and include a brief description of the project statues, submission, or deliverable. This subfolder will be saved underneath the 'Archive' folder per section 0 The Commission has a standard folder structure for the organization of projects to be used internally and externally by outside consultants. The central goals of this structure are to improve coordination between groups and to facilitate the use of electronic information beyond the initial contract.

Data being transferred to the Pennsylvania Turnpike Commission should be organized in accordance with the standard folder structure described in section 0. It is each consultant's responsibility to organize data such that no model links or references are lost or broken. It is imperative for outside consultants to organize files on their server in accordance with the PTC folder structure so that reference model links are maintained between files when the project files are uploaded to the Commission's Common Data Environment storage location.

Folder Structure.

12.2.3 CONSULTANT QUALITY ASSURANCE

PTC has developed a report to ensure all deliverables follow the Project Information Modeling & CAD Standards see section 12.3.1 PTC PIM Quality Review Report. It is the Consultant Project Team's responsibility to be in compliance with the Project Information Modeling & CAD Standards and PxP. The Consultant Project Team will perform their own internal QAQC of all deliverable contents for each submission to ensure the files comply with the information outlined in these standards.

12.2.3.1 QUALITY COMPLIANCE CHECKLIST

The PTC PIM Quality Review Report checks for compliance in the following mandatory fields:

File Availability, Filename and Folder Structure

All model files, project drawings, reference files, and PDFs will be named according to this standard and follow the folder structure defined in section 10.2 Project Organization.

Plan Set Preparation

All externally referenced files and/or images will be contained within the folder structure described in this standard. The title sheet, contract border, and drawing information along with the professional stamps provided will be used according to this standard without any modifications and/or alterations.

CAD Practice

The layers/levels provided within this standard will be used in all drawing files. All externally referenced files and\or images will have no self-referencing and set to “Relative Path”.

The following elements will be consistent with the Project Information Modeling & CAD Standards:

- Text Styles
- Dimension Styles
- Use of Sheet Sets

Plot Setup

Drawings will be prepared using the STB file (C3D) or TBL file (ORD) for the pen settings described in this standard. This will ensure consistency of plotting drawings from any workstation within the Engineering Department.

Submittals Information

PDF files are required at each submittal. They are to be created in full size (ANSI D), multi-sheet and grouped together by Plotsheet Type.

PIM Objects/Elements

All 3D objects and elements will be checked against the LOD and PxP per submission. Any annotation in relation to the 3D models must have all information extracted directly from that 3D object or element.

Element data: all elements and systems should contain the minimum amount of associated data for ease of identification, based on the data requirements established by PTC.

The following are minimum expectations for model development and quality throughout the Digital Delivery process:

- Dimensions: all dimensions shown on models or CAD drawings shall be generated automatically by the modeling or CAD software and shall not be overwritten or disassociated. Dimensions not explicitly shown may be determined by querying the model or CAD drawing, provided that when physically locating elements during construction, dimensions that are explicitly shown on the Contract Documents will take priority.

C3D objects will be managed to the following criteria:

- Surfaces
  - Surfaces and surface labels will be created and submitted as dynamic Civil 3D objects.
  - Surfaces are referenced into civil design files and with data shortcuts.
  - Surface styles are consistent with the template file PTC Standard-C3D.dwt.
- Alignments
  - Alignments and alignment labels are created and submitted as dynamic Civil 3D objects.
  - Alignments are referenced into civil design files with data shortcuts.
  - Alignment styles are consistent with the template file PTC Standard-C3D.dwt.
  - Alignments are not polylines representing alignments and will contain features related to this object. Profiles will be created using PTC’s issued styles. When alignments are used profiles will also be provided.
- Profiles
  - Profiles, profile views, and profile labels are created and submitted as dynamic Civil 3D objects.
  - Profiles are referenced into civil design files with data shortcuts.
  - Profile styles are consistent with the template file PTC Standard-C3D.dwt.
  - Drainage & Subsurface Utilities
  - Drainage, subsurface utilities, and labels are created and submitted as dynamic Civil 3D objects.

    - Drainage and subsurface utilities are referenced into civil design files with data shortcuts.
    - Drainage and subsurface utilities styles are consistent with the template file PTC Standard-C3D.dwt.
    - Drainage objects utilize the PTC Parts Catalog.
- Drainage & Subsurface Utilities
    - Drainage, subsurface utilities, and labels are created and submitted as dynamic elements.
    - Drainage and subsurface utilities styles are consistent with the PTC Standard-C3D.dwt and all parts extracted from the PTC Parts Catalog.
- Corridors
    - Corridors are created and submitted as dynamic Civil 3D objects and will utilize the provided code set styles.
    - Corridors are referenced into civil design files with data shortcuts.
    - Corridor styles consistent with the template file PTC Standard-C3D.dwt.
- Data Shortcuts
    - The Civil 3D Data shortcut folder will be available for archiving and located within the Model Folder. Data Shortcuts are essential for linking data to drawing objects. Points and or contours are imported and used with the proper surface guidelines and the PIM standard naming scheme will be applied.

ORD Elements will be managed according to the following criteria:

- Terrains
    - Terrains and terrain labels will be created and submitted as dynamic elements.
    - Terrains are referenced into civil design files with external references.
    - Terrain feature definitions are consistent with the DGNLIB file PTC_Features_Annotations_Levels_Elem Temp Imperial.dgnlib.
- Alignments
    - Alignments and alignment labels are created and submitted as dynamic elements.
    - Alignments are referenced into civil design files with external refernces.
    - Alignment feature definitions are consistent with the DGNLIB file PTC_Features_Annotations_Levels_Elem Temp Imperial.dgnlib.
    - Alignments are not polylines representing alignments and will contain features related to this element. Profiles will be created using PTC's feature definitions. If alignments are created, profiles will also be provided.
- Profiles
    - Profiles and profile labels are created and submitted as dynamic elements.
    - Profiles are referenced into civil design files with external references.
    - Profile feature definitions are consistent with the DGNLIB file PTC_Features_Annotations_Levels_Elem Temp Imperial.dgnlib.
- Drainage & Subsurface Utilities
    - Drainage, subsurface utilities, and labels are created and submitted as dynamic elements.
    - Drainage and subsurface utilities are referenced into civil design files with external references.
    - Drainage and subsurface utilities feature definitions are consistent with the DGNLIB file Drainage and Utilities Features Annotations Imperial.dgnlib.
- Corridors
    - Corridors are created and submitted as dynamic elements.
    - Corridors are referenced into civil design files with external references.
    - Corridor feature definitions consistent with the DGNLIB file PTC_Features_Annotations_Levels_Elem Temp Imperial.dgnlib.

Revit models will be managed according to the following criteria:

- Project origin
    - Models must be built in respect to 0, 0, 0 project origin established within the Architectural/Structural model.

    - This origin is often set at grid A-1 or to a prominent outside corner of the first-floor building slab. The finish floor of the first story or the level at grade is the Project 0 (or Z elevation).
    - Build all models for each story relative to this Project "0" to ensure that all discipline's models are spatially coordinated.
    - This origin shall be designated in the PxP and should be used throughout the entire 3D Coordination process, until sign-off and hand-off to PTC have occurred.
- Shared Coordinates
    - Each discipline is to acquire the shared coordinates from the Architectural model.
    - Preliminary models with acquired shared coordinates must be sent to the Architectural team for verification. Only verified models will be used for design.
- Insulation
    - When modeling piping or ducting that require insulation, make sure insulation is modeled, reflecting the total thickness of what will be installed.
    - Structural steel should presuppose 2-inch fireproofing in applicable areas and when clash tests are run, a tolerance of 2 inches will be set.
- Rooms and Spaces
    - Rooms must be defined in accordance with PTC room naming Guidelines; MEP spaces shall be properly specified.
- Fire Protection Design
    - Water supply pressure and flow rate must be determined before the fire protection system is designed.
- Generic Model Category
    - Only use the Generic Model category to create a new object as the last resort, as it reduces the functionality of visibility and graphics overrides.
    - If the Generic Model category must be used, create a subcategory for each major type of element represented.
- In-place Families
    - In-place component families are not allowed, except for custom components generally built on site or for building massing during design.
- Grouping
    - Grouping elements should be used sparingly because it negatively affects model performance.
    - If grouping must be used, do not group elements that are being hosted without also including their hosts. Consider using construction assemblies instead.

Any exceptions to these requirements or alternat processes should be requested for approval by the PTC Automation Coordinator prior to submitting the PxP.

12.3 QUALITY CONTROL

This section will outline quality control procedures for checking all 3D models. Quality control will be conducted by PTC for all deliverables.

12.3.1 PTC PIM QUALITY REVIEW REPORT

PTC will execute a PIM Quality Review Report for each submitted project to ensure all project deliverables are in compliance with this standard. The following sections specify when project reviews will be conducted and consequences for failing to meet requirements.

12.3.1.1 INTERIM PIM QUALITY REVIEW

- An interim review is mandatory for the following:
    - Total reconstruction projects
    - Bridge replacement projects

  - Utility, drainage, and/or stormwater construction projects
  - Construction projects with a design duration greater than 90 days
- Timeframe: 60 % Design submission. If there is no 60% design submission, then submittal timeframe will be dictated in the PxP.
- PTC will issue the results of the PIM Quality Review Report to the Consultant Project Manager.
  - Failure to comply with PTC Project Information Modeling & CAD Standards
    - PTC will notify the Consultant specifying failure areas.
    - Consultant Project Team will make all obligatory updates to be included with the next submission.

12.3.1.2 FINAL PIM QUALITY REVIEW

- A final review is mandatory for all Contract Drawings.
- Timeframe: 100% Design submission
- PTC will issue the results of the PIM Quality Review Report to the Consultant Project Manager.
  - Failure to comply with PTC Project Information Modeling & CAD Standards will result in the following for 100% Design:
    - PTC will notify the Consultant specifying failure areas.
    - 3 weeks are provided for the Consultant to correct the files.
    - At the end of the 3-week period, the Consultant must resubmit the file submission with all necessary updates.
    - A FINAL pass/fail Report will be issued.

12.3.1.3 PTC PIM QUALTIY REVIEW REPORT CHECKLIST

The checklist for PTC Project Information Modeling & CAD Standards Quality Report is located in the Appendix 15.14 Project Information Modeling & CAD Standards Quality Review Report. The checklist will be completed after running the Standards Model Checker.

12.3.2 STANDARDS MODEL CHECKER

The Model Checker automatically checks models and assists with verifying compliance to the PIM requirements outlined in this standard. The add-in is designed to quickly identify possible conflicts or areas of non-compliance in a model by running several standards checks, which can be viewed or exported for analytical review.
While the Model Checker should not supersede the rules or recommendations put forth by any authority having jurisdiction, it does provide useful guidance for 3D Model compliance throughout a project's development.

12.3.2.1 QUALITY CONTROL CHECKS

The model checker is to be run at Design Field View and Final PS&E submissions. The model checker is a point in time status of the model’s compliance with the Standards and does not preclude continuing work on the models.

13. SURVEY DATA COLLECTION

13.1 GENERAL SURVEY STANDARDS

The following standards apply to the collection of survey data:

- All Survey data for PTC projects will be collected using the following approved methods:
  - Total stations
  - LiDAR
  - UAV LiDAR
- At the start of a new collection project, surveyors will obtain maps and/or lists of approved existing monuments closest to the collection location from PTC.
- Surveyors when collecting data will utilize the codes provided in the "PTC-PEN-SURVEY" Description Key list to identify the information being collected at each location.
- All collected data processed into drawing format shall utilize the PTC provided drawing template and settings.

13.2 COORDINATE SYSTEM AND DATUMS

All survey deliverables are required to be on the designated coordinate system specified hereon. Examples of deliverables include but are not limited to:

- Project Data Files
- Drawing Files
- Fieldbook Files
- Reports

13.2.1 HORIZONTAL DATUM

The two horizontal coordinate systems for all PTC Projects are:

- **Pennsylvania State Plane Coordinate System, South Zone – NAD 1983** Coordinate System
  - Within the template files for C3D and seed files for ORD, the default coordinate system is set to "Pennsylvania State Planes, South Zone, US Foot (PA83-SF, NAD83)".
- **Pennsylvania State Plane Coordinate System, North Zone – NAD 1983** Coordinate System
  - Required for all projects along the Northeast Extension from mile posts 72 to 131 (i.e., A072-A131).
  - For projects in this location, coordinate systems in all C3D template files and ORD seed files need to be changed to "Pennsylvania State Planes, North Zone, US Foot (PA83-NF, NAD83)"

13.2.2 VERTICAL DATUM

The vertical coordinate system for all PTC Projects is:

- **NAVD 1988**

13.3 SURVEY POINT CODES AND LINEWORK CODESETS

The following standards apply to point codes and linework codesets:

- All collected field data will contain descriptions in all CAPS and adhere to the approved PTC field codes outlined in Appendix 15.8 Survey of the Appendices document.
- Linework Code Sets will be used in instances where drawn objects can be automated within the software. A complete list of approved PTC line codes can be found in Appendix 15.8 Survey in the Appendices document.
  - Points collected on a single object will be collected numerically or systematically to aid in the line generation.

- Whenever necessary, size information should be included immediately following the primary code for example, *(TREEG 36) = 36" diameter truck of Evergreen Tree*.
- Additional information should be included after the line code to drive the line generation. If points of interest are inaccessible, the length of an object can be measured and then following the line code the direction and length information can place a PI point on the line and then recall a point or close the figure.
- Line codes will be used when the point is located on a curve, circle, or rectangle so that linework generated can be displayed as proper curvilinear geometry and not segmented line fragments.

13.4 UNITS OF LENGTH

The following standards apply to units of length:

- All **collected data** will be in US Survey Feet with a precision of 0.0000'.
- All **survey figures** created from **collected data** will be in 3D and contain true 3-D length values.
- All figures dimensioned on plans will be annotated in 2-D lengths with an accuracy of 0.00'

The table below describes the accuracy standards for all collected data.

Table 13-1 LOCATION SURVEY ACCURACY STANDARDS

LOCATION SURVEY TYPE	ACCURACY STANDARDS	
	Horizontal	Vertical
Topographic/As-Built Surveys- (Paved Surfaces or Engineering Works)	± 0.06 ft	± 0.05 ft
(Natural Ground Points)	± 0.15 ft	± 0.15 ft
Pavement Elevation Surveys- Rehabilitation and other improvements of existing	± 0.05 ft	± 0.03 ft
Facilities which require accurate elevations of existing pavements		
Utility As-Built Surveys - (Above Ground Features or Engineering Works	± 0.20 ft	± 0.20 ft
Subsurface Utility Surveys- (Designating Services, per ASCE Guideline 38-02)	± 1.00 ft	N/A
(Locate Services/Test Hole, per ASCE Guideline 38-02)	± 0.10 ft	± 0.10 ft
Archaeological Site/Environmentally Sensitive Area Surveys	± 0.50 ft	± 0.50 ft
Spot Location or Monitoring Surveys- (Paved Surfaces or Engineering Works)	± 0.08 ft	± 0.05 ft
(Natural Ground Points)	± 0.15 ft	± 0.15 ft
Vertical Clearance Surveys- (Paved Surfaces or Engineering Works)	± 0.10 ft	± 0.10 ft
(Natural Ground Points)	± 0.10 ft	± 0.10 ft

13.5 SURVEY EXISTING CONDITIONS

All data collection, review, and approval must be performed under the supervision of a licensed Land Surveyor and registered in the state of Pennsylvania.

Below lists the necessary steps for collecting existing field conditions for deliverables:

- Prior to starting a collection effort, research of existing records should be performed to identify existing record boundaries, easements, and ownership.
- When beginning projects, comply with the following for collecting data:
- When starting a new collection effort, always use a new, empty project file.
- If returning to a project location for additional survey, use a new project file and do not add to the previous collection file.
- When returning to collect additional survey data, include a point number offset so that duplicate numbers are not created and so that the new data remains sequential. (If this is not done in the field, this can be done upon imported to make the numbers unique and can be integrated into previously collected data.)
- Begin each project by locating at least one PTC approved existing monument within the project area. All project control points must indicate whether they are “Found” or “Set” control points and should back sight to an approved PTC monument.
- Once control has been established, collect all necessary data required to create a complete map of all features located at the project location.
    - When collecting information of surface features, use the provided PTC field codes as the description Appendix 15.8 Survey followed by any dimensional data and then add the required line code data to the end of the description so that the linework can be generated.
    - Whenever possible, collect points on each object in a sequential fashion to aid in the line generation.
    - If topography is to be included in the collection effort, collect ground data at no greater than a 25’ grid.
    - If roadway cross sectional data is to be included, collect cross sectional data at no less than 50’ sections unless otherwise directed by PTC.
    - Any structures, fences, and encroachments within a 25’ proximity of the project extents is to be included in the collected data as well.
- Once the collection effort is complete, all data must be balanced. Balancing should be performed in the field instrument used to collect the data.
    - Note: if the data is unable to be balanced in the field equipment, balancing can be done after the data has been imported into the design software.
- After collection and balancing is complete, all data is to be imported into a new project survey database and should include all points, networks, traverses, and survey figures. Once the survey database is populated, a 3-dimensional Least Squares Analysis is to be performed on the network to a 95% confidence level (the Least Squares input file and calculation report are to be included with your submittal to PTC).

13.5.1 TOTAL STATION SURVEY DELIVERABLES

Upon completion of any PTC survey project, the following are the required deliverables to PTC for review and acceptance in addition to all previously agreed upon deliverables per the project contract.

- PDF prints of all collected data within the extents of the project area at a size and scale relative to the size of the project while remaining legible and clear. Prints should include:
    - Project name and contract number.
    - Identity of approving licensed surveyor.
    - Dates of survey and submittal.
    - Monumentation used to complete the survey.
    - Scale and North direction.

  - Labels indicating ownership and road or highway names.
  - Points and linework collected in the field.
- Model file (dwg or dgn) containing:
  - All Survey Points, Figures, Traverses, & Networks
  - Located on approved Coordinate System.
  - Intelligent TIN Surface model
- Survey Database containing all collected data. **Applicable to Civil 3D only.*
- Fieldbook file (.fbk) of the raw data collected.
- Least squares analysis Input file and calculation results report.
- Copies of all field notes taken at the time of collection.

13.5.2 LIDAR SURVEY DELIVERABLES

Upon completion of any PTC lidar survey project, the following are the required deliverables to PTC for review and acceptance in addition to all previously agreed upon deliverables per the project contract.

- PDF prints of all collected data within the extents of the project area at a size and scale relative to the size of the project while remaining legible and clear. Prints should include:
  - Project name and contract number.
  - Identity of approving licensed surveyor.
  - Dates of survey and submittal.
  - Monumentation used to complete the survey.
  - Scale and North direction.
  - Labels indicating ownership and road or highway names.
  - Points and linework collected in the field.
- Model file (dwg or dgn) containing Point cloud data and an OPTIMIZED intelligent TIN Surface.
- Registered lidar data on approved coordinate system, optimized and free of extraneous debris in file format LAS, LAZ, RCS, or RCP as well as any supporting folders required to populate the LiDAR model.
- Copies of all field notes taken at the time of collection.

13.6 SURVEY TEMPLATES

13.6.1 CIVIL 3D

- Prior to working with any PTC survey data, the "Survey Data Settings" require that a file folder be created at **"C:\PTC Standard Content\PTC Survey Settings"** on the root drive of the computer processing the information. The file entitled "PTC Survey User Settings.usr_set" will configure the software to look in this location for the preconfigured survey settings, linework code set, equipment database, and figure prefix database as well as many other settings.
- The PTC drawing template does not come with a preassigned coordinate system assigned to it therefore this must be set prior to populating any data in the drawing file. The Civil 3d database has its own coordinate system that is required to be set that is independent from the drawing file. The PTC Survey database settings files do not contain preassigned coordinate systems assigned to it and need to be set prior to importing any survey data. All design files that utilize the survey database must have the coordinate system set and synchronized within both the drawing files and the external database as well.
- Variable sized objects located in the field (such as a tree) will have a size parameter included in the description following the point code and delimited by a (space) so that this size can be used to scale and display symbology that is representative to actual size of the object located.
- The PTC-PEN-SURVEY Description Key Set will be used from within the PTC drawing template so that the points imported can be utilized to configure layers and display properties of data collected.
- PTC utilizes Linework Code Sets to automate the linework generation of data collected in the field. The approved Linework Code Set is included with the PTC Template and Survey Settings provided. Linework Code Sets are used to instruct the software on how to draw many of the objects located in the field automatically. These codes are placed after the point code description (and/or object size) and delimited by a (space).
- Example of line code work generation
    - (Example: BUI2 B, BUI2 C, BUI2 E)
    - (Example: BUI2 RT -4 RPN415 RPN416 RT -36 -4 24 CLS)
- In Civil 3d the survey database has its own units setting for the database that are separate from the drawing units and should be setup to match the units of the PTC drawing templates and design files. The Survey Database configuration files provided contain a Survey Database Users settings file (PTC Survey User Settings.usr_set) that will set this up to PTC standards. Ensure that you have created a folder on the "C:\" location entitled "PTC Standard Content\PTC Survey Settings" and that you have extracted all configuration files to this location to ensure consistency with all project and PTC Standards.
- Prior to balancing any survey data in Civil 3d, the calibration information from the field equipment used should be entered into the PTC Equipment Database to match the equipment used.
- Civil 3d 2021 drawing files containing Total Station survey information should include:
    - All Survey Points, Figures, Traverses, & Networks
    - Approved Coordinate System
    - Intelligent Civil 3d TIN Surface (optimized)
    - Civil 3d Survey Database containing all collected data.
- Civil 3d 2021 drawing files containing Point Cloud data should include all lidar data and an optimized intelligent Civil 3d TIN Surface. All registered lidar data shall be on an approved coordinate system, optimized and free of extraneous debris in file format LAS, LAZ, RCS, or RCP as well as any supporting folders required to populate the lidar model.

13.6.2 OPENROADS

- Prior to working with any PTC survey data, the “Survey Data Settings” require that configuration files and folder structures be copied into their correct locations.
    - File: “PTC CAD Standards.cfg”
    - Stored: C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\WorkSpaces
    - File Folder: “PTC CAD Standards”
    - Stored: C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\WorkSpaces
    - File: “PTC CAD Standards.cfg”
    - Stored: C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\Organization-Civil
    - File Folder: “PTC CAD Standards”
    - C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\Organization-Civil
- After all files and folders have been copied into the correct location defined above, launch Open Roads Designer 2020 Release 3 Version 10.09.00.91 and choose the PTC CAD Standards Workspace and create a new WorkSet for the project.
- Prior to importing any survey data make sure to set the Master Units, Sub-units, and precision to the units required for your project (metric or US Survey Feet).
- The PTC Open Roads Designer Workspace does not come with a preassigned coordinate system assigned to it therefore this must be set prior to populating any data in the drawing file. To do this from the “Survey” Workflow, switch to the “Utilities” ribbon tab and choose “Coordinate System” from the “Geographic” panel.
- When survey data is processed, each field shot is stored as a Point Feature in the current Field Book within the active model of the active design file. When the survey data is processed, the code is plotted in Open Roads Designer using a standard cell element. OpenRoads Designer does not place any annotation with the survey information. Annotations are added using the Survey Decorations or Element Annotation commands.
- A series of points representing curvilinear features can be connected as a Linear Feature. Linking Codes, which are special characters that are entered after the feature name as the data is collected, are used to define the linear features. Refer to the link code list within the Workspace for predetermined codes.

14. PROJECT WORKFLOWS

This will flow in the way a project lifecycle processes.

14.1 DESIGN SUBMITTAL PROCESS

Under development….

14.1.1 BIM360 PIM SUBMISSION PER DESIGN PHASE

Each Design Phase shall be represented as a “Set” in BIM360 Docs. The “Version” of the model files shall be preserved within the Design Phase Set by navigating to the files in the “Folders” section of BIM 360 Docs, selecting the desired documents and editing the set assignment to one of the Design Phase Sets. This will assign the current active version of the file to the prescribed set. When navigating the Design Phase Sets, the version preserved in the set will be the version that was active at the time of assignment to the Set. The model file within “Folders” will continue to maintain the latest versions of the file, while the files moved to the sets will act as a time capsule for the files.

The “Current Set” will display the latest versions of the files as per their issue date (determined by the Sets themselves, and not when the file was uploaded or saved), collected from all the Sets. By utilizing this workflow, it becomes unnecessary to rename files for archiving purposes.

14.2 CLOSEOUT/HANDOVER/TURNOVER

A full Digital Delivery project lifecycle also contains steps on what to do with the digital assets at the end of design and construction. These assets include PDF construction drawing set versions, 3D models (DWG, DGN, NWC), work-in-progress and revision models as well as 2D CAD created throughout the design and construction process whether for record or for post-occupancy uses.

Refer to Section 3.1 Deliverables in the PxP for schedule of requirements.

14.3 PIM HANDOVER

At completion of design, final PIM deliverables to contractor and PTC are the collection of individual Design Models as received from the Model Element Authors(s) 3D models in the native file format. This includes any federated model(s) comprised of those individual Design Models. In addition, federated model(s) shall be created for each Design Model with all 2D content removed.

14.3.1 FINAL QAQC

An extensive round of quality assurance as outlined in section, coordinated among the design team with consultants responsible for their own files before being submitted to lead design team to compile.

In addition, prior to archiving the project, steps to be taken to transform the design and construction models for post-occupancy use include:

- Aggregate of all design iterations of models i.e., detached submission models, local standards ‘frozen’ or permitting models, etc.
- Purging models of internal design team’s working or coordination views
- Audit/compact to reduce file sizes to an appropriate usability for day-to-day use.

15. APPENDICES

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15.1 EXAMPLE PLANS

15.1.1 CIVIL 3D EXAMPLE PLANS

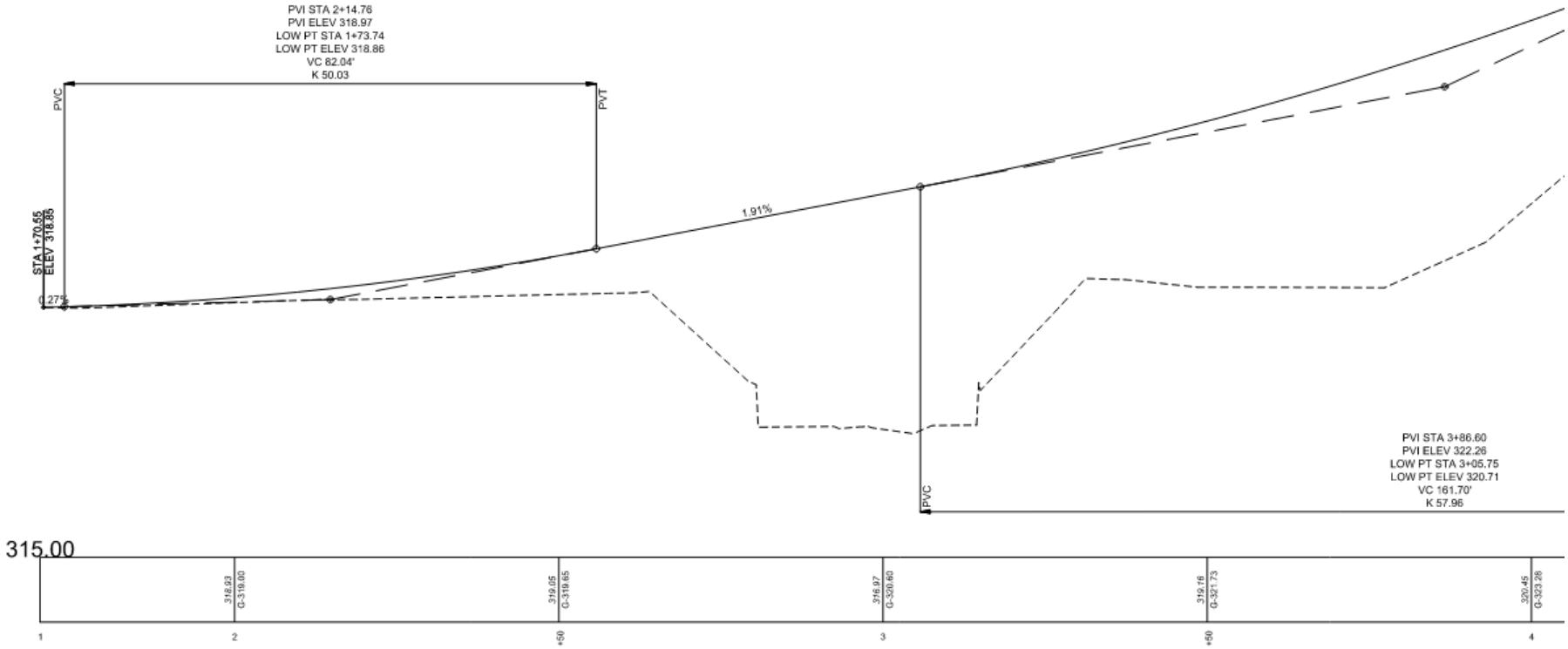


Figure 15-1 Civil 3D Profile Example Plan

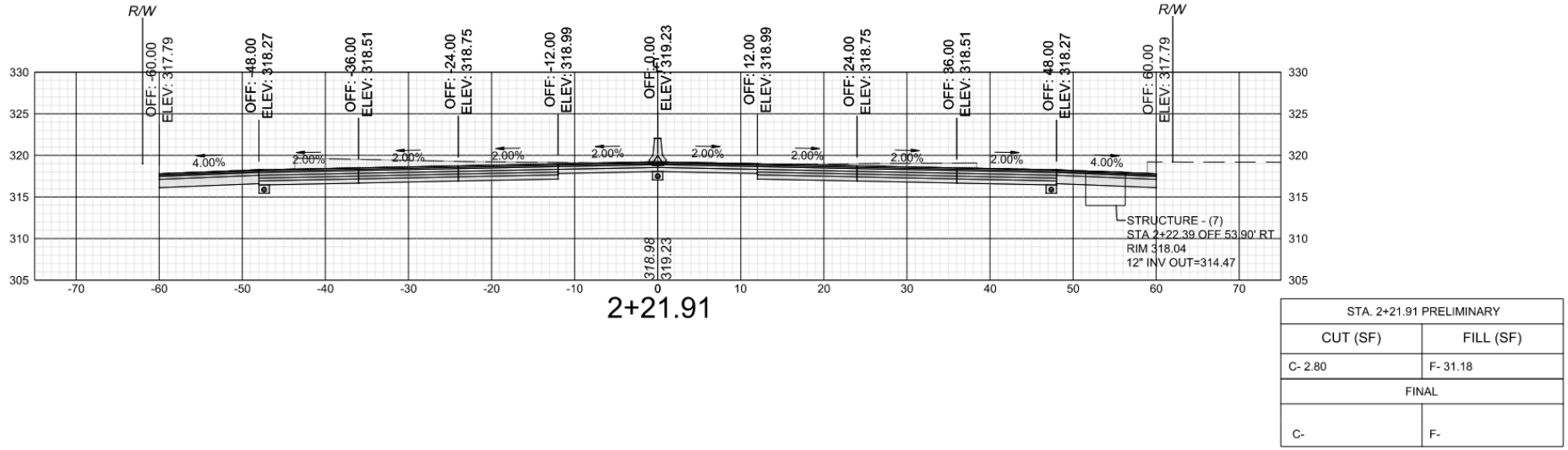


Figure 15-2 Civil 3D Cross Section Example Plan

15.1.2 OPENROADS DESIGNER EXAMPLE PLANS

Under Development….

15.2 SUPPORT FILE LOCATIONS

15.2.1 PTC STANDARD CIVIL 3D CONFIGURATION

All Consultants shall utilize the PTC Standards configuration. Before the start of project work, the consultant must execute the provided *PTC_CIVIL3D_2021_Standards_Setup_v1.1.exe* file on their workstations. This will generate a series of support folders located in "C:\Users\Public\Documents\". Contained within the folders is everything needed to create a Civil 3D drawing to PTC Standards. A Desktop Shortcut will be generated that will automatically utilize a PTC Civil 3D Profile that will point to the support folders generated by the .exe file enabling use of the required template, survey database files, linetypes, blocks, tool palettes, plotter configurations, plot styles, and pipes catalog. The profile will be pre-set, so no further setup is required in Civil 3D upon opening the program via the Desktop Shortcut. **Please note that this requires Civil 3D version 2021 to be installed first.**

Figure 15-3 Desktop Shortcut

15.2.2 CIVIL 3D RESOURCE FILES

The Civil 3D "CAD Resource Files" directory described in Section 10.2.1 is the repository for updated Support files from PTC that may either be project specific, or an update of the PTC Standards Configuration detailed in the previous Section. The Support files are supplemental to the default Civil 3D files and consist of two types of files: files that do not require ongoing user interaction and files that do.

The first type refers to support files accessed automatically by Civil 3D once they have been copied to the proper support folders. These files need no user input and therefore will not be included in the CAD Resource Files directory.

The second type refers to files such as templates and contract borders which the user must configure within the project. These files that may require PTC interaction for purposes of updating the PTC Standards for external consultants and are listed in the table below.

Table 15-1 AutoCAD and Civil 3D PTC CAD Resource Files

File	Location
PTC Standard Sheet Set.dst	Copy to "CAD Resource Files" in project directory from "C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates"
PTC Standard.dwt	Keep in "CAD Resource Files\AutoCAD"
PTC Standard-Contract Borders.dwt	Copy to "C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates"
PTC Standard-C3D.dwt	Copy to "C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates"
PTC Plan over Profile Sheet-C3D.dwt	Copy to "C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates\Plan Production Templates"

PTC Plan Sheet-C3D.dwt	Copy to “C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates\Plan Production Templates”
PTC Profile Sheet-C3D.dwt	Copy to “C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates\Plan Production Templates”
PTC Section Sheet-C3D.dwt	Copy to “C:\Users\Public\Documents\PTC-Standards\C3D2021\Templates\Plan Production Templates”

15.2.3 OPENROADS DESIGNER RESOURCE FILES

The OpenRoads resource files contain a Workspace folder and an Organization-Civil folder. The contents in each of these folders reside within the 'Workspace' and 'Organization-Civil' folders a part of the Bentley software download, on your server's location of Bentley\OpenRoads Designer CE\Configuration.

Table 15-2 shows where the provided Bentley files and folders can be stored. The location of these paths can vary depending on your server's location of the installed software. Any customization must be done on a per project basis to the WorkSet standards and must be available to all consultants and business partners for their use on the project.

Table 15-2 OpenRoads CAD Resource Files

File/Folder	Location
Bentley ORD Standards/Organization-Civil/PTC CAD Standards	Copy folder to C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\Organization-Civil
Bentley ORD Standards/Organization-Civil/PTC CAD Standards.cfg	Copy to C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\Organization-Civil
Bentley ORD Standards/Workspaces/PTC CAD Standards	Copy folder to C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\WorkSpaces
Bentley ORD Standards/Workspaces/PTC CAD Standards.cfg	Copy to C:\ProgramData\Bentley\OpenRoads Designer CE\Configuration\WorkSpaces

15.3 PROJECT SET UP WORKFLOW

15.3.1 OPENROADS DESIGNER

At the beginning of downloading the ORD Standards, the following steps will be followed:

1. Download and extract the zip file “PTC ORD Standards_v1.1.zip” file.
2. Extract “Civil-Organization.zip”. Copy the contents within this folder into your location of \Bentley\OpenRoads Designer CE\Configuration\Civil-Organization.
3. Extract “Workspaces.zip”. Copy the contents within this folder into your location of \Bentley\OpenRoads Designer CE\Configuration\Workspaces.

Open Bentley OpenRoads Software and set the Workspace to ‘PTC CAD Standards’ as shown below. If starting a new project, select the drop-down arrow for WorkSets and select ‘Create WorkSet’. This will create the project folder within the WorkSets that will automatically default for saving dgn and plotting pdf files.

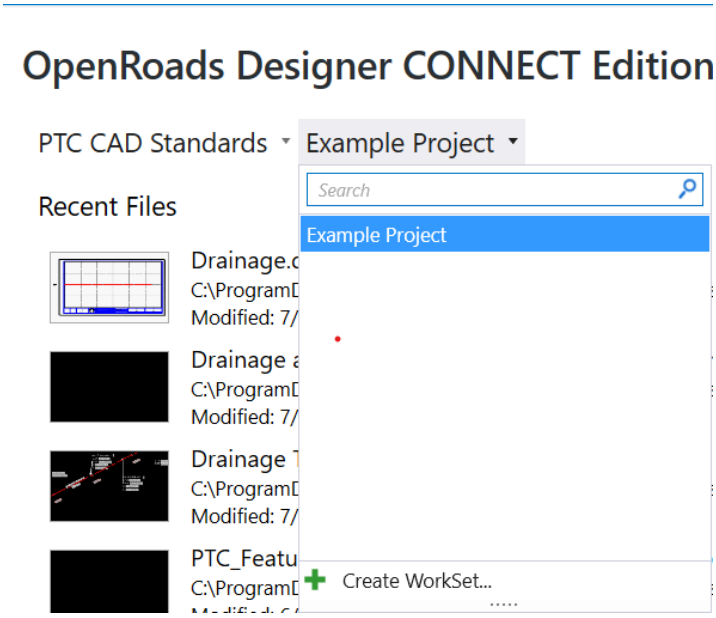


Figure 15-4 OpenRoad Designer CE, Setting Workspace and Workset

When selecting Create WorkSet, a dialog box will display where you can name the new project and select a Template of an existing WorkSet as a reference (see image below). An ‘Example Project’ has been created that can be used as a template WorkSet file. The ‘Example Project’ template will bring in a DGNWS file that is configured appropriately for the sheet index.

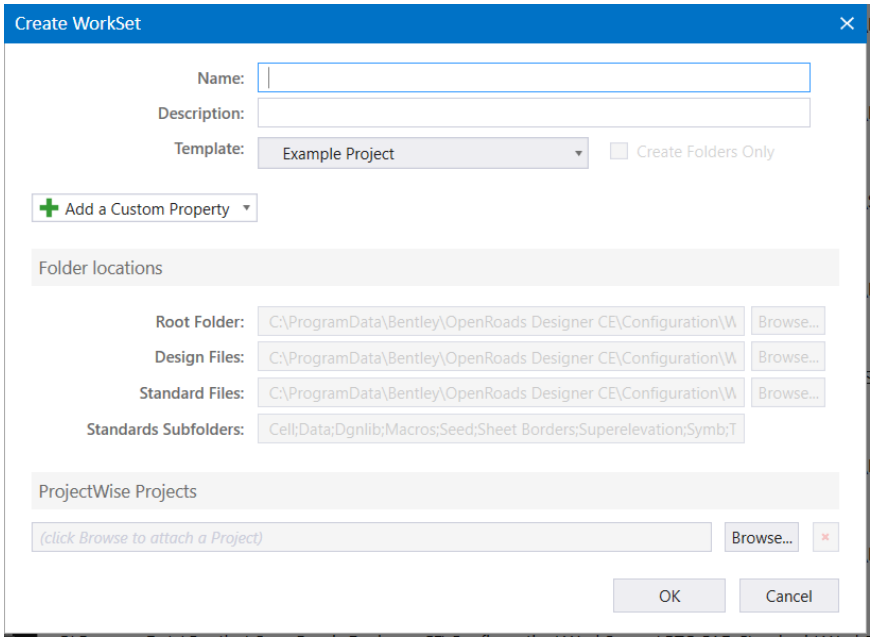


Figure 15-5 Create WorkSet Dialog Referencing 'Example Project' Template

15.4 ABBREVIATIONS

Term	Abbreviation	Shared Abbreviation
Acre	AC	
Angle	L	Length of curve; liter
Approved	APPD	
Area	A	
Asphalt	ASPH	
Back of curb	BC	Between centers; bolt circle; bottom chord; bottom of curb; building code
Baseline	BL	Building line
Bearing	BRG	
Benchmark	BM	Beam; bending moment
Bottom	BOT	
Boundary	BDRY	
Building	BLDG	
Cable Television	CTV	Television; junction box
Cast iron pipe	CIP	Cast-in-place
Catch basin	CB	Cement base
Center	CTR	Contour; cooling tower return
Center line	CL	Close; class
Combination, combined	COMB	
Concrete	CONC	concentric
Concrete pipe	CP	Control power
Conduit	CND	
Continuation, continue	CONT	Continuous; controller
Control	CTRL	
Control Point	CP	Concrete Pipe
Corrugated metal pipe	CMP	
Cross section	X SECT	

Term	Abbreviation	Shared Abbreviation
Cubic feet	CU FT	
Cubic feet per second	CFS	
Cubic yard	CU YD	
Culvert	CULV	
Cut	C	Celsius; channel; coulomb
Detail	DET	
Diameter	DIA	
Dimension	DIR	
Drawing	DWG	
Easting	E	External distance
Edge of concrete	EC	Edge of curb
Edge of pavement (paving)	EP	Electrical panel (panelbooard)
Edge of Water	EW	Each way
Electric junction box	EJB	
Electric meter	EM	Electromagnetic; expanded material
Electric pole	UPE	
Elevation	EL	Each layer; easement line
Existing	EXST	
Existing	EXIST	
Face of curb	FOC	Face of concrete
Feet per second	FPS	Steel fencepost
Fence	FN	
Fencepost	FP	Fire protection; fireproof; flagpole; freezing point
Fill	F	Fahrenheit; female; fire line
Finish grade	FIN GR	
Fire hydrant	FH	Fire hose; flat head; flat head screws
Gas meter	GM	
Gas pump	GASP	

Term	Abbreviation	Shared Abbreviation
Gas vent	GV	Gravity vent
Government azimuth mark 29/88	USAZ	
Government bench mark 29/88	USBM	
Government tri station 27/83	USTRI	
Government witness mark 27/83	USWIT	
Ground	G	Giga; girder; natural gas
Headwall	HDWL	
High water	HW	Hot water
Highway	HWY	
Inlet	INL	
Inside diameter	ID	Identification; inside dimension; interior design
Invert	INV	
Iron pin	IP	Iron pipe
Lane	LN	
Light signal pole	LSP	
Light/lamp post	LP	Light pole; light proof; low pressure (mechanical)
Linear foot	LF	
Manhole	MH	
Material	MATL	
Not to scale	NTS	
Northing	N	
Occupational Safety and Health Administration	OSHA	
Original ground	OG	
Outside diameter	OD	Outside dimension
Parking lot	PK LOT	
Pennsylvania Department of Transportation	PennDOT	
Pennsylvania Turnpike Commission	PTC	
Plane	PL	Property line

Term	Abbreviation	Shared Abbreviation
Point	PT	Paint; pipe thread; pneumatic tube; point of tangent post tensioned; pressure treated
Point of Intersection	PI	
Point of tangent	PT	
Point of vertical intersection	PVI	
Point on curve	POC	
Point on tangent	POT	
Pole	P	Pump; page
Property	PROP	
Property line	PL	Plane
Radius	R	Range; riser; thermal resistance
Railroad	RR	Center line railroad tracks; railroad centerline; roll roofing
Railway	RWY	runway
Reinforced Cement Concrete	RCC	
Reinforced Concrete	RC	Radius of circular curve; remote control
Right of way	ROW	
Road	RD	Refrigerant discharge; roof drain
Sanitary sewer	SS	Service sink; standing seam (roof); steam supply; storm sewer
Septic tank	SEP TNK	
Sewer	SWR	
Shoulder	SHLDR	
Sidewalk	SW	Southwest; switch
Spillway	SPILL	
Square feet	SF	Safety factor; supply fan
Square inch	SQ IN	
Standard	STD	
Station	STA	
Steel	STL	
Stopping sight distance	SSD	Subsoil drain

Term	Abbreviation	Shared Abbreviation
Storm drain	SD	Shop drawings; smoke detector; soap dispenser; supply duct
Storm drain manhole	SDMH	
Storm sewer	SS	Sanitary sewer; service sink; standing seam (roof); steam supply
Storm water	ST W	
Street	ST	Short tangent; single throw; spiral to tangent point; stairs
Subgrade	SUBG	
Superelevation	SE	Southeast; structural engineer
Telephone booth	TEL	
Telephone pole	TP	Total pressure; turning point; twisted pair
Top elevation	TE	
Top front abutment & wingwall	TTAW	
Top front face wingwall	TEFW	
Top of curb	TC	Top of concrete; top of cut
Top of manhole	TMH	
Top of retain wall	TWALL	
Topography	TOPO	
Traffic	TR	
True North	TN	
Turning Point	TP	Telephone pole; total pressure; twisted pair
Underground television line	UGTV	
Utility Pole	UP	
Vehicle	VEH	
Vertical feet	VF	Verify in field
Volume	VOL	
Water meter	WM	Wire mesh
Water pump	WP	Waterproofing; weatherproof; working point
Weight	WT	Water table; watertight
West	W	Waste; watt; wide

Term	Abbreviation	Shared Abbreviation
Well	WELL	
Wingwall	WW	Warm white; wastewater; wireway
Yard	YD	Yard drain; yard drainage pipe

15.5 LAYER SCHEME BY DISCIPLINE

15.5.1 CIVIL LAYERS

Note: linetypes listed as "Continuous" will be noted as linestyle "0" within the ORD Workspace.

Layer Name	Color	Linetype*	Lineweight	Description
C-ALGN	red	BASELINE	0.35mm	Alignment - Base level (Uncontrolled)
C-ALGN-COGO	red	Continuous	0.35mm	Alignment - COGO points
C-ALGN-DIMS	red	Continuous	0.50mm	Alignment - Dimensions, Stationing
C-ALGN-LINE	red	BASELINE	0.35mm	Alignment - Center/Base Line
C-ALGN-LINE-CRCL	red	BASELINE	0.35mm	Alignment - Center/Base Line
C-ALGN-LINE-SPRL	red	BASELINE	0.35mm	Alignment - Center/Base Line
C-ALGN-LINE-TNGT	red	BASELINE	0.35mm	Alignment - Center/Base Line
C-ALGN-NOTE	red	Continuous	0.50mm	Alignment - Notes, Curve Data
C-ALGN-PNTS	red	Continuous	0.35mm	Alignment - Points (Non-Plotting)
C-ALGN-PTRN	red	Continuous	0.35mm	Alignment - Pattern
C-ALGN-SYMB	red	Continuous	0.35mm	Alignment - Symbols
C-ALGN-TEXT	white	Continuous	0.50mm	Alignment - Annotation text
C-ALGN-WORK	red	BASELINE	0.35mm	Alignment - User work (Non-Plotting)
C-ANNO	white	Continuous	0.35mm	
C-ANNO-ATAB	white	Continuous	0.50mm	Annotation - AutoTab
C-ANNO-CELL	white	Continuous	0.35mm	Annotation - Cells
C-ANNO-DIMS	white	Continuous	0.50mm	Annotation - Dimensions
C-ANNO-LINE-HIDN	white	Continuous	0.70mm	Annotation - Hidden Line
C-ANNO-MARK	red	Continuous	0.35mm	General civil markers
C-ANNO-MATC	white	HIDDEN	0.35mm	
C-ANNO-MATC-PATT	white	Continuous	0.35mm	
C-ANNO-MATC-TEXT	150	Continuous	0.50mm	
C-ANNO-MISC-JOIN	white	Continuous	0.35mm	Annotation - Construction Joints
C-ANNO-MISC-LCON	white	Continuous	0.35mm	Annotation - Limits of Construction
C-ANNO-NOTE	white	Continuous	0.50mm	Annotation - Notes
C-ANNO-PNTS	white	Continuous	0.35mm	Annotation - Points (Non-Plotting)
C-ANNO-PTRN	white	Continuous	0.35mm	Annotation - Pattern
C-ANNO-SYMB	white	Continuous	0.35mm	Annotation - Symbols
C-ANNO-TABL	red	Continuous	0.35mm	Civil: Table
C-ANNO-TABL-PATT	white	Continuous	0.35mm	Civil: Table Hatch
C-ANNO-TABL-TEXT	150	Continuous	0.50mm	Civil: Table Text
C-ANNO-TABL-TITL	150	Continuous	0.50mm	Civil: Table Title
C-ANNO-TABL-TTBL	blue	Continuous	0.35mm	Civil: Table Borders
C-ANNO-TEXT	white	Continuous	0.50mm	Annotation - Annotation text
C-ANNO-VFRM	150	Continuous	0.35mm	
C-ANNO-VFRM-TEXT	white	Continuous	0.50mm	

Layer Name	Color	Linetype*	Lineweight	Description
C-ANNO-WORK	white	Continuous	0.35mm	Annotation - User Work (Non-Plotting)
C-BARR	white	Continuous	0.35mm	Barriers - Base level (Uncontrolled)
C-BARR-DIMS	white	Continuous	0.50mm	Barriers - Dimensions
C-BARR-ENDT	white	Continuous	0.35mm	Barriers - End Treatments
C-BARR-LINE	white	Continuous	0.35mm	Barriers - Linear Elements
C-BARR-NOTE	white	Continuous	0.50mm	Barriers - Notes
C-BARR-PNTS	white	Continuous	0.35mm	Barriers - Points (Non-Plotting)
C-BARR-PTRN	white	Continuous	0.35mm	Barriers - Pattern
C-BARR-SYMB	white	Continuous	0.35mm	Barriers - Symbols
C-BARR-TEXT	white	Continuous	0.50mm	Barriers - Text
C-BARR-VBFN	white	Continuous	0.35mm	Barriers - Visual Barrier Fence
C-BARR-WORK	white	Continuous	0.35mm	Barriers - User Work (Non-Plotting)
C-BLDG	white	Continuous	0.35mm	Buildings - Base level (Uncontrolled)
C-BLDG-DIMS	white	Continuous	0.50mm	Buildings - Dimensions
C-BLDG-NOTE	white	Continuous	0.50mm	Buildings - Notes
C-BLDG-OTLN	white	Continuous	0.35mm	Buildings - Structure outlines
C-BLDG-PNTS	white	Continuous	0.35mm	Buildings - Points (Non-Plotting)
C-BLDG-PTRN	white	Continuous	0.35mm	Buildings - Pattern
C-BLDG-SYMB	white	Continuous	0.35mm	Buildings - Symbols
C-BLDG-TEXT	white	Continuous	0.50mm	Buildings - TEXT
C-BLDG-WORK	white	Continuous	0.35mm	Buildings - User Work (Non-Plotting)
C-CATV	30	Continuous	0.35mm	Cable TV
C-CATV-BERM	30	Continuous	0.35mm	Cable TV - Berm for liquids retention
C-CATV-DIMS	30	Continuous	0.50mm	Cable TV - Dimensions
C-CATV-DUCT	30	Continuous	0.35mm	Cable TV - Ducts and conduits (vacant) for future lines
C-CATV-EQPM	30	Continuous	0.35mm	Cable TV - Equipment and Pad
C-CATV-GUYS	30	Continuous	0.35mm	Cable TV - Guying equipment
C-CATV-HYDR	30	Continuous	0.35mm	Cable TV - Hydrants and Fire Department connections
C-CATV-JBOX	30	Continuous	0.35mm	Cable TV - Junction Box
C-CATV-LINE	30	UT-CTVU	0.70mm	Cable TV - Lines
C-CATV-LINE-DBUR	30	UT-CTVU	0.70mm	Cable TV - Direct Buried Underground Lines
C-CATV-LINE-OVHD	30	UT-CTV	0.70mm	Cable TV - Overhead Lines
C-CATV-LINE-UNDR	30	UT-CTVU	0.70mm	Cable TV - Underground Lines
C-CATV-MARK	30	Continuous	0.35mm	Cable TV - Cell - Above Ground Markers
C-CATV-METR	30	Continuous	0.35mm	Cable TV - Meters and instrumentation
C-CATV-MHOL	30	Continuous	0.35mm	Cable TV - Manholes and junction boxes
C-CATV-NOTE	30	Continuous	0.50mm	Cable TV - Notes
C-CATV-PERC	30	Continuous	0.35mm	Cable TV - Perc Test Holes and Pits
C-CATV-PITS	30	Continuous	0.35mm	Cable TV - Pits for vents, valves and other equipment
C-CATV-PLNT	30	Continuous	0.35mm	Cable TV - Plants, pumping stations, storage tanks and reservoirs
C-CATV-PNTS	30	Continuous	0.35mm	Cable TV - Points (Non-Plotting)

Layer Name	Color	Linetype*	Lineweight	Description
C-CATV-POLE	30	Continuous	0.35mm	Cable TV - Pole
C-CATV-PTRN	30	Continuous	0.35mm	Cable TV - Pattern
C-CATV-SITE	30	Continuous	0.35mm	Cable TV - Line - Site (Interior boundary)
C-CATV-SYMB	30	Continuous	0.35mm	Cable TV - Symbols
C-CATV-TEXT	30	Continuous	0.50mm	Cable TV - Text
C-CATV-TRCH	30	Continuous	0.35mm	Cable TV - Fuel line trench
C-CATV-WELL	30	Continuous	0.35mm	Cable TV - Wells
C-CATV-WORK	30	Continuous	0.35mm	Cable TV - User Work (Non-Plotting)
C-CATV-XFMR	30	Continuous	0.35mm	Cable TV - Transformers
C-CHAN	blue	Continuous	0.35mm	Channels (Navigable)
C-CHAN-DIMS	blue	Continuous	0.50mm	Channels - Dimensions
C-CHAN-EDGE	blue	Continuous	0.35mm	Channels - Edge
C-CHAN-LINE	blue	WATERWAY	0.35mm	Channels - Line
C-CHAN-NOTE	blue	Continuous	0.50mm	Channels - Notes
C-CHAN-PNTS	blue	Continuous	0.35mm	Channels - Points (Non-Plotting)
C-CHAN-PTRN	blue	Continuous	0.35mm	Channels - Pattern
C-CHAN-SYMB	blue	Continuous	0.35mm	Channels - Symbols
C-CHAN-TEXT	blue	Continuous	0.50mm	Channels - Text
C-CHAN-WORK	blue	Continuous	0.35mm	Channels - User Work (Non-Plotting)
C-CORR-MARK	212	Continuous	0.50mm	Corridor and section marks
C-CREK	blue	WATERWAY	0.35mm	Creek, Stream, Pond or Minor Water Courses
C-CREK-DIMS	blue	Continuous	0.50mm	Creek - Dimensions
C-CREK-EDGE	blue	WATERWAY	0.35mm	Creek - Edge
C-CREK-LINE	blue	WATERWAY	0.35mm	Creek - Line
C-CREK-NOTE	blue	Continuous	0.50mm	Creek - Notes
C-CREK-PNTS	blue	Continuous	0.35mm	Creek - Points (Non-Plotting)
C-CREK-PTRN	blue	Continuous	0.35mm	Creek - Pattern
C-CREK-SYMB	blue	Continuous	0.35mm	Creek - Symbols
C-CREK-TEXT	blue	Continuous	0.50mm	Creek - Text
C-CREK-WORK	blue	Continuous	0.35mm	Creek - User Work (Non-Plotting)
C-CURB	white	Continuous	0.35mm	Curbs and Gutters
C-CURB-BACK	white	Continuous	0.50mm	Curbs - Back of Curb
C-CURB-BOTM	white	Continuous	0.50mm	Curbs - Bottom of Curb
C-CURB-DIMS	white	Continuous	0.50mm	Curbs - Dimensions
C-CURB-NOTE	white	Continuous	0.50mm	Curbs - Note
C-CURB-PNTS	white	Continuous	0.35mm	Curbs - Points (Non-Plotting)
C-CURB-PTRN	white	Continuous	0.35mm	Curbs - Pattern
C-CURB-SYMB	white	Continuous	0.35mm	Curbs - Symbols
C-CURB-TEXT	white	Continuous	0.50mm	Curbs - Text
C-CURB-TOPP	white	Continuous	0.50mm	Curbs - Top of Curb
C-CURB-UNDR	white	Continuous	0.35mm	Curbs - Bottom - non plotting

Layer Name	Color	Linetype*	Lineweight	Description
C-CURB-WORK	white	Continuous	0.35mm	Curbs - User Work (Non-Plotting)
C-DRIV	white	Continuous	0.35mm	Driveways
C-DRIV-DIMS	white	Continuous	0.50mm	Driveways - Dimensions
C-DRIV-EDGE	white	Continuous	0.35mm	Driveways - Edge of
C-DRIV-LINE	white	CENTER2	0.35mm	Driveways - Lines
C-DRIV-NOTE	white	Continuous	0.50mm	Driveways - Notes
C-DRIV-PNTS	white	Continuous	0.35mm	Driveways - Points (Non-Plotting)
C-DRIV-PTRN	white	Continuous	0.35mm	Driveways - Pattern
C-DRIV-SYMB	white	Continuous	0.35mm	Driveways - Symbols
C-DRIV-TEXT	white	Continuous	0.50mm	Driveways - Text
C-DRIV-WORK	white	Continuous	0.35mm	Driveways - User Work (Non-Plotting)
C-DTCH	cyan	DITCH EX	0.35mm	Ditch, Swale or Wash
C-DTCH -SWAL	cyan	SWALE	0.35mm	Ditch - Swale
C-DTCH-BOTM	cyan	DITCH EX	0.35mm	Ditch: Bottom of Ditch
C-DTCH-CNTR	cyan	DITCH PR	0.35mm	Ditch: Centerline of Ditch
C-DTCH-DIMS	cyan	Continuous	0.50mm	Ditch - Dimensions
C-DTCH-DRAW	cyan	Continuous	0.35mm	Ditch - Draw
C-DTCH-NOTE	cyan	Continuous	0.50mm	Ditch - Note
C-DTCH-PAVE	cyan	Continuous	0.35mm	Ditch - Paved
C-DTCH-PNTS	cyan	Continuous	0.35mm	Ditch - Points (Non-Plotting)
C-DTCH-PTRN	cyan	Continuous	0.35mm	Ditch - Pattern
C-DTCH-SYMB	cyan	Continuous	0.35mm	Ditch - Symbols
C-DTCH-TEXT	cyan	Continuous	0.50mm	Ditch - Text
C-DTCH-TOPD	cyan	Continuous	0.35mm	Ditch - Top of Ditch
C-DTCH-WORK	cyan	Continuous	0.35mm	Ditch - User Work (Non-Plotting)
C-EROS	120	Continuous	0.35mm	Erosion and Sediment Control Devices
C-EROS-BARR	120	Continuous	0.35mm	Erosion - Vapor/Capillary water barriers
C-EROS-CNTE	120	Continuous	0.35mm	Erosion - Construction Entrance
C-EROS-DIMS	120	Continuous	0.50mm	Erosion - Dimensions
C-EROS-DISC	120	Continuous	0.35mm	Erosion - Discharge Point
C-EROS-DTCH	120	DITCH EX	0.35mm	Erosion - Ditch
C-EROS-DTCH-TEMP	120	DITCH EX	0.35mm	Erosion - Temporary Ditch
C-EROS-DVDK	120	Continuous	0.35mm	Erosion - Diversion Dike
C-EROS-FENC	120	PF	0.35mm	Erosion - Protective Fence
C-EROS-GABN	120	Continuous	0.35mm	Erosion - Gabions
C-EROS-INPR	120	Continuous	0.35mm	Erosion - Inlet Protection
C-EROS-LEVE	120	Continuous	0.35mm	Erosion - Levee
C-EROS-MATT	120	Continuous	0.35mm	Erosion - Matt
C-EROS-NOTE	120	Continuous	0.50mm	Erosion - Notes
C-EROS-OLSF	120	Continuous	0.35mm	Erosion - Over Land Sheet Flow
C-EROS-PIPE-TEMP	120	PIPE PR	0.60mm	Erosion - Temporary Pipe

Layer Name	Color	Linetype*	Lineweight	Description
C-EROS-PNTS	120	Continuous	0.35mm	Erosion - Points (Non-Plotting)
C-EROS-PTRN	120	Continuous	0.35mm	Erosion - Pattern
C-EROS-RRAP	120	Continuous	0.35mm	Erosion - Riprap, Stone Protection, Jetties, Breakwaters
C-EROS-SDTR	120	Continuous	0.35mm	Erosion - Sediment Trap
C-EROS-SILT	120	Continuous	0.35mm	Erosion - Silt control devices
C-EROS-SILT-BASN	120	Continuous	0.35mm	Erosion - Silt Basin
C-EROS-SILT-FENC	120	SF	0.35mm	Erosion - Silt Fence
C-EROS-SILT-SOCK	120	CFS	0.35mm	Erosion - Silt Sock
C-EROS-SILT-TRAP	120	Continuous	0.35mm	Erosion - Silt Trap
C-EROS-SSLT	120	SSF	0.35mm	Erosion - Super Silt Fence
C-EROS-SYMB	120	Continuous	0.35mm	Erosion - Symbols
C-EROS-TEXT	120	Continuous	0.50mm	Erosion - Text
C-EROS-TOEB	120	Continuous	0.35mm	Erosion - Toe / Bottom of Berm
C-EROS-TOPB	120	Continuous	0.35mm	Erosion - Top of Berm
C-EROS-WEIR	120	Continuous	0.35mm	Erosion - Weirs
C-EROS-WORK	120	Continuous	0.35mm	Erosion - User Work (Non-Plotting)
C-ESMT	magenta	Continuous	0.60mm	Easements
C-ESMT-CDAT	magenta	Continuous	0.35mm	Easements - Property Lines, Curve Data
C-ESMT-CONS-TEMP	magenta	Continuous	0.35mm	Easements - Temporary Construction Easement
C-ESMT-DIMS	magenta	Continuous	0.50mm	Easements - Dimensions
C-ESMT-LGAL	magenta	Continuous	0.35mm	Easements - Required Legal Easement lines
C-ESMT-LINE	magenta	Continuous	0.35mm	Easements - Property Lines
C-ESMT-NOTE	magenta	Continuous	0.50mm	Easements - Notes
C-ESMT-PNTS	magenta	Continuous	0.35mm	Easements - Points (Non-Plotting)
C-ESMT-PTRN	magenta	Continuous	0.35mm	Easements - Pattern
C-ESMT-RWAY	magenta	Continuous	0.60mm	Easement - Legal R/W Lines
C-ESMT-RWAY-ACQU	magenta	Continuous	0.70mm	Easement - Required R/W Lines
C-ESMT-SYMB	magenta	Continuous	0.35mm	Easements - Symbols
C-ESMT-TEXT	magenta	Continuous	0.50mm	Easements - Text
C-ESMT-WORK	magenta	Continuous	0.35mm	Easements - User Work (Non-Plotting)
C-FHLA-PNTS	cyan	Continuous	0.35mm	Flood Hazard Area - Points (Non-Plotting)
C-FIBR	30	UT-FO	0.70mm	Fiber Optic
C-FIBR-BERM	30	Continuous	0.35mm	Fiber Optic - Berm for liquids retention
C-FIBR-DIMS	30	Continuous	0.50mm	Fiber Optic - Dimensions
C-FIBR-DUCT	30	Continuous	0.35mm	Fiber Optic - Ducts and conduits (vacant) for future lines
C-FIBR-EQPM	30	Continuous	0.35mm	Fiber Optic - Equipment and Pad
C-FIBR-GUYS	30	Continuous	0.35mm	Fiber Optic - Guying equipment
C-FIBR-HYDR	30	Continuous	0.35mm	Fiber Optic - Hydrants and Fire Department connections
C-FIBR-JBOX	30	Continuous	0.35mm	Fiber Optic - Junction Box
C-FIBR-LINE	30	UT-FO	0.70mm	Fiber Optic - Lines
C-FIBR-LINE-DBUR	30	UT-FOU	0.70mm	Fiber Optic - Direct Buried Underground Lines

Layer Name	Color	Linetype*	Lineweight	Description
C-FIBR-LINE-OVHD	30	XUT-FO	0.70mm	Fiber Optic - Overhead Lines
C-FIBR-LINE-UNDR	30	UT-FOU	0.70mm	Fiber Optic - Underground Lines
C-FIBR-MARK	30	Continuous	0.35mm	Fiber Optic - Cell - Above Ground Markers
C-FIBR-METR	30	Continuous	0.35mm	Fiber Optic - Meters and instrumentation
C-FIBR-MHOL	30	Continuous	0.35mm	Fiber Optic - Manholes and junction boxes
C-FIBR-NOTE	30	Continuous	0.50mm	Fiber Optic - Notes
C-FIBR-PERC	30	Continuous	0.35mm	Fiber Optic - Perc Test Holes and Pits
C-FIBR-PITS	30	Continuous	0.35mm	Fiber Optic - Pits for vents, valves and other equipment
C-FIBR-PLNT	30	Continuous	0.35mm	Fiber Optic - Plants, pumping stations, storage tanks and reservoirs
C-FIBR-PNTS	30	Continuous	0.35mm	Fiber Optic - Points (Non-Plotting)
C-FIBR-POLE	30	Continuous	0.35mm	Fiber Optic - Pole
C-FIBR-PTRN	30	Continuous	0.35mm	Fiber Optic - Pattern
C-FIBR-SITE	30	Continuous	0.35mm	Fiber Optic - Line - Site (Interior boundary)
C-FIBR-SYMB	30	Continuous	0.35mm	Fiber Optic - Symbols
C-FIBR-TEXT	30	Continuous	0.50mm	Fiber Optic - Text
C-FIBR-TRCH	30	Continuous	0.35mm	Fiber Optic - Fuel line trench
C-FIBR-WELL	30	Continuous	0.35mm	Fiber Optic - Wells
C-FIBR-WORK	30	Continuous	0.35mm	Fiber Optic - User Work (Non-Plotting)
C-FIBR-XFMR	30	Continuous	0.35mm	Fiber Optic - Transformers
C-FLHA	white	Continuous	0.35mm	Flood Hazard Area
C-FLHA-010Y	white	Continuous	0.35mm	Flood Hazard Area - 10 Year Mark
C-FLHA-025Y	white	Continuous	0.35mm	Flood Hazard Area - 25 Year Mark
C-FLHA-050Y	white	Continuous	0.35mm	Flood Hazard Area - 50 Year Mark
C-FLHA-100Y	white	Continuous	0.35mm	Flood Hazard Area - 100 Year Mark
C-FLHA-200Y	white	Continuous	0.35mm	Flood Hazard Area - 200 year mark
C-FLHA-500Y	white	Continuous	0.35mm	Flood Hazard Area - 500 Year Mark
C-FLHA-DIMS	white	Continuous	0.50mm	Flood Hazard Area - Dimensions
C-FLHA-NOTE	white	Continuous	0.50mm	Flood Hazard Area - Notes
C-FLHA-PTRN	white	Continuous	0.35mm	Flood Hazard Area - Pattern
C-FLHA-SYMB	white	Continuous	0.35mm	Flood Hazard Area - Symbols
C-FLHA-TEXT	white	Continuous	0.50mm	Flood Hazard Area - Text
C-FLHA-WORK	white	Continuous	0.35mm	Flood Hazard Area - User Work (Non-Plotting)
C-GEOT	white	Continuous	0.35mm	Geotech
C-GEOT-DIMS	white	Continuous	0.50mm	Geotech - Dimensions
C-GEOT-NOTE	white	Continuous	0.50mm	Geotech - Notes
C-GEOT-PNTS	white	Continuous	0.35mm	Geotech - Points (Non-Plotting)
C-GEOT-PTRN	white	Continuous	0.35mm	Geotech - Pattern
C-GEOT-SYMB	white	Continuous	0.35mm	Geotech - Symbols
C-GEOT-TEXT	white	Continuous	0.50mm	Geotech - Text
C-GEOT-WORK	white	Continuous	0.35mm	Geotech - User Work (Non-Plotting)
C-GRAL	30	GDRL PR RT	0.35mm	Guide rail

Layer Name	Color	Linetype*	Lineweight	Description
C-GRAL-DIMS	30	Continuous	0.50mm	Guide rail - Dimensions
C-GRAL-ENDT	30	Continuous	0.35mm	Guide rail - End treatment
C-GRAL-EXIS	30	GDRL EX	0.35mm	Guide rail - Existing
C-GRAL-MARK	30	Continuous	0.35mm	Guide rail - Markers and Reflectors
C-GRAL-NOTE	30	Continuous	0.50mm	Guide rail - Notes
C-GRAL-PNTS	30	Continuous	0.35mm	Guide rail - Points (Non-Plotting)
C-GRAL-PROP	30	Continuous	0.35mm	Guide rail - Proposed
C-GRAL-PROP-LEFT	30	GDRL PR LT	0.35mm	Guide rail - Proposed left side
C-GRAL-PROP-RGHT	30	GDRL PR RT	0.35mm	Guide rail - Proposed right side
C-GRAL-PTRN	30	Continuous	0.35mm	Guide rail - Pattern
C-GRAL-SYMB	30	Continuous	0.35mm	Guide rail - Symbols
C-GRAL-TEXT	30	Continuous	0.50mm	Guide rail - Text
C-GRAL-WORK	30	Continuous	0.35mm	Guide rail - User Work (Non-Plotting)
C-HYDR-CTCH	magenta	Continuous	0.35mm	
C-HYDR-CTCH-BNDY-POST	magenta	Continuous	0.35mm	
C-HYDR-CTCH-BNDY-PRED	red	Continuous	0.35mm	
C-HYDR-CTCH-FPTH-POST	cyan	Continuous	0.35mm	
C-HYDR-CTCH-FPTH-PRED	green	Continuous	0.35mm	
C-HYDR-CTCH-FPTH-TEXT	white	Continuous	0.50mm	
C-HYDR-CTCH-TEXT	white	Continuous	0.50mm	
C-HYDR-TEXT	white	Continuous	0.50mm	
C-MILR	white	Continuous	0.35mm	Military Ranges
C-NGAS	yellow	UT-G	0.70mm	Natural Gas
C-NGAS-APPT	yellow	Continuous	0.35mm	Gas Network: appurtenances
C-NGAS-APPT-PATT	white	Continuous	0.35mm	Gas Network: appurtenances, hatching
C-NGAS-BERM	yellow	Continuous	0.35mm	Natural Gas - Berm for liquids retention
C-NGAS-CNTR	yellow	Continuous	0.35mm	Gas Network: centerline
C-NGAS-DIMS	yellow	Continuous	0.50mm	Natural Gas - Dimensions
C-NGAS-DUCT	yellow	Continuous	0.35mm	Natural Gas - Ducts and conduits (vacant) for future lines
C-NGAS-EQPM	yellow	Continuous	0.35mm	Natural Gas - Equipment and Pad
C-NGAS-FITT	yellow	Continuous	0.35mm	Gas Network: fittings
C-NGAS-FITT-PATT	white	Continuous	0.35mm	Gas Network: fittings, hatching
C-NGAS-GUYS	yellow	Continuous	0.35mm	Natural Gas - Guying equipment
C-NGAS-HYDR	yellow	Continuous	0.35mm	Natural Gas - Hydrants and Fire Department connections
C-NGAS-JBOX	yellow	Continuous	0.35mm	Natural Gas - Junction Box
C-NGAS-LINE	yellow	UT-G	0.70mm	Natural Gas - Lines
C-NGAS-LINE-DBUR	yellow	UT-G	0.70mm	Natural Gas - Direct Buried Underground Lines
C-NGAS-LINE-OVHD	yellow	UT-G	0.70mm	Natural Gas - Overhead Lines
C-NGAS-LINE-UNDR	yellow	UT-G	0.70mm	Natural Gas - Underground Lines
C-NGAS-MARK	yellow	Continuous	0.35mm	Natural Gas - Cell - Above Ground Markers

Layer Name	Color	Linetype*	Lineweight	Description
C-NGAS-METR	yellow	Continuous	0.35mm	Natural Gas - Meters and instrumentation
C-NGAS-MHOL	yellow	Continuous	0.35mm	Natural Gas - Manholes and junction boxes
C-NGAS-NOTE	yellow	Continuous	0.50mm	Natural Gas - Notes
C-NGAS-PERC	yellow	Continuous	0.35mm	Natural Gas - Perc Test Holes and Pits
C-NGAS-PIPE	yellow	Continuous	0.35mm	Gas Network: pressure pipe
C-NGAS-PIPE-PATT	white	Continuous	0.35mm	Gas Network: pressure pipe, hatching
C-NGAS-PITS	yellow	Continuous	0.35mm	Natural Gas - Pits for vents, valves and other equipment
C-NGAS-PLNT	yellow	Continuous	0.35mm	Natural Gas - Plants, pumping stations, storage tanks and reservoirs
C-NGAS-PNTS	yellow	Continuous	0.35mm	Natural Gas - Points (Non-Plotting)
C-NGAS-POLE	yellow	Continuous	0.35mm	Natural Gas - Pole
C-NGAS-PROF	yellow	Continuous	0.35mm	Gas Network: profile
C-NGAS-PTRN	yellow	Continuous	0.35mm	Natural Gas - Pattern
C-NGAS-SCTN	yellow	Continuous	0.35mm	Gas Network: section
C-NGAS-SITE	yellow	UT-G	0.70mm	Natural Gas - Line - Site (Interior boundary)
C-NGAS-SYMB	yellow	Continuous	0.35mm	Natural Gas - Symbols
C-NGAS-TEXT	white	Continuous	0.50mm	Gas Network: text
C-NGAS-TRCH	yellow	Continuous	0.35mm	Natural Gas - Fuel line trench
C-NGAS-WELL	yellow	Continuous	0.35mm	Natural Gas - Wells
C-NGAS-WORK	yellow	Continuous	0.35mm	Natural Gas - User Work (Non-Plotting)
C-NGAS-XFMR	yellow	Continuous	0.35mm	Natural Gas - Transformers
C-POWR	red	UT-C	0.70mm	Power
C-POWR-BERM	red	Continuous	0.35mm	Power - Berm for liquids retention
C-POWR-COND	red	UT-C	0.70mm	Power - Conduits
C-POWR-DIMS	red	Continuous	0.50mm	Power - Dimensions
C-POWR-DUCT	red	Continuous	0.35mm	Power - Ducts and conduits (vacant) for future lines
C-POWR-EQPM	red	Continuous	0.35mm	Power - Equipment and Pad
C-POWR-GUYS	red	Continuous	0.35mm	Power - Guying equipment
C-POWR-HYDR	red	Continuous	0.35mm	Power - Hydrants and Fire Department connections
C-POWR-JBOX	red	Continuous	0.35mm	Power - Junction Box
C-POWR-LINE	red	XUT-EU	0.70mm	Power - Lines
C-POWR-LINE-DBUR	red	XUT-EU	0.70mm	Power - Direct Buried Underground Lines
C-POWR-LINE-OVHD	red	XUT-E	0.70mm	Power - Overhead Lines
C-POWR-LINE-UNDR	red	XUT-EU	0.70mm	Power - Underground Lines
C-POWR-MARK	red	Continuous	0.35mm	Power - Cell - Above Ground Markers
C-POWR-METR	red	Continuous	0.35mm	Power - Meters and instrumentation
C-POWR-MHOL	red	Continuous	0.35mm	Power - Manholes and junction boxes
C-POWR-NOTE	red	Continuous	0.50mm	Power - Notes
C-POWR-PERC	red	Continuous	0.35mm	Power - Perc Test Holes and Pits
C-POWR-PITS	red	Continuous	0.35mm	Power - Pits for vents, valves and other equipment
C-POWR-PLNT	red	Continuous	0.35mm	Power - Plants, pumping stations, storage tanks and reservoirs

Layer Name	Color	Linetype*	Lineweight	Description
C-POWR-PNTS	red	Continuous	0.35mm	Power - Points (Non-Plotting)
C-POWR-POLE	red	Continuous	0.35mm	Power - Pole
C-POWR-PTRN	red	Continuous	0.35mm	Power - Pattern
C-POWR-SITE	red	Continuous	0.35mm	Power - Line - Site (Interior boundary)
C-POWR-SYMB	red	Continuous	0.35mm	Power - Symbols
C-POWR-TEXT	red	Continuous	0.50mm	Power - Text
C-POWR-TRCH	red	Continuous	0.35mm	Power - Fuel line trench
C-POWR-WELL	red	Continuous	0.35mm	Power - Wells
C-POWR-WORK	red	Continuous	0.35mm	Power - User Work (Non-Plotting)
C-POWR-XFMR	red	Continuous	0.35mm	Power - Transformers
C-PRKG	white	Continuous	0.35mm	Parking Lots
C-PRKG-DIMS	white	Continuous	0.50mm	Parking Lots - Dimensions
C-PRKG-EDGE	white	Continuous	0.35mm	Parking Lots - Edge of
C-PRKG-LINE	white	Continuous	0.35mm	Parking Lots - Line
C-PRKG-NOTE	white	Continuous	0.50mm	Parking Lots - Note
C-PRKG-PNTS	white	Continuous	0.35mm	Parking Lots - Points (Non-Plotting)
C-PRKG-PTRN	white	Continuous	0.35mm	Parking Lots - Pattern
C-PRKG-SYMB	white	Continuous	0.35mm	Parking Lots - Symbols
C-PRKG-TEXT	white	Continuous	0.50mm	Parking Lots - Text
C-PRKG-WORK	white	Continuous	0.35mm	Parking Lots - User Work (Non-Plotting)
C-PROF	green	Continuous	0.35mm	Profile
C-PROF-AXIS	green	Continuous	0.35mm	Profile - Axis
C-PROF-AXIS-TEXT	green	Continuous	0.50mm	Profile - Axis - Text
C-PROF-AXIS-TITL	green	Continuous	0.35mm	Profile - Axis - Title
C-PROF-DIMS	green	Continuous	0.50mm	Profile - Dimensions
C-PROF-FRAM	green	Continuous	0.35mm	Profile - Frame
C-PROF-GRID	green	Continuous	0.35mm	Profile - Grid
C-PROF-GRID-MAJR	green	Continuous	0.35mm	Profile - Grid - Major
C-PROF-GRID-MINR	green	Continuous	0.35mm	Profile - Grid - Minor
C-PROF-NOTE	green	Continuous	0.50mm	Profile - Notes
C-PROF-PNTS	green	Continuous	0.35mm	Profile - Points (Non-Plotting)
C-PROF-PTRN	green	Continuous	0.35mm	Profile - Pattern
C-PROF-SYMB	green	Continuous	0.35mm	Profile - Symbols
C-PROF-TEXT	green	Continuous	0.50mm	Profile - Text
C-PROF-WORK	green	Continuous	0.35mm	Profile - User Work (Non-Plotting)
C-PROP-BNDY	150	MUNICIPAL	0.35mm	Property: boundary
C-PROP-BRNG	92	Continuous	0.35mm	Property: bearing
C-PROP-LINE	230	PROPERTYLINE	0.35mm	Property: parcel lines
C-PROP-LINE-TEXT	150	Continuous	0.50mm	
C-PROP-PARC-BNDY	blue	MUNICIPAL	0.35mm	Parcel boundary
C-PROP-PARC-LINE	blue	PROPERTYLINE	0.35mm	

Layer Name	Color	Linetype*	Lineweight	Description
C-PROP-PARC-OPEN	green	Continuous	0.35mm	Parcel open space
C-PROP-PARC-ROAD	red	Continuous	0.35mm	Parcel roadway easement
C-PROP-PARC-ROWL	red	ROW LEGAL	0.35mm	Parcel right-of-way line
C-PROP-PARC-ROWL-TEXT	green	Continuous	0.50mm	Parcel right-of-way text
C-PROP-PARC-TEXT	green	Continuous	0.50mm	Parcel annotation
C-PROP-PARC-TEXT-BRNG	green	Continuous	0.35mm	Parcel bearing annotation
C-PROP-PATT	150	Continuous	0.35mm	Property: parcel hatching
C-PROP-TEXT	92	Continuous	0.50mm	Property: label
C-PTRO	yellow	UT-P	0.35mm	Petroleum
C-PTRO-BERM	yellow	Continuous	0.35mm	Petroleum - Berm for liquids retention
C-PTRO-DIMS	yellow	Continuous	0.50mm	Petroleum - Dimensions
C-PTRO-DUCT	yellow	Continuous	0.35mm	Petroleum - Ducts and conduits (vacant) for future lines
C-PTRO-EQPM	yellow	Continuous	0.35mm	Petroleum - Equipment and Pad
C-PTRO-GUYS	yellow	Continuous	0.35mm	Petroleum - Guying equipment
C-PTRO-HYDR	yellow	Continuous	0.35mm	Petroleum - Hydrants and Fire Department connections
C-PTRO-JBOX	yellow	Continuous	0.35mm	Petroleum - Junction Box
C-PTRO-LINE	yellow	UT-PU	0.70mm	Petroleum - Lines
C-PTRO-LINE-DBUR	yellow	UT-PU	0.70mm	Petroleum - Direct Buried Underground Lines
C-PTRO-LINE-OVHD	yellow	UT-P	0.70mm	Petroleum - Overhead Lines
C-PTRO-LINE-UNDR	yellow	UT-PU	0.70mm	Petroleum - Underground Lines
C-PTRO-MARK	yellow	Continuous	0.35mm	Petroleum - Cell - Above Ground Markers
C-PTRO-METR	yellow	Continuous	0.35mm	Petroleum - Meters and instrumentation
C-PTRO-MHOL	yellow	Continuous	0.35mm	Petroleum - Manholes and junction boxes
C-PTRO-NOTE	yellow	Continuous	0.50mm	Petroleum - Notes
C-PTRO-PERC	yellow	Continuous	0.35mm	Petroleum - Perc Test Holes and Pits
C-PTRO-PITS	yellow	Continuous	0.35mm	Petroleum - Pits for vents, valves and other equipment
C-PTRO-PLNT	yellow	Continuous	0.35mm	Petroleum - Plants, pumping stations, storage tanks and reservoirs
C-PTRO-PNTS	yellow	Continuous	0.35mm	Petroleum - Points (Non-Plotting)
C-PTRO-POLE	yellow	Continuous	0.35mm	Petroleum - Pole
C-PTRO-PTRN	yellow	Continuous	0.35mm	Petroleum - Pattern
C-PTRO-SITE	yellow	Continuous	0.35mm	Petroleum - Line - Site (Interior boundary)
C-PTRO-SYMB	yellow	Continuous	0.35mm	Petroleum - Symbols
C-PTRO-TEXT	yellow	Continuous	0.50mm	Petroleum - Text
C-PTRO-TRCH	yellow	Continuous	0.35mm	Petroleum - Fuel line trench
C-PTRO-WELL	yellow	Continuous	0.35mm	Petroleum - Wells
C-PTRO-WORK	yellow	Continuous	0.35mm	Petroleum - User Work (Non-Plotting)
C-PTRO-XFMR	yellow	Continuous	0.35mm	Petroleum - Transformers
C-RAIL	white	Continuous	0.35mm	Railroad
C-RAIL-CANT-VIEW	white	Continuous	0.35mm	
C-RAIL-CANT-VIEW-CNTR	white	Continuous	0.35mm	

Layer Name	Color	Linetype*	Lineweight	Description
C-RAIL-CANT-VIEW-EQLB	cyan	Continuous	0.35mm	
C-RAIL-CANT-VIEW-LEFT	blue	Continuous	0.35mm	
C-RAIL-CANT-VIEW-RGHT	red	Continuous	0.35mm	
C-RAIL-CANT-VIEW-TEXT	11	Continuous	0.50mm	
C-RAIL-CANT-VIEW-TICK	254	Continuous	0.35mm	
C-RAIL-CANT-VIEW-TITL	white	Continuous	0.35mm	
C-RAIL-CANT-VIEW-TTLB	254	Continuous	0.35mm	
C-RAIL-DIMS	white	Continuous	0.50mm	Railroad - Dimensions
C-RAIL-EQPM	white	Continuous	0.35mm	Railroad - Equipment
C-RAIL-NOTE	white	Continuous	0.50mm	Railroad - Notes
C-RAIL-PNTS	white	Continuous	0.35mm	Railroad - Points (Non-Plotting)
C-RAIL-PTRN	white	Continuous	0.35mm	Railroad - Pattern
C-RAIL-SGNL	white	Continuous	0.35mm	Railroad - Crossing Signal Light
C-RAIL-SIGN	white	Continuous	0.35mm	Railroad - Sign
C-RAIL-SYMB	white	Continuous	0.35mm	Railroad - Symbols
C-RAIL-TEXT	white	Continuous	0.50mm	Railroad - Text
C-RAIL-TRAK	white	TRACKS	0.35mm	Railroad - Single Track
C-RAIL-WORK	white	Continuous	0.35mm	Railroad - User Work (Non-Plotting)
C-ROAD	white	Continuous	0.35mm	
C-ROAD-ASSM	40	Continuous	0.35mm	Roadways: assemblies and subassemblies
C-ROAD-ASSM-BLIN	red	Continuous	0.35mm	Roadways: assembly baseline
C-ROAD-ASSM-OFFS	red	Continuous	0.35mm	Roadways: assembly offset
C-ROAD-BNCH	white	Continuous	0.35mm	Roadway - Benching
C-ROAD-BRDG	white	Continuous	0.35mm	Roadway - Bridge Structure Outline
C-ROAD-BRNG	red	Continuous	0.35mm	Roadways: bearings
C-ROAD-BRNG-PROP	white	Continuous	0.35mm	Roadways: bearings, proposed
C-ROAD-CNTR	red	BASELINE	0.35mm	Roadways: centerline
C-ROAD-CNTR-PROP	white	BASELINE	0.35mm	Roadways: centerline, proposed
C-ROAD-CORR	blue	Continuous	0.35mm	Roadways: corridor
C-ROAD-CORR-BNDY	red	BASELINE	0.35mm	Roadways: corridor boundary
C-ROAD-CURV	blue	Continuous	0.35mm	Roadways: curves
C-ROAD-DIMS	white	Continuous	0.50mm	Roadway - Dimensions
C-ROAD-EDGE	white	Continuous	0.35mm	Roadway - Edge of Roadway (Pavement)
C-ROAD-FEAT	190	Continuous	0.35mm	Roadways: feature line
C-ROAD-HING	white	Continuous	0.35mm	Roadway - Hinge Point
C-ROAD-INTS	blue	Continuous	0.35mm	
C-ROAD-INTS-TEXT	white	Continuous	0.50mm	
C-ROAD-JNTS	white	Continuous	0.35mm	Roadway - Joints - Expansion, Centerline etc.
C-ROAD-LABL	92	Continuous	0.35mm	Roadways: labels
C-ROAD-LANE	white	Continuous	0.35mm	Roadway - Edge of Lane
C-ROAD-LINE	red	Continuous	0.35mm	Roadways: tangent lines

Layer Name	Color	Linetype*	Lineweight	Description
C-ROAD-LINE-EXTN	252	HIDDEN	0.35mm	Roadways: PVI extention lines
C-ROAD-LINK	150	Continuous	0.35mm	Roadways: corridor and section links
C-ROAD-MARK	212	Continuous	0.35mm	Roadways: corridor and section marks
C-ROAD-MASS-LINE	11	Continuous	0.35mm	
C-ROAD-MASS-LINE-FREE	150	Continuous	0.35mm	
C-ROAD-MASS-LINE-OVER	11	Continuous	0.35mm	
C-ROAD-MASS-VIEW	white	Continuous	0.35mm	
C-ROAD-MASS-VIEW-GRID-MAJR	252	Continuous	0.35mm	
C-ROAD-MASS-VIEW-GRID-MINR	254	Continuous	0.35mm	
C-ROAD-MASS-VIEW-TEXT	white	Continuous	0.50mm	
C-ROAD-MASS-VIEW-TITL	white	Continuous	0.35mm	
C-ROAD-MASS-VIEW-TTLB	blue	Continuous	0.35mm	
C-ROAD-MEDN	white	Continuous	0.35mm	Roadway - Edge of Median
C-ROAD-MISC	white	Continuous	0.35mm	Roadway - Miscellaneous Items
C-ROAD-NOTE	white	Continuous	0.50mm	Roadway - Notes
C-ROAD-PNTS	white	Continuous	0.35mm	Roadway - Points (Non-Plotting)
C-ROAD-PROF	red	HIDDEN2	0.35mm	Roadways: profiles
C-ROAD-PROF-ASMC	92	Continuous	0.35mm	Roadways: profile asymmetrical curves
C-ROAD-PROF-CURV	blue	Continuous	0.35mm	Roadways: profile vertical curves
C-ROAD-PROF-DIAG	150	Continuous	0.35mm	Roadways: profile band diagrams
C-ROAD-PROF-GRID	150	Continuous	0.35mm	Roadways: profile grid
C-ROAD-PROF-GRID-GEOM	blue	Continuous	0.35mm	Roadways: profile gridline @ geometry points
C-ROAD-PROF-GRID-MAJR	8	Continuous	0.35mm	Roadways: profile gridline @ major stations
C-ROAD-PROF-GRID-MINR	9	Continuous	0.35mm	Roadways: profile gridline @ minor stations
C-ROAD-PROF-LABL	92	Continuous	0.35mm	Roadways: profile label
C-ROAD-PROF-LINE	red	Continuous	0.35mm	Roadways: profile vertical lines
C-ROAD-PROF-LINE-EXTN	252	HIDDEN	0.35mm	Roadways: centerline extension
C-ROAD-PROF-LTOF	red	Continuous	0.35mm	Roadways: profile left offset sample lines
C-ROAD-PROF-PARB	white	Continuous	0.35mm	Roadways: profile parabolic curves
C-ROAD-PROF-PNTS	252	HIDDEN	0.35mm	Roadways: profile geometry points
C-ROAD-PROF-PROP	150	Continuous	0.35mm	Roadways: profile new
C-ROAD-PROF-RTOF	red	Continuous	0.35mm	Roadways: profile right offset sample lines
C-ROAD-PROF-STAN-GEOM	11	Continuous	0.35mm	Roadways: profile geometry point labels
C-ROAD-PROF-STAN-GEOM-PROP	white	Continuous	0.35mm	Roadways: profile geometry point labels, proposed
C-ROAD-PROF-STAN-MAJR	white	Continuous	0.35mm	Roadways: profile major station labels
C-ROAD-PROF-STAN-MINR	white	Continuous	0.35mm	Roadways: profile minor station labels
C-ROAD-PROF-TEXT	11	Continuous	0.50mm	Roadways: profile text
C-ROAD-PROF-TEXT-PROP	white	Continuous	0.35mm	Roadways: profile text, proposed

Layer Name	Color	Linetype*	Lineweight	Description
C-ROAD-PROF-TICK	white	Continuous	0.35mm	Roadways: profile tick marks
C-ROAD-PROF-TITL	white	Continuous	0.35mm	Roadways: profile label
C-ROAD-PROF-TTLB	blue	Continuous	0.35mm	Roadways: profile label
C-ROAD-PROF-VIEW	blue	Continuous	0.35mm	
C-ROAD-PROF-VIEW-TEXT	blue	Continuous	0.50mm	
C-ROAD-PTRN	white	Continuous	0.35mm	Roadway - Pattern
C-ROAD-SAMP	150	HIDDEN	0.35mm	Roadways: sample lines
C-ROAD-SAMP-TEXT	white	Continuous	0.50mm	Roadways: sample lines text
C-ROAD-SECT	red	HIDDEN2	0.35mm	Roadways: grade in sections
C-ROAD-SECT-BUFR	magenta	DASHED2	0.35mm	
C-ROAD-SECT-DIAG	212	Continuous	0.35mm	Roadways: section diagram
C-ROAD-SECT-GRID	white	Continuous	0.35mm	Roadways: section grid
C-ROAD-SECT-GRID-MAJR	8	Continuous	0.35mm	Roadways: section grid
C-ROAD-SECT-GRID-MINR	9	Continuous	0.35mm	Roadways: section grid
C-ROAD-SECT-LABL	92	Continuous	0.35mm	Roadways: section labels
C-ROAD-SECT-PROJ	92	Continuous	0.35mm	
C-ROAD-SECT-PROP	150	Continuous	0.35mm	Roadways: section, proposed
C-ROAD-SECT-TEXT	11	Continuous	0.50mm	Roadways: section text
C-ROAD-SECT-TEXT-PROP	white	Continuous	0.35mm	Roadways: section text, proposed
C-ROAD-SECT-TICK	white	Continuous	0.35mm	Roadways: section tick marks
C-ROAD-SECT-TITL	white	Continuous	0.35mm	Roadways: section title
C-ROAD-SECT-TTLB	blue	Continuous	0.35mm	Roadways: section border
C-ROAD-SECT-VIEW	white	Continuous	0.35mm	
C-ROAD-SECT-VIEW-TEXT	white	Continuous	0.50mm	
C-ROAD-SELV-VIEW	white	Continuous	0.35mm	
C-ROAD-SHAP	32	Continuous	0.35mm	Roadways: corridor and section shapes
C-ROAD-SHAP-PATT	white	Continuous	0.35mm	Roadways: corridor and section shapes hatching
C-ROAD-SPIR	92	Continuous	0.35mm	Roadways: spirals
C-ROAD-STAN	white	Continuous	0.35mm	Roadways: stationing
C-ROAD-STAN-MAJR	11	Continuous	0.35mm	Roadways: major stationing labels
C-ROAD-STAN-MAJR-PROP	white	Continuous	0.35mm	Roadways: major stationing labels, proposed
C-ROAD-STAN-MINR	11	Continuous	0.35mm	Roadways: minor stationing labels
C-ROAD-STAN-MINR-PROP	white	Continuous	0.35mm	Roadways: minor stationing labels, proposed
C-ROAD-STAN-PROP	white	Continuous	0.35mm	Roadways: stationing, proposed
C-ROAD-SYMB	white	Continuous	0.35mm	Roadway - Symbols
C-ROAD-TEXT	11	Continuous	0.50mm	Roadways: text
C-ROAD-TEXT-PROP	white	Continuous	0.35mm	Roadways: text, proposed
C-ROAD-TOEB	white	Continuous	0.35mm	Roadway - Toe of Bank or Berm
C-ROAD-TOPB	white	Continuous	0.35mm	Roadway - Top of Bank or Berm
C-ROAD-WORK	white	Continuous	0.35mm	Roadway - User Work (Non-Plotting)

Layer Name	Color	Linetype*	Lineweight	Description
C-RWAY	magenta	ROW REQ'D	0.60mm	Right of Way
C-RWAY-CTLA	magenta	Continuous	0.35mm	Right of Way - Controlled Access
C-RWAY-DIMS	magenta	Continuous	0.50mm	Right of Way - Dimensions
C-RWAY-FENC	magenta	Continuous	0.35mm	Roadway - Right-Of-Way Fence
C-RWAY-LGAL	magenta	ROW LEGAL	0.60mm	Right of Way - (Copy of) placed as Legal ROW
C-RWAY-LLOS	magenta	Continuous	0.35mm	Right of Way - Legal Limit of Slope
C-RWAY-LMON	magenta	Continuous	0.35mm	Right of Way - Monument
C-RWAY-NOTE	magenta	Continuous	0.50mm	Right of Way - Notes
C-RWAY-PNTS	magenta	Continuous	0.35mm	Right of Way - Points
C-RWAY-PTRN	magenta	Continuous	0.35mm	Right of Way - Pattern
C-RWAY-RROW	magenta	ROW REQ'D	0.60mm	Right of Way - Required
C-RWAY-SYMB	magenta	Continuous	0.35mm	Right of Way - Symbols
C-RWAY-TEXT	magenta	Continuous	0.50mm	Right of Way - Text
C-RWAY-WORK	magenta	Continuous	0.35mm	Right of Way - User Work (Non-Plotting)
C-SHDR	white	Continuous	0.35mm	Shoulders
C-SHDR-BOTM	white	Continuous	0.35mm	Shoulders - Bottom of Shoulder
C-SHDR-DIMS	white	Continuous	0.50mm	Shoulders - Dimensions
C-SHDR-EDGE	white	Continuous	0.35mm	Shoulders - Edge of Shoulder
C-SHDR-NOTE	white	Continuous	0.50mm	Shoulders - Notes
C-SHDR-PNTS	white	Continuous	0.35mm	Shoulders - Points (Non-Plotting)
C-SHDR-PTRN	white	Continuous	0.35mm	Shoulders - Pattern
C-SHDR-SYMB	white	Continuous	0.35mm	Shoulders - Symbols
C-SHDR-TEXT	white	Continuous	0.50mm	Shoulders - Text
C-SHDR-WORK	white	Continuous	0.35mm	Shoulders - User Work (Non-Plotting)
C-SSWR	green	UT-S	0.90mm	Sanitary Sewer
C-SSWR-BERM	green	Continuous	0.35mm	Sanitary Sewer - Berm for liquids retention
C-SSWR-CNTR	green	Continuous	0.35mm	Sanitary Sewer: centerline
C-SSWR-DIMS	green	Continuous	0.50mm	Sanitary Sewer - Dimensions
C-SSWR-DUCT	green	Continuous	0.35mm	Sanitary Sewer - Ducts and conduits (vacant) for future lines
C-SSWR-EQPM	green	Continuous	0.35mm	Sanitary Sewer - Equipment and Pad
C-SSWR-GUYS	green	Continuous	0.35mm	Sanitary Sewer - Guying equipment
C-SSWR-HYDR	green	Continuous	0.35mm	Sanitary Sewer - Hydrants and Fire Department connections
C-SSWR-JBOX	green	Continuous	0.35mm	Sanitary Sewer - Junction Box
C-SSWR-LINE	green	UT-S	0.90mm	Sanitary Sewer - Lines
C-SSWR-LINE-DBUR	green	UT-S	0.90mm	Sanitary sewer - Direct Buried Underground Lines
C-SSWR-LINE-OVHD	green	UT-S	0.90mm	Sanitary Sewer - Overhead Lines
C-SSWR-LINE-UNDR	green	UT-S	0.90mm	Sanitary Sewer - Underground Lines
C-SSWR-MARK	green	Continuous	0.35mm	Sanitary Sewer - Cell - Above Ground Markers
C-SSWR-METR	green	Continuous	0.35mm	Sanitary Sewer - Meters and instrumentation
C-SSWR-MHOL	green	Continuous	0.35mm	Sanitary Sewer - Manholes and junction boxes
C-SSWR-NOTE	green	Continuous	0.50mm	Sanitary Sewer - Notes

Layer Name	Color	Linetype*	Lineweight	Description
C-SSWR-PERC	green	Continuous	0.35mm	Sanitary Sewer - Perc
C-SSWR-PIPE	green	UT-S	0.90mm	Sanitary Sewer: piping
C-SSWR-PIPE-PATT	white	Continuous	0.35mm	Sanitary Sewer: piping, hatching
C-SSWR-PITS	green	Continuous	0.35mm	Sanitary Sewer - Pits for vents, valves and other equipment
C-SSWR-PLNT	green	Continuous	0.35mm	Sanitary Sewer - Plants, pumping stations, storage tanks and reservoirs
C-SSWR-PNTS	green	Continuous	0.35mm	Sanitary Sewer - Points (Non-Plotting)
C-SSWR-POLE	green	Continuous	0.35mm	Sanitary Sewer - Pole
C-SSWR-PROF	green	Continuous	0.35mm	Sanitary Sewer: profile
C-SSWR-PTRN	green	Continuous	0.35mm	Sanitary Sewer - Pattern
C-SSWR-SEPT	green	Continuous	0.35mm	Sanitary Sewer - Septic Tank
C-SSWR-SITE	green	Continuous	0.35mm	Sanitary Sewer - Line - Site (Interior boundary)
C-SSWR-STRC	green	Continuous	0.35mm	Sanitary Sewer: structures
C-SSWR-STRC-PATT	green	Continuous	0.35mm	Sanitary Sewer: structures, hatching
C-SSWR-SYMB	green	Continuous	0.35mm	Sanitary Sewer - Symbols
C-SSWR-TEXT	white	Continuous	0.50mm	Sanitary Sewer: text
C-SSWR-TRCH	green	Continuous	0.35mm	Sanitary Sewer - Fuel line trench
C-SSWR-WELL	green	Continuous	0.35mm	Sanitary Sewer - Wells
C-SSWR-WORK	green	Continuous	0.35mm	Sanitary Sewer - User Work (Non-Plotting)
C-SSWR-XFMR	green	Continuous	0.35mm	Sanitary Sewer - Transformers
C-STRM	cyan	PIPE PR	0.90mm	Storm Water Drainage
C-STRM-AREA	cyan	Continuous	0.35mm	Storm Water - Area
C-STRM-CHUT	cyan	Continuous	0.35mm	Storm Water - Chutes and Energy dissipator
C-STRM-CHUT-PAVE	cyan	Continuous	0.35mm	Storm Water - Paved energy dissipator
C-STRM-CHUT-ROCK	cyan	Continuous	0.35mm	Storm Water - Rock energy dissipator
C-STRM-CNTR	cyan	Continuous	0.35mm	Storm Sewer: centerline
C-STRM-CULV	cyan	PIPE PR	0.90mm	Storm Water - Culvert
C-STRM-CULV-BOXC	cyan	PIPE PR	0.90mm	Storm Water - Culvert Box
C-STRM-CULV-OPEN	cyan	Continuous	0.35mm	Storm Water - Culvert Open
C-STRM-DETB	cyan	Continuous	0.35mm	Storm Water - Detention Basins
C-STRM-DIMS	cyan	Continuous	0.50mm	Storm Water - Dimensions
C-STRM-DTCH	cyan	DRAINAGE	0.35mm	Storm Water - Ditch
C-STRM-HDWL	cyan	Continuous	0.35mm	Storm Water - Headwalls and End walls
C-STRM-INLT	cyan	Continuous	0.35mm	Storm Water - Inlets (curb, surface, and catch basins)
C-STRM-MARK	cyan	Continuous	0.35mm	Storm Water - Surface Markers/Signs
C-STRM-MHOL	cyan	Continuous	0.35mm	Storm Water - Manhole
C-STRM-NOTE	cyan	Continuous	0.50mm	Storm Water - Notes
C-STRM-PIPE	cyan	PIPE PR	0.90mm	Storm Sewer: piping
C-STRM-PIPE-ABOV	cyan	PIPE PR	0.90mm	Storm Water - Piping, Above Ground
C-STRM-PIPE-PATT	white	PIPE PR	0.90mm	Storm Sewer: piping, hatching
C-STRM-PIPE-TEMP	cyan	PIPE PR	0.90mm	Storm Water - Piping, Temporary slope drainage
C-STRM-PIPE-UNDR	cyan	PIPE PR	0.90mm	Storm Water - Piping, Below Ground

Layer Name	Color	Linetype*	Lineweight	Description
C-STRM-PNTS	cyan	Continuous	0.35mm	Storm Water - Points (Non-Plotting)
C-STRM-PROF	170	Continuous	0.35mm	Storm Sewer: profile
C-STRM-PTRN	cyan	Continuous	0.35mm	Storm Water - Pattern
C-STRM-SCTN	200	Continuous	0.35mm	
C-STRM-STRC	170	Continuous	0.35mm	Storm Sewer: structures
C-STRM-STRC-PATT	white	Continuous	0.35mm	Storm Sewer: structures, hatching
C-STRM-SYMB	cyan	Continuous	0.35mm	Storm Water - Symbols
C-STRM-TEXT	white	Continuous	0.50mm	Storm Sewer: text
C-STRM-WORK	cyan	Continuous	0.35mm	Storm Water - User Work (Non-Plotting)
C-SURF	92	Continuous	0.35mm	Surface
C-SURF-BNDY	92	Continuous	0.35mm	Surface - Boundary
C-SURF-BNDY-EXTR	92	Continuous	0.35mm	Surface - Exterior Boundaries
C-SURF-BNDY-INTR	92	Continuous	0.35mm	Surface - Interior Boundaries
C-SURF-CONT	92	Continuous	0.35mm	Surface - Contours
C-SURF-CONT-MAJR	92	HIDDEN	0.35mm	Surface - Contours Major
C-SURF-CONT-MINR	21	HIDDEN2	0.35mm	Surface - Contours Minor
C-SURF-CONT-SPOT	92	Continuous	0.35mm	Surface - Contours Spot Elevations
C-SURF-DIMS	92	Continuous	0.50mm	Surface - Dimensions
C-SURF-ELEV	92	Continuous	0.35mm	Surface - Triangle Elevations
C-SURF-FALT	92	Continuous	0.35mm	Surface - Fault / Break lines
C-SURF-LN00	92	Continuous	0.35mm	Surface - Line 00
C-SURF-NOTE	92	Continuous	0.50mm	Surface - Notes
C-SURF-PMTR	92	Continuous	0.35mm	Surface - Perimeter
C-SURF-PNTS	92	Continuous	0.35mm	Surface - Points (Non-Plotting)
C-SURF-PTRN	92	Continuous	0.35mm	Surface - Pattern
C-SURF-SLOP	92	Continuous	0.35mm	Surface - Triangle Slopes
C-SURF-SYMB	92	Continuous	0.35mm	Surface - Symbols
C-SURF-TEXT	92	Continuous	0.50mm	Surface - Text
C-SURF-TRIA	92	Continuous	0.35mm	Surface - Triangles
C-SURF-WORK	92	Continuous	0.35mm	Surface - User Work (Non-Plotting)
C-SURV	white	Continuous	0.35mm	Survey Control Points
C-SURV-CTPT	white	Continuous	0.35mm	Proposed survey control points
C-SURV-DIMS	white	Continuous	0.50mm	Survey Control Points - Dimensions
C-SURV-NOTE	white	Continuous	0.50mm	Survey Control Points - Notes
C-SURV-PNTS	white	Continuous	0.35mm	Survey Control Points - Points (Non-Plotting)
C-SURV-PTRN	white	Continuous	0.35mm	Survey Control Points - Pattern
C-SURV-SYMB	white	Continuous	0.35mm	Survey Control Points - Symbols
C-SURV-TEXT	white	Continuous	0.50mm	Survey Control Points - Text
C-SURV-WORK	white	Continuous	0.35mm	Survey Control Points - User Work (Non-Plotting)
C-SWLK	white	Continuous	0.35mm	Sidewalks
C-SWLK-DIMS	white	Continuous	0.50mm	Sidewalks - Dimensions

Layer Name	Color	Linetype*	Lineweight	Description
C-SWLK-EDGE	white	Continuous	0.35mm	Sidewalks - Edge of
C-SWLK-NOTE	white	Continuous	0.50mm	Sidewalks - Notes
C-SWLK-PNTS	white	Continuous	0.35mm	Sidewalks - Points (Non-Plotting)
C-SWLK-PTRN	white	Continuous	0.35mm	Sidewalks - Pattern
C-SWLK-RAMP	white	Continuous	0.35mm	Sidewalks - Handicap Ramp
C-SWLK-SYMB	white	Continuous	0.35mm	Sidewalks - Symbols
C-SWLK-TEXT	white	Continuous	0.50mm	Sidewalks - Text
C-SWLK-UNDR	white	Continuous	0.35mm	Sidewalks - NON-PLOTTING
C-SWLK-WORK	white	Continuous	0.35mm	Sidewalks - User Work (Non-Plotting)
C-TELP	30	UT-TU	0.70mm	Telephone
C-TELP-BERM	30	Continuous	0.35mm	Telephone - Berm for liquids retention
C-TELP-DIMS	30	Continuous	0.50mm	Telephone - Dimensions
C-TELP-DUCT	30	Continuous	0.35mm	Telephone - Ducts and conduits (vacant) for future lines
C-TELP-EQPM	30	Continuous	0.35mm	Telephone - Equipment and Pad
C-TELP-GUYS	30	Continuous	0.35mm	Telephone - Guying equipment
C-TELP-HYDR	30	Continuous	0.35mm	Telephone - Hydrants and Fire Department connections
C-TELP-JBOX	30	Continuous	0.35mm	Telephone - Junction Box
C-TELP-LINE	30	UT-TU	0.70mm	Telephone - Lines
C-TELP-LINE-DBUR	30	UT-TU	0.70mm	Telephone - Direct Buried Underground Lines
C-TELP-LINE-OVHD	30	UT-T	0.70mm	Telephone - Overhead Lines
C-TELP-LINE-UNDR	30	UT-TU	0.70mm	Telephone - Underground Lines
C-TELP-MARK	30	Continuous	0.35mm	Telephone - Cell - Above Ground Markers
C-TELP-METR	30	Continuous	0.35mm	Telephone - Meters and instrumentation
C-TELP-MHOL	30	Continuous	0.35mm	Telephone - Manholes and junction boxes
C-TELP-NOTE	30	Continuous	0.50mm	Telephone - Notes
C-TELP-PERC	30	Continuous	0.35mm	Telephone - Perc Test Holes and Pits
C-TELP-PITS	30	Continuous	0.35mm	Telephone - Pits for vents, valves and other equipment
C-TELP-PLNT	30	Continuous	0.35mm	Telephone - Plants, pumping stations, storage tanks and reservoirs
C-TELP-PNTS	30	Continuous	0.35mm	Telephone - Points (Non-Plotting)
C-TELP-POLE	30	Continuous	0.35mm	Telephone - Pole
C-TELP-PTRN	30	Continuous	0.35mm	Telephone - Pattern
C-TELP-SITE	30	Continuous	0.35mm	Telephone - Line - Site (Interior boundary)
C-TELP-SYMB	30	Continuous	0.35mm	Telephone - Symbols
C-TELP-TEXT	30	Continuous	0.50mm	Telephone - Text
C-TELP-TRCH	30	Continuous	0.35mm	Telephone - Fuel line trench
C-TELP-WELL	30	Continuous	0.35mm	Telephone - Wells
C-TELP-WORK	30	Continuous	0.35mm	Telephone - User Work (Non-Plotting)
C-TELP-XFMR	30	Continuous	0.35mm	Telephone - Transformers
C-TINN	cyan	Continuous	0.35mm	Triangulated irregular network
C-TINN-BNDY	110	Continuous	0.35mm	Triangulated irregular network: boundary
C-TINN-VIEW	252	Continuous	0.35mm	Triangulated irregular network: triangle view

Layer Name	Color	Linetype*	Lineweight	Description
C-TOPO	white	Continuous	0.35mm	Topography
C-TOPO-BKLN	white	Continuous	0.35mm	Topography - Break lines
C-TOPO-BLBD-DBBL	white	Continuous	0.35mm	Topography - Billboard Double
C-TOPO-BLBD-SNGL	white	Continuous	0.35mm	Topography - Billboard Single
C-TOPO-CUTT	30	CUT	0.35mm	Topography - Cut
C-TOPO-DIMS	white	Continuous	0.50mm	Topography - Dimensions
C-TOPO-FEAT	92	Continuous	0.35mm	
C-TOPO-FENC	yellow	FENCE	0.35mm	Topography - Fence
C-TOPO-FILL	magenta	FILL	0.35mm	Topography - Fill
C-TOPO-GRAD	93	Continuous	0.35mm	Topography: grading
C-TOPO-GRAD-CUTS	red	CUT	0.35mm	Topography: grading cut material
C-TOPO-GRAD-FILL	93	FILL	0.35mm	Topography: grading fill material
C-TOPO-GRAD-TEXT	white	Continuous	0.50mm	
C-TOPO-MAJR-PROP	92	Continuous	0.50mm	Topography: major contours, proposed
C-TOPO-MINR-PROP	yellow	Continuous	0.35mm	Topography: minor contours, proposed
C-TOPO-NOTE	white	Continuous	0.50mm	Topography - Notes
C-TOPO-PNTS	white	Continuous	0.35mm	Topography - Points (Non-Plotting)
C-TOPO-PTRN	white	Continuous	0.35mm	Topography - Pattern
C-TOPO-SURF	cyan	Continuous	0.35mm	
C-TOPO-SURF-TEXT	cyan	Continuous	0.50mm	
C-TOPO-SYMB	white	Continuous	0.35mm	Topography - Symbols
C-TOPO-TEXT	white	Continuous	0.50mm	Topography: text
C-TOPO-USER	40	Continuous	0.35mm	Topography: user contours
C-TOPO-WORK	white	Continuous	0.35mm	Topography - User Work (Non-Plotting)
C-TOPO-WSHD	150	Continuous	0.35mm	Topography: watershed
C-TOPO-WSHD-TEXT	white	Continuous	0.50mm	Topography: watershed text
C-TRAL	white	Continuous	0.35mm	Trails or Paths
C-TRAL-DIMS	white	Continuous	0.50mm	Trails - Dimensions
C-TRAL-EDGE	white	Continuous	0.35mm	Trails - Edge of
C-TRAL-LINE	white	Continuous	0.35mm	Trails - Lines
C-TRAL-NOTE	white	Continuous	0.50mm	Trails - Notes
C-TRAL-PNTS	white	Continuous	0.35mm	Trails - Points
C-TRAL-PTRN	white	Continuous	0.35mm	Trails - Pattern
C-TRAL-SYMB	white	Continuous	0.35mm	Trails - Symbols
C-TRAL-TEXT	white	Continuous	0.50mm	Trails - Text
C-TRAL-WORK	white	Continuous	0.35mm	Trails - User Work (Non-Plotting)
C-UTIL	52	Continuous	0.35mm	Utility
C-UTIL-BERM	52	Continuous	0.35mm	Utility - Berm for liquids retention
C-UTIL-COMB	52	Continuous	0.35mm	Utility - Combined
C-UTIL-DIMS	52	Continuous	0.50mm	Utility - Dimensions
C-UTIL-DUCT	52	Continuous	0.35mm	Utility - Ducts and conduits (vacant) for future lines

Layer Name	Color	Linetype*	Lineweight	Description
C-UTIL-EQPM	52	Continuous	0.35mm	Utility - Equipment and Pad
C-UTIL-GUYS	52	Continuous	0.35mm	Utility - Guying equipment
C-UTIL-HYDR	52	Continuous	0.35mm	Utility - Hydrants and Fire Department connections
C-UTIL-JBOX	52	Continuous	0.35mm	Utility - Junction Box
C-UTIL-LINE	52	Continuous	0.35mm	Utility - Lines
C-UTIL-LINE-DBUR	52	Continuous	0.35mm	Utility - Direct Buried Underground Lines
C-UTIL-LINE-OVHD	52	Continuous	0.35mm	Utility - Overhead Lines
C-UTIL-LINE-UNDR	52	Continuous	0.35mm	Utility - Underground Lines
C-UTIL-MARK	52	Continuous	0.35mm	Utility - Cell - Above Ground Markers
C-UTIL-METR	52	Continuous	0.35mm	Utility - Meters and instrumentation
C-UTIL-MHOL	52	Continuous	0.35mm	Utility - Manholes and junction boxes
C-UTIL-NOTE	52	Continuous	0.50mm	Utility - Notes
C-UTIL-PERC	52	Continuous	0.35mm	Utility - Perc Test Holes and Pits
C-UTIL-PITS	52	Continuous	0.35mm	Utility - Pits for vents, valves and other equipment
C-UTIL-PLNT	52	Continuous	0.35mm	Utility - Plants, pumping stations, storage tanks and reservoirs
C-UTIL-PNTS	52	Continuous	0.35mm	Utility - Points (Non-Plotting)
C-UTIL-POLE	52	Continuous	0.35mm	Utility - Pole
C-UTIL-PTRN	52	Continuous	0.35mm	Utility - Pattern
C-UTIL-SITE	52	Continuous	0.35mm	Utility - Line - Site (Interior boundary)
C-UTIL-SYMB	52	Continuous	0.35mm	Utility - Symbols
C-UTIL-TEXT	52	Continuous	0.50mm	Utility - Text
C-UTIL-TRCH	52	Continuous	0.35mm	Utility - Fuel line trench
C-UTIL-VLVE	52	Continuous	0.35mm	Utility - Valve
C-UTIL-WELL	52	Continuous	0.35mm	Utility - Wells
C-UTIL-WORK	52	Continuous	0.35mm	Utility - User Work (Non-Plotting)
C-UTIL-XFMR	52	Continuous	0.35mm	Utility - Transformers
C-VEGE	green	Continuous	0.35mm	Vegetation
C-VEGE-BEDS	green	NURSERY	0.35mm	Vegetation - Planting beds
C-VEGE-BUSH	green	HEDGE	0.35mm	Vegetation - Bushes and shrubs (e.g., evergreen, deciduous, etc.)
C-VEGE-DIMS	green	Continuous	0.50mm	Vegetation - Dimensions
C-VEGE-HEDG	green	HEDGEROW	0.35mm	Vegetation - Hedge
C-VEGE-IRRG	green	Continuous	0.35mm	Vegetation - Irrigation System
C-VEGE-NOTE	green	Continuous	0.50mm	Vegetation - Notes
C-VEGE-ORCH	green	TREE	0.35mm	Vegetation - Orchard
C-VEGE-PLNT	green	Continuous	0.35mm	Vegetation - Planters and planting structures
C-VEGE-PLTS	green	Continuous	0.35mm	Vegetation - Planting plants (e.g., ornamental annuals and perennials)
C-VEGE-PNTS	green	Continuous	0.35mm	Vegetation - Points (Non-Plotting)
C-VEGE-PTRN	green	Continuous	0.35mm	Vegetation - Pattern
C-VEGE-SYMB	green	Continuous	0.35mm	Vegetation - Symbols
C-VEGE-TEXT	green	Continuous	0.50mm	Vegetation - Text
C-VEGE-TREE	green	TREE	0.35mm	Vegetation - Trees (e.g., evergreen, deciduous, etc.)

Layer Name	Color	Linetype*	Lineweight	Description
C-VEGE-TURF	green	NURSERY	0.35mm	Vegetation - Lawn areas (turfing limits)
C-VEGE-VINE	green	Continuous	0.35mm	Vegetation - Vine
C-VEGE-WOOD	green	WOODS	0.35mm	Vegetation - Woods line
C-VEGE-WORK	green	Continuous	0.35mm	Vegetation - User Work (Non-Plotting)
C-WALL	red	Continuous	0.35mm	Wall (General, as shown on Civil plans)
C-WALL-BARR	red	Continuous	0.35mm	Wall - Barrier WALL
C-WALL-CTLJ	red	Continuous	0.35mm	Wall - Control Joints
C-WALL-DIMS	red	Continuous	0.50mm	Wall - Dimensions
C-WALL-NOTE	red	Continuous	0.50mm	Wall - Notes
C-WALL-NSBR	red	Continuous	0.35mm	Wall - Noise Barrier
C-WALL-PNTS	red	Continuous	0.35mm	Wall - Points (Non-Plotting)
C-WALL-PTRN	red	Continuous	0.35mm	Wall - Pattern
C-WALL-RTWL	red	Continuous	0.35mm	Wall - Retaining
C-WALL-SHEA	red	Continuous	0.35mm	Wall - Structural Bearing or Shear
C-WALL-STON	red	Continuous	0.35mm	Wall - Stone Wall
C-WALL-SYMB	red	Continuous	0.35mm	Wall - Symbols
C-WALL-TEXT	red	Continuous	0.50mm	Wall - Text
C-WALL-WORK	red	Continuous	0.35mm	Wall - User Work (Non-Plotting)
C-WATR	cyan	UT-W	0.70mm	Water
C-WATR-APPT	blue	Continuous	0.35mm	Water Network: appurtenances
C-WATR-APPT-PATT	white	Continuous	0.35mm	Water Network: appurtenances, hatching
C-WATR-BERM	cyan	Continuous	0.35mm	Water - Berm for liquids retention
C-WATR-CNTR	blue	Continuous	0.35mm	Water Network: centerline
C-WATR-DIMS	cyan	Continuous	0.50mm	Water - Dimensions
C-WATR-DUCT	cyan	Continuous	0.35mm	Water - Ducts and conduits (vacant) for future lines
C-WATR-EQPM	cyan	Continuous	0.35mm	Water - Equipment and Pad
C-WATR-FITT	blue	Continuous	0.35mm	Water Network: fittings
C-WATR-FITT-PATT	white	Continuous	0.35mm	Water Network: fittings, hatching
C-WATR-GUYS	cyan	Continuous	0.35mm	Water - Guying equipment
C-WATR-HYDR	cyan	Continuous	0.35mm	Water - Hydrants and Fire Department connections
C-WATR-JBOX	cyan	Continuous	0.35mm	Water - Junction Box
C-WATR-LINE	cyan	UT-W	0.70mm	Water - Lines
C-WATR-LINE-DBUR	cyan	UT-W	0.70mm	Water - Direct Buried Underground Lines
C-WATR-LINE-OVHD	cyan	UT-W	0.70mm	Water - Overhead Lines
C-WATR-LINE-UNDR	cyan	UT-W	0.70mm	Water - Underground Lines
C-WATR-MARK	cyan	Continuous	0.35mm	Water - Cell - Above Ground Markers
C-WATR-METR	cyan	Continuous	0.35mm	Water - Meters and instrumentation
C-WATR-MHOL	cyan	Continuous	0.35mm	Water - Manholes and junction boxes
C-WATR-NOTE	cyan	Continuous	0.50mm	Water - Notes
C-WATR-PERC	cyan	Continuous	0.35mm	Water - Perc Test Holes and Pits
C-WATR-PIPE	blue	UT-W	0.70mm	Water Network: pressure pipe

Layer Name	Color	Linetype*	Lineweight	Description
C-WATR-PIPE-PATT	white	Continuous	0.35mm	Water Network: pressure pipe, hatching
C-WATR-PITS	cyan	Continuous	0.35mm	Water - Pits for vents, valves and other equipment
C-WATR-PLNT	cyan	Continuous	0.35mm	Water - Plants, pumping stations, storage tanks and reservoirs
C-WATR-PNTS	cyan	Continuous	0.35mm	Water - Points (Non-Plotting)
C-WATR-POLE	cyan	Continuous	0.35mm	Water - Pole
C-WATR-PROF	blue	Continuous	0.35mm	Water Network: profile
C-WATR-PTRN	cyan	Continuous	0.35mm	Water - Pattern
C-WATR-SCTN	blue	Continuous	0.35mm	Water Network: section
C-WATR-SITE	cyan	Continuous	0.35mm	Water - Line - Site (Interior boundary)
C-WATR-SYMB	cyan	Continuous	0.35mm	Water - Symbols
C-WATR-TEXT	white	Continuous	0.50mm	Water Network: text
C-WATR-TRCH	cyan	Continuous	0.35mm	Water - Fuel line trench
C-WATR-WELL	cyan	Continuous	0.35mm	Water - Wells
C-WATR-WORK	cyan	Continuous	0.35mm	Water - User Work (Non-Plotting)
C-WATR-XFMR	cyan	Continuous	0.35mm	Water - Transformers
C-WETL	120	WETLAND	0.35mm	Wetlands
C-WETL-BOGS	120	Continuous	0.35mm	Wetlands - Bogs
C-WETL-DIMS	120	Continuous	0.50mm	Wetlands - Dimensions
C-WETL-MRSH	120	WETLAND	0.35mm	Wetlands - Marshes
C-WETL-NOTE	120	Continuous	0.50mm	Wetlands - Notes
C-WETL-OTLN	120	WETLAND	0.35mm	Wetlands - Outline
C-WETL-PNTS	120	Continuous	0.35mm	Wetlands - Points (Non-Plotting)
C-WETL-PTRN	120	Continuous	0.35mm	Wetlands - Pattern
C-WETL-SYMB	120	Continuous	0.35mm	Wetlands - Symbols
C-WETL-TEXT	120	Continuous	0.50mm	Wetlands - Text
C-WETL-WORK	120	Continuous	0.35mm	Wetlands - User Work (Non-Plotting)
C-XSEC	white	Continuous	0.35mm	Cross Section
C-XSEC-AXIS	white	Continuous	0.35mm	Cross Section -Axis
C-XSEC-AXIS-TEXT	white	Continuous	0.50mm	Cross Section - Axis - Text
C-XSEC-AXIS-TITL	white	Continuous	0.35mm	Cross Section - Axis - Title
C-XSEC-CELL	white	Continuous	0.35mm	Cross Section - Cells
C-XSEC-DIMS	white	Continuous	0.50mm	Cross Section - Dimensions
C-XSEC-FRAM	white	Continuous	0.35mm	Cross Section - Frame
C-XSEC-GRID	white	Continuous	0.35mm	Cross Section - Grid
C-XSEC-GRID-BLTX	white	Continuous	0.35mm	Cross Section - Grid - Base Line Text
C-XSEC-GRID-CLTX	white	Continuous	0.35mm	Cross Section - Grid - Center Line Text
C-XSEC-GRID-HVGL	white	Continuous	0.35mm	Cross Section - Grid - Center Line Text
C-XSEC-GRID-MAJR	white	Continuous	0.35mm	Cross Section - Grid major lines
C-XSEC-GRID-MINR	white	Continuous	0.35mm	Cross Section - Grid minor lines
C-XSEC-LINE	white	Continuous	0.35mm	Cross Section - Lines
C-XSEC-NAME	white	Continuous	0.35mm	Cross Section - Name

Layer Name	Color	Linetype*	Lineweight	Description
C-XSEC-NAME-TEXT	white	Continuous	0.50mm	Cross Section - Name Text
C-XSEC-NOTE	white	Continuous	0.50mm	Cross Section - Notes
C-XSEC-PNTS	white	Continuous	0.35mm	Cross Section - Points (Non-Plotting)
C-XSEC-PTRN	white	Continuous	0.35mm	Cross Section - Pattern
C-XSEC-SYMB	white	Continuous	0.35mm	Cross Section - Symbols
C-XSEC-TEXT	white	Continuous	0.50mm	Cross Section - Text
C-XSEC-WORK	white	Continuous	0.35mm	Cross Section - User Work (Non-Plotting)

15.5.2 STRUCTURAL LAYERS

Layer Name	Color	Linetype	Lineweight	Description
S-ABUT	white	Continuous	ByLineWeightDefault	Abutment
S-ABUT-CNTR	white	DGN Style 4	ByLineWeightDefault	Abutment centerlines
S-ABUT-CONC	white	Continuous	ByLineWeightDefault	Abutment Concrete Lines
S-ABUT-DRAN	white	Continuous	ByLineWeightDefault	Abutment Drainage
S-ABUT-DRAN-EXST	18	Continuous	ByLineWeightDefault	Abutment Existing Drainage
S-ABUT-EXST-CONC	18	Continuous	ByLineWeightDefault	Abutment Existing Concrete
S-ABUT-EXST-REBR	18	DGN Style 2	ByLineWeightDefault	Abutment Existing Rebar
S-ABUT-HATC	white	Continuous	ByLineWeightDefault	Abutment Hatching
S-ABUT-HIDL	white	DGN Style 2	ByLineWeightDefault	Abutment Hidden Line
S-ABUT-MISC	white	Continuous	ByLineWeightDefault	Abutment Miscellaneous
S-ABUT-PILE	white	Continuous	ByLineWeightDefault	Abutment Piling
S-ABUT-PTRN-01	white	Continuous	ByLineWeightDefault	Abutment Patterning
S-ABUT-PTRN-02	white	Continuous	ByLineWeightDefault	Abutment Patterning
S-ABUT-REBR	white	Continuous	ByLineWeightDefault	Abutment Rebar
S-ABUT-WORK	white	Continuous	ByLineWeightDefault	Abutment User Work / Scratch (Non-Plotting)
S-ANNO	white	Continuous	ByLineWeightDefault	Structure Annotation
S-ANNO-ATAB	white	Continuous	ByLineWeightDefault	Structure Auto Tab Import
S-ANNO-CELL	white	Continuous	ByLineWeightDefault	Structure Misc. Cells
S-ANNO-DIMS-AUTO	white	Continuous	ByLineWeightDefault	Structure automatic dimensioning
S-ANNO-DIMS-MANL	white	Continuous	ByLineWeightDefault	Structure dimensions, extension lines & arrows
S-ANNO-SCAL-01	white	Continuous	ByLineWeightDefault	Structure bar scale cells
S-ANNO-SCAL-02	white	Continuous	ByLineWeightDefault	Structure bar scale cells
S-ANNO-SCAL-03	white	Continuous	ByLineWeightDefault	Structure bar scale cells
S-ANNO-SEAL	white	Continuous	ByLineWeightDefault	Structure PE Seal
S-ANNO-SHTS	white	Continuous	ByLineWeightDefault	Structure Sheet Cells
S-ANNO-SYMB	white	Continuous	ByLineWeightDefault	Structure Symbols (cells)
S-ANNO-TABL	white	Continuous	ByLineWeightDefault	Structure Tables
S-ANNO-TEXT-EXST	white	Continuous	ByLineWeightDefault	Structure Text - Existing
S-ANNO-WORK	white	Continuous	ByLineWeightDefault	Structure Annotation User Work / Scratch (Non-Plotting)
S-ANNO-XMRK	white	Continuous	ByLineWeightDefault	Structure Cross Section Marks
S-APSL	white	Continuous	ByLineWeightDefault	Approach Slab
S-APSL-CNTR	white	DGN Style 4	ByLineWeightDefault	Approach Slab centerlines
S-APSL-CONC	white	Continuous	ByLineWeightDefault	Approach Slab Concrete Lines
S-APSL-EXST-CONC	18	Continuous	ByLineWeightDefault	Approach Slab Existing Concrete
S-APSL-EXST-REBR	18	Continuous	ByLineWeightDefault	Approach Slab Existing Rebar
S-APSL-HATC	white	Continuous	ByLineWeightDefault	Approach Slab hatching
S-APSL-HIDL	white	DGN Style 2	ByLineWeightDefault	Approach Slab Hidden Line

Layer Name	Color	Linetype	Lineweight	Description
S-APSL-MISC	white	Continuous	ByLineWeightDefault	Approach Slab Miscellaneous
S-APSL-PTRN-01	white	Continuous	ByLineWeightDefault	Approach Slab Patterning
S-APSL-PTRN-02	white	Continuous	ByLineWeightDefault	Approach Slab Patterning
S-APSL-REBR-01	white	Continuous	ByLineWeightDefault	Approach Slab Rebar
S-APSL-REBR-02	white	Continuous	ByLineWeightDefault	Approach Slab Rebar
S-APSL-WORK	white	Continuous	ByLineWeightDefault	Approach Slab User Work / Scratch (Non-Plotting)
S-BEAM	white	Continuous	ByLineWeightDefault	Beam
S-BEAM-BEAR	white	Continuous	ByLineWeightDefault	Beam Bearings
S-BEAM-CNTR	white	DGN Style 4	ByLineWeightDefault	Beam centerlines
S-BEAM-CONC	white	Continuous	ByLineWeightDefault	Beam Concrete Lines
S-BEAM-EXST-CONC	18	Continuous	ByLineWeightDefault	Beam Existing Concrete
S-BEAM-EXST-REBR	18	Continuous	ByLineWeightDefault	Beam Existing Rebar
S-BEAM-HATC	white	Continuous	ByLineWeightDefault	Beam Hatching
S-BEAM-HIDL	white	DGN Style 2	ByLineWeightDefault	Beam Hidden Line
S-BEAM-MISC	white	Continuous	ByLineWeightDefault	Beam Miscellaneous
S-BEAM-PTRN-01	white	Continuous	ByLineWeightDefault	Beam Patterning
S-BEAM-PTRN-02	white	Continuous	ByLineWeightDefault	Beam Patterning
S-BEAM-REBR	white	Continuous	ByLineWeightDefault	Beam Rebar
S-BEAM-STEL	white	Continuous	ByLineWeightDefault	Beam Steel (non-rebar)
S-BEAM-STRD	white	Continuous	ByLineWeightDefault	Beam Strand
S-BEAM-WORK	white	Continuous	ByLineWeightDefault	Beam User Work / Scratch (Non-Plotting)
S-BRDG	white	Continuous	ByLineWeightDefault	Structure Roadway Features
S-BRDG-BARR	white	Continuous	ByLineWeightDefault	Structure Barrier
S-BRDG-BORE	white	Continuous	ByLineWeightDefault	Structure Core Boring
S-BRDG-EROS	white	Continuous	ByLineWeightDefault	Structure Erosion & Sediment Controls
S-BRDG-EXCA-01	white	Continuous	ByLineWeightDefault	Structure Excavation 01
S-BRDG-EXCA-02	white	Continuous	ByLineWeightDefault	Structure Excavation 02
S-BRDG-EXCA-03	white	Continuous	ByLineWeightDefault	Structure Excavation 03
S-BRDG-GRAL	white	Continuous	ByLineWeightDefault	Structure Guide Rail
S-BRDG-LITE	white	Continuous	ByLineWeightDefault	Structure Lighting
S-BRDG-MISC-01	white	Continuous	ByLineWeightDefault	Structure Miscellaneous 01
S-BRDG-MISC-02	white	Continuous	ByLineWeightDefault	Structure Miscellaneous 02
S-BRDG-MISC-03	white	Continuous	ByLineWeightDefault	Structure Miscellaneous 03
S-BRDG-REVI	white	Continuous	ByLineWeightDefault	Structure Revisions
S-BRDG-SHOR	white	Continuous	ByLineWeightDefault	Structure Shoring
S-BRDG-WORK	white	Continuous	ByLineWeightDefault	Structure Bridge User Work / Scratch (Non-Plotting)
S-CULV	white	Continuous	ByLineWeightDefault	Box Culvert
S-CULV-CELL	white	Continuous	ByLineWeightDefault	Box Culvert Cells

Layer Name	Color	Linetype	Lineweight	Description
S-CULV-CNTR	white	DGN Style 4	ByLineWeightDefault	Box Culvert Centerlines
S-CULV-CONC	white	Continuous	ByLineWeightDefault	Box Culvert Concrete Lines
S-CULV-DRAN	white	Continuous	ByLineWeightDefault	Box Culvert Drainage - Proposed
S-CULV-DRAN-EXST	18	Continuous	ByLineWeightDefault	Box Culvert Drainage - Existing
S-CULV-EXST-CONC	18	Continuous	ByLineWeightDefault	Box Culvert Existing Concrete
S-CULV-EXST-REBR	18	Continuous	ByLineWeightDefault	Box Culvert Existing Rebar
S-CULV-HATC	white	DGN Style 2	ByLineWeightDefault	Box Culvert Hatching
S-CULV-HIDL	white	Continuous	ByLineWeightDefault	Box Culvert Hidden Line
S-CULV-MISC	white	Continuous	ByLineWeightDefault	Box Culvert Miscellaneous
S-CULV-PTRN-01	white	Continuous	ByLineWeightDefault	Box Culvert Patterning
S-CULV-PTRN-02	white	Continuous	ByLineWeightDefault	Box Culvert Patterning
S-CULV-REBR-01	white	Continuous	ByLineWeightDefault	Box Culvert Rebar
S-CULV-REBR-02	white	Continuous	ByLineWeightDefault	Box Culvert Rebar
S-CULV-WORK	white	Continuous	ByLineWeightDefault	Box Culvert User Work / Scratch (Non-Plotting)
S-DECK	white	Continuous	ByLineWeightDefault	Deck
S-DECK-CNTR	white	DGN Style 4	ByLineWeightDefault	Deck Centerlines
S-DECK-CONC	white	Continuous	ByLineWeightDefault	Deck Concrete Lines
S-DECK-DRAN	white	Continuous	ByLineWeightDefault	Deck Drainage - Proposed
S-DECK-DRAN-EXST	white	Continuous	ByLineWeightDefault	Deck Drainage - Existing
S-DECK-EXDM	white	Continuous	ByLineWeightDefault	Deck Expansion Dams
S-DECK-EXST-CONC	18	Continuous	ByLineWeightDefault	Deck Existing Concrete
S-DECK-EXST-REBR	18	Continuous	ByLineWeightDefault	Deck Existing Rebar
S-DECK-HATC	white	Continuous	ByLineWeightDefault	Deck Hatching
S-DECK-HIDL	white	DGN Style 2	ByLineWeightDefault	Deck Hidden Line
S-DECK-MISC	white	Continuous	ByLineWeightDefault	Deck Miscellaneous
S-DECK-PTRN-01	white	Continuous	ByLineWeightDefault	Deck Patterning
S-DECK-PTRN-02	white	Continuous	ByLineWeightDefault	Deck Patterning
S-DECK-REBR-01	white	Continuous	ByLineWeightDefault	Deck Rebar
S-DECK-REBR-02	white	Continuous	ByLineWeightDefault	Deck Rebar
S-DECK-WORK	white	Continuous	ByLineWeightDefault	Deck User Work / Scratch (Non-Plotting)
S-FOOT	white	Continuous	ByLineWeightDefault	Footing
S-FOOT-CNTR	white	DGN Style 4	ByLineWeightDefault	Footing Centerlines
S-FOOT-CONC	white	Continuous	ByLineWeightDefault	Footing Concrete Lines
S-FOOT-EXST-CONC	18	Continuous	ByLineWeightDefault	Footing Existing Concrete
S-FOOT-EXST-REBR	18	Continuous	ByLineWeightDefault	Footing Existing Rebar
S-FOOT-HATC	white	Continuous	ByLineWeightDefault	Footing Hatching
S-FOOT-HIDL	white	DGN Style 2	ByLineWeightDefault	Footing Hidden Line
S-FOOT-MISC	white	Continuous	ByLineWeightDefault	Footing Miscellaneous
S-FOOT-PILE	white	Continuous	ByLineWeightDefault	Footing Piling

Layer Name	Color	Linetype	Lineweight	Description
S-FOOT-PTRN-01	white	Continuous	ByLineWeightDefault	Footing Patterning
S-FOOT-PTRN-02	white	Continuous	ByLineWeightDefault	Footing Patterning
S-FOOT-REBR-01	white	Continuous	ByLineWeightDefault	Footing Rebar
S-FOOT-REBR-02	white	Continuous	ByLineWeightDefault	Footing Rebar
S-FOOT-WORK	white	Continuous	ByLineWeightDefault	Footing User Work / Scratch (Non-Plotting)
S-PIER	white	Continuous	ByLineWeightDefault	Pier
S-PIER-CNTR	white	DGN Style 4	ByLineWeightDefault	Pier Centerlines
S-PIER-CONC	white	Continuous	ByLineWeightDefault	Pier Concrete Lines
S-PIER-EXST-CONC	18	Continuous	ByLineWeightDefault	Pier Existing Concrete
S-PIER-EXST-REBR	18	Continuous	ByLineWeightDefault	Pier Existing Rebar
S-PIER-HATC	white	Continuous	ByLineWeightDefault	Pier Hatching
S-PIER-HIDL	white	DGN Style 2	ByLineWeightDefault	Pier Hidden Line
S-PIER-MISC	white	Continuous	ByLineWeightDefault	Pier Miscellaneous
S-PIER-PTRN-01	white	Continuous	ByLineWeightDefault	Pier Patterning
S-PIER-PTRN-02	white	Continuous	ByLineWeightDefault	Pier Patterning
S-PIER-REBR	white	Continuous	ByLineWeightDefault	Pier Rebar
S-PIER-WORK	white	Continuous	ByLineWeightDefault	Pier User Work / Scratch (Non-Plotting)
S-RWAY	white	Continuous	ByLineWeightDefault	Right of Way
S-RWAY-LGAL	white	Continuous	ByLineWeightDefault	Right of Way - Legal (Existing)
S-RWAY-MISC	white	Continuous	ByLineWeightDefault	Right of Way - Miscellaneous
S-RWAY-REQD	white	Continuous	ByLineWeightDefault	Right of Way - Required
S-RWAY-TEMP	white	Continuous	ByLineWeightDefault	Right of Way - Temporary Construction Easement
S-RWAY-WORK	white	Continuous	ByLineWeightDefault	Right of Way - User Work / Scratch (Non-Plotting)
S-STKE	white	Continuous	ByLineWeightDefault	Structure Stake-Out
S-STKE-BLIN	white	Continuous	ByLineWeightDefault	Structure Stake-Out Baselines
S-STKE-CELL	white	Continuous	ByLineWeightDefault	Structure Stake-Out Cells
S-STKE-CNTR	white	DGN Style 4	ByLineWeightDefault	Structure Stake-Out Centerlines
S-STKE-CONC	white	Continuous	ByLineWeightDefault	Structure Stake-Out Concrete Lines
S-STKE-DIMS-AUTO	white	Continuous	ByLineWeightDefault	Structure Stake-Out Dimensions - Automatic
S-STKE-DIMS-MANL	white	Continuous	ByLineWeightDefault	Structure Stake-Out Dimensions - Manual
S-STKE-MISC	white	Continuous	ByLineWeightDefault	Structure Stake-Out Miscellaneous
S-STKE-TEXT	white	Continuous	ByLineWeightDefault	Structure Stake-Out Text
S-STKE-WORK	white	Continuous	ByLineWeightDefault	Structure Stake-Out User Work / Scratch (Non-Plotting)
S-TOPO	white	Continuous	ByLineWeightDefault	Topo
S-TOPO-CONT	white	Continuous	ByLineWeightDefault	Topo - Surface Contours
S-TOPO-CONT-EXST	18	Continuous	ByLineWeightDefault	Topo - Surface Contours - Existing
S-TOPO-GRND	white	Continuous	ByLineWeightDefault	Topo - Ground Lines
S-TOPO-MISC	white	Continuous	ByLineWeightDefault	Topo - Miscellaneous

Layer Name	Color	Linetype	Lineweight	Description
S-TOPO-ROCK	white	Continuous	ByLineWeightDefault	Topo - Rock Line
S-TOPO-SBED	white	Continuous	ByLineWeightDefault	Topo - Stream Bed
S-TOPO-WORK	white	Continuous	ByLineWeightDefault	Topo - User Work / Scratch (Non-Plotting)
S-UTIL	white	Continuous	ByLineWeightDefault	Utilities
S-UTIL-CATV	white	Continuous	ByLineWeightDefault	Utilities - Cable TV
S-UTIL-COMB	white	Continuous	ByLineWeightDefault	Utilities - Combined
S-UTIL-COND	white	Continuous	ByLineWeightDefault	Utilities - Conduit
S-UTIL-EXST	18	Continuous	ByLineWeightDefault	Utilities - Existing
S-UTIL-FIBR	white	Continuous	ByLineWeightDefault	Utilities - Fiber Optic
S-UTIL-NGAS	white	Continuous	ByLineWeightDefault	Utilities - Natural Gas
S-UTIL-POWR	white	Continuous	ByLineWeightDefault	Utilities - Power / Electric
S-UTIL-PTRO	white	Continuous	ByLineWeightDefault	Utilities - Petroleum
S-UTIL-TELP	white	Continuous	ByLineWeightDefault	Utilities - Telephone
S-UTIL-WORK	white	Continuous	ByLineWeightDefault	Utilities User Work / Scratch (Non-Plotting)

15.5.3 TRAFFIC LAYERS

Layer Name	*Color*	*Linetype*	*Lineweight*	*Description*
T-LITE	120	Continuous	ByLineWeightDefault	Traffic Lighting
T-LITE-DIMS	120	Continuous	ByLineWeightDefault	Traffic Lighting - Dimensions
T-LITE-EQPM	120	Continuous	ByLineWeightDefault	Traffic Lighting - Equipment and Pads
T-LITE-JBOX	120	Continuous	ByLineWeightDefault	Traffic Lighting - Conduits / Junction Boxes
T-LITE-MAST	120	Continuous	ByLineWeightDefault	Traffic Lighting - Mast Arm
T-LITE-NOTE	120	Continuous	ByLineWeightDefault	Traffic Lighting - Note
T-LITE-PNTS	120	Continuous	ByLineWeightDefault	Traffic Lighting - Points (Non-Plotting)
T-LITE-POLE	120	Continuous	ByLineWeightDefault	Traffic Lighting - Pole
T-LITE-PTRN	120	Continuous	ByLineWeightDefault	Traffic Lighting - Pattern
T-LITE-SYMB	120	Continuous	ByLineWeightDefault	Traffic Lighting - Symbols
T-LITE-TCRV	120	Continuous	ByLineWeightDefault	Traffic Lighting - Template Curves
T-LITE-TEXT	120	Continuous	ByLineWeightDefault	Traffic Lighting - Text
T-LITE-WORK	120	Continuous	ByLineWeightDefault	Traffic Lighting - User Work (Non-Plotting)
T-MPTX	120	Continuous	ByLineWeightDefault	Maintenance and Protection of Traffic
T-MPTX-ARST	120	Continuous	ByLineWeightDefault	MPTX - Arresting Systems
T-MPTX-ATTN	120	Continuous	ByLineWeightDefault	MPTX - Attenuators
T-MPTX-BARR	120	Continuous	ByLineWeightDefault	MPTX - Barriers; Temporary
T-MPTX-BLDG	120	Continuous	ByLineWeightDefault	MPTX - Gate House, Guard House
T-MPTX-CRSH	120	Continuous	ByLineWeightDefault	MPTX - Collision Symbols
T-MPTX-DIMS	120	Continuous	ByLineWeightDefault	MPTX - Dimensions
T-MPTX-EQPM	120	Continuous	ByLineWeightDefault	MPTX - Equipment, Temporary; Barrels
T-MPTX-FLOW	120	Continuous	ByLineWeightDefault	MPTX - Flow Arrows, Turning Movement
T-MPTX-NOTE	120	Continuous	ByLineWeightDefault	MPTX - Notes
T-MPTX-PNTS	120	Continuous	ByLineWeightDefault	MPTX - Points (Non-Plotting)
T-MPTX-PTRN	120	Continuous	ByLineWeightDefault	MPTX - Pattern
T-MPTX-PVMK	120	Continuous	ByLineWeightDefault	MPTX - Pavement Markings
T-MPTX-SYMB	120	Continuous	ByLineWeightDefault	MPTX - Symbols
T-MPTX-TEXT	120	Continuous	ByLineWeightDefault	MPTX - Text
T-MPTX-TURN	120	Continuous	ByLineWeightDefault	MPTX - Turning Templates
T-MPTX-VOLS	120	Continuous	ByLineWeightDefault	MPTX - Volume Data
T-MPTX-WORK	120	Continuous	ByLineWeightDefault	MPTX - User Work (Non-Plotting)
T-SGNL	120	Continuous	ByLineWeightDefault	Traffic Signals
T-SGNL-CRPL	120	Continuous	ByLineWeightDefault	Traffic Signals - Circle Pullout
T-SGNL-DIMS	120	Continuous	ByLineWeightDefault	Traffic Signals - Dimensions
T-SGNL-EQPM	120	Continuous	ByLineWeightDefault	Traffic Signals - Equipment and Pads
T-SGNL-HEAD	120	Continuous	ByLineWeightDefault	Traffic Signals - Signal Head
T-SGNL-ICTR	120	Continuous	ByLineWeightDefault	Traffic Signals - Interconnect Controller

Layer Name	*Color*	*Linetype*	*Lineweight*	*Description*
T-SGNL-IJBX	120	Continuous	ByLineWeightDefault	Traffic Signals - Interconnect Junction Box and Conduit
T-SGNL-JBOX	120	Continuous	ByLineWeightDefault	Traffic Signals - Junction Box and Conduit
T-SGNL-LOOP	120	Continuous	ByLineWeightDefault	Traffic Signals - Loop Detector
T-SGNL-MAST	120	Continuous	ByLineWeightDefault	Traffic Signals - Mast Arm and Signal Head
T-SGNL-MRKG	120	Continuous	ByLineWeightDefault	Traffic Signals - Misc Pavement Marking Lines
T-SGNL-NOTE	120	Continuous	ByLineWeightDefault	Traffic Signals - Notes
T-SGNL-PFDN	120	Continuous	ByLineWeightDefault	Traffic Signals - Pole Foundation
T-SGNL-PNTS	120	Continuous	ByLineWeightDefault	Traffic Signals - Points (Non-Plotting)
T-SGNL-POLE	120	Continuous	ByLineWeightDefault	Traffic Signals - Pole and/or Controller
T-SGNL-PTRN	120	Continuous	ByLineWeightDefault	Traffic Signals - Pattern
T-SGNL-SIGN	120	Continuous	ByLineWeightDefault	Traffic Signals - Post Mounted Sign
T-SGNL-SYMB	120	Continuous	ByLineWeightDefault	Traffic Signals - Symbols
T-SGNL-TEXT	120	Continuous	ByLineWeightDefault	Traffic Signals - Text
T-SGNL-WORK	120	Continuous	ByLineWeightDefault	Traffic Signals - User Work (Non-Plotting)
T-SIGN	120	Continuous	ByLineWeightDefault	Traffic Signing (possibly superseded by traffic levels)
T-SIGN-DIMS	120	Continuous	ByLineWeightDefault	Traffic Signing - Dimensions
T-SIGN-FNDN	120	Continuous	ByLineWeightDefault	Traffic Signing - Sign Structure Foundation
T-SIGN-NOTE	120	Continuous	ByLineWeightDefault	Traffic Signing - Notes
T-SIGN-PANL	120	Continuous	ByLineWeightDefault	Traffic Signing - Sign Panel
T-SIGN-PNTS	120	Continuous	ByLineWeightDefault	Traffic Signing - Points (Non-Plotting)
T-SIGN-POLE	120	Continuous	ByLineWeightDefault	Traffic Signing - Pole
T-SIGN-PTRN	120	Continuous	ByLineWeightDefault	Traffic Signing - Pattern
T-SIGN-STRC	120	Continuous	ByLineWeightDefault	Traffic Signing - Sign Structure
T-SIGN-SYMB	120	Continuous	ByLineWeightDefault	Traffic Signing - Symbols
T-SIGN-TEXT	120	Continuous	ByLineWeightDefault	Traffic Signing - Text
T-SIGN-WORK	120	Continuous	ByLineWeightDefault	Traffic Signing - User Work (Non-Plotting)

15.5.4 SURVEY LAYERS

Name	*Color*	*Linetype*	*Lineweight*	*Description*
V-ALGN	white	BASELINE	LineWeight035	Alignment - Center/Base Line
V-ALGN-COGO	white	Continuous	LineWeight035	Alignment - Center/Base Line
V-ALGN-DIMS	white	Continuous	LineWeight050	Alignment - Center/Base Line
V-ALGN-LINE	white	EASEMENT	LineWeight035	Alignment - Center/Base Line
V-ALGN-LINE-CRCL	white	EASEMENT	LineWeight035	Alignment - Curves
V-ALGN-LINE-SPRL	white	EASEMENT	LineWeight035	Alignment - Spirals
V-ALGN-LINE-TNGT	white	EASEMENT	LineWeight035	Alignment - Tangents
V-ALGN-NOTE	white	EASEMENT	LineWeight050	Alignment - Notes
V-ALGN-PNTS	white	EASEMENT	LineWeight035	Alignment - Points
V-ALGN-PTRN	white	Continuous	LineWeight035	Alignment - Patterns
V-ALGN-SYMB	white	Continuous	LineWeight035	Alignment - Symbols
V-ALGN-TEXT	white	Continuous	LineWeight050	Alignment - Text
V-BLDG-MISC	170	Continuous	LineWeight035	Survey Buildings: outline
V-BLDG-OTLN	170	Continuous	LineWeight035	Survey Buildings: outline
V-BLDG-SWLK	8	Continuous	LineWeight035	Survey Buildings: Sidewalks
V-BRDG	8	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-BRDG-CRWN	8	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-BRDG-CURB	8	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-BRDG-DECK	8	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-BRDG-SWLK	8	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-BRKL-BOTB	202	Continuous	LineWeight035	Survey Breaklines
V-CATV	11	XUT-CTV	LineWeight035	Survey CATV
V-CATV-STRC	11	Continuous	LineWeight035	Survey CATV Structures
V-COMM	32	XUT-T	LineWeight035	Survey Communications
V-COMM-STRC	32	Continuous	LineWeight035	Survey Communications Structures
V-CTRL-BMRK	150	Continuous	LineWeight035	Survey Control points: benchmark
V-CTRL-HCPT	150	Continuous	LineWeight035	Survey Control points: horizontal.
V-CTRL-LINE-DIRC	magenta	Continuous	LineWeight035	Survey Control points: traverse lines
V-CTRL-LINE-NETW	11	Continuous	LineWeight035	Survey Control points: traverse network

V-CTRL-LINE-SHOT	43	Continuous	LineWeight035	Survey Control points: traverse sideshot
V-CTRL-NODE-KNOW	92	Continuous	LineWeight035	Survey Control points: known points
V-CTRL-NODE-SHOT	11	Continuous	LineWeight035	Survey Control points: sideshots
V-CTRL-NODE-UNKN	red	Continuous	LineWeight035	Survey Control points: unknown points
V-CTRL-TRAV	150	Continuous	LineWeight035	Survey Control points: traverse
V-CTRL-TRAV-ERRO	92	Continuous	LineWeight035	Survey Control points: traverse errors
V-CTRL-VCPT	150	Continuous	LineWeight035	Survey Control points: vertical.
V-FUEL	30	Continuous	LineWeight035	Survey Fuel
V-FUEL-TANK	30	Continuous	LineWeight035	Survey Fuel Tank
V-NGAS	50	XUT-G	LineWeight035	Survey Natural Gas
V-NGAS-INST	50	Continuous	LineWeight035	Survey Natural Gas Instrument
V-NGAS-PIPE	50	XUT-G	LineWeight035	Survey Natural Gas Pipeline
V-NGAS-STRC	50	Continuous	LineWeight035	Survey Natural Gas Structure
V-NODE	red	Continuous	LineWeight035	Survey Node
V-NODE-BNDY	red	Continuous	LineWeight035	Survey Node: boundary
V-NODE-BORE	red	Continuous	LineWeight035	Survey Borehole
V-NODE-GASL	11	Continuous	LineWeight035	Survey Node: gas line & appurtenances points.
V-NODE-MISC	red	Continuous	LineWeight035	Survey Node: gas line & appurtenances points.
V-NODE-POLE	red	Continuous	LineWeight035	Survey Node: pole points (power, telephone, etc.).
V-NODE-SIGN	red	Continuous	LineWeight035	Survey Node: sign.
V-NODE-SSWR	92	Continuous	LineWeight035	Survey Node: sanitary sewer and appurtenances points.
V-NODE-STRM	92	Continuous	LineWeight035	Survey Node: storm sewer and appurtenances points.
V-NODE-TEXT	11	Continuous	LineWeight050	Survey Node: text
V-NODE-TREE	62	Continuous	LineWeight035	Survey Node: tree points.
V-NODE-WATR	blue	Continuous	LineWeight035	Survey Node: water line and appurtenances points.
V-PNT-LBLS	8	Continuous	LineWeight050	Survey Point Lables
V-POWR	30	XUT-E	LineWeight035	Survey Power
V-POWR-INST	30	Continuous	LineWeight035	Survey Power Instrument
V-POWR-OVHD	30	XUT-E	LineWeight035	Survey Power Overhead
V-POWR-STRC	30	Continuous	LineWeight035	Survey Power Structure
V-POWR-UNDR	30	XUT-EU	LineWeight035	Survey Power Underground
V-RAIL	red	BASELINE	LineWeight035	Survey Rail

V-RAIL-CNTR	red	BASELINE	LineWeight035	Survey Rail: centerline
V-RAIL-EQPM	red	BASELINE	LineWeight035	Survey Rail: equipment
V-ROAD-CNTR	red	BASELINE	LineWeight035	Survey Road: centerline
V-ROAD-CONC	20	Continuous	LineWeight035	Survey Road: concrete
V-ROAD-CRWN	40	Continuous	LineWeight035	Survey Road: crown
V-ROAD-CURB	11	Continuous	LineWeight035	Survey Road: curbs
V-ROAD-EDGE	140	Continuous	LineWeight035	Survey Road Edge
V-ROAD-GRAL	54	Continuous	LineWeight035	Survey Road Guiderail
V-ROAD-MISC	red	Continuous	LineWeight035	Survey Road Misc
V-ROAD-MRKG	white	Continuous	LineWeight035	Survey Road: curbs
V-ROAD-MRKG-SKIP	white	DASHED	LineWeight035	Survey Road: curbs
V-ROAD-MRKG-YELL	yellow	Continuous	LineWeight035	Survey Road Marking Yellow
V-ROAD-SHDR	140	Continuous	LineWeight035	Survey Road Shoulder
V-SITE	150	Continuous	LineWeight035	Survey Site
V-SITE-BNDY	white	TWP LINE	LineWeight060	Survey Site Boundary
V-SITE-DVWY	150	Continuous	LineWeight035	Survey Site Driveway
V-SITE-ESMT	red	DASHED2	LineWeight035	Survey Site Easement
V-SITE-ESMT-HTCH	red	Continuous	LineWeight035	Survey Site Easement Hatch
V-SITE-FNCE	150	FENCE	LineWeight035	Survey Site: fences
V-SITE-FNCE-SILT	150	SSF	LineWeight035	Survey Site: silt fence
V-SITE-LOD	150	LOD	LineWeight035	Survey Site LOD
V-SITE-MISC	180	HIDDEN	LineWeight035	Survey Site Misc
V-SITE-MRKG	white	Continuous	LineWeight035	Survey Site Markings
V-SITE-RW	blue	ROW LEGAL	LineWeight035	Survey Site Right of Way
V-SITE-SCAN	white	Continuous	LineWeight035	Survey Site - Scan
V-SITE-SIGN	96	Continuous	LineWeight035	Survey Site Sign
V-SITE-UTIL	10	Continuous	LineWeight035	Survey Site Utility
V-SITE-VEGE	80	Continuous	LineWeight035	Survey Site: Vegetation, Trees, Shrubs
V-SITE-VEGE-WETL	80	WETLAND	LineWeight035	Survey Site Vegetation Wetlands
V-SITE-WALL	9	FENCELINE2	LineWeight035	Survey Site: walls
V-SSWR	92	PIPE EX	LineWeight035	Survey Road: curbs
V-SSWR-PIPE	92	PIPE EX	LineWeight070	Survey Road: curbs

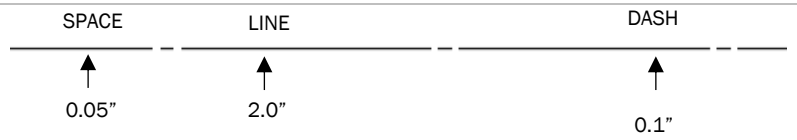
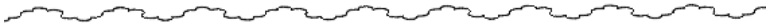
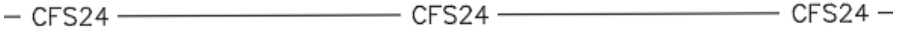
V-SSWR-STRC	92	Continuous	LineWeight035	Survey Sanitary Sewer Structure
V-STRM	magenta	XUT-S	LineWeight035	Survey Road: curbs
V-STRM-PIPE	magenta	XUT-S	LineWeight070	Survey Road: curbs
V-STRM-STRC	magenta	Continuous	LineWeight035	Survey Storm Drain Structure
V-SURF	9	Continuous	LineWeight035	Survey Surface
V-SURF-BNDY	9	Continuous	LineWeight035	Survey Surface Boundary
V-SURF-BNDY-EXTR	9	Continuous	LineWeight035	Survey Surface Boundary Exterior
V-SURF-BNDY-INTR	9	Continuous	LineWeight035	Survey Surface Boundary Interior
V-SURF-CONT	9	Continuous	LineWeight035	Survey Surface Contours
V-SURF-CONT-MAJR	9	HIDDEN	LineWeight035	Survey Surface Contours Major
V-SURF-CONT-MINR	8	HIDDEN2	LineWeight035	Survey Surface Contours Minor
V-SURF-CONT-SPOT	9	Continuous	LineWeight035	Survey Surface Contours Spot Elevations
V-SURF-DIMS	9	Continuous	LineWeight050	Survey Surface Dimensions
V-SURF-ELEV	9	Continuous	LineWeight035	Survey Surface Elevations
V-SURF-FALT	9	Continuous	LineWeight035	Survey Surface Fault
V-SURF-LN00	9	Continuous	LineWeight035	
V-SURF-NOTE	9	Continuous	LineWeight050	Survey Surface Notes
V-SURF-PMTR	9	Continuous	LineWeight035	
V-SURF-PNTS	9	Continuous	LineWeight035	Survey Surface Points
V-SURF-PTRN	9	Continuous	LineWeight035	Survey Surface Pattern
V-SURF-SLOP	9	Continuous	LineWeight035	Survey Surface Slope
V-SURF-SYMB	9	Continuous	LineWeight035	Survey Surface Symbol
V-SURF-TEXT	9	Continuous	LineWeight050	Survey Surface Text
V-SURF-TRIA	9	Continuous	LineWeight035	Survey Surface Triangles
V-SURV-FIG-BARN	red	Continuous	ByLineWeightDefault	Survey Figures Barn
V-SURV-FIG-BB	green	DGN Style 5	LineWeight035	Survey Figures Bottom Bank
V-SURV-FIG-BRIDGE	green	Continuous	LineWeight035	Survey Figures Bridge
V-SURV-FIG-BRL	green	Continuous	ByLineWeightDefault	Survey Figures Brushline
V-SURV-FIG-BUI	magenta	Continuous	LineWeight035	Survey Figures Building
V-SURV-FIG-BUI-ROOF	yellow	DASHED2	LineWeight035	Survey Figures Building Roof
V-SURV-FIG-CL	red	DGN Style 7	LineWeight035	Survey Figures Centerline
V-SURV-FIG-CLM	red	UT-CTV	LineWeight035	Survey Figures Cable Line Marker

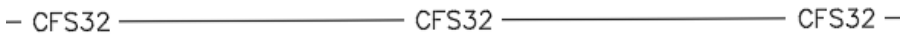
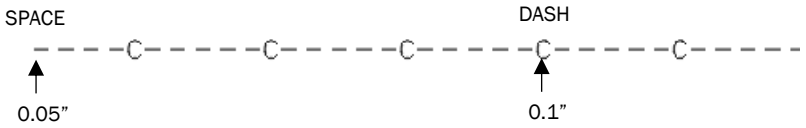
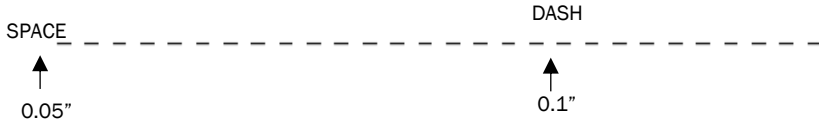
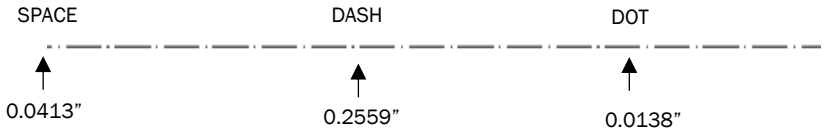
V-SURV-FIG-CLRR	cyan	TRACKS	LineWeight035	Survey Figures Railroad
V-SURV-FIG-CON	8	Continuous	ByLineWeightDefault	Survey Figures Concrete
V-SURV-FIG-DIT	9	DITCH PR	LineWeight035	Survey Figures Ditch
V-SURV-FIG-DYL	yellow	Continuous	LineWeight035	Survey Figures Double Yellow Line
V-SURV-FIG-EC	red	Continuous	ByLineWeightDefault	Survey Figures Edge Curb
V-SURV-FIG-ED	blue	PAVE EX	LineWeight035	Survey Figures Edge Drive
V-SURV-FIG-ELEC	cyan	UT-E	ByLineWeightDefault	Survey Figures Electric
V-SURV-FIG-ER	red	PAVE EX	LineWeight035	Survey Figures Edge Road
V-SURV-FIG-ES	cyan	PAVE EX	LineWeight035	Survey Figures Edge Shoulder
V-SURV-FIG-EW	green	TREE	LineWeight035	Survey Figures Edge Woods
V-SURV-FIG-FEN	red	FENCELINE2	LineWeight035	Survey Figures Fence
V-SURV-FIG-FENRW	magenta	FENCELINE2	LineWeight035	Survey Figures Fence Right of Way
V-SURV-FIG-FL	red	SWALE	LineWeight035	Survey Figures Flowline
V-SURV-FIG-GLM	magenta	UT-G	LineWeight035	Survey Figures Gas Line Marker
V-SURV-FIG-GR	red	GDRL EX	LineWeight035	Survey Figures Guide Rail
V-SURV-FIG-ML	magenta	ROW LEGAL	ByLineWeightDefault	Survey Figures Mun Line
V-SURV-FIG-OHC	red	OHC	LineWeight035	Survey Figures Overhead Cable
V-SURV-FIG-OHE	cyan	OHE	LineWeight035	Survey Figures Overhead Electric
V-SURV-FIG-OHT	8	XOHT	LineWeight035	Survey Figures Telephone
V-SURV-FIG-OHW	8	XOHC	LineWeight035	Survey Figures Wire
V-SURV-FIG-PL	yellow	Continuous	ByLineWeightDefault	Survey Figures Parking Lot
V-SURV-FIG-PLM	blue	UT-P	LineWeight035	
V-SURV-FIG-POR	red	Continuous	LineWeight035	Survey Figures Porch
V-SURV-FIG-SKL	white	DGN Style 5	LineWeight035	
V-SURV-FIG-SL	green	UT-S	LineWeight035	Survey Figures Sanitary Line
V-SURV-FIG-STFEN	cyan	SDASH	LineWeight035	
V-SURV-FIG-SW	yellow	Continuous	LineWeight035	Survey Figures Sidewalk Conc
V-SURV-FIG-SWL	white	Continuous	LineWeight035	
V-SURV-FIG-SYL	yellow	Continuous	LineWeight035	
V-SURV-FIG-TB	green	DGN Style 5	LineWeight035	Survey Figures Top Bank
V-SURV-FIG-TC	green	Continuous	LineWeight035	
V-SURV-FIG-TOP	blue	PHANTOM2	LineWeight035	

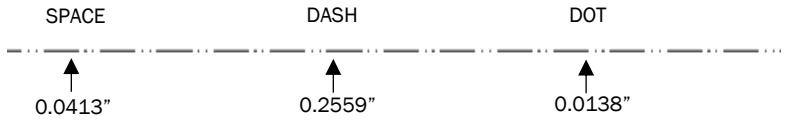
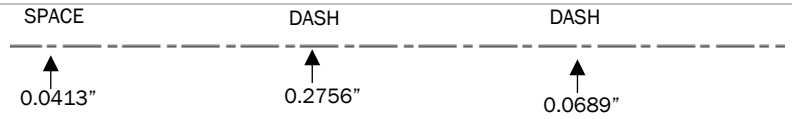
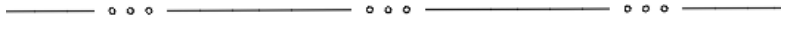
V-SURV-FIG-TW	blue	Continuous	LineWeight035	
V-SURV-FIG-UEL	cyan	UT-EU	ByLineWeightDefault	Survey Figures Underground Electric
V-SURV-FIG-WD	blue	Continuous	ByLineWeightDefault	Survey Figures Wetland Delineation
V-SURV-FIG-WLM	blue	UT-W	LineWeight035	Survey Figures Waterline Marker
V-SURV-FIG-WR	32	Continuous	ByLineWeightDefault	Survey Figures Woods Row
V-SURV-FIGR	170	Continuous	LineWeight035	Survey Figure General
V-SURV-LABL	202	Continuous	LineWeight035	Survey Labels
V-SURV-LINE	150	Continuous	LineWeight035	Survey Lines
V-SURV-NTWK	150	Continuous	LineWeight035	Survey Network
V-TOPO	9	Continuous	LineWeight035	Survey Topo
V-TOPO-BORE	red	Continuous	LineWeight035	Survey Topo Borehole
V-TOPO-BRKL	202	Continuous	LineWeight035	Survey Topo Breakline
V-TOPO-CONC	8	Continuous	LineWeight035	Survey Topo Concrete
V-TOPO-EWAT	142	FENCELINE2	LineWeight035	Survey Topo Existing Water
V-TOPO-MAJR	9	DGN Style 3	LineWeight035	Topography Major Gridlines
V-TOPO-MINR	8	DGN Style 2	LineWeight035	Topography Minor Gridlines
V-TOPO-SPOT	96	Continuous	LineWeight035	Topography Spot Elevations
V-TRFF	120	Continuous	LineWeight035	
V-TRFF-INST	120	Continuous	LineWeight035	
V-WATR	blue	XUT-W	LineWeight035	Survey Existing Water
V-WATR-INST	blue	Continuous	LineWeight035	
V-WATR-STRC	blue	Continuous	LineWeight035	Existing Water Structure

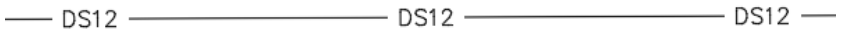
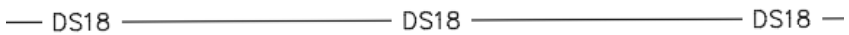
15.6 LINETYPES

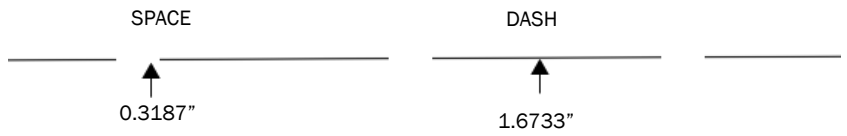
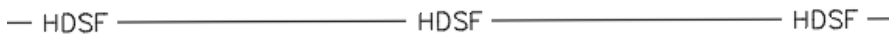
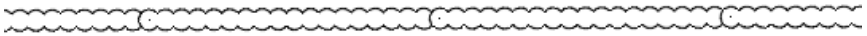
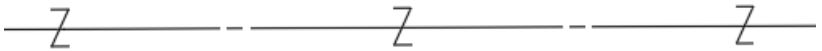
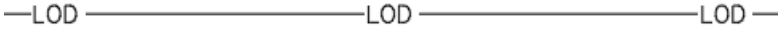
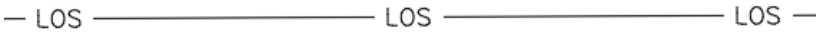
15.6.1 LINETYPES FOR INFRASTRUCTURE

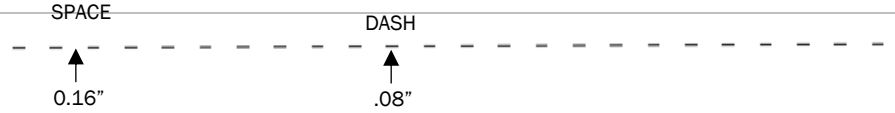
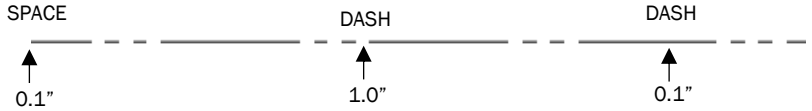
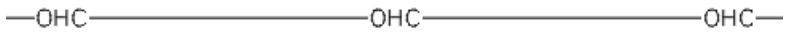
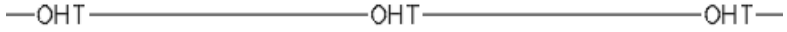
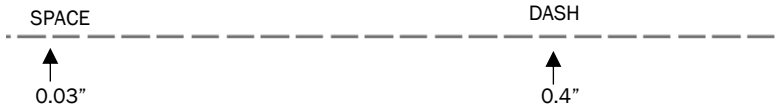
Name	Linetype	Remarks
BASELINE		Centerline Baseline
BRUSH		Brush
CFS		Compost Filter Sock
CFS12		Proposed Compost Filter Sock 12"
CFS18		Proposed Compost Filter Sock 18"
CFS24		Proposed Compost Filter Sock 24"

Name	Linetype	Remarks
CFS32		Proposed Compost Filter Sock 32"
CUT		Cut
CUT Line		Cut line
DGN Style 1		Bentley Software uses linestyle code=1
DGN Style 2		Bentley Software uses linestyle code=2
DGN Style 3		Bentley Software uses linestyle code=3
DGN Style 4		Bentley Software uses linestyle code=4

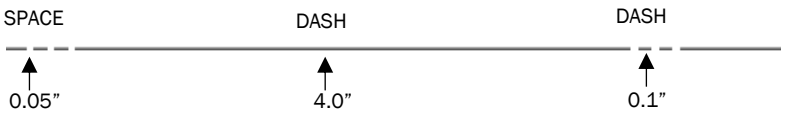
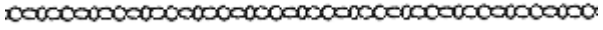
Name	Linetype	Remarks
DGN Style 5		Bentley Software uses linestyle code=5
DGN Style 6		Bentley Software uses linestyle code=6
DGN Style 7		Bentley Software uses linestyle code=7
DBLLINE		Double Line
DITCH EX		Existing Ditch
DITCH PR		Ditch Proposed
DRAINAGE		Drainage

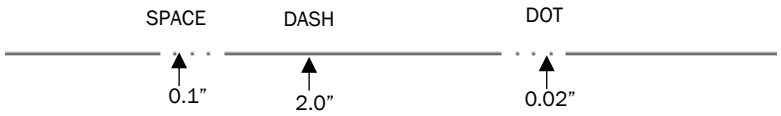
Name	Linetype	Remarks
DS12		Proposed Diversion Sock 12"
DS18		Proposed Diversion Sock 18"
FENCE		Fence
FILL		Fill
GDRL EX		Existing Guiderail
GDRL PR LT		Proposed Guiderail Left
GDRL PR RT		Proposed Guiderail Right

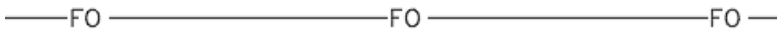
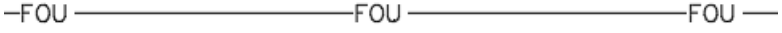
Name	Linetype	Remarks
GRAPHICGRADE		Graphic Grade
HDSF		Proposed Heavy Duty Silt Barrier Fence
HEDGE		Hedge
HEDGEROW		Hedgerow
JNTPROPLINE		Joint Property Line
LOD		Limit Of Disturbance
LOS		Limit of SUE Data

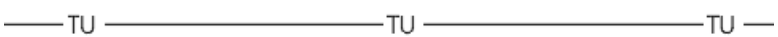
Name	Linetype	Remarks
MRKGEXT		MRKG Extension
MUNICIPAL		Township/Municipal Boundary Line
NURSERY		Nursery
OHC		Overhead Cable
OHE		Overhead Electric
OHT		Overhead Telephone
PAVE EX		Existing edge of pavement (EOP) to be labeled on plans

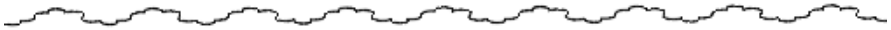
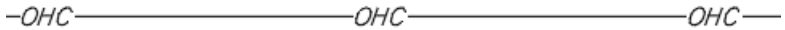
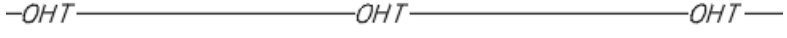
Name	Linetype	Remarks
PF		Protective Fence
PIPE EX		Existing Pipe
PIPE PR		Proposed Pipe
PROPERTYLINE		Property Line
ROCK LINE		Rock Line
ROW LEGAL		Legal Right of Way
ROW PROPERTYLINE		R.O.W. Property Line

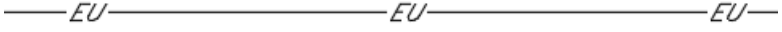
Name	Linetype	Remarks
ROW REQ'D		Required Right of Way
SF-18		Silt Fence 18"
SF-30		Silt Fence 30"
SKIP LINE		Skip Line
SOLID AND SKIP LINE		Solid and Skip Line
SSF		Super Silt Fence
STONEWALL		Stone Wall

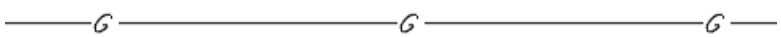
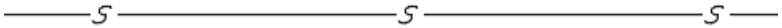
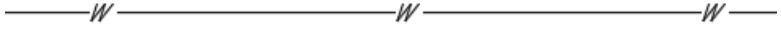
Name	Linetype	Remarks
STREAM		
SWALE		Swale
TREELINE		Tree Line
UT-C		Utlilty Conduit
UT-CTV		Utlilty Cable TV
UT-CTVU		Cable TV Underground Proposed
UT-DBE		Utlilty Electric Direct Buried

Name	Linetype	Remarks
UT-DBT		Utilty Telephone Direct Buried
UT-E		Utilty Electric
UT-EU		Utilty Electric Line UG
UT-FO		Utilty Fiber Optic
UT-FOU		Utility Fiber Optic UG
UT-G		Utilty Gas
UT-P		Utilty Petroleum

Name	Linetype	Remarks
PF		Protective Fence
UT-PU		Petro Pipe Proposed Underground
UT-S		Utilty Sewer
UT-SF		
UT-T		Utility Tele
UT-TU		Utility Tele UG
UT-W		Utility Water

Name	Linetype	Remarks
VINEYARD		Vineyard
WETLAND		Wetland
WOODS		Woods
XOHC		Ex Overhead Cable
XOHE		Ex Overhead Electric
XOHT		Ex Overhead Telephone
XUT-C		Ex Utlilty Conduit

Name	Linetype	Remarks
XUT-CTV		Ex Utlilty Cable TV
XUT-DBE		Ex Utlilty Electric Direct Buried
XUT-DBT		Ex Utlilty Telephone Direct Buried
XUT-E		Ex Utlilty Electric
XUT-EU		Ex Utlilty Electric Line UG
XUT-FO		Ex Utlilty Fiber Optic
XUT-FOU		Ex Utlilty Fiber Optic UG

Name	Linetype	Remarks
XUT-G		Ex Utlilty Gas
XUT-P		Ex Utlilty Petroleum
XUT-PU		Petro PIPE Existing Underground
XUT-S		Ex Utlilty Sewer
XUT-T		Ex Utlilty Tele
XUT-TU		Ex Utlilty Tele UG
XUT-W		Ex Utlilty Water

15.6.2 LINETYPES FOR FACILITIES

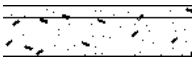
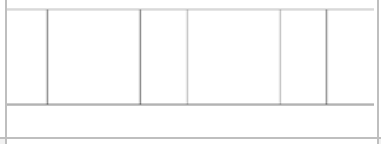
LINE STYLES		USAGE
	-PTC 01	USED FOR NOTATIONAL INFORMATION (SYMBOLS, TAGS, TARGETS, ARROWS, GRIDS, COLUMN LINES)
	-PTC 03	USED FOR ELEMENTS PROJECTED IN VIEW (DOOR SWINGS, PARTIAL HEIGHT WALLS, CURBS)
	-PTC 05	USED FOR DETAILED ELEMENTS CUT IN VIEW (MULLIONS, GLAZING, DOORS)
	-PTC 07	USED FOR ELEMENTS CUT THROUGH IN VIEW (WALLS, FLOORS, STAIRS)
	-PTC 09	USED FOR DETAIL DRAFTING CUT LINE
	-PTC 11	USED FOR ELEMENTS CUT THROUGH IN VIEW (WALLS, FLOORS, STAIRS)
	-PTC 13	USED FOR DETAIL DRAFTING CUT LINE
	-PTC 15	USED AS GRAPHIC LINE AT THE BASE OF ELEVATIONS AND SECTIONS
	-PTC Center	USED TO DENOTE CENTERLINE OF ELEMENTS

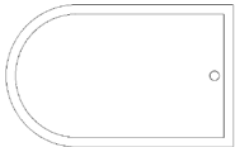
15.7 SYMBOLOGY

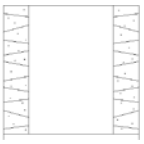
Note: all block symbols for Civil 3D are stored in tool palettes.

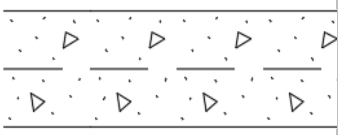
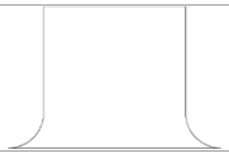
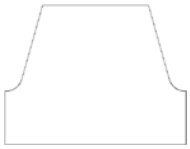
15.7.1 SYMBOLS FOR CIVIL 3D AND OPENROADS

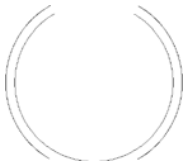
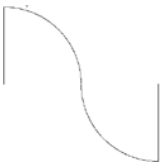
15.7.1.1 ARCHITECTURE SYMBOLS

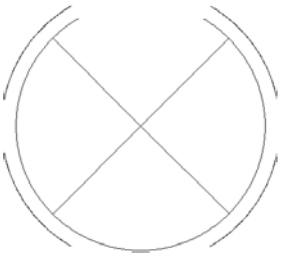
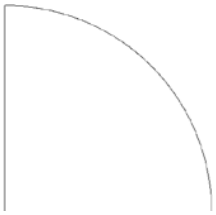
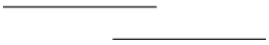
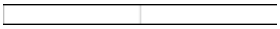
Symbol	Preview	Description
ARCPBW		Architectural Particleboard Woodwork
ASBDLS		Large Scale Asbestos Board
ASBDSS		Small Scale Asbestos Board
BATHCO		Corner Bath
BATHEM		Emergency Bath
BATHFT		Foot Bath
BATHHA		Hydrotherapy Arm Bath
BATHHH		Hydrotherapy Hubbard Bath

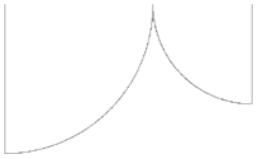
BATHHL		Hydrotherapy Leg Bath
BATHIF		Infant Bath
BATHIN		Institutional Bath
BATHRC		Recessed Bath
BATHRR		Roll Rim Bath
BATHSZ		Sitz Bath
BATHWP		Whirlpool Bath
BIDET		Bidet
BRFACC		Brick Face on Common

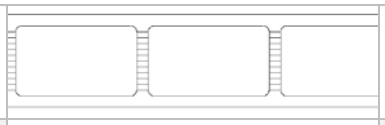
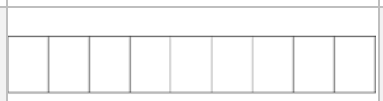
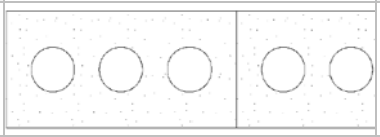
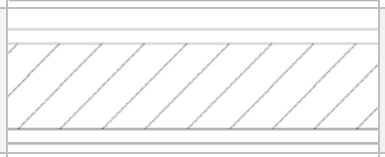
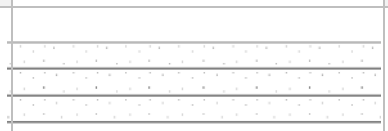
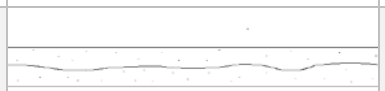
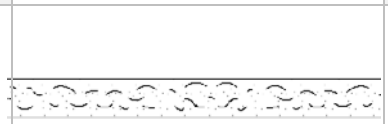
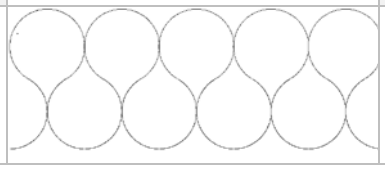
BRFIRE		Fire Brick
BRKGL		Glazed Brick
BSSFLG		Bluestone Siltstone Soapstone Flagging Stone
CANWCT		Can Washer Cabinet Type
CANWDT		Can Washer Dish Type
CARPET		Carpet and Pad
CMU		Concrete Masonry Unit
CMUBLK		3-Core Hollow CMU Block 8x8x16
CMUCOR		3-Core Hollow CMU Corner Block 8x8x16
CMUEND		3-Core Hollow CMU Block End Section 8x8x16

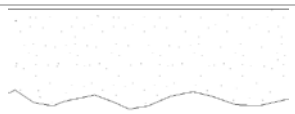
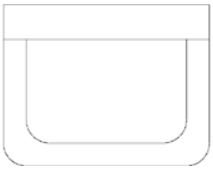
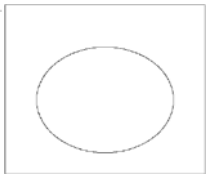
CMUGL		Glazed Concrete Block
CMUSTR		3-Core hollow CMU stretcher block
CPLANK		Concrete Plank
DFPROJ		Drinking Fountain Projecting Typ.
DFRECS		Drinking Fountain Recessed Typ.
DFSREC		Drinking Fountain Projecting Typ.
DOR18L		Double Acting Door Left 180 Degree Swing
DOR18R		Double Acting Door Right 180 Degree Swing
DORBFL		Left Bi-fold Door

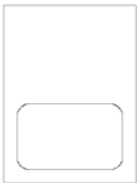
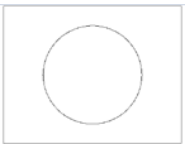
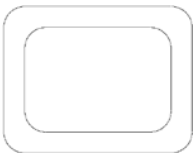
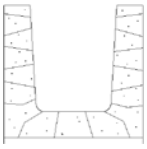
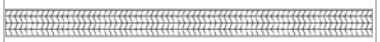
DORBFR		Right Bi-fold Door
DORCPV		Center Pivot Door
DORCYL		Dark Room Door
DORDBL		Left Double Door
DORDBR		Right Double Door
DORDEL		Left Double Egress Door
DORDER		Right Double Egress Door
DORFSL		Left Full Swing Door
DORFSR		Right Full Swing Door
DOROVH		Overhead Door

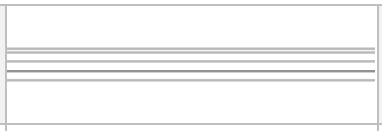
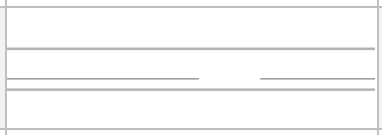
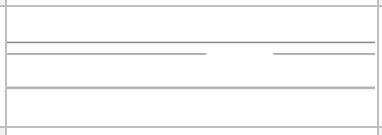
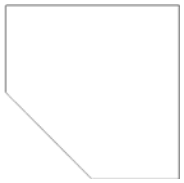
DORPOC		Pocket Door
DORREV		Revolving Door
DORRUP		Roll-Up Door
DORSHL		Left Single Hinged Door
DORSHR		Right Single Hinged Door
DORSLD		Sliding Door
DORSLS		Sliding Surface Door
DORSPL		Left Single Pivot Door
DORSPR		Right Single Pivot Door

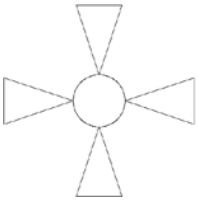
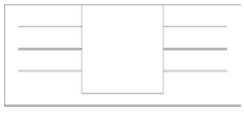
DORUDL		Left Uneven Double Door
DORUDR		Right Uneven Double Door
DSHWSH		Commercial Dishwasher
EQPMID		Equipment ID Tag
FASTEN		Fastener
FLRRPL		Resilient/Plastic Laminate Flooring
FURCHH		Furring Channel Hat
FURCHN		Furring Channel
GLASLS		Large Scale Glass
GLASSS		Small Scale Glass

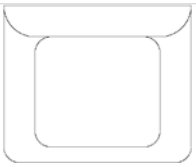
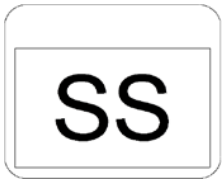
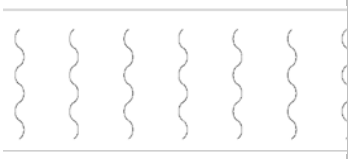
GLBLLS		Glass Block Large Scale
GLBLSS		Glass Block Small Scale
GLELEV		Glass Elevation
GPLANK		Gypsum Plank
GYPBLK		Gypsum Block Tile
GYPPOM		Gypsum Plaster on Masonry
GYPPPB		Gypsum Plaster Particle Board
GYPSPP		Gypsum Solid Plaster Partition
GYPWBD		Gypsum Wallboard Finishes
INFBSS		Small Scale Flexible Blanket Insulation
INLFLS		Large Scale Loose Fill Insulation

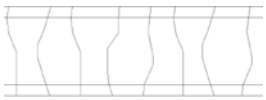
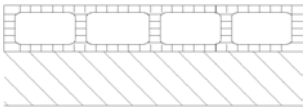
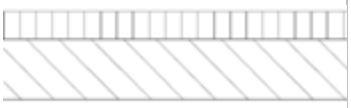
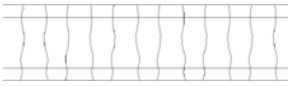
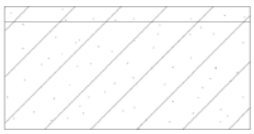
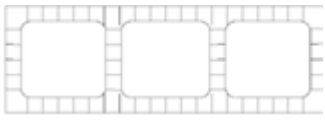
INS1RM		Insulation Reflective Metal on One Side
INS2RM		Insulation Reflective Metal on Two Sides Small Scale
INSFOM		Spray Foam Insulation
INSTND		Insulation Type Not Deter Large Scale
LAVBCK		Back Lavatory
LAVCOR		Corner Lavatory
LAVCOU		In-Counter Lavatory
LAVDNT		Dental Lavatory

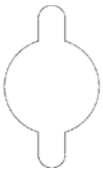
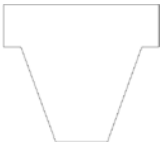
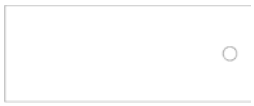
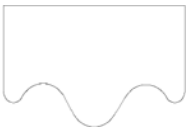
LAVHND		Handicapped Lavatory
LAVMDM		Medical Manicure Lavatory
LAVSLB		Slab Type Lavatory
LINTEL		Detail Lintel CMU Block Section
MTLLPL		Metal Lath and Plaster
MTLSHT		Metal Sheet All Metals Small Scale
ORISTB		Oriented Strand Board
PARTBD		Particle Board
PLASTC		Plastic Finishes
PLPLLS		Large Scale Plastic on Plywood

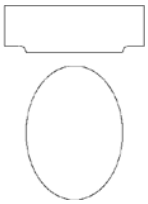
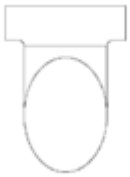
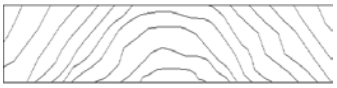
PLPLSS		Small Scale Plastic on Plywood
PLYWD		Plywood
RBILLS		Rigid Board Interior Insulation Large Scale
RBISLS		Insulation Rigid Board as Sheathing Large Scale
ROMID3		3-Character Room Tag
ROMID4		4-Character Room Tag
SDIRLD		Stair Direction Line Down
SDIRLDU		Stair Direction Line Up
SHWRCO		Corner Shower
SHWRHD		Shower Head
SHWROG		Shower Overhead Gang

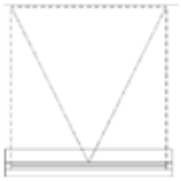
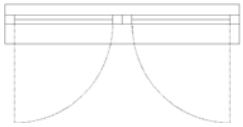
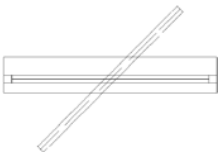
SHWRPG		Shower Pedestal Gang
SHWRST		Shower Stall
SLOPE		Direction of Line Slope
SNK2BD		Double Sink with Drainboards
SNK2CT		Two Compartment Sink
SNKCWT		Circular Wash Type Sink
SNKDSP		Sink Disposer
SNKFRC		Flushing Rim Clinical Sink
SNKGEN		Generic Sink
SNKKLR		Kitchen Sink with Left and Right Drain Boards

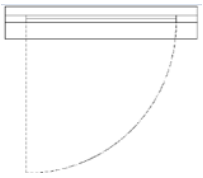
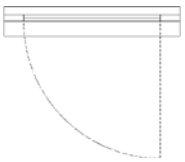
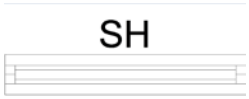
SNKLDB		Sink with Left Drainboard
SNKLTR		Sink Laundry tray
SNKSCW		Semicircular Wash Sink
SNKSLP		Slop Type Sink
SNKSRV		Service Sink
SNKSSC		Surgeon Scrub Sink
STLCSS		Structural Clay Tile Small Scale
SUSPNT		Suspension Tee
TC1FLS		Terracotta with One Face Glazed Large Scale

TC2FSS		Terracotta with Two Faces Glazed Small Scale
TCHOLW		Hollow Terracotta
TCLS		Large Scale Terracotta
TCQLS		Terracotta Quarry Large Scale
TCUGLS		Terracotta Unglazed Large Scale
TCVENR		Veneer Terracotta
THRSHD		Threshold
TILFSS		Small Scale Tile Facing
TILGSC		Glazed Structural Clay Tile Masonry
TILSFU		Tile Structural Floor Units
TLACOU		Acoustical Tile Finish
TLCRLS		Ceramic Tile Finish Large Scale

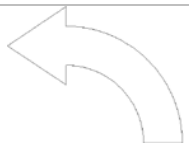
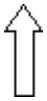
TRAY1L		Single Laundry Tray
TRAY2L		Double Laundry Trays
URNLCO		Corner Type Urinal
URNLPD		Pedestal Type Urinal
URNLST		Urinal Stall
URNLTR		Trough Type Urinal
URNLWH		Wall Hung Urinal
WALLID		Wall Type Identifier
WCFVFO		F.V. Floor Outlet Water Closet

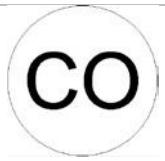
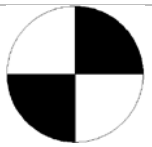
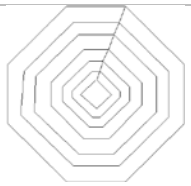
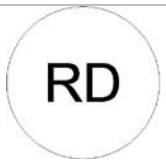
WCFVWH		F.V. Wall Hung Water Closet
WCITNK		Integral Tank Water Closet
WCTANK		Tank Type Water Closet
WCWHTN		Wall Hung Tank Water Closet
WDFLBD		Wood Floor Board
WDFNOS		Wood Finish on Studs
WDFRAM		Continuous Wood Framing
WDSHSD		Wood Shingles Siding
WFINISH		Wood Finish

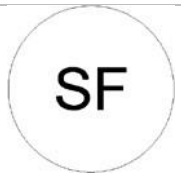
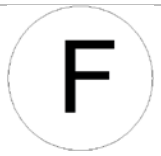
WINAWN		Awning Window
WINBAY		Projected Bay Window
WINBOW		Projected Bow Window
WINBOX		Projected Box Window
WINDCI		Double Casement Window Inward Opening
WINDCO		Double Casement Window Outward Opening
WINDH		Double Hung Window
WINJAL		Jalousie Window
WINOSL		Single Window Left Operating Sash
WINOSR		Single Window Right Operating Sash
WINPIV		Pivot Window

WINSCL		Single Casement Left Jamb Hinge
WINSCR		Single Casement Right Jamb Hinge
WINSH		Single Hung Window
WOODHB		Hardboard Wood
WTRPFF		Waterproofing Felt Flashing

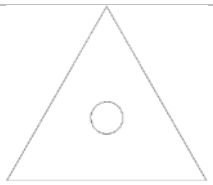
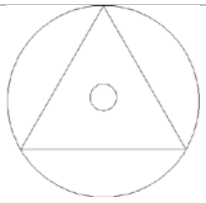
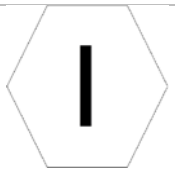
15.7.1.2 CIVIL SYMBOLS

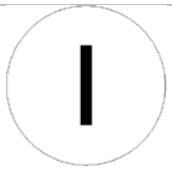
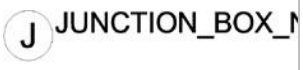
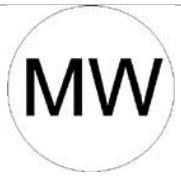
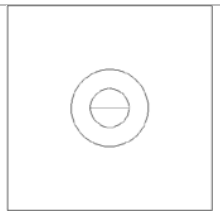
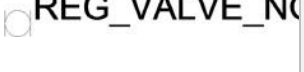
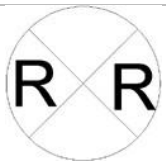
Symbol	Preview	Description
AIRFLD		Airfield
ARRPT		Arrow 1
ARRSD		Arrow 2
ARRST		Arrow 3
BUOY		Buoy
CATBSN		Catch Basin
CATBSR		Round Catch Basin
CDHDR		Core Drill Hole Drilled
CDHUDR		Core Drill Hole Undrilled

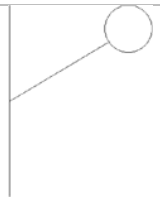
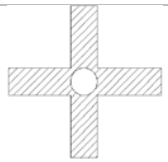
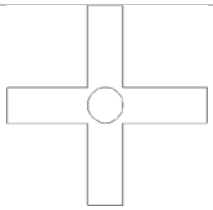
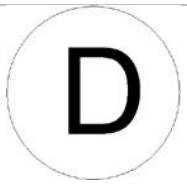
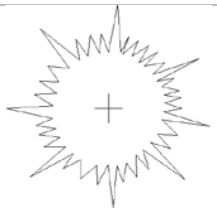
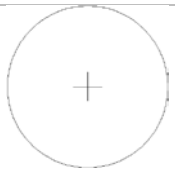
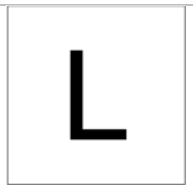
Symbol	Preview	Description
CLNOUT		Cleanout
CNR90		Corner Solid 90
CNRSF		Corner Solid Flat
COGRAV		Center of Gravity
CULVEE		Culvert End
DRLHOL		Drillhole
ECRD		Rock Dam Sediment Trap
ERSBD		Straw Bale Dam

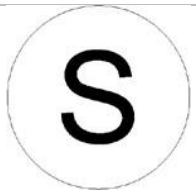
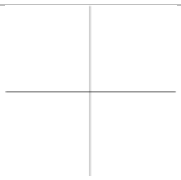
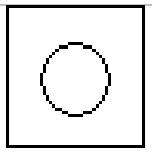
Symbol	Preview	Description
ERSCTD		Sediment Control Temporary Diversion
ERSF		Silt Fence
ERSFRO		Silt Fence Rock Overflow
ERSOST		Stone Outlet Sediment Trap
ERTGCE		Construction Entrance Exit
FLARRL		Flow Arrow Left
FLARRR		Flow Arrow Right
FOMETR		Fuel Oil Meter
FOMHOL		Fuel Oil Manhole

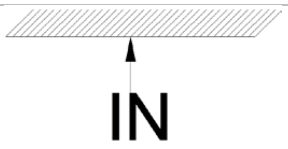
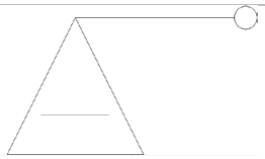
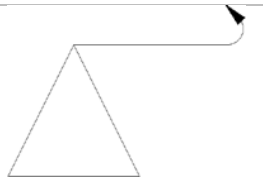
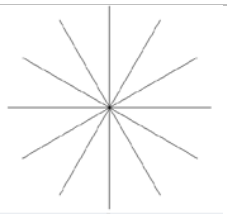
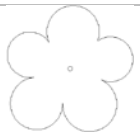
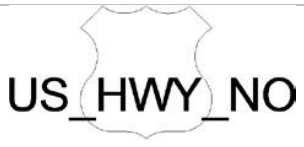
Symbol	Preview	Description
FOVALT		Fuel Oil Vault
GREASE		Grease Trap
GRITCH		Grit Chamber
GSMETR		Natural Gas Meter
GSMHOL		Natural Gas Manhole
GSPLNT		Gas Plant
GSRECR		Natural Gas Receiver
GSTRAP		Gas Trap

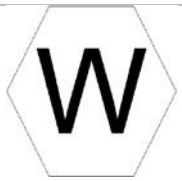
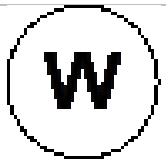
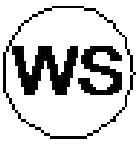
Symbol	Preview	Description
GSVALT		Gas Valve Vault
HEADWL		Headwall
HNDCAP		Handicap Symbol
HORCPT		Horizontal Control Point
HOVCPT		Horizontal Vertical Control Point
HYDRNT		Hydrant Number
INSHWY		Interstate Highway Number
IWMETR		Industrial Waste Water Meter

Symbol	Preview	Description
IWMHOL		Industrial Waste Water Manhole
JNBX		Junction Box
MONWEL		Monitoring Well
PHOCPT		Photo Control Point
PIVALV		Post Indicator Valve
PMPSTA		Pump Station Number
RGVALV		Regulator Valve Number
RRSIGN		Railroad Sign

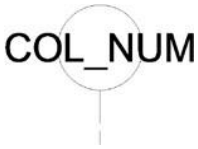
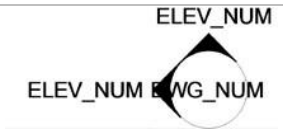
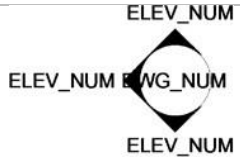
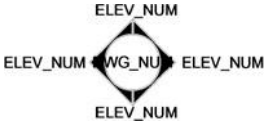
Symbol	Preview	Description
RRSWTC		Railroad Switch
SCNRH		Section Corner Hatched
SCNRO		Section Corner Open
SDMHOL		Storm Drain Manhole
SHRUBC		Shrub C
SHRUBD		Shrub D
SIGN		Sign
SNLIFT		Sanitary Sewer Lift Station

Symbol	Preview	Description
SNMHOL		Sanitary Manhole
SNPVSL		Sanitary Pressure Vessel
SNVALT		Sanitary Vault
SPOTEL		Spot Elevation
SPTANK		Septic Tank
STHWY		State Highway Number
STMPIT		Storm Pit
SWAMP		Swamp
TIDEG		Tide Gage

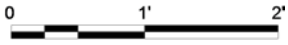
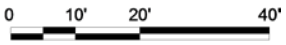
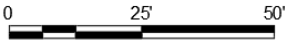
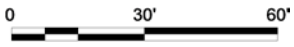
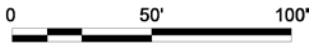
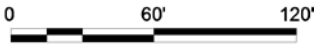
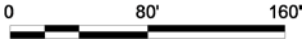
Symbol	Preview	Description
TIRETR		Tire Treadle
TNKBG		Tank Horizontal Below
TNKHAG		Tank Horizontal Above
TRACR		Traffic Arm with Card Reader
TRAMS		Traffic Arm Mechanical Swing
TREEC		Tree C
TREED		Tree D
USHWY		US Highway Number
VERCPT		Vertical Control Point

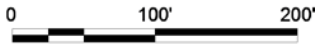
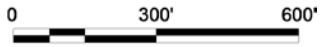
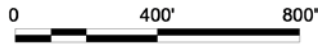
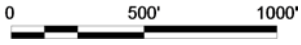
Symbol	Preview	Description
WAHHOL		Water Handhole
WAMETR		Water Meter
WAMHOL		Water Manhole
WAPLNT		Water Plant
WASOFT		Water Softener
WAVALT		Water Vault

15.7.1.3 GENERAL SYMBOLS

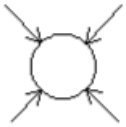
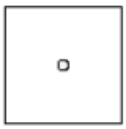
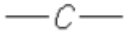
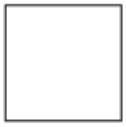
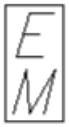
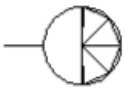
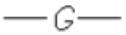
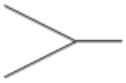
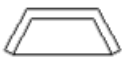
Symbol	Preview	Description
BREAK		Break
CNTLIN		Centerline
COLLIN		Column Number
DBLARR		Double Arrow
DTLIND		Detail Number
ELEV1		Elevation 1
ELEV2		Elevation 2
ELEV3		Elevation 3
ELEV4		Elevation 4
KEYIND		Key ID
MAGNOR		Magnetic North
REVID1		Revision Number 1
REVID2		Revision Number 2
SECIN1		Section Number 1
SECIN2		Section Number 2
North Arrow		North Arrow
TITLE1		Title 1
TITLE2		Title 2

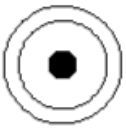
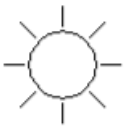
15.7.1.4 SCALE SYMBOLS

Symbol	Preview
S0000B	
S0001B	
S0005B	
S0010B	
S0020B	
S0025B	
S0030B	
S0040B	
S0050B	
S0060B	
S0080B	

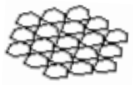
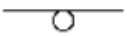
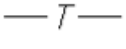
Symbol	Preview
S0100B	
S0200B	
S0300B	
S00400	
S00500	

15.7.1.5 SURVEY COGO SYMBOLS

Symbol	Preview	Description
SV_AREA_DRAIN		Area Drain
SV_BM		Benchmark
SV_BOL		Bollard
SV_C_MON		Monument
SV_CALLBOX		Callbox
SV_CATV_MRKOUT		CATV
SV_CB		Catch Basin
SV_CTVPED		TV Pedestal
SV_DH		DH
SV_ELEC_C_BOX		Electrical Box
SV_ELEC_MRKOUT		Electrical Markout
SV_ELECMTR		Electrical Meter
SV_FIREHYD		Hydrant
SV_FLAGPOLE		Flagpole
SV_G_POLE		Gas Pole
SV_GAS_MRKOUT		Gas Markout
SV_GASMTR		Gas Meter
SV_GUYANCHR		Gas Anchor
SV_GV		Gas Valve
SV_HW		Headwall

Symbol	Preview	Description
SV_IP		IP
SV_IP_REBAR		Rebar
SV_LUMIN_CIR		Lumin
SV_MAILBOX		Mailbox
SV_MH_ELEC		Electrical Manhole
SV_MH_GAS		Gas Manhole
SV_MH_SAN		Sanitary Manhole
SV_MH_STORM		Storm Manhole
SV_MH_TEL		Telephone Manhole
SV_MH_WATER		Water Manhole

Symbol	Preview	Description
SV_MHCATV		CATV Manhole
SV_MONUMENT		Monument
SV_MRKR_CATV		CATV Markout
SV_MRKR_G		Gas Markout
SV_MRKR_TEL		Telephone Markout
SV_NAIL		Nail
SV_NAIL_SPK		Spike
SV_NAIL_STK		Stake
SV_POST		Post
SV_ROADKILL		Roadkill

Symbol	Preview	Description
SV_SAN_CO		Cleanout
SV_SEPT		Sept
SV_SEWER_MRKOUT		Sewer Markout
SV_SFRR		SFRR
SV_SIGN1		Sign 1
SV_SIGN2		Sign 2
SV_TANK		Tank
SV_TEL_MRKOUT		Telephone Markout
SV_TELPED		Telephone Pedestal
SV_TEST_PIT		Test Pit

Symbol	Preview	Description
SV_TREE_CON		Tree Coniferous
SV_TREE_DEC		Tree Deciduous
SV_TRSIGBX		TRSIGBX
SV_U_POLE		Utility Pole
SV_UGRDTANK		UST Tank
SV_VLT		Electric Vault
SV_WELL		Well
SV_WL_FLAG		Wetland Flag
SV_WM		WM
SV_WTR_MRKOUT		Water Markout

Symbol	Preview	Description
SV_WV		Water Valve

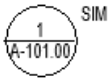
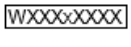
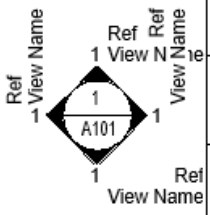
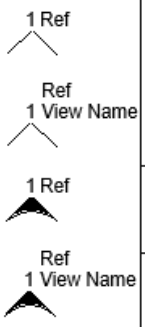
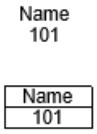
Symbol	Preview	Description
SV-SHRUB		Shrub

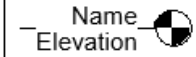
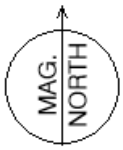
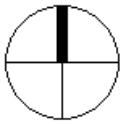
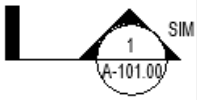
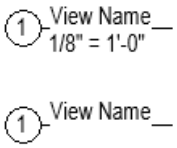
15.7.1.6 CIVIL 3D BARRIER & GUIDERAIL TRANSITIONS

Block	Preview
MV-PTC SINGLE FACED BARRIER TRANSITION LEFT	
MV-PTC SINGLE FACED BARRIER TRANSITION RIGHT	
MV-PTC ABUTMENT TRANSITION TYPE I	
MV-PTC ABUTMENT TRANSITION TYPE II	
MV-PTC ABUTMENT TRANSITION TYPE III	
MV-PTC SINGLE FACE BARRIER TO THRIE BEAM	
MV-PTC PIER TRANSITION PIECE	
MV-PTC MONOPIPE CAISSON TRANSITION PIECE	
MV-PTC 41in BARRIER TRANSITION PIECE LEFT	
MV-PTC 41in BARRIER TRANSITION PIECE RIGHT	

15.7.2 SYMBOLS FOR REVIT

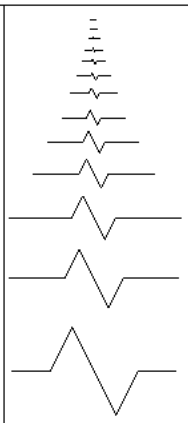
15.7.2.1 GENERAL & ARCHITECTURE SYMBOLS

ANNOTATION SYMBOLS		ANNOTATION TAGS	
GRID HEAD		CEILING TAG	
CALLOUT HEAD		COLUMN TAG	
ELEVATION MARK BODY		DOOR TAG	
		FLOOR TAG	1t
INTERIOR ELEVATION MARK BODY		WALL TAG	
		WINDOW TAG	
		REVISION TAG	
ELEVATION INTERIOR MARK POINTER		ROOM TAG	
		EQUIPMENT TAG	
		ROOF TAG	1t

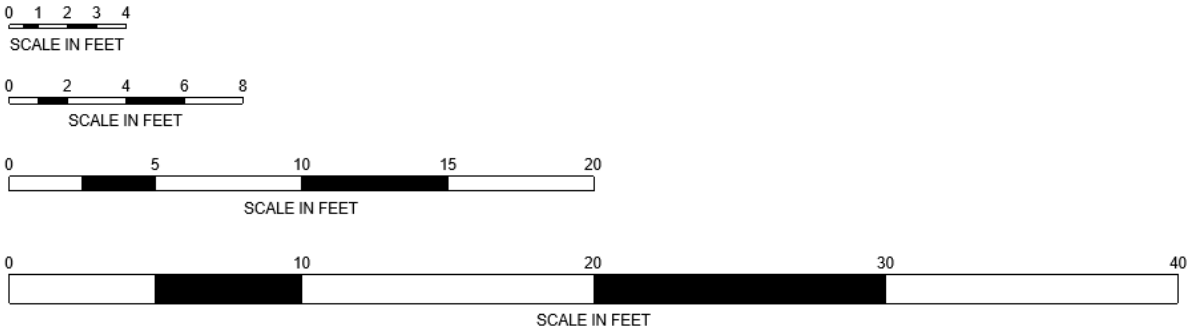
ANNOTATION SYMBOLS		ANNOTATION TAGS	
ELEVATION MARK POINTER		MATERIAL TAG	?
LEVEL HEAD		AREA TAG	Name 150 SF Name 150 SF
MAGNETIC NORTH ARROW			
NORTH ARROW			
SECTION HEAD AND TAIL			
WORKING SECTION HEAD AND TAIL			
VIEW TITLE			
CENTERLINE	℄		

DETAIL ITEMS

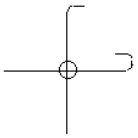
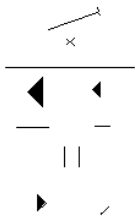
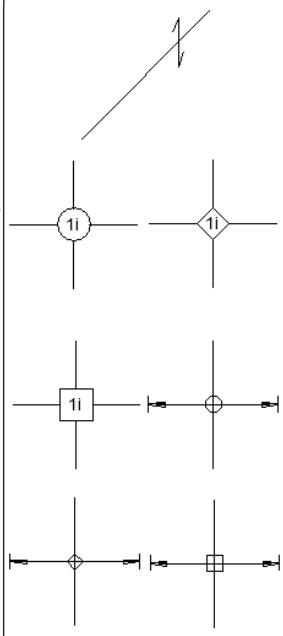
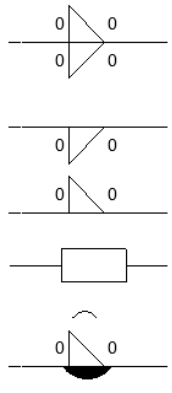
BREAKLINE



SCALE



15.7.2.2 STRUCTURAL SYMBOLS

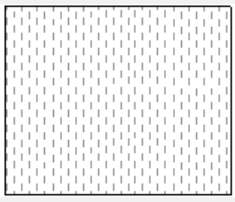
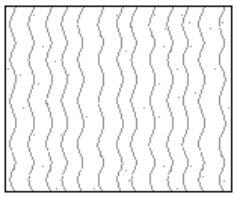
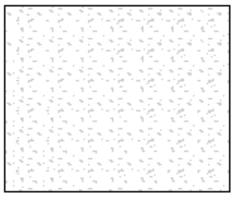
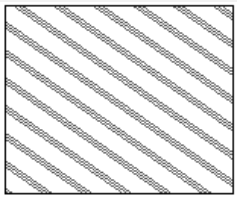
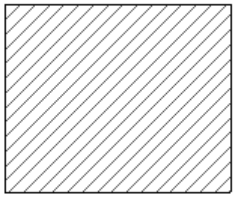
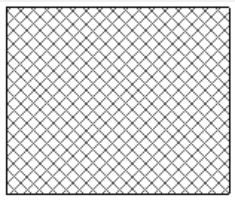
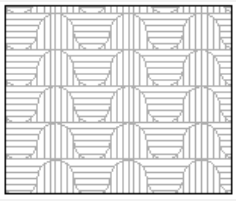
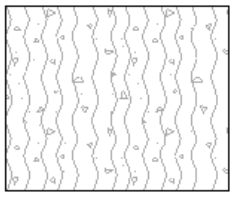
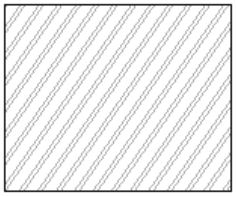
STRUCTURAL SYMBOLS		STRUCTURAL TAGS	
AREA REINFORC-EMENT		BOLT TAG	Number of bolts XDiameter Grade Standard Number of bolts XDiameter Grade Standard
CONNECTION SYMBOLS		ANCHOR TAG	Number of anchors XDiameter Grade Standard Number of anchors XDiameter Grade Standard
		AREA REINFORC-EMENT TAG	Rebar System Layer Summary
FABRIC SHEET SYMBOLS		FABRIC SHEET TAG	Fabric Number - Type Name
		STRUCTURAL BEAM SYSTEM TAG	Beam Type (No Family Name) @ Spacing
		STRUCTURAL COLUMN TAG	1i
		STRUCTURAL FOUNDATION TAG	1i
		STRUCTURAL FRAMING TAG	1i 1i
		STRUCTURAL FRAMING TAG-FORCES	All non 0 forces at end
		STRUCTURAL FRAMING TAG-REACTIONS	End Moment - Dead End Moment - Live End Moment - Total End Reaction - Dead End Reaction - Live End Reaction - Total
WELD SYMBOLS		STRUCTURAL FRAMING TAG-STUDS	1i studs Camber
		STRUCTURAL MRA REBAR TAG	Count Type Name @Spacing - Rebar Number Count Type Name - Rebar Number
		STRUCTURAL TRUSS TAG	T1 T1
		WELD TAG	Main Type Main Thickness

15.7.2.3 MEP SYMBOLS

MEP TAGS	
CABLE SIZE TAG	Size
COMMUNICATION DEVICE TAG	14
CONDUIT SIZE TAG	Size
DAMPER TAG	FD
DATA DEVICE TAG	2279
DIFFUSER TAG	1i 200 CFM AT# Size Flow AT# Size Flow
DRAIN TAG	This is a sample type comment
DUCT TAG	This is a sample comment Size SA Size SA
ELECTRICAL DEVICE TAG	1 This is a sample comment Panel - Load Name Panel
ELECTRICAL EQUIPMENT TAG	This is a sample comment 1 Total Amps - Number of Phases Phase Panel Name
FIRE ALARM DEVICE TAG	127
FLEX DUCT TAG	Diameterø
FLEX PIPE SIZE TAG	Diameterø
LIGHT SWITCH TAG	This is a sample comment ID ID
LIGHT FIXTURE TAG	1i 1i
MECHANICAL EQUIPMENT TAG	EQP EQP 1i

MEP TAGS	
MECHANICAL SPACE TAG	**Space Name** 101 SA: 320 CFM OA: 320 CFM BTU: Design Heating Load
NURSE CALL DEVICE TAG	14
PIPE TAG	Size Slope DCW
SECURITY DEVICE TAG	14 EQP Tag
SPACE TAG	**Space Name** 101 Volume **Space Name** 101 150 SF **Space Name** 101
TELEPHONE DEVICE TAG	2275
WIRE TAG	Circuits
ZONE TAG	Zone Name

15.7.3 PATTERNS

Name	Pattern	Name	Pattern
ACOUSTIC CEILING TILE		ORNAMENTAL METAL	
ADOBE MASONRY		PARTICLE BOARD	
ALUMINIUM		PLASTIC GLAZING	
BRICK		PLYWOOD	
CONCRETE MASONRY UNIT (CMU)		ROCK	
CAST STONE		STEEL	

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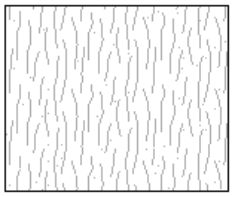
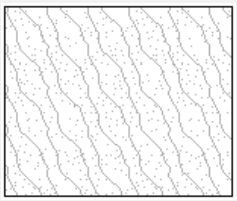
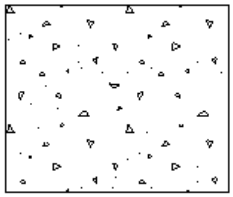
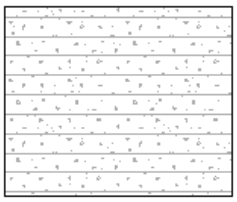
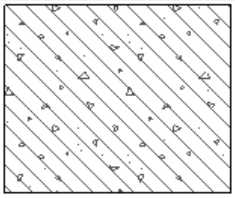
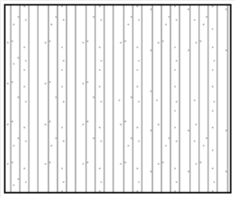
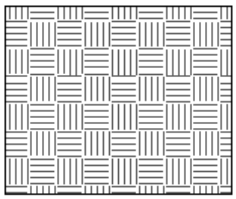
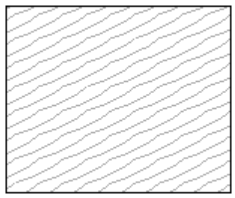
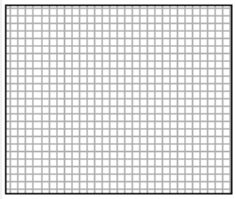
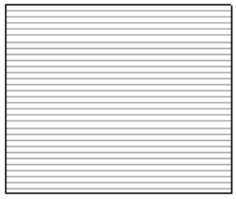
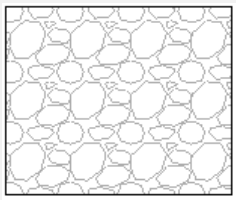
CEMENTITIOUS DECK		STONE	
CONCRETE		TERAZZO	
CONCRETE PRECAST		TILE	
EARTH		WOOD	
FIRE SAFING			
GLASS			
GRAVEL			

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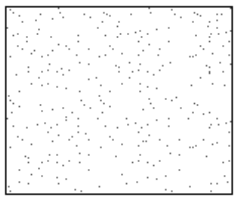
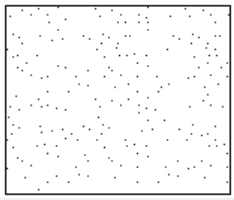
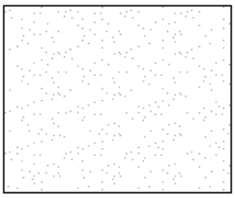
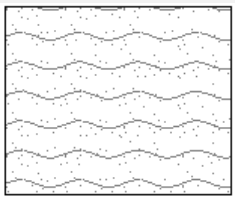
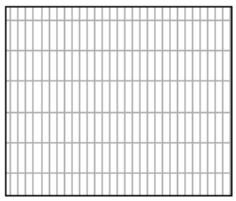
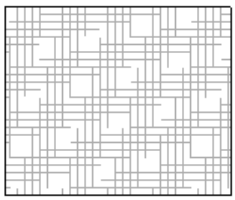
GROUT			
GYPSUM BOARD			
INSULATION - FOAM			
INSULATION – LOOSE FILL			
INSULATION – NO FOAM			
INSULATION – SEMI RIGID			

15.8 SURVEY

15.8.1 DESCRIPTION KEY SET

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AW*	<default>	<default>	ABUT WINGS	V-BRDG	Parameter 1	Parameter 2	Parameter 2
AXLE*	<default>	<default>	AXLE	V-SURV	Parameter 1	Parameter 2	Parameter 2
BABUT*	<default>	<default>	BRIDGE BOTTOM ABUTMENT	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BABUTE*	<default>	<default>	BRIDGE BOTTOM ABUTMENT	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BARNBR*	<default>	<default>	BARN BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BARNCB*	<default>	<default>	BARN CONC BLOCK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BARNF*	<default>	<default>	BARN FRAMED	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BARNSID*	<default>	<default>	BARN SIDING	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BAW*	<default>	<default>	BRIDGE BOTTOM OF WING	V-BRDG	Parameter 1	Parameter 2	Parameter 2

BAWE*	<default>	<default>	BRIDGE BOTTOM OF WING	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BB*	<default>	<default>	BOTTOM BANK	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BBEAM*	<default>	<default>	BRIDGE BOTTOM OF BEAM	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BCB*	<default>	<default>	BOTTOM CURB BITUMINOUS	V-ROAD	Parameter 1	Parameter 2	Parameter 2
BCC*	<default>	<default>	BOTTOM CURB CONCRETE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
BCSTN*	<default>	<default>	BOTTOM CURB CUT STONE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
BH*	<default>	<default>	BOREHOLE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BHE*	<default>	<default>	BOREHOLE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BJBAR*	<default>	<default>	BOTTOM JERSEY BARRIER	V-ROAD	Parameter 1	Parameter 2	Parameter 2
BJBARE*	<default>	<default>	BOTTOM JERSEY BARRIER	V-ROAD	Parameter 1	Parameter 2	Parameter 2
BLDR*	<default>	<default>	BOULDER	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BLDRE*	<default>	<default>	BOULDER	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BLDRL*	<default>	<default>	BOULDER	V-TOPO	Parameter 1	Parameter 2	Parameter 2
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BOXCUL*	<default>	<default>	BOX CULVERT	V-STRM	Parameter 1	Parameter 2	Parameter 2
BPAR*	<default>	<default>	BRIDGE BOTTOM OF PARAPET	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BPIER*	<default>	<default>	BRIDGE BOTTOM OF PIER	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BPORBR*	<default>	<default>	BOTTOM PORCH BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BPORBRE*	<default>	<default>	BOTTOM PORCH BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BPORC*	<default>	<default>	BOTTOM PORCH CONC	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BPORCE*	<default>	<default>	BOTTOM PORCH CONC	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BPORW*	<default>	<default>	BOTTOM PORCH WOOD	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BPORWE*	<default>	<default>	BOTTOM PORCH WOOD	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BRBC*	<default>	<default>	BRIDGE BOTTOM OF CURB	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRCRB*	<default>	<default>	BRIDGE CROWNROAD BITUMINOUS	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRCRC*	<default>	<default>	BRIDGE CROWNROAD CONC	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRDJT*	<default>	<default>	BRIDGE DECK JOINT	V-BRDG	Parameter 1	Parameter 2	Parameter 2

BRDKB*	<default>	<default>	BRIDGE DECK BITUMINOUS	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRDKC*	<default>	<default>	BRIDGE DECK CONCRETE	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRDKM*	<default>	<default>	BRIDGE DECK METAL	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRE*	<default>	<default>	BREAKLINE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BRFT*	<default>	<default>	BRIDGE FOOTER	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRI*	<default>	<default>	BRIDGE	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRICK*	<default>	<default>	BRICK	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BRIE*	<default>	<default>	BRIDGE	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRL*	<default>	<default>	BRUSH LINE	V-VEGE	Parameter 1	Parameter 2	Parameter 2
BRLC*	<default>	<default>	BRIDGE LOW CHORD	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRLE*	<default>	<default>	BRUSH LINE	V-VEGE	Parameter 1	Parameter 2	Parameter 2
BRSWB*	<default>	<default>	BRIDGE SIDEWALK BRICK	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRSWC*	<default>	<default>	BRIDGE SIDEWALK CONCRETE	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRSWW*	<default>	<default>	BRIDGE SIDEWALK WOOD	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BRTC*	<default>	<default>	BRIDGE TOP CURB	V-BRDG	Parameter 1	Parameter 2	Parameter 2

BS*	<default>	<default>	BEAM SEAT	V-BRDG	Parameter 1	Parameter 2	Parameter 2
BUI*	<default>	<default>	BUILDING	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BUIBR*	<default>	<default>	BUILDING BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BUIBV*	<default>	<default>	BUILDING BREAK VOID	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BUICB*	<default>	<default>	BUILDING CONC BLOCK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BUIF*	<default>	<default>	BUILDING FRAMED	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BUISID*	<default>	<default>	BUILDING SIDING	V-BLDG	Parameter 1	Parameter 2	Parameter 2
BV*	<default>	<default>	BREAK VOID	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BWC*	<default>	<default>	BOTTOM CONCRETE BLOCK WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BWS*	<default>	<default>	BOTTOM STONE WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
BWW*	<default>	<default>	BOTTOM WOOD WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
CAN*	<default>	<default>	CANAL	V-WWAY	Parameter 1	Parameter 2	Parameter 2
CBL*	<default>	<default>	CONSTRUCTION BASELINE	V-SURV	Parameter 1	Parameter 2	Parameter 2
CE*	<default>	<default>	CUT ENDWALL	V-SURV	Parameter 1	Parameter 2	Parameter 2
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CESS*	<default>	<default>	CESSPOOL	V-SSWR	Parameter 1	Parameter 2	Parameter 2
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CG*	<default>	<default>	CROSS GATE	V-RAIL	Parameter 1	Parameter 2	Parameter 2
CGE*	<default>	<default>	CROSS GATE	V-RAIL	Parameter 1	Parameter 2	Parameter 2
CHK*	<default>	<default>	CHECK SHOT	V-SURV	Parameter 1	Parameter 2	Parameter 2
CIST*	<default>	<default>	CISTERN	V-WATR	Parameter 1	Parameter 2	Parameter 2
CISTE*	<default>	<default>	CISTERN	V-WATR	Parameter 1	Parameter 2	Parameter 2
CLM*	PTC_CABLE LINE MARKER	FULL DESCRIPTION ONLY	CABLE LINE MARKER	V-CATV	Parameter 1	Parameter 2	Parameter 2
CM*	PTC_CONC MONUMENT	FULL DESCRIPTION ONLY	CONCRETE MONUMENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
CN*	PTC_NAIL	FULL DESCRIPTION ONLY	CONCRETE NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
CNE*	PTC_NAIL	FULL DESCRIPTION ONLY	CONCRETE NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
CON*	<default>	<default>	CONCRETE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
COS*	<default>	<default>	CONCRETE SLAB	V-BLDG	Parameter 1	Parameter 2	Parameter 2

CR*	<default>	<default>	CROWN ROAD	V-ROAD	Parameter 1	Parameter 2	Parameter 2
CRB*	<default>	<default>	CROWN ROAD BITUMINOUS	V-ROAD	Parameter 1	Parameter 2	Parameter 2
CRC*	<default>	<default>	CROWN ROAD CONCRETE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
CRD*	<default>	<default>	CROWN ROAD DIRT	V-ROAD	Parameter 1	Parameter 2	Parameter 2
CRE*	<default>	<default>	CREEK	V-WWAY	Parameter 1	Parameter 2	Parameter 2
CROS*	<default>	<default>	CROSS SIGN	V-RAIL	Parameter 1	Parameter 2	Parameter 2
CROSE*	<default>	<default>	CROSS SIGN	V-RAIL	Parameter 1	Parameter 2	Parameter 2
CRS*	<default>	<default>	CROSS SIGNAL	V-RAIL	Parameter 1	Parameter 2	Parameter 2
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CRST*	<default>	<default>	CROWN ROAD STABALIZED	V-ROAD	Parameter 1	Parameter 2	Parameter 2
CS*	<default>	<default>	CURVE TO SPIRAL	V-SURV	Parameter 1	Parameter 2	Parameter 2
CT*	<default>	<default>	CENTERLINE TRACK	V-RAIL	Parameter 1	Parameter 2	Parameter 2
CTE*	<default>	<default>	CENTERLINE TRACK	V-RAIL	Parameter 1	Parameter 2	Parameter 2
DEF*	<default>	<default>	DEFAULT	V-SURV	Parameter 1	Parameter 2	Parameter 2
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DF*	<default>	<default>	DRAINFIELD	V-SSWR	Parameter 1	Parameter 2	Parameter 2
DFE*	<default>	<default>	DRAINFIELD	V-SSWR	Parameter 1	Parameter 2	Parameter 2
DH*	PTC_DRILL HOLE	FULL DESCRIPTION ONLY	DRILL HOLE	V-SURV	Parameter 1	Parameter 2	Parameter 2
DHE*	PTC_DRILL HOLE	FULL DESCRIPTION ONLY	DRILL HOLE	V-SURV	Parameter 1	Parameter 2	Parameter 2
DIT*	<default>	<default>	DITCH	V-DTCH	Parameter 1	Parameter 2	Parameter 2
EAR*	<default>	<default>	EARTH	V-TOPO	Parameter 1	Parameter 2	Parameter 2
EC*	<default>	<default>	EDGE CURB	V-ROAD	Parameter 1	Parameter 2	Parameter 2
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EDB*	<default>	<default>	EDGE DRIVE BITUMINOUS	V-DRIV	Parameter 1	Parameter 2	Parameter 2
EDC*	<default>	<default>	EDGE DRIVE REINF CONCRETE	V-DRIV	Parameter 1	Parameter 2	Parameter 2
EDD*	<default>	<default>	EDGE DRIVE DIRT	V-DRIV	Parameter 1	Parameter 2	Parameter 2
EDS*	<default>	<default>	EDGE DRIVE STAB	V-DRIV	Parameter 1	Parameter 2	Parameter 2
EL*	<default>	<default>	ELECTRIC LINE	V-POWR	Parameter 1	Parameter 2	Parameter 2
ELE*	<default>	<default>	ELECTRIC LINE	V-POWR	Parameter 1	Parameter 2	Parameter 2

EM*	PTC_ELEC METER	FULL DESCRIPTION ONLY	ELECTRIC METER	V-POWR	Parameter 1	Parameter 2	Parameter 2
EP*	PTC_UTIL POLE	FULL DESCRIPTION ONLY	ELECTRIC POLE	V-POWR	Parameter 1	Parameter 2	Parameter 2
EPE*	PTC_UTIL POLE	FULL DESCRIPTION ONLY	ELECTRIC POLE	V-POWR	Parameter 1	Parameter 2	Parameter 2
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ERB*	<default>	<default>	EDGE ROAD BITUMINOUS	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ERC*	<default>	<default>	EDGE ROAD CONCRETE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ERD*	<default>	<default>	EDGE ROAD DIRT	V-ROAD	Parameter 1	Parameter 2	Parameter 2
EROCK*	<default>	<default>	EXPOSED ROCK	V-TOPO	Parameter 1	Parameter 2	Parameter 2
EROCKL*	<default>	<default>	EXPOSED ROCK	V-TOPO	Parameter 1	Parameter 2	Parameter 2
ERS*	<default>	<default>	EDGE ROAD STABALIZED	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ES*	<default>	<default>	EDGE SHOULDER	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ESB*	<default>	<default>	EDGE SHOULDER BITUMINOUS	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ESC*	<default>	<default>	EDGE SHOULDER CONCRETE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
ESD*	<default>	<default>	EDGE SHOULDER DIRT	V-ROAD	Parameter 1	Parameter 2	Parameter 2

ESS*	<default>	<default>	EDGE SHOULDER STABALIZED	V-ROAD	Parameter 1	Parameter 2	Parameter 2
FEN*	<default>	<default>	FENCE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
FENE*	<default>	<default>	FENCE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
FH*	PTC_FIRE HYDRANT EXST	FULL DESCRIPTION ONLY	FIRE HYDRANT	V-WATR	Parameter 1	Parameter 2	Parameter 2
FHE*	PTC_FIRE HYDRANT EXST	FULL DESCRIPTION ONLY	FIRE HYDRANT	V-WATR	Parameter 1	Parameter 2	Parameter 2
FIE*	<default>	<default>	FIELD	V-TOPO	Parameter 1	Parameter 2	Parameter 2
FIEL*	<default>	<default>	FIELD	V-TOPO	Parameter 1	Parameter 2	Parameter 2
FIELE*	<default>	<default>	FIELD	V-TOPO	Parameter 1	Parameter 2	Parameter 2
GAB*	<default>	<default>	GABIONS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
GAR*	<default>	<default>	GARAGE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
GARBR*	<default>	<default>	GARAGE BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
GARCB*	<default>	<default>	GARAGE CONC BLOCK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
GARF*	<default>	<default>	GARAGE FRAMED	V-BLDG	Parameter 1	Parameter 2	Parameter 2
GARSID*	<default>	<default>	GARAGE SIDING	V-BLDG	Parameter 1	Parameter 2	Parameter 2

GATE*	<default>	<default>	GATE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
GATEE*	<default>	<default>	GATE	V-TOPO	Parameter 1	Parameter 2	Parameter 2
GI*	<default>	<default>	GAS ISLAND	V-PETRO	Parameter 1	Parameter 2	Parameter 2
GL*	<default>	<default>	GAS LINE	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GLE*	<default>	<default>	GAS LINE	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GLM*	<default>	<default>	GAS LINE MARKER	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GM*	PTC_CONC MONUMENT	FULL DESCRIPTION ONLY	GEOD MONUMENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
GMR*	PTC_GAS METER	FULL DESCRIPTION ONLY	GAS METER	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GR*	<default>	<default>	GUIDE RAIL	V-GRAL	Parameter 1	Parameter 2	Parameter 2
GRA*	<default>	<default>	GRASS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
GRE*	<default>	<default>	GUIDE RAIL	V-GRAL	Parameter 1	Parameter 2	Parameter 2
GRS*	<default>	<default>	GUIDE RAIL STRONG POST	V-GRAL	Parameter 1	Parameter 2	Parameter 2
GRSE*	<default>	<default>	GUIDE RAIL STRONG POST	V-GRAL	Parameter 1	Parameter 2	Parameter 2
GRW*	<default>	<default>	GUIDE RAIL WEAK POST	V-GRAL	Parameter 1	Parameter 2	Parameter 2

GRWE*	<default>	<default>	GUIDE RAIL WEAK POST	V-GRAL	Parameter 1	Parameter 2	Parameter 2
GUY*	PTC_GUY WIRE ANCHOR	FULL DESCRIPTION ONLY	GUY	V-UTIL	Parameter 1	Parameter 2	Parameter 2
GUYA*	PTC_GUY WIRE ANCHOR	FULL DESCRIPTION ONLY	GUY AERIAL	V-UTIL	Parameter 1	Parameter 2	Parameter 2
GUYE*	PTC_GUY WIRE ANCHOR	FULL DESCRIPTION ONLY	GUY	V-UTIL	Parameter 1	Parameter 2	Parameter 2
GUYP*	PTC_GUY POLE	FULL DESCRIPTION ONLY	GUY POLE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
GV*	PTC_GAS VALVE	FULL DESCRIPTION ONLY	GAS VALVE	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GVCS*	PTC_GAS VALVE	FULL DESCRIPTION ONLY	GAS VALVE CURB STOP	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GVE*	PTC_GAS VALVE	FULL DESCRIPTION ONLY	GAS VALVE	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GW*	<default>	<default>	GAS WELL	V-NGAS	Parameter 1	Parameter 2	Parameter 2
GWE*	<default>	<default>	GAS WELL	V-NGAS	Parameter 1	Parameter 2	Parameter 2
HED*	<default>	<default>	HEDGE	V-VEGE	Parameter 1	Parameter 2	Parameter 2
HEDE*	<default>	<default>	HEDGE	V-VEGE	Parameter 1	Parameter 2	Parameter 2

HT*	<default>	<default>	HUB TACK	V-SURV	Parameter 1	Parameter 2	Parameter 2
HTE*	<default>	<default>	HUB TACK	V-SURV	Parameter 1	Parameter 2	Parameter 2
HW*	PTC_HEADWALL	FULL DESCRIPTION ONLY	HEAD WALL	V-STRM	Parameter 1	Parameter 2	Parameter 2
HWE*	PTC_HEADWALL	FULL DESCRIPTION ONLY	HEAD WALL	V-STRM	Parameter 1	Parameter 2	Parameter 2
IO*	<default>	<default>	IN OUTLET	V-STRM	Parameter 1	Parameter 2	Parameter 2
IOE*	<default>	<default>	IN OUTLET	V-STRM	Parameter 1	Parameter 2	Parameter 2
IP*	PTC_IRON PIN	FULL DESCRIPTION ONLY	IRON PIN	V-SURV	Parameter 1	Parameter 2	Parameter 2
IPE*	PTC_IRON PIN	FULL DESCRIPTION ONLY	IRON PIN	V-SURV	Parameter 1	Parameter 2	Parameter 2
IPP*	PTC_IRON PIPE	FULL DESCRIPTION ONLY	IRON PIPE	V-SURV	Parameter 1	Parameter 2	Parameter 2
IPPE*	PTC_IRON PIPE	FULL DESCRIPTION ONLY	IRON PIPE	V-SURV	Parameter 1	Parameter 2	Parameter 2
JB*	<default>	<default>	JUNCTION BOX	V-UTIL	Parameter 1	Parameter 2	Parameter 2
JBL*	<default>	<default>	JUNCTION BOX LINE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
JBLE*	<default>	<default>	JUNCTION BOX LINE	V-UTIL	Parameter 1	Parameter 2	Parameter 2

LAKE*	<default>	<default>	LAKE	V-WWAY	Parameter 1	Parameter 2	Parameter 2
LDE*	<default>	<default>	LEVEE DIKE	V-WWAY	Parameter 1	Parameter 2	Parameter 2
LP*	PTC_LIGHT POST	FULL DESCRIPTION ONLY	LIGHT POST	V-UTIL	Parameter 1	Parameter 2	Parameter 2
MAC*	<default>	<default>	MACADAM	V-TOPO	Parameter 1	Parameter 2	Parameter 2
MAG*	<default>	<default>	MAG NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
MAGE*	<default>	<default>	MAG NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
MB*	PTC_MAILBOX	FULL DESCRIPTION ONLY	MAILBOX	V-TOPO	Parameter 1	Parameter 2	Parameter 2
MBE*	PTC_MAILBOX	FULL DESCRIPTION ONLY	MAILBOX	V-TOPO	Parameter 1	Parameter 2	Parameter 2
MC*	PTC_ELEC MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER	V-UTIL	Parameter 1	Parameter 2	Parameter 2
MCE*	PTC_ELEC MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER	V-UTIL	Parameter 1	Parameter 2	Parameter 2
MCEL*	PTC_ELEC MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER ELECTRIC	V-POWR	Parameter 1	Parameter 2	Parameter 2
MCELE*	PTC_ELEC MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER ELECTRIC	V-POWR	Parameter 1	Parameter 2	Parameter 2

MCG*	PTC_GAS MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER GAS	V-NGAS	Parameter 1	Parameter 2	Parameter 2
MCGE*	PTC_GAS MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER GAS	V-NGAS	Parameter 1	Parameter 2	Parameter 2
MCSAN*	PTC_SSWR MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER SANITARY SEWER	V-SSWR	Parameter 1	Parameter 2	Parameter 2
MCSANE*	PTC_SSWR MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER SANITARY SEWER	V-SSWR	Parameter 1	Parameter 2	Parameter 2
MCSS*	PTC_STRM MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER STORM SEWER	V-STRM	Parameter 1	Parameter 2	Parameter 2
MCSSE*	PTC_STRM MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER STORM SEWER	V-STRM	Parameter 1	Parameter 2	Parameter 2
MCT*	PTC_TELE MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER TELEPHONE	V-TELP	Parameter 1	Parameter 2	Parameter 2
MCTE*	PTC_TELE MH	FULL DESCRIPTION ONLY	MAINTENANCE HOLE COVER TELEPHONE	V-TELP	Parameter 1	Parameter 2	Parameter 2
ML*	<default>	<default>	MUN LINE	V-BNDY	Parameter 1	Parameter 2	Parameter 2
MLE*	<default>	<default>	MUN LINE	V-BNDY	Parameter 1	Parameter 2	Parameter 2
MTC*	<default>	<default>	MOUNTABLE CURB	V-ROAD	Parameter 1	Parameter 2	Parameter 2
NAIL*	PTC_NAIL	FULL DESCRIPTION ONLY	NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2

NAILE*	PTC_NAIL	FULL DESCRIPTION ONLY	NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
OF*	<default>	<default>	OUT FIREPLACE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
OFE*	<default>	<default>	OUT FIREPLACE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
OG*	<default>	<default>	OLD GROUND	V-TOPO	Parameter 1	Parameter 2	Parameter 2
OGTC*	<default>	<default>	OIL GAS T C	V-UTIL	Parameter 1	Parameter 2	Parameter 2
OGTCE*	<default>	<default>	OIL GAS T C	V-UTIL	Parameter 1	Parameter 2	Parameter 2
OHW*	<default>	<default>	OVERHEAD WIRE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
OR*	<default>	<default>	OVERHANG ROOF	V-BLDG	Parameter 1	Parameter 2	Parameter 2
PARCH*	<default>	<default>	ARCH PIPE	V-STRM	Parameter 1	Parameter 2	Parameter 2
PCC*	<default>	<default>	POINT OF COMPOUND CURVE	V-SURV	Parameter 1	Parameter 2	Parameter 2
PERC*	<default>	<default>	PERC HOLE	V-SSWR	Parameter 1	Parameter 2	Parameter 2
PERCE*	<default>	<default>	PERC HOLE	V-SSWR	Parameter 1	Parameter 2	Parameter 2
PI*	<default>	<default>	POINT OF INTERSECTION	V-SURV	Parameter 1	Parameter 2	Parameter 2
PIER*	<default>	<default>	PIER	V-BRDG	Parameter 1	Parameter 2	Parameter 2

PIPE*	<default>	<default>	PIPE	V-STRM	Parameter 1	Parameter 2	Parameter 2
PKN*	PTC_NAIL	FULL DESCRIPTION ONLY	P K NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
PKNE*	PTC_NAIL	FULL DESCRIPTION ONLY	P K NAIL	V-SURV	Parameter 1	Parameter 2	Parameter 2
PL*	<default>	<default>	PARKING LOT	V-PRKG	Parameter 1	Parameter 2	Parameter 2
PLA*	<default>	<default>	PLANTER	V-VEGE	Parameter 1	Parameter 2	Parameter 2
PLUG*	<default>	<default>	LEAD PLUG	V-SURV	Parameter 1	Parameter 2	Parameter 2
PLUGE*	<default>	<default>	LEAD PLUG	V-SURV	Parameter 1	Parameter 2	Parameter 2
PM*	<default>	<default>	PARKING METER	V-PRKG	Parameter 1	Parameter 2	Parameter 2
PME*	<default>	<default>	PARKING METER	V-PRKG	Parameter 1	Parameter 2	Parameter 2
POC*	<default>	<default>	POINT ON CURVE	V-SURV	Parameter 1	Parameter 2	Parameter 2
POND*	<default>	<default>	POND	V-WWAY	Parameter 1	Parameter 2	Parameter 2
POOL*	<default>	<default>	POOL	V-WATR	Parameter 1	Parameter 2	Parameter 2
POP*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	POLE POST	V-TOPO	Parameter 1	Parameter 2	Parameter 2

POPE*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	POLE POST	V-TOPO	Parameter 1	Parameter 2	Parameter 2
POR*	<default>	<default>	PORCH	V-BLDG	Parameter 1	Parameter 2	Parameter 2
PORE*	<default>	<default>	PORCH	V-BLDG	Parameter 1	Parameter 2	Parameter 2
POST*	<default>	<default>	POINT OF SUBTANGENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
POT*	<default>	<default>	POINT ON TANGENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
PRC*	<default>	<default>	POINT OF REVERSE CURVE	V-SURV	Parameter 1	Parameter 2	Parameter 2
PRP*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	PRIVATE POLE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
PRPE*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	PRIVATE POLE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
PTAN*	<default>	<default>	POINT OF TANGENCY	V-SURV	Parameter 1	Parameter 2	Parameter 2
PTOC*	<default>	<default>	POINT OF CURVE	V-SURV	Parameter 1	Parameter 2	Parameter 2
RED*	<default>	<default>	RED	V-SURV	Parameter 1	Parameter 2	Parameter 2
REDE*	<default>	<default>	RED	V-SURV	Parameter 1	Parameter 2	Parameter 2
REG*	<default>	<default>	REGULAR POINT	V-TOPO	Parameter 1	Parameter 2	Parameter 2
RIV*	<default>	<default>	RIVER	V-WWAY	Parameter 1	Parameter 2	Parameter 2

RL*	<default>	<default>	ROCK LINING	V-WWAY	Parameter 1	Parameter 2	Parameter 2
RRS*	PTC_RR SPIKE	FULL DESCRIPTION ONLY	RAILROAD SPIKE	V-SURV	Parameter 1	Parameter 2	Parameter 2
RRSE*	PTC_RR SPIKE	FULL DESCRIPTION ONLY	RAILROAD SPIKE	V-SURV	Parameter 1	Parameter 2	Parameter 2
SBL*	<default>	<default>	SURVEY BASELINE	V-SURV	Parameter 1	Parameter 2	Parameter 2
SC*	<default>	<default>	SPIRAL TO CURVE	V-SURV	Parameter 1	Parameter 2	Parameter 2
SCL*	<default>	<default>	SURVEY CENTERLINE	V-SURV	Parameter 1	Parameter 2	Parameter 2
SCO*	PTC_CLEANOUT	FULL DESCRIPTION ONLY	SEWER CLEAN OUT	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SET*	<default>	<default>	SEPTIC TANK	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SETE*	<default>	<default>	SEPTIC TANK	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SHED*	<default>	<default>	OUT BUILDING	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SHR*	PTC_SHRUB	FULL DESCRIPTION ONLY	SHRUB	V-VEGE	Parameter 1	Parameter 2	Parameter 2
SHRE*	PTC_SHRUB	FULL DESCRIPTION ONLY	SHRUB	V-VEGE	Parameter 1	Parameter 2	Parameter 2
SIGN*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	SIGN	V-TOPO	Parameter 1	Parameter 2	Parameter 2

SIGNE*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	SIGN	V-TOPO	Parameter 1	Parameter 2	Parameter 2
SIGNL*	PTC_SIGN SNGL POST	FULL DESCRIPTION ONLY	SIGN	V-TOPO	Parameter 1	Parameter 2	Parameter 2
SILO*	<default>	<default>	SILO	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SILOE*	<default>	<default>	SILO	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SL*	<default>	<default>	SANI LINE	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SLE*	<default>	<default>	SANI LINE	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SM*	PTC_STONE MONUMENT	FULL DESCRIPTION ONLY	STONE MONUMENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
SND*	<default>	<default>	WATERWAY SOUNDING	V-WWAY	Parameter 1	Parameter 2	Parameter 2
SPR*	<default>	<default>	SPRING	V-WATR	Parameter 1	Parameter 2	Parameter 2
SR*	<default>	<default>	STONE ROW	V-TOPO	Parameter 1	Parameter 2	Parameter 2
SRE*	<default>	<default>	STONE ROW	V-TOPO	Parameter 1	Parameter 2	Parameter 2
STA*	<default>	<default>	STABILIZED	V-TOPO	Parameter 1	Parameter 2	Parameter 2
STAN*	<default>	<default>	SPIRAL TO TANGENT	V-SURV	Parameter 1	Parameter 2	Parameter 2
STEP*	<default>	<default>	STEPS	V-BLDG	Parameter 1	Parameter 2	Parameter 2

STEPE*	<default>	<default>	STEPS	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STEPS*	<default>	<default>	STEPS	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STEPSBR*	<default>	<default>	STEPS BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STEPSC*	<default>	<default>	STEPS CONCRETE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STEPSM*	<default>	<default>	STEPS METAL	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STEPSW*	<default>	<default>	STEPS WOOD	V-BLDG	Parameter 1	Parameter 2	Parameter 2
STP*	<default>	<default>	SOIL TEST PIT	V-SSWR	Parameter 1	Parameter 2	Parameter 2
STPE*	<default>	<default>	SOIL TEST PIT	V-SSWR	Parameter 1	Parameter 2	Parameter 2
STR*	<default>	<default>	STREAM	V-WWAY	Parameter 1	Parameter 2	Parameter 2
STU*	<default>	<default>	STUMP	V-VEGE	Parameter 1	Parameter 2	Parameter 2
STUE*	<default>	<default>	STUMP	V-VEGE	Parameter 1	Parameter 2	Parameter 2
SV*	<default>	<default>	SEWER VENT	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SVE*	<default>	<default>	SEWER VENT	V-SSWR	Parameter 1	Parameter 2	Parameter 2
SW*	<default>	<default>	SIDEWALK CONCRETE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SWB*	<default>	<default>	SIDEWALK BITUMINUS	V-BLDG	Parameter 1	Parameter 2	Parameter 2

SWBR*	<default>	<default>	SIDEWALK BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SWC*	<default>	<default>	SIDEWALK CONCRETE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
SWS*	<default>	<default>	SIDEWALK STONE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TABUT*	<default>	<default>	BRIDGE TOP ABUTMENT	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TABUTE*	<default>	<default>	BRIDGE TOP ABUTMENT ELEV	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TANK*	<default>	<default>	ABOVE GROUND TANK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TAW*	<default>	<default>	TOP OF WING	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TAWE*	<default>	<default>	TOP OF WING	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TB*	<default>	<default>	TOP BANK	V-TOPO	Parameter 1	Parameter 2	Parameter 2
TCB*	<default>	<default>	TOP CURB BITUMINOUS	V-ROAD	Parameter 1	Parameter 2	Parameter 2
TCC*	<default>	<default>	TOP CURB CONCRETE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
TCSTN*	<default>	<default>	TOP CURB CUT STONE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
TEP*	<default>	<default>	TELEPHONE POLE	V-TELP	Parameter 1	Parameter 2	Parameter 2
TEPE*	<default>	<default>	TELEPHONE POLE	V-TELP	Parameter 1	Parameter 2	Parameter 2
TJBAR*	<default>	<default>	TOP JERSEY BARRIER	V-ROAD	Parameter 1	Parameter 2	Parameter 2

TJBARE*	<default>	<default>	TOP JERSEY BARRIER	V-ROAD	Parameter 1	Parameter 2	Parameter 2
TL*	<default>	<default>	TELEPHONE LINE	V-TELP	Parameter 1	Parameter 2	Parameter 2
TLE*	<default>	<default>	TELEPHONE LINE	V-TELP	Parameter 1	Parameter 2	Parameter 2
TLM*	PTC_TELE LINE MARKER	FULL DESCRIPTION ONLY	TELEPHONE LINE MARKER	V-TELP	Parameter 1	Parameter 2	Parameter 2
TP*	<default>	<default>	TRAVERSE POINT	V-SURV	Parameter 1	Parameter 2	Parameter 2
TPAR*	<default>	<default>	BRIDGE TOP PARPET	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TPE*	<default>	<default>	TRAVERSE POINT	V-SURV	Parameter 1	Parameter 2	Parameter 2
TPED*	<default>	<default>	BRIDGE TOP OF PEDISTAL	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TPIER*	<default>	<default>	BRIDGE TOP OF PIER	V-BRDG	Parameter 1	Parameter 2	Parameter 2
TPL*	<default>	<default>	TRAVERSE POINT	V-SURV	Parameter 1	Parameter 2	Parameter 2
TPLE*	<default>	<default>	TRAVERSE POINT	V-SURV	Parameter 1	Parameter 2	Parameter 2
TPOR*	<default>	<default>	TOP PORCH	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORBR*	<default>	<default>	TOP PORCH BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORBRE*	<default>	<default>	TOP PORCH BRICK	V-BLDG	Parameter 1	Parameter 2	Parameter 2

TPORC*	<default>	<default>	TOP PORCH CONCRETE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORCE*	<default>	<default>	TOP PORCH CONCRETE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORE*	<default>	<default>	TOP PORCH	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORW*	<default>	<default>	TOP PORCH WOOD	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TPORWE*	<default>	<default>	TOP PORCH WOOD	V-BLDG	Parameter 1	Parameter 2	Parameter 2
TR*	<default>	<default>	TOP RAIL	V-RAIL	Parameter 1	Parameter 2	Parameter 2
TREE*	PTC_TREE CONIFEROUS	FULL DESCRIPTION ONLY	TREE	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TREEE*	PTC_TREE CONIFEROUS	FULL DESCRIPTION ONLY	TREE	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TREEG*	PTC_TREE DECIDUOUS	FULL DESCRIPTION ONLY	TREE EVERGREEN	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TREEGE*	PTC_TREE DECIDUOUS	FULL DESCRIPTION ONLY	TREE EVERGREEN	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TREER*	<default>	<default>	TREE ROW	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TREERE*	<default>	<default>	TREE ROW	V-VEGE	Parameter 1	Parameter 2	Parameter 2
TRPL*	<default>	<default>	TRAFFIC PAINT LINE	V-ROAD	Parameter 1	Parameter 2	Parameter 2

TRPLE*	<default>	<default>	TRAFFIC PAINT LINE	V-ROAD	Parameter 1	Parameter 2	Parameter 2
TRS*	<default>	<default>	TRAFFIC SIGNAL	V-TRAF	Parameter 1	Parameter 2	Parameter 2
TRSE*	<default>	<default>	TRAFFIC SIGNAL	V-TRAF	Parameter 1	Parameter 2	Parameter 2
TS*	<default>	<default>	TANGENT TO SPIRAL	V-SURV	Parameter 1	Parameter 2	Parameter 2
TVL*	<default>	<default>	TV LINE	V-CATV	Parameter 1	Parameter 2	Parameter 2
TVLE*	<default>	<default>	TV LINE	V-CATV	Parameter 1	Parameter 2	Parameter 2
TWC*	<default>	<default>	TOP CONCRETE BLOCK WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
TWS*	<default>	<default>	TOP STONE WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
TWW*	<default>	<default>	TOP WOOD WALL	V-TOPO	Parameter 1	Parameter 2	Parameter 2
UEL*	<default>	<default>	UNDERGROUND ELECTRIC LINE	V-POWR	Parameter 1	Parameter 2	Parameter 2
UTILP*	PTC_UTIL POLE	FULL DESCRIPTION ONLY	UTILITY POLE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
UTILPE*	PTC_UTIL POLE	FULL DESCRIPTION ONLY	UTILITY POLE	V-UTIL	Parameter 1	Parameter 2	Parameter 2
UTL*	<default>	<default>	UNDERGROUND TELEPHONE LINE	V-TELP	Parameter 1	Parameter 2	Parameter 2
UTVL*	<default>	<default>	UNDERGROUND TV LINE	V-CATV	Parameter 1	Parameter 2	Parameter 2

WAT*	<default>	<default>	WATER	V-WWAY	Parameter 1	Parameter 2	Parameter 2
WD*	<default>	<default>	WETLAND DELINEATION	V-VEGE	Parameter 1	Parameter 2	Parameter 2
WDE*	<default>	<default>	WETLAND DELINEATION	V-VEGE	Parameter 1	Parameter 2	Parameter 2
WDS*	<default>	<default>	EDGE OF WOODS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
WDSE*	<default>	<default>	EDGE OF WOODS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
WELL*	PTC_WELL	FULL DESCRIPTION ONLY	WELL	V-WATR	Parameter 1	Parameter 2	Parameter 2
WELLE*	PTC_WELL	FULL DESCRIPTION ONLY	WELL	V-WATR	Parameter 1	Parameter 2	Parameter 2
WG*	<default>	<default>	WHEEL GUARD	V-BRDG	Parameter 1	Parameter 2	Parameter 2
WH*	<default>	<default>	WELL HOUSE	V-BLDG	Parameter 1	Parameter 2	Parameter 2
WIS*	<default>	<default>	W I SPIKE	V-SURV	Parameter 1	Parameter 2	Parameter 2
WISE*	<default>	<default>	W I SPIKE	V-SURV	Parameter 1	Parameter 2	Parameter 2
WL*	<default>	<default>	WATER LINE	V-WATR	Parameter 1	Parameter 2	Parameter 2
WLE*	<default>	<default>	WATER LINE	V-WATR	Parameter 1	Parameter 2	Parameter 2
WLM*	PTC_WATR MARKOUT	FULL DESCRIPTION ONLY	WATER LINE MARKER	V-WATR	Parameter 1	Parameter 2	Parameter 2

WM*	PTC_WATR METER	FULL DESCRIPTION ONLY	WATER METER	V-WATR	Parameter 1	Parameter 2	Parameter 2
WR*	<default>	<default>	WOODS ROW	V-VEGE	Parameter 1	Parameter 2	Parameter 2
WRE*	<default>	<default>	WOODS ROW	V-VEGE	Parameter 1	Parameter 2	Parameter 2
WSR*	<default>	<default>	WALLS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
WSRE*	<default>	<default>	WALLS	V-TOPO	Parameter 1	Parameter 2	Parameter 2
WV*	PTC_WATR VALVE	FULL DESCRIPTION ONLY	WATER VALVE	V-WATR	Parameter 1	Parameter 2	Parameter 2
WVCS*	<default>	<default>	WATER VALVE CURB STOP	V-WATR	Parameter 1	Parameter 2	Parameter 2
WVE*	PTC_WATR VALVE	FULL DESCRIPTION ONLY	WATER VALVE	V-WATR	Parameter 1	Parameter 2	Parameter 2

15.8.2 FEATURE CODE SET

Code	Description
CODE	**BRIDGE**
BRBS	BRIDGE BEAM SEAT
BRABUT	BRIDGE BTM ABUTEMENT
BRBEAM	BRIDGE BTM BEAM
BRBC	BRIDGE BTM CURB
BRPAR	BRIDGE BTM PARAPET
BRPED	BRIDGE BTM PEDESTAL
BRPIER	BRIDGE BTM PIER
BRAW	BRIDGE BTM WING
BRCR	BRIDGE CROWN ROAD
BRDJT	BRIDGE DECK JOINT
BRDK	BRIDGE DECK (AM)
BRFT	BRIDGE FOOTER
BRLC	BRIDGE LOW CHORD
BRSW	BRIDGE SIDEWALK
BRSCUP	BRIDGE SCUPPER
TABUT	BRIDGE TOP ABUTMENT
BRTC	BRIDGE TOP CURB
TPAR	BRIDGE TOP PARAPET
TPED	BRIDGE TOP PEDESTAL
TPIER	BRIDGE TOP PIER
TAW	BRIDGE TOP WING
BRWG	BRIDGE WHEEL GUARD
CODE	**BUILDING SITE**
BOL	BOLLARD
BUI	BUILDING (AM)
BUIC	BLDG CORNER (AM)
COL	COLUMN
FFE	FINISH FLOOR ELEV
GARAGE	GARAGE (AM)
OR	OVERHANG ROOF
POR	PORCH (AM)
SHED	OUT BUILDING (AM)
SILO	SILO
STEPS	STEPS (AM)
SW	SIDEWALK (AM)

Code	Description
CODE	**CABLE TV**
CLM	CABLE LINE MARKER(AN)
CPED	CABLE PEDESTAL(AN)
MHC	MANHOLE CABLETV (AIM)
MOC	MARKOUT CABLETV (AIM)
OHC	OVERHEAD CABLE LINE
CODE	**ELECTRICAL**
EBX	ELEC BOX (AN)
EMR	ELEC METER
EP	ELEC POLE (AN)
EVLT	ELEC VAULT (AN)
MHE	MANHOLE ELEC (AIM/AN)
MOE	MARKOUT ELEC (AST)
OHE	OVERHEAD ELECT LINE
CODE	**NATURAL GAS**
GLM	GAS LINE MARKER (AN)
GMR	GAS METER
GV	GAS VALVE
GVCS	GAS VALVE CURB STOP
GW	GAS WELL
MHG	MANHOLE GAS (AIM)
MOG	MARKOUT GAS (AST)
CODE	PETROLEUM
GI	GAS ISLAND
PLM	PETROLEUM LINE MARKER (AN)
AST	ABOVE GROUND STORAGE TANK
UST	UNDERGROUND STORAGE TANK
CODE	**RAILROAD**
RRB	BTM BALLAST
RRT	TOP BALLAST
CAT	CATINARY POLE
CG	CROSS GATE
CROS	CROSS SIGN
CRS	CR SIGNAL
CLRR	CENTERLINE TRACK

Code	Description
FROG	FROG
RRSW	RAILROAD SWITCH
TRR	TOP RR TRACK
CODE	ROADWAY
BC	BTM CURB
BCBAR	BTM CONCRETE BARRIER (ASD)
CBX	CALL BOX (AN)
CL	CENTERLINE
CR	CROWN ROAD
DYL	DOUBLE YELLOW LINE
ER	EDGE ROADWAY
ES	EDGE SHOULDER (AM)
FPL	FLAG PERSON LOCATION
GRATT	GUIDERAIL ATTENUATOR
GR	GUIDE RAIL FACE(AM)
IATT	IMPACT ATTENUATOR
RK	ROAD KILL
SWL	SINGLE WHILE LINE
SYL	SINGLE YELLOW LINE
SKL	SKIP LINE
TCD	TEMP CHANNELIZING DEVICE
TCS	TEMP CONST SIGN
TC	TOP CURB
TCBAR	TOP CONCRETE BARRIER (ASD)
TR	TOP OF REVEAL
CODE	SANITARY SEWER
CO	CLEANOUT
DF	DRAINFIELD
MHSAN	MANHOLE SAN SEWER (AIM)
MOSAN	MARKOUT SAN SEWER (AST)
PERC	PERC HOLE
SET	SEPTIC TANK
SM	SAND MOUND
SL	SANITARY LINE (AST)
STP	SOIL TEST PIT
CODE	STORM WATER

Code	Description
AD	AREA DRAIN
BHW	BTM HEAD WALL (AM)
FES	FLARED END SECTION
INL	INLET (AST/AIM)
INV	INVERT (AIM)
LOD	LIMIT OF DISTURBANCE
MHSS	MANHOLE STORM SEWER (AIM)
MOSS	MARKOUT STORM SEWER (AST)
RRP	RIP-RAP
SF	SILT FENCE
THW	TOP HEAD WALL (AM)
TOP	TOP PIPE (AIM)
CODE	SURVEY
AXLE	AXLE
SPK	BARN SPIKE
BM	BENCH MARK
CHK	CHECK BSHOT
CM	CONC MONUMENT
CN	CONC NAIL
DSC	DISK
DH	DRILL HOLE
HT	HUB TACK
IP	IRON PIN
IPP	IRON PIPE
MAG	MAG NAIL
NAIL	NAIL
PKN	P K NAIL
REBAR	REBAR
RWC	REBAR W/CAP
RRS	RR SPIKE
STK	STAKE
STFEN	STONE FENCE
STONE	STONE MONUMENT
CODE	TELEPHONE
MHT	MANHOLE TELEPHONE (AIM)
MOT	MARKOUT TELEPHONE (AST)

Code	Description
OHT	OVERHEAD TELEPHONE
TELPED	TELEPHONE PEDISTAL (AN)
TEP	TELEPHONE POLE (AN)
TLM	TELEPHONE LINE MARKER(AN)
CODE	TOPO
BIL	BILLBOARD (AM)
BB	BTM BANK
BOR	BORING
BRE	BREAKLINE
BW	BTM WALL (AM)
CAN	CANAL
CONC	CONCRETE
CRE	CREEK
DEL	DELINATOR POST (AN)
DIT	DITCH
DITCL	DITCH CENTERLINE
ED	EDGE DRIVE (AM)
FEN	FENCE LINE (AM)
FENRW	FENCE RIGHT-OF-WAY (AM)
FNP	FENCE POST (AM)
FIE	FIELD
FP	FLAG POLE
FL	FLOWLINE
GATE	GATE (AM)
LAKE	LAKE
MAC	MACADAM
MB	MAILBOX (AM)
PS	PARKING STRIPE
POND	POND
PST	POST (AM)
REG	GROUND SHOT
RIV	RIVER
SIGN	SIGN (AM)
SND	WATERWAY SOUNDING
SR	STONE ROW (AM)

Code	Description
STR	STREAM
TB	TOP BANK
TW	TOP WALL (AM)
WAT	WATER
CODE	TRAFFIC
LOOP	LOOP DETECTOR
TCAM	TRAFFIC CAMERA
TRM	TRAFFIC SIGNAL MAST
TRS	TRAFFIC SIGNAL POLE
TSCB	TRAFFIC SIGNAL CONTROL BOX
VMS	VARIABLE MESSAGE SIGN
CODE	UTILITIES
CTRAY	CABLE TRAY
CT	CELL TOWER
GUYA	GUY WIRE ANCHOR
GUYP	GUY POLE (AN)
JB	JUNCTION BOX (AN)
LP	LIGHT POST (AN)
LS	LIGHT STANDARD (AN)
MT	MICROWAVE TOWER (AN)
OHW	OVER HEAD WIRE
UP	UTILITY POLE (AN)
CODE	VEGETATION
EW	EDGE OF WOODS
HED	HEDGE (AST)
LSA	LANDSCAPE AREA
SHR	SHRUB (AST)
TREEC	TREE CONIFEROUS (AST)
TREED	TREE DECIDUOUS (AST)
TREER	TREE ROW (AST)
WET	WETLAND FLAG (AN)
WETP	WETLAND PROBE (AN)
WL	WOOD LINE
CODE	WATER
CIST	CISTERN
FH	FIRE HYDR

Code	Description
MHW	MANHOLE WATER (AIM)
MOW	MARKOUT WATER (AST)
MW	MONITORING WELL
POOL	POOL
SPR	SPRING
WELL	WELL
WLM	WATER LINE MARKER (AN)
WM	WATER METER
WT	WATER TOWER (AN)
WV	WATER VALVE
WVCS	WATER VALVE CURB STOP
NOTES:	
(AIM)	ATTRIBUTE INVERT MATERIAL
(AM)	ATTRIBUTE MATERIAL
(AN)	ATTRIBUTE UTILITY NUMBER
(ASD)	ATTRIBUTE SINGLE OR DOUBLE
(AST)	ATTRIBUTE SIZE TYPE
B	BEGIN LINE WORK
E	END LINE WORK
ADD F(FOUND) OR S(SET) AFTER CODE	
ADD DESCRIPTION IN FIELD BOOK FOR CONTROL OR PROPERTY CORNER FOUND OR SET	

15.8.3 FIGURE PREFIX DATABASE

Name	Breakline	Lot Line	Layer	Style	Site
BRBS	No	No	V-SURV-FIG-BRBS	PTC BRIDGE	Survey Site
BABUT	No	No	V-SURV-FIG-BRABUT	PTC BRIDGE	Survey Site
BBEAM	No	No	V-SURV-FIG-BRBEAM	PTC BRIDGE	Survey Site
BRBC	No	No	V-SURV-FIG-BRBC	PTC BRIDGE	Survey Site
BPAR	No	No	V-SURV-FIG-BRPAR	PTC BRIDGE	Survey Site
BRPED	No	No	V-SURV-FIG-BRPED	PTC BRIDGE	Survey Site
BPIER	No	No	V-SURV-FIG-BRPIER	PTC BRIDGE	Survey Site
BAW	No	No	V-SURV-FIG-BRAW	PTC BRIDGE	Survey Site
BRCR	No	No	V-SURV-FIG-BRCR	PTC BRIDGE	Survey Site
BRDJT	No	No	V-SURV-FIG-BRDJT	PTC BRIDGE	Survey Site
BRDK	No	No	V-SURV-FIG-BRDK	PTC BRIDGE	Survey Site
BRFT	No	No	V-SURV-FIG-BRFT	PTC BRIDGE	Survey Site
BRLC	No	No	V-SURV-FIG-BRCL	PTC BRIDGE	Survey Site
BRSW	No	No	V-SURV-FIG-BRSW	PTC BRIDGE	Survey Site
BRSCUP	No	No	V-SURV-FIG-BRSCUP	PTC BRIDGE	Survey Site
TABUT	No	No	V-SURV-FIG-TABUT	PTC BRIDGE	Survey Site
BRTC	No	No	V-SURV-FIG-BRTC	PTC BRIDGE	Survey Site
TPAR	No	No	V-SURV-FIG-TPAR	PTC BRIDGE	Survey Site
TPIER	No	No	V-SURV-FIG-TPIER	PTC BRIDGE	Survey Site
TAW	No	No	V-SURV-FIG-TAW	PTC BRIDGE	Survey Site
BUI	No	No	V-SURV-FIG-BUI	PTC BUILDING	Survey Site
GAR	No	No	V-SURV-FIG-GARAGE	PTC BUILDING	Survey Site
OR	No	No	V-SURV-FIG-OR	PTC BUILDING ROOF	Survey Site
POR	No	No	V-SURV-FIG-POR	PTC BUILDING PORCH	Survey Site
SHED	No	No	V-SURV-FIG-SHED	PTC_STANDARD	Survey Site
STEP	No	No	V-SURV-FIG-STEPS	PTC_STANDARD	Survey Site
SW	No	No	V-SURV-FIG-SW	PTC SIDEWALK	Survey Site
CLM	No	No	V-SURV-FIG-CLM	PTC CABLE LINE	Survey Site
OHC	No	No	V-SURV-FIG-OHC	PTC OV CABLE LINE	Survey Site
OHE	No	No	V-SURV-FIG-OHE	PTC OV ELEC	Survey Site
GL	No	No	V-SURV-FIG-GLM	PTC GAS LINE	Survey Site
GI	No	No	V-SURV-FIG-GI	PTC_STANDARD	Survey Site
PLM	No	No	V-SURV-FIG-PLM	PTC PETROLEUM LINE	Survey Site
CT	No	No	V-SURV-FIG-CLRR	PTC CL RAILROAD	Survey Site
TRR	No	No	V-SURV-FIG-TRR	PTC_STANDARD	Survey Site
BC	No	No	V-SURV-FIG-BC	PTC_STANDARD	Survey Site
BCBAR	No	No	V-SURV-FIG-BCBAR	PTC_STANDARD	Survey Site
CL	No	No	V-SURV-FIG-CL	PTC CENTERLINE	Survey Site
CR	No	No	V-SURV-FIG-CR	PTC CENTERLINE	Survey Site
DYL	No	No	V-SURV-FIG-DYL	PTC DOUBLE YELLOWLINE	Survey Site

ER	No	No	V-SURV-FIG-ER	PTC EDGE ROADWAY	Survey Site
ES	Yes	No	V-SURV-FIG-ES	PTC EDGE SHOULDER	Survey Site
GR	No	No	V-SURV-FIG-GR	PTC GUARD RAIL	Survey Site
SWL	No	No	V-SURV-FIG-SWL	PTC SINGLE WHITELINE	Survey Site
SYL	No	No	V-SURV-FIG-SYL	PTC SINGLE YELLOWLINE	Survey Site
SKL	No	No	V-SURV-FIG-SKL	PTC SKIPLINE	Survey Site
TC	Yes	No	V-SURV-FIG-TC	PTC TOP OF CURB	Survey Site
SL	No	No	V-SURV-FIG-SL	PTC SANITARY LINE	Survey Site
BHW	No	No	V-SURV-FIG-BHW	PTC_STANDARD	Survey Site
THW	No	No	V-SURV-FIG-THW	PTC_STANDARD	Survey Site
TOP	No	No	V-SURV-FIG-TOP	PTC TOP SD PIPE	Survey Site
STFEN	No	No	V-SURV-FIG-STFEN	PTC STONE FENCE	Survey Site
OHT	No	No	V-SURV-FIG-OHT	PTC OHT	Survey Site
BB	Yes	No	V-SURV-FIG-BB	PTC BTM BANK	Survey Site
BRE	Yes	No	V-SURV-FIG-BRE	PTC_STANDARD	Survey Site
BW	Yes	No	V-SURV-FIG-BW	PTC_STANDARD	Survey Site
CAN	Yes	No	V-SURV-FIG-CAN	PTC WETLAND	Survey Site
DIT	Yes	No	V-SURV-FIG-DIT	PTC DITCH	Survey Site
DITCL	Yes	No	V-SURV-FIG-DITCL	PTC DITCH CL	Survey Site
ED	Yes	No	V-SURV-FIG-ED	PTC EDGE DRIVE	Survey Site
FEN	No	No	V-SURV-FIG-FEN	PTC FENCELINE	Survey Site
FENRW	No	Yes	V-SURV-FIG-FENRW	PTC FENCELINE RW	Survey Site
FL	Yes	No	V-SURV-FIG-FL	PTC FLOWLINE	Survey Site
SR	No	No	V-SURV-FIG-SR	PTC_STANDARD	Survey Site
TB	Yes	No	V-SURV-FIG-TB	PTC TOP BANK	Survey Site
TW	Yes	No	V-SURV-FIG-TW	PTC TOP WALL	Survey Site
OHW	No	No	V-SURV-FIG-OHW	PTC OHW	Survey Site
WDS	No	No	V-SURV-FIG-EW	PTC EDGE WOODS	Survey Site
WL	No	No	V-SURV-FIG-WLM	PTC WATERLINE	Survey Site
TCBAR	No	No	V-SURV-FIG-TCBAR	PTC_STANDARD	Survey Site
BARN	No	No	V-SURV-FIG-BARN	PTC BARN	Survey Site
COS	Yes	No	V-SURV-FIG-CON	PTC CONCRETE	Survey Site
TPOR	Yes	No	V-SURV-FIG-POR	PTC BUILDING PORCH	Survey Site
ML	No	Yes	V-SURV-FIG-ML	PTC MUN LINE	Survey Site
BRI	No	No	V-SURV-FIG-BRIDGE	PTC BRIDGE	Survey Site
TVL	No	No	V-SURV-FIG-CLM	PTC CABLE LINE	Survey Site
UTVL	No	No	V-SURV-FIG-CLM	PTC CABLE LINE	Survey Site
PL	Yes	No	V-SURV-FIG-PL	PTC PARKING	Survey Site
EL	No	No	V-SURV-FIG-ELEC	PTC ELECTRIC	Survey Site
UEL	No	No	V-SURV-FIG-ELEC	PTC ELECTRIC UG	Survey Site
TR	No	No	V-SURV-FIG-CLRR	PTC CL RAILROAD	Survey Site
BCB	Yes	No	V-SURV-FIG-CURB	PTC_STANDARD	Survey Site
BCC	Yes	No	V-SURV-FIG-CURB	PTC_STANDARD	Survey Site

BCSTN	Yes	No	V-SURV-FIG-CURB	PTC_STANDARD	Survey Site
BJBAR	Yes	No	V-SURV-FIG-BARR	PTC_STANDARD	Survey Site
EC	Yes	No	V-SURV-FIG-EC	PTC EDGE CURB	Survey Site
MTC	Yes	No	V-SURV-FIG-CURB	PTC_STANDARD	Survey Site
TCB	Yes	No	V-SURV-FIG-TC	PTC TOP OF CURB	Survey Site
TCC	Yes	No	V-SURV-FIG-TC	PTC TOP OF CURB	Survey Site
TJBAR	No	No	V-SURV-FIG-BARR	PTC_STANDARD	Survey Site
TRPL	No	No	V-SURV-FIG-TRPL	PTC SINGLE WHITELINE	Survey Site
BOXCUL	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
PARCH	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
PIPE	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
2	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
4	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
6	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
8	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
10	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
12	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
15	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
18	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
21	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
24	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
27	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
30	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
33	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
36	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
42	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
48	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
54	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
60	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
66	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
72	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
78	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
84	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
90	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
96	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
102	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
108	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
114	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
120	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
126	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
132	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
138	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site
144	No	No	V-SURV-FIG-SD	PTC TOP SD PIPE	Survey Site

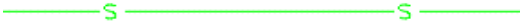
CBL	Yes	No	V-SURV-SURV-FIG-CL	PTC CENTERLINE	Survey Site
SBL	Yes	No	V-SURV-FIG-CL	PTC CENTERLINE	Survey Site
SCL	Yes	No	V-SURV-FIG-CL	PTC CENTERLINE	Survey Site
TL	No	No	V-SURV-FIG-OHT	PTC TELEPHONE	Survey Site
TLM	No	No	V-SURV-FIG-OHT	PTC TELEPHONE	Survey Site
UTL	No	No	V-SURV-FIG-UTL	PTC TELEPHONE	Survey Site
CON	Yes	No	V-SURV-FIG-CON	PTC CONCRETE	Survey Site
WSR	Yes	No	V-SURV-FIG-WALL	PTC TOP WALL	Survey Site
OGTC	No	No	V-SURV-OGTC	PTC GAS LINE	Survey Site
BRL	No	No	V-SURV-FIG-BRL	PTC BRUSH	Survey Site
WR	No	No	V-SURV-FIG-WR	PTC WOODS ROW	Survey Site
CRE	No	No	V-SURV-FIG-CRE	PTC WETLAND	Survey Site
LAKE	Yes	No	V-SURV-FIG-LAKE	PTC WETLAND	Survey Site
LDE	No	No	V-SURV-FIG-LDE	PTC WETLAND	Survey Site
POND	Yes	No	V-SURV-FIG-POND	PTC WETLAND	Survey Site
RIV	Yes	No	V-SURV-FID-RIV	PTC WETLAND	Survey Site
STR	No	No	V-SURV-FIG-STR	PTC WETLAND	Survey Site
WAT	No	No	V-SURV-FIG-WAT	PTC WETLAND	Survey Site

15.8.4 FIGURE STYLES

Name	Sample
PTC BRIDGE	
PTC BTM BANK	
PTC BUILDING	
PTC BUILDING PORCH	
PTC BUILDING ROOF	
PTC CABLE LINE	CTV
PTC CENTERLINE	
PTC CL RAILROAD	
PTC DITCH	
PTC DITCH CL	
PTC DOUBLE YELLOWLINE	
PTC EDGE DRIVE	
PTC EDGE ROADWAY	
PTC EDGE SHOULDER	
PTC EDGE WOODS	
PTC FENCELINE	
PTC FENCELINE RW	
PTC FLOWLINE	
PTC GAS LINE	G G
PTC GUARD RAIL	
PTC OHT	OHT OHT
PTC OHW	OHC OHC
PTC OV CABLE LINE	OHC OHC
PTC OV ELEC	OHE OHE

PTC PETROLEUM LINE

PTC SANITARY LINE



PTC SIDEWALK

PTC SINGLE WHITELINE

PTC SINGLE YELLOWLINE

PTC SKIPLINE

PTC STONE FENCE

PTC TOP BANK

PTC TOP OF CURB

PTC TOP SD PIPE

PTC TOP WALL

PTC WATERLINE

15.8.5 LINEWORK CODE SETS

Property	Value
Information	
Name	PTC Linework Codes
Description	
Coding Methods	
Feature/Code delimiter	<Space>
Field code escape	/
Start in comment mode	☑ Yes
Automatic begin on figure prefix match	☐ No
Special Codes	
Begin	B
Continue	C
End	E
Close	CLS
Horizontal offset	H
Vertical offset	V
Stop offsets	SO
Line Segment Codes	
Recall point	RPN
Connect point	CPN
Rectangle	RECT
Right turn	RT
Extend	X
Curve Segment Codes	
Begin curve	BC
End curve	EC
Circle	CIR
Point on curve	OC

15.9 CIVIL 3D STYLES

Object	Style Name	Style Description	Layer Control
Appurtenance Styles	**Style Name**	**Description**	**Main Layer Control**
Appurtenance Styles	PTC_STAND	Appurtenance Style	C-WATR-APPT
	PTC_VALVE	Valve Appurtenance Style	C-WATR-APPT
Appurtenance Label Styles	PTC_NAME ONLY	Appurtenance Name Only	C-WATR-TEXT
	PTC_NOM DIA VALVE TYPE	Appurtenance Nominal Diameter and Type	C-WATR-TEXT
Appurtenance Table Styles	PTC_STAND	Standard Appurtenance Table	C-ANNO-TABL/TEXT Layers
	PTC_VALVE NAME SIZE TYPE	Valve Name Size and Type	C-ANNO-TABL/TEXT Layers
Alignment Styles	**Style Name**	**Description**	**Main Layer Control**
Alignment Styles	PTC_EXST	Existing Alignments	C-ROAD-CNTR
	PTC_INTR	Intersection Alignments	C-ROAD-CNTR-PROP
	PTC_OFFS	Offset Alignments	C-ROAD-EDGE
	PTC_PROP	Proposed Alignments	C-ROAD-CNTR-PROP
Alignment Label Sets	PTC_NO LABL	No Labels	NA
	PTC_MAJR & MINR ONLY	Major and Minor Stations Labels	NA
	PTC_MAJR MINR & GEOM PNTS	Major and Minor Stations, and Geometry Points Labels	NA
Alignment Label Styles - Major Station	PTC_EXST PARL WITH TICK	Existing Major Stations	C-ROAD-STAN-MAJR
	PTC_EXST PARL WITH TICK OFFSET	Existing Major Stations with extended offset for linework	C-ROAD-STAN-MAJR
	PTC_PARL WITH TICK	Proposed Parallel with Tick	C-ROAD-STAN-MAJR
	PTC_PARL WITH TICK OFFSET	Proposed Major Stations with extended offset for linework	C-ROAD-STAN-MAJR
	PTC_PERP WITH LINE	Perpendicular with Line	C-ROAD-STAN-MAJR
	PTC_PERP WITH TICK	Perpendicular with Tick	C-ROAD-STAN-MAJR
Alignment Label Styles - Minor Station	PTC_TICK	Tick Only	C-ROAD-STAN-MINR
Alignment Label Styles - Geometry Point	PTC_PERP WITH TICK & LINE	Perpendicular with Tick and Line	C-ROAD-STAN
Alignment Label Styles - Profile Geometry Point	PTC_CODE & STA	Code and Station	C-ROAD-STAN
	PTC_ EXST PERP WITH TICK & LINE	Existing Geometri Points, Perpendicular with Tick and Line	C-ROAD-STAN
	PTC_HIGH PNTS	High Points	C-ROAD-STAN
	PTC_LOW PNTS	Low Points	C-ROAD-STAN
Alignment Label Styles - Station Equation	PTC_STA AHD & BACK	Station Ahead and Back	C-ROAD-STAN
Alignment Label Styles - Design Speed	PTC_STA OVER SPEED	Station over Speed	C-ROAD-STAN

Alignment Label Styles - Superelevation Critical Points	PTC_CRTL PNTS	Critical Points	C-ROAD-STAN
	PTC_SUPR SYMB	Label with Superelevation Symbol	C-ROAD-STAN
Alignment Label Styles - Station Offset	PTC_STA & OFFSET	Station and Offset	C-ROAD-STAN
	PTC_STA OFFSET & COOR	Alignments, Station, Offset, and Coordinates	C-ROAD-STAN
Alignment Label Styles - Line	PTC_BEAR OVER DIST	Bearing over Distance	C-ROAD-BRNG
Alignment Label Styles - Curve	PTC_ EXST CURVE DATA	Existing Curve Data	C-ROAD-BRNG
	PTC_DLTA OVER LNTH & RADS	Delta over Length & Radius	C-ROAD-BRNG
Alignment Label Styles - Spiral	PTC_LNTH STA & A VALU	Spiral Data	C-ROAD-BRNG
Alignment Label Styles - Tangent Intersection	PTC_STA	PI Station Value	C-ROAD-TEXT
Alignment Label Styles - Point of Intersection	PTC_PI_ABOVE	Point of Intersection Coordinates (Shown Above)	C-ROAD-TEXT
	PTC_PI_BELOW	Point of Intersection Coordinates (Shown Below)	C-ROAD-TEXT
Alignment Table Styles - Line	PTC_LNTH DRCT START & END PNTS	Length, Direction, and Start and End Points	C-ANNO-TABL/TEXT Layers
Alignment Table Styles - Curve	PTC_RADS LNTH CHORD START & END PNTS	Radius, Chord Length, and Start and End Points	C-ANNO-TABL/TEXT Layers
Alignment Table Styles - Spiral	PTC_A VALU RADS LNTH DRCT START & END PNTS	Spiral Data and Start and End Points	C-ANNO-TABL/TEXT Layers
Alignment Table Styles - Segment	PTC_RADS LNTH DRCT & A VALU	Segment Data	C-ANNO-TABL/TEXT Layers
Cant View Styles	**Style Name**	**Description**	**Main Layer Control**
Cant View Styles	PTC_RAIL	Rail Cant View	C-RAIL-CANT Layers
Catchment Styles	**Style Name**	**Description**	**Main Layer Control**
Catchment Styles	PTC_CATCH	Catchment Style	C-HYDR-CTCH
Catchment Label Styles - Area	PTC_NAME AREA & PROP	Name, Area, and Properties	C-HYDR-TEXT
	PTC_NAME ONLY	Name Only	C-HYDR-CTCH-TEXT
Catchment Label Styles - Flow Segment	PTC_FLOW TYPE LNTH & SLOPE	Flow Length and Slope	C-HYDR-CTCH-TEXT
Corridor Styles	PTC_CORR	Corridor Style	C-ROAD-CORR Layers
Intersection Styles	PTC_INTR MRKR	Intersection Marker Style	C-ROAD-INTS-TEXT
Intersection Label Styles	PTC_INTR	Intersection Label	C-ROAD-TEXT
Fitting Styles	**Style Name**	**Description**	**Main Layer Control**
Fitting Styles	PTC_FITTING	Fitting Style	C-WATR-FITT
Fitting Label Styles	PTC_DIA ANG & MTRL	Diameter, Angle, and Material	C-WATR-TEXT
	PTC_NAME	Name Only	C-WATR-TEXT
Fitting Table Styles	PTC_DIA ANG MTRL & TYPE	Diameter, Angle, Material and Type	C-ANNO-TABL/TEXT Layers

General Feature Line, and Code Set Styles	Style Name	Description	Main Layer Control
Feature Lines	PTC_BASC FEAT LINE	Basic Feature Lines	C-TOPO-FEAT
	PTC_CNTR RAIL LINE	Rail Center Line	C-RAIL
	PTC_CORR CROWN	Corridor Crown	C-ROAD-CORR
	PTC_CORR CURB LINE	Corridor Curb Line	C-ROAD-CORR
	PTC_CORR DAYLIGHT	Corridor Daylight	C-ROAD-CORR
	PTC_CORR DAYLIGHT - SUB GRADE	Corridor Daylight Subgrade	C-ROAD-CORR
	PTC_CORR DAYLIGHT LINE - CUT	Corridor Daylight Cut	C-ROAD-CORR
	PTC_CORR DAYLIGHT LINE - FILL	Corridor Daylight Fill	C-ROAD-CORR
	PTC_CORR DTCH	Corridor Ditch	C-ROAD-CORR
	PTC_CORR EDGE OF PAVED SHLDR	Corridor Edge of Paved Shoulder	C-ROAD-CORR
	PTC_CORR EDGE OF TRVL WAY	Corridor Edge of Travel Way	C-ROAD-CORR
	PTC_CORR EDGE OF UNPAVED SHLDR	Corridor Edge of Unpaved Shoulder	C-ROAD-CORR
	PTC_CORR FLOWLINE	Corridor Flowline	C-ROAD-CORR
	PTC_CORR GRAD	Corridor Grading	C-TOPO-FEAT
	PTC_CORR HNGE - CUT SLOPE	Corridor Hinge Cut Slope	C-ROAD-CORR
	PTC_CORR HNGE - FILL SLOPE	Corridor Hinge Fill Slope	C-ROAD-CORR
	PTC_CORR HNGE - TOP SLOPE	Corridor Hinge Top Slope	C-ROAD-CORR
	PTC_CORR LANE BREAK	Corridor Lane Break	C-ROAD-CORR
	PTC_CORR SUB LAY	Corridor Sub Layer	C-ROAD-CORR
	PTC_CORR TOP SOIL	Corridor Top Soil	C-ROAD-CORR
	PTC_GRAD DAYLIGHT	Grading Daylight	C-TOPO-FEAT
	PTC_GRAD DTCH	Grading Ditch	C-TOPO-FEAT
	PTC_NO DISPLAY	No Display	C-TOPO-FEAT
	PTC_TOP RAIL	Top Rail	C-TOPO-FEAT
Slope Pattern Styles	PTC_FIX LNTH	Fixed Length	0
	PTC_SLOPE	Slope	0
Code Set Styles	PTC_ALL CODE	All Codes	NA
	PTC_ALL CODE - NO_DISPLAY	All Codes	NA
	PTC_CODE WITH LABL	Codes with Label	NA
Link Style	PTC_BARRIER	Barrier	C-ROAD-CORR
	PTC_BASC	Basic	C-ROAD-LINK
	PTC_BASE	Base	C-ROAD-CORR
	PTC_CURB - TOP	Curb Top	C-ROAD-CORR

	PTC_DATUM	Datum	C-ROAD-CORR
	PTC_DAYLIGHT	Daylight	C-ROAD-CORR
	PTC_DAYLIGHT CUT	Daylight Cut	C-ROAD-CORR
	PTC_DAYLIGHT FILL	Daylight Fill	C-ROAD-CORR
	PTC_GRASS AREA	Grass Area	C-ROAD-LINK
	PTC_GRVL	Gravel	C-ROAD-CORR
	PTC_LOT	Lots	C-ROAD-CORR
	PTC_MILL	Mill	C-ROAD-CORR
	PTC_NO_DISPLAY	No Display	C-ROAD-CORR
	PTC_PAVE	Top Pavement Layer	C-ROAD-CORR
	PTC_PAVE1	First Pavement Sublayer	C-ROAD-CORR
	PTC_PAVE2	Second Pavement Sublayer	C-ROAD-CORR
	PTC_SDWK	Sidewalk	C-ROAD-CORR
	PTC_STRIP	Stripping	C-ROAD-CORR
	PTC_SUB BASE	Sub Base	C-ROAD-CORR
	PTC_TOP	Top Link	C-ROAD-CORR
	PTC_UNCODED	Uncoded	C-ROAD-CORR
Shape Styles	PTC_BALLAST	Ballast	C-ROAD-CORR
	PTC_BARRIER	Barrier	C-ROAD-CORR
	PTC_BASC	Basic	C-ROAD-SHAP
	PTC_BASE	Base	C-ROAD-CORR
	PTC_BRDG	Bridge	C-ROAD-CORR
	PTC_CONC HTCH	Concrete	C-ROAD-SHAP
	PTC_CURB	Curb	C-ROAD-CORR
	PTC_CUT MTRL	Cut Material	C-ROAD-CORR
	PTC_FILL MTRL	Fill Material	C-ROAD-CORR
	PTC_GIRDER	Girder	C-ROAD-CORR
	PTC_GRASS HTCH	Grass	C-ROAD-SHAP
	PTC_GRVL	Gravel	C-ROAD-CORR
	PTC_MILL	Mill	C-ROAD-CORR
	PTC_MULT BOUND MTRL	Multiple Boundary	C-ROAD-CORR
	PTC_NO SHADE	No Shading	C-ROAD-SHAP
	PTC_NO_DISPLAY	No Display	C-ROAD-SHAP
	PTC_OVERLAY	Overlay	C-ROAD-CORR
	PTC_PAVE	Top Pavement Layer	C-ROAD-CORR
	PTC_PAVE HATCH	Pavement Hatch	C-ROAD-SHAP
	PTC_PAVE1	First Pavement Sublayer	C-ROAD-CORR
	PTC_PAVE2	Second Pavement Sublayer	C-ROAD-CORR
	PTC_RAIL	Rail	C-ROAD-CORR
	PTC_SDWK	Sidewalk	C-ROAD-CORR

	PTC_STRIP HTCH	Stripping	C-ROAD-CORR
	PTC_SUB BASE	Sub Base	C-ROAD-CORR
	PTC_UNCODED	Uncoded	C-ROAD-CORR
General Note, Line, Curve and Marker Label Styles	**Style Name**	**Description**	**Main Layer Control**
Note	PTC_NOTE	Notes	0
Line	PTC_BEAR & DIST	Bearing and Distance	0
	PTC_BEAR ONLY	Bearing Only	0
	PTC_BEAR OVER DIST	Bearing over Distance	0
	PTC_DIST ONLY	Distance Only	0
	PTC_GRADE ONLY	Grade Only	0
	PTC_GRADE OVER DIST	Grade over Distance	0
	PTC_SLOPE OVER DIST	Slope over Distance	0
	PTC_SLOPE ONLY	Slope Only	0
Curve	PTC_DIST-RADS & DLTA	Distance, Radius, Delta	0
	PTC_DIST ONLY	Distance Only	0
	PTC_DIST OVER RADS	Distance over Radius	0
	PTC_GRADE ONLY	Grade Only	0
	PTC_GRADE OVER DIST	Grade over Distance	0
	PTC_RADS ONLY	Radius Only	0
	PTC_SLOPE OVER DIST	Slope over Distance	0
	PTC_SLOPE ONLY	Slope Only	0
Marker	PTC-PI POINT	Point of Intersection	C-ROAD-LINE_EXTN
	PTC_OFFSET ELEV	Offset Elevation	C-ROAD-SECT-LABL
Link	PTC_FLAT GRADE	Flat Grade	C-ROAD-SECT-LABL
	PTC_STEEP GRADE	Steep Grade	C-ROAD-SECT-LABL
Shape	PTC_PAVE STRC	Pavement Structure	C-ROAD-SECT-LABL
Grading Object Styles	PTC_CUT SLOPE DSPL	Cut Slope Display	C-TOPO-GRAD-CUTS
	PTC_FILL SLOPE DSPL	Fill Slope Display	C-TOPO-GRAD-FILL
	PTC_RESD GRAD DSPL	Residential Grading Display	C-TOPO-GRAD
Grading Criteria Sets	**Style Name**	**Description**	**Main Layer Control**
Grading Criteria Sets	PTC_SET	Grading Criteria Sets	NA
Gravity Pipe Network and Gravity Pipe Network Label Styles	**Style Name**	**Description**	**Main Layer Control**
Pipe Networks	PTC_SSWR	Sanitary Sewer Pipe Network	NA
	PTC_STRM	Storm Sewer Pipe Network	NA
Pipe Styles	PTC_DBLE LINE SSWR	Double Line Sewer	C-SSWR PIPE
	PTC_DBLE LINE STRM	Double Line Storm	C-STRM PIPE
	PTC_PIPE CROSS SSWR	Cross Line Sewer	C-SSWR PIPE
	PTC_PIPE CROSS STRM	Cross Line Storm	C-STRM PIPE

	PTC_SNGL LINE SSWR	Single Line Sewer	C-SSWR PIPE
	PTC_SNGL LINE STRM	Single Line Storm	C-STRM PIPE
Pipe Rules	PTC_BASC	Pipe Rules	NA
Pipe Plan Profile Labels	PTC_LNTH DESC & SLOPE	Length, Description, and Slope	C-STRM-TEXT
	PTC_NAME ONLY	Name Only	C-STRM-TEXT
	PTC_NO LABEL	No Labels	C-STRM-TEXT
	PTC_PLAN LNTH DESC & SLOPE	Plan, Length, Description, and Slope	C-STRM-TEXT
	PTC_PROF LNTH DESC & SLOPE	Profile, Length, Description, and Slope	C-STRM-TEXT
Pipe Crossing Section Labels	PTC_NAME ONLY	Name Only	C-STRM-TEXT
	PTC_NO LABL	No Label	C-STRM-TEXT
Pipe Crossing Profile	PTC_NAME	Name Only	C-STRM-TEXT
	PTC_NAME STA ELEV	Name, Station, and Elevation	C-STRM-TEXT
	PTC_NO NAME	No Label	C-STRM-TEXT
Pipe Table	PTC_NAME SIZE LNTH SLOPE MTRL	Name, Size, Length, Slope, and Material	C-ANNO-TABL/TEXT Layers
Structure Styles	PTC_CB	Catch Basin	C-STRM-STRC
	PTC_FLARED END SECT	Flared End	C-STRM-STRC
	PTC_HWALL	Headwall	C-STRM-STRC
	PTC_NULL	Null	C-STRM-STRC
	PTC_SSWR MH	Sewer Manhole	C-STRM-STRC
	PTC_STRM MH	Storm Manhole	C-STRM-STRC
Structure Rules	PTC_BASC	Structure Rules	NA
Structure Labels	PTC_CONNECTED PIPES SSWR	Structure with Connected Pipes - Sewer	C-SSWR-TEXT
	PTC_CONNECTED PIPES STRM	Structure with Connected Pipes - Storm	C-SSWR-TEXT
	PTC_NAME ONLY SSWR	Structure with Name Only - Sewer	C-SSWR-TEXT
	PTC_NAME ONLY STRM	Structure with Name Only - Storm	C-SSWR-TEXT
Structure Tables	PTC_STRC WITH PIPES	Structures with Pipe	C-ANNO-TABL/TEXT Layers
Parcel and Parcel Label Styles	**Style Name**	**Description**	**Main Layer Control**
Parcel Styles	PTC_BASC	General Design	C-PROP-PARC-LINE
	PTC_BNRY	Boundaries	V-SITE-BNDY
	PTC_EASMT	Easements	V-SITE-ESMT
	PTC_OPEN	Open Space	C-PROP-LINE
	PTC_PROP	Property	C-PROP-BNDY
	PTC_ROAD	Roadway	C-ESMT-RWAY
	PTC_RW	Right of Way	V-SITE-RW
	PTC_SINGLE	Single Family Residence	C-PROP-LINE

Parcel Area Labels	PTC_NAME AREA & PERM	Name, Area, and Perimeter	C-PROP-TEXT
	PTC_NAME SQR FT & ACRE	Name, Area (Square Foot and Acre)	C-PROP-TEXT
	PTC_PRCL NAME	Parcel Name	C-PROP-TEXT
	PTC_PRCL NUMB	Parcel Number	C-PROP-TEXT
Parcel Line Labels	PTC_BEAR OVER DIST	Bearing over Distance	C-PROP-BRNG
	PTC_IRON PIPE NODE LABL	Iron Pipe Node Label	C-PROP-BRNG
	PTC_OVERALL DIST & BEAR	Distance over Bearing	C-PROP-BRNG
	PTC_SPAN BEAR & DIST WITH CROWS FT	Span, Bearing and Distance with Crows Feet	C-PROP-BRNG
	PTC_BEAR ONLY	Bearing Only	C-PROP-BRNG
	PTC_DIST ONLY	Distance Only	C-PROP-BRNG
Parcel Curve Labels	PTC_DLTA OVER LNTH & RADS	Delta over Length & Radius	C-PROP-BRNG
Line Table Style	PTC_LNTH & DRCT	Length and Direction	C-ANNO-TABL/TEXT Layers
Curve Table Style	PTC_LNTH RADS & DLTA	Length, Radius, and Delta	C-ANNO-TABL/TEXT Layers
Segment Table Style	PTC_LNTH & BEAR OR DLTA & RADS	Length, Bearing, Delta, and Radius	C-ANNO-TABL/TEXT Layers
Area Table Style	PTC_AREA PERM LNTH & BEAR	Area, Perimeter, Length, and Bearing	C-ANNO-TABL/TEXT Layers
Pressure Pipe Network and Pressure Pipe Network Label Styles	**Style Name**	**Description**	**Main Layer Control**
Pressure Pipe Network	PTC_WATR	Water Pressure Network	NA
Pressure Pipe Style	PTC_CROSS PIPE WATR	Crossing Pipe	C-WATR-PIPE
	PTC_DBLE LINE WATR	Double Line	C-WATR-PIPE
	PTC_SNGL WATR	Single Line	C-WATR-CNTR
Pipe Label Style	PTC_NO LABEL	No Label	C-WATR-TEXT
	PTC_NAME ONLY	Name Only	C-WATR-TEXT
	PTC_DIA & MTRL	Diameter and Material	C-WATR-TEXT
Pipe Crossing Section Label	PTC_NAME ONLY	Name Only	C-WATR-TEXT
	PTC_NO LABEL	No Label	C-WATR-TEXT
Pipe Crossing Profile Label	PTC_NAME ONLY	Name Only	C-WATR-TEXT
	PTC_NAME STA TOP BOT	Name, Station, Top and Bottom Elevations	C-WATR-TEXT
	PTC_NO LABEL	No Label	C-WATR-TEXT
Pipe Table Styles	PTC_NAME SIZE LNTH MTRL	Name, Size, Length, and Material	C-ANNO-TABL/TEXT Layers
Profile and Profile Label Styles	**Style Name**	**Description**	**Main Layer Control**
Profile Styles	PTC_EXST GRND PROF	Existing Ground Profile	C-ROAD-PROF
	PTC_INTR	Intersection	C-ROAD-PROF
	PTC_LEFT SAMP PROF	Left Sample Profile	C-ROAD-PROF-LTOF
	PTC_PROP PROF	Proposed Profile	C-ROAD-PROF-PROP

	PTC_RIGHT SAMP PROF	Right Sample Profile	C-ROAD-PROF-RTOF
Profile Label Sets	PTC_LABL_SET	Proposed Label Set	NA
	PTC_NO LABL	No Labels	NA
Profile Major Station Labels	PTC_PERP WITH TICK	Perpendicular Text with Tick	C-ROAD-PROF-STAN-MAJR
Profile Minor Station Labels	PTC_PERP WITH TICK	Perpendicular Text with Tick	C-ROAD-PROF-STAN-MINR
	PTC_TICK ONLY	Tick Only	C-ROAD-PROF-STAN-MINR
Profile Horizontal Geometry Point Labels	PTC_HORZ GEOM STA	Horizontal Geometry Station	C-ROAD-PROF-STAN-GEOM
Profile Grade Break Labels	PTC_STA OVER ELEV	Station over Elevation	C-ROAD-PROF-STAN-GEOM
Profile Line Labels	PTC_PRCT GRADE	Percent Grade	C-ROAD-PROF-TEXT
	PTC_SLOPE 1 IN X	Slope Rise over Run	C-ROAD-PROF-TEXT
Profile Curve Labels	PTC_CREST & SAG	Crest and Sag	C-ROAD-PROF-TEXT
	PTC_CREST & SAG WITH HP & LP	Crest and Sag with High Point and Low Point	C-ROAD-PROF-TEXT
Profile View, Profile View Label and Profile Band Styles	**Style Name**	**Description**	**Main Layer Control**
Profile View Styles	PTC_BOT STACK VIEW	Bottom Stacked View	C-ROAD-PROF Layers
	PTC_FIRST VIEW	Series First View	C-ROAD-PROF Layers
	PTC_FULL GRID	Full Grid View	C-ROAD-PROF Layers
	PTC_INT VIEW	Series Intermediate View	C-ROAD-PROF Layers
	PTC_LAST VIEW	Series Last View	C-ROAD-PROF Layers
	PTC_MAJR GRID	Major Grids	C-ROAD-PROF Layers
	PTC_MID STACK VIEW	Middle Stacked View	C-ROAD-PROF Layers
	PTC_TOP STACK VIEW	Top Stacked View	C-ROAD-PROF Layers
Profile Station Elevation Labels	PTC_STA & ELEV	Station and Elevation	C-ROAD-PROF-TEXT
Profile Depth Labels	PTC_DEPTH	Depth	C-ROAD-PROF-TEXT
	PTC_GRADE %	Percent Grade	C-ROAD-PROF-TEXT
	PTC_SLOPE 1 IN X	Slope Rise over Run	C-ROAD-PROF-TEXT
Profile Projection Labels	PTC_PROJ DIM ABOVE	Project Dim Above	C-ROAD-PROF-LABL
	PTC_PROJ DIM BELOW	Project Dim Below	C-ROAD-PROF-LABL
Profile Band Sets	PTC_CUT & FILL	Cut and Fill Band Set	NA
	PTC_EG FG ELEV & STA	Existing Grade and Finished Grade	NA
	PTC_NO BANDS	No Bands	NA
Profile Band Data	PTC_CUT DATA	Cut Data	C-ROAD-PROF Layers
	PTC_ELEV & STA	Elevation and Station	C-ROAD-PROF Layers
	PTC_EMPTY BAND - BOT	No Data - Top	C-ROAD-PROF Layers
	PTC_EMPTY BAND - TOP	No Data - Bottom	C-ROAD-PROF Layers
	PTC_FILL DATA	Fill Data	C-ROAD-PROF Layers

	PTC_PROF DATA	Profile Data	C-ROAD-PROF Layers
	PTC_STA	Station	C-ROAD-PROF Layers
Profile Band Vertical Geometry	PTC_GEOM	Vertical Geometry	C-ROAD-PROF Layers
Profile Band Horizontal Geometry	PTC_GEOM	Horizontal Geometry	C-ROAD-PROF Layers
Profile Band Superelevation	PTC_DIVIDED WITH TWO CROWNS & SHLDRS	Divided with Two Crowns and Shoulders	C-ROAD-PROF Layers
	PTC_UNDIVIDED - NO SHLDRS	Undivided with No Shoulders	C-ROAD-PROF Layers
	PTC_UNDIVIDED WITH SHLDRS	Undivided	C-ROAD-PROF Layers
Profile Band Sectional Data	PTC_SAMP LINE NAME & DIST	Sample Line and Distance	C-ROAD-PROF Layers
Profile Band Pipe Network	PTC_INV ELEV	Pipe Invert Elevation	C-ROAD-PROF Layers
	PTC_PIPE DATA	Pipe Data	C-ROAD-PROF Layers
	PTC_RIM ELEV	Structure Rim Elevation	C-ROAD-PROF Layers
	PTC_STRC STA	Structure Station	C-ROAD-PROF Layers
Sample Line and Sample Line Label Styles	**Style Name**	**Description**	**Main Layer Control**
Sample Line Styles	PTC_ROAD SAMP LINE		C-ROAD-SAMP
Sample Line Label Styles	PTC_SECT NAME & MARKS	Name and Marks	C-ROAD-SAMP-TEXT
	PTC_SECT STA	Station	C-ROAD-SAMP-TEXT
Section and Section Label Styles	**Style Name**	**Description**	**Main Layer Control**
Section Styles	PTC_EXST GRND	Existing Ground	C-ROAD-SECT
	PTC_PROP GRND	Proposed Ground	C-ROAD-SECT-PROP
Section Label Sets	PTC_COOR PNTS	Coordinate Points	NA
	PTC_EXST SECT LABL	Existing Section	NA
	PTC_PROP SECT LABL	Proposed Section	NA
	PTC_MAJR & MINR OFFS	Major and Minor Offsets	NA
	PTC_NO LABL	No Labels	NA
Section Major Offset Labels	PTC_OFFSET & ELEV	Offset and Elevation	C-ROAD-SECT-TEXT
Section Minor Offset Labels	PTC_OFFSET & ELEV	Offset and Elevation	C-ROAD-SECT-TEXT
Section Grade Break Labels	PTC_EXST SECT OFFSET & ELEV	Existing Section Offset and Elevation	C-ROAD-SECT-TEXT
	PTC_PROP SECT OFFSET & ELEV	Proposed Section Offset and Elevation	C-ROAD-SECT-TEXT
Section Segment Labels	PTC_PERCENT GRADE	Percent Grade	C-ROAD-SECT-TEXT
Section Corridor Labels	PTC_CODE OFFSET ELEV	Corridor Code, Offset and Elevation	C-ROAD-SECT-LABL
Section View, Section View Label, Section View Sheet and Section View Band Styles	**Style Name**	**Description**	**Main Layer Control**
Section View Styles	PTC_ROAD SECT	Section View Styles	C-ROAD-SECT Layers
Section Plot Styles	PTC_SECT	Section Plot Style	C-ROAD-SECT Layers
Section Sheet Styles	PTC_SECT	Section Sheet Style	C-ROAD-SECT Layers

Section Offset Elevation Labels	PTC_OFFSET OVER ELEV	Offset over Elevation	C-ROAD-SECT-TEXT
Section Grade Labels	PTC_GRADE	Grade	C-ROAD-SECT-TEXT
Section Projection Labels	PTC_PROJ DIM ABOVE	Projection with Dimension Shown Above	C-ROAD-SECT-TEXT
	PTC_PROJ DIM BELOW	Projection with Dimension Shown Below	C-ROAD-SECT-TEXT
Section Band Sets	PTC_MAJR STA OFFSET & ELEV	Major Station Offset and Elevations	NA
	PTC_NO BANDS	No Bands	NA
	PTC_OFFSETS ONLY	Offsets Only	NA
Band Data Section	PTC_EXST ELEV	Existing Elevation	C-ROAD-SECT Layers
	PTC_OFFSETS	Vertical Offsets	C-ROAD-SECT Layers
	PTC_OFFSETS HORZ	Horizontal Offsets	C-ROAD-SECT Layers
	PTC_PROP ELEV	Proposed Elevations	C-ROAD-SECT Layers
Band Segment Section	PTC_SEGM LNTH	Segment Length	C-ROAD-SECT Layers
Section Table Styles	PTC_VOL	Volume Table	C-ANNO-TABL/TEXT Layers
	PTC_MTRL	Material Table	C-ANNO-TABL/TEXT Layers
Superelevation View Styles	**Style Name**	**Description**	**Main Layer Control**
Superelevation View Styles	PTC_SUPER	Superelevation	C-ROAD-SECT (LAYERS)
Surface and Surface Label Styles	**Style Name**	**Description**	**Main Layer Control**
Surface Styles	PTC_BRDR ONLY	Border	C-TINN/TOPO Layers
	PTC_CONT & TRNG_PNTS	Contours, Triangles & Points	C-TINN/TOPO Layers
	PTC_CONT 1' & 5' EXST	Contours Intervals 1' and 5' Existing	C-TINN/TOPO Layers
	PTC_CONT 1' & 5' PROP	Contours Intervals 2' and 10' Existing	C-TINN/TOPO Layers
	PTC_CONT 2' & 10' EXST	Contours Intervals 1' and 5' Proposed	C-TINN/TOPO Layers
	PTC_CONT 2' & 10' PROP	Contours Intervals 2' and 10' Proposed	C-TINN/TOPO Layers
	PTC_ELEV BAND	Elevation Banding	C-TINN/TOPO Layers
	PTC_NO_DISPLAY	No Display	C-TINN/TOPO Layers
	PTC_SLOPE BAND	Slope Banding	C-TINN/TOPO Layers
Surface Contour Labels	PTC_EXST MAJR LABL	Existing Major Contour	C-TOPO-TEXT
	PTC_EXST MINR LABL	Existing Minor Contour	C-TOPO-TEXT
	PTC_PROP MAJR LABL	Proposed Major Contour	C-TOPO-TEXT
	PTC_PROP MINR LABL	Proposed Minor Contour	C-TOPO-TEXT
Surface Slope Labels	PTC_PERCENT	Slope Percent	C-TOPO-TEXT
	PTC_RISE OVER RUN	Rise over Run	C-TOPO-TEXT
	PTC_RUN OVER RISE	Run over Rise	C-TOPO-TEXT
Surface Spot Elevation Labels	PTC_EL:100.00	Spot Elevation. "EL:100" Formatting	C-TOPO-TEXT

	PTC_ELEV ONLY	Elevation Only	C-TOPO-TEXT
Surface Watershed Labels	PTC_NO DISPLAY	No Display	C-TOPO-WSHD-TEXT
	PTC_WTSD	Watershed	C-TOPO-WSHD-TEXT
Surface Table Styles	PTC_DIRECTION	Slope Direction	C-ANNO-TABL/TEXT Layers
	PTC_ELEV	Surface Elevation	C-ANNO-TABL/TEXT Layers
	PTC_SLOPE	Surface Slope	C-ANNO-TABL/TEXT Layers
	PTC_SLOPE ARROW	Surface Slope Arrow	C-ANNO-TABL/TEXT Layers
	PTC_CONT	Surface Contours	C-ANNO-TABL/TEXT Layers
	PTC_WTSD	Surface Watersheds	C-ANNO-TABL/TEXT Layers
	PTC DESCRIPTION ONLY	Point Description	V-PNT-LBLS
	PTC ELEVATION ONLY	Point Elevation	V-PNT-LBLS
Point Label Styles	PTC LAT & LONG	Latitude and Longitude	V-PNT-LBLS
	PTC NORTH EASTING	Northing and Easting	V-PNT-LBLS
	PTC POINT# Elevation-Raw Description	Point Number Elevation and Raw Description	V-PNT-LBLS
	PTC POINT# ONLY	Point Number	V-PNT-LBLS

15.10 OPENROADS DESIGNER ELEMENT TEMPLATES

15.10.1 FEATURE DEFINITION DGNLIB

Template Path	Template Name	Level
\Annotation\Sheets\Plan\	Bearing Label	C-ALGN-TEXT
\Annotation\Sheets\Plan\	Curve Data Label	C-ALGN-TEXT
\Annotation\Sheets\Plan\	Line Length Label	C-ALGN-TEXT
\Annotation\Sheets\Plan\	North Arrow	C-ANNO
\Annotation\Sheets\Plan\	PI Tangent Lines	C-ALGN-TEXT
\Annotation\Sheets\Plan\	Plan Grid Border	C-ANNO
\Annotation\Sheets\Plan\	Plan Grid Lines	C-ANNO
\Annotation\Sheets\Plan\	Plan Grid Text	C-ANNO
\Annotation\Sheets\Plan\	Spiral Data Label	C-ALGN-SYMB
\Annotation\Sheets\Plan\	Station Cardinal Lines	C-ALGN-TEXT
\Annotation\Sheets\Plan\	Station Cardinal Points	C-ALGN-TEXT
\Annotation\Sheets\Plan\	PTC_Station Labels Major	C-ALGN-TEXT
\Annotation\Sheets\Plan\	PTC_Station Ticks Major	C-ALGN-TEXT
\Annotation\Sheets\Plan\	PTC_Station Ticks Minor	C-ALGN-TEXT
\Annotation\Sheets\Profile\	Draft_Profile_Grid	C-PROF-GRID
\Annotation\Sheets\Profile\	Draft_Profile_LP_HP_Text	C-PROF-GRID
\Annotation\Sheets\Profile\	Draft_Profile_Sheet_Major_Grid	C-PROF-GRID-MAJR
\Annotation\Sheets\Profile\	Draft_Profile_Sheet_Minor_Grid	C-PROF-GRID-MINR
\Annotation\Sheets\Profile\	PTC_Profile_Text	C-ROAD-PROF-TEXT
\Annotation\Sheets\Profile\	PTC_Profile_Title	C-ROAD-PROF-TITL
\Annotation\Sheets\Profile\	PTC_Profile_Title-Axis	C-ROAD-PROF-TTLB
\Annotation\Sheets\Profile\	PTC_Profile_Grid-MAJR	C-ROAD-PROF-GRID-MAJR
\Annotation\Sheets\Profile\	PTC_Profile_Grid-MINR	C-ROAD-PROF-GRID-MINR
\Annotation\Sheets\Profile\	Draft_Profile_VPI_LT_Special Ditch	C-DTCH-TEXT
\Annotation\Sheets\Profile\	Draft_Profile_VPI_RT_Special Ditch	C-DTCH-TEXT

Template Path	Template Name	Level
\Annotation\Sheets\XS\	Draft_XS_E_ROW_Labels	C-PROP-LINE-TEXT
\Annotation\Sheets\XS\	Draft_XS_E_ROW_Lines	C-PROP-PARC-ROWL
\Annotation\Sheets\XS\	Draft_XS_Feature_Text	C-XSEC-TEXT
\Annotation\Sheets\XS\	Draft_XS_GoreLimits	C-XSEC
\Annotation\Sheets\XS\	Draft_XS_Grid	C-XSEC-GRID
\Annotation\Sheets\XS\	Draft_XS_P_ROW_Labels	C-PROP-LINE-TEXT
\Annotation\Sheets\XS\	Draft_XS_P_ROW_Lines	C-PROP-PARC-ROWL
\Annotation\Sheets\XS\	Draft_XS_Segment_Text	C-XSEC-TEXT
\Annotation\Sheets\XS\	Draft_XS_Sheet_Annotation	C-XSEC-TEXT
\Annotation\Sheets\XS\	Draft_XS_Sheet_Border	C-XSEC-GRID
\Annotation\Sheets\XS\	Draft_XS_Sheet_Major_Grid	C-XSEC-GRID-MAJR
\Annotation\Sheets\XS\	Draft_XS_Sheet_Minor_Grid	C-XSEC-GRID-MINR
\Annotation\Sheets\XS\	Draft_XS_Text	C-XSEC-TEXT
\Annotation\Sheets\XS\	Draft_XS_Volume	C-XSEC
\Annotation\Sheets\XS\	Draft_XS_Volume_Annotation	C-XSEC-TEXT
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Feature-Text	C-ROAD-SECT-LABL
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Grid-Tick	C-ROAD-SECT-TICK
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sheet Major Grid	C-ROAD-SECT-GRID-MAJR
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sheet Minor Grid	C-ROAD-SECT-GRID-MINR
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sect-Title	C-ROAD-SECT-TITL
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sect-Text	C-ROAD-SECT-TEXT
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sect-Title Border	C-ROAD-SECT-TTLB
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sect-Title Box	C-ROAD-SECT-TTLB
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Sect-Grid	C-XSEC-GRID
\Annotation\Sheets\XS\PTC XS\	PTC_XS-Vol-Text	C-XSEC-TEXT
\Annotation\	SU Annotation	C-ANNO
\Linear\Alignment\	PTC_BASC	C-ALGN
\Linear\Alignment\	PTC_EXST	C-ALGN

Template Path	Template Name	Level
\Linear\Alignment\	PTC_INTR	C-ALGN
\Linear\Alignment\	PTC_INTR BASC	C-ALGN
\Linear\Alignment\	PTC_LAYT-LINE	C-ALGN
\Linear\Alignment\	PTC_LAYT-CURV	C-ALGN
\Linear\Alignment\	PTC_LAYT-SPIR	C-ALGN
\Linear\Alignment\	PTC_OFFS	C-ALGN
\Linear\Alignment\	PTC_EXST	C-ALGN
\Linear\Alignment\	PTC_INTR	C-ALGN
\Linear\Alignment\	PTC_LAYT	C-ALGN
\Linear\Alignment\	PTC_PROP	C-ALGN
\Linear\Alignment\	PTC_RAMP-1	C-ALGN
\Linear\Alignment\	PTC_RAMP-2	C-ALGN
\Linear\Alignment\	PTC_RAMP-3	C-ALGN
\Linear\Bridge\	Bridge_Abutment	S-ABUT
\Linear\Bridge\	Bridge_Beam	S-BEAM
\Linear\Bridge\	Bridge_Bearing	S-BEAM-BEAR
\Linear\Bridge\	Bridge_Cap	S-BRDG
\Linear\Bridge\	Bridge_Column	S-BRDG
\Linear\Bridge\	Bridge_Concrete	S-BEAM-CONC
\Linear\Bridge\	Bridge_Deck	S-DECK
\Linear\Bridge\	Bridge_Pier	S-PIER
\Linear\Bridge\	Bridge_Railing	S-BRDG
\Linear\Curb\	Road_Curb_Back	C-CURB-BACK
\Linear\Curb\	Road_Curb_Edge	C-CURB
\Linear\Curb\	Road_Curb_Face	C-CURB
\Linear\Curb\	Road_Curb_Flowline	C-CURB
\Linear\Ditch\	Ditch_Bottom_Back	C-DTCH-BOTM
\Linear\Ditch\	Ditch_Bottom_Center	C-DTCH-CNTR

Template Path	Template Name	Level
\Linear\Ditch\	Ditch_Bottom_Front	C-DTCH-BOTM
\Linear\Ditch\	Ditch_Top_Back	C-DTCH-TOPD
\Linear\Ditch\	Ditch_Top_Front	C-DTCH-TOPD
\Linear\Existing\Bridge\	E_Bridge	E_Bridge
\Linear\Existing\Building\	E_Building	E_Building
\Linear\Existing\Building\	E_Building_Foundation	E_Building_Foundation
\Linear\Existing\Geometry\	E_Road_Centerline	E_Road_Centerline
\Linear\Existing\Rail\	E_Rail_Track	E_Rail_Track
\Linear\Existing\Roadway\	E_Road_Curb_Back	E_Road_Curb_Back
\Linear\Existing\Roadway\	E_Road_Curb_Edge	E_Road_Curb
\Linear\Existing\Roadway\	E_Road_Curb_Face	E_Road_Curb_Face
\Linear\Existing\Roadway\	E_Road_Curb_Flowline	E_Road_Curb_Flowline
\Linear\Existing\Roadway\	E_Road_EdgeOfPavement	E_Road_EdgeOfPavement
\Linear\Existing\Roadway\	E_Road_Lane	E_Road_LaneEdge
\Linear\Existing\Roadway\	E_Road_Sample_Point	
\Linear\Existing\Shoulder\	E_Road_Shoulder	E_Road_Shoulder
\Linear\Existing\Sidewalk\	E_Road_Sidewalk_Back	E_Road_Sidewalk_Back
\Linear\Existing\Sidewalk\	E_Road_Sidewalk	E_Road_Sidewalk
\Linear\Existing\Sidewalk\	E_Road_Sidewalk_Front	E_Road_Sidewalk_Front
\Linear\Existing\Survey\	Observations	E_Geom_Observations
\Linear\Existing\Survey\	Setups	E_Geom_SurveyControl
\Linear\Existing\Terrain\	E_Terrain_Bank	E_Terrain_Bank
\Linear\Existing\Terrain\	E_Terrain_DitchBottomBack	E_Terrain_DitchBottomBack
\Linear\Existing\Terrain\	E_Terrain_DitchBottomFront	E_Terrain_DitchBottomFront
\Linear\Existing\Terrain\	E_Terrain_DitchTop	E_Terrain_DitchTop
\Linear\Existing\Terrain\	E_Terrain_Fence	E_Terrain_Fence
\Linear\Existing\Terrain\	E_Terrain_Flowline	E_Terrain_Flowline
\Linear\Existing\Terrain\	E_Terrain_Pond	E_Terrain_Pond

Template Path	Template Name	Level
\Linear\Existing\Terrain\	E_Terrain_Ridgeline	E_Terrain_Ridgeline
\Linear\Existing\Terrain\	E_Terrain_Slope	E_Terrain_Slope
\Linear\Existing\Terrain\	E_Terrain_TreeLine	E_Terrain_TreeLine
\Linear\Existing\Traffic and Safety\	E_Road_Guardrail	E_Road_Guardrail
\Linear\Fence\	Fence_Wrought_Iron 4'	C-BARR-VBFN
\Linear\Fence\	Fence_Wrought_Iron 5'	C-BARR-VBFN
\Linear\Fence\	Fence_Wrought_Iron 6'	C-BARR-VBFN
\Linear\Fence\	Fence_Wrought_Iron - Profile	C-BARR-VBFN
\Linear\Guardrail and Barrier\	Barrier_Cable	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Cable - Profile	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Cable_V2_L	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Cable_V2_R	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Jersey	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Jersey - Profile	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Jersey w/ Screen	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Jersey w/ Screen - Profile	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Wall_TL - Profile	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Wall_TL3	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Wall_TL4	C-BARR
\Linear\Guardrail and Barrier\	Barrier_Wall_TL5	C-BARR
\Linear\Guardrail and Barrier\	Guardrail_Double_Sided v1	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Double_Sided v1 - Profile	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Double_Sided v2	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Double_Sided v2 - Profile	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Single_Sided_L	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Single_Sided_L - Profile	C-GRAL

Template Path	Template Name	Level
\Linear\Guardrail and Barrier\	Guardrail_Single_Sided_R	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_Single_Sided_R - Profile	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_V2_Single_Sided_L	C-GRAL
\Linear\Guardrail and Barrier\	Guardrail_V2_Single_Sided_R	C-GRAL
\Linear\Guardrail and Barrier\	Traffic_Rail_SSTR - Profile	C-BARR
\Linear\Guardrail and Barrier\	Traffic_Rail_SSTR_L	C-BARR
\Linear\Guardrail and Barrier\	Traffic_Rail_SSTR_R	C-BARR
\Linear\Miscellaneous\	Clipping_Shape	Clipping_Shape
\Linear\Miscellaneous\	Draft_DNC	z - Construction
\Linear\Miscellaneous\	Drain_Grade_Fixed_Tie	Drain_Grade_Fixed_Tie
\Linear\Miscellaneous\	Geom_Civil_Cell_Control	Geom_Civil_Cell_Control
\Linear\Miscellaneous\	Matchline	Matchline
\Linear\Miscellaneous\	Road_Driveway_Back	Road_Driveway
\Linear\Miscellaneous\	Sawcut_Line	Sawcut_Line
\Linear\Miscellaneous\	Util_Profile_Run	Util_Profile_Run
\Linear\Pavement\	Profile_EdgeOfPavement_L	C-ROAD-EDGE
\Linear\Pavement\	Profile_EdgeOfPavement_R	C-ROAD-EDGE
\Linear\Pavement\	Road_EdgeOfPavement	C-ROAD-EDGE
\Linear\Pavement\	Road_EdgeOfPavement_Inside	C-ROAD-EDGE
\Linear\Pavement\	Road_EdgeOfPavement_Outside	C-ROAD-EDGE
\Linear\Pavement\	Road_Lane	C-ROAD-LANE
\Linear\Pavement Marking\Double Skip Dash\	Pavt Marking 4" Yellow Skip Lt Solid Rt 10' - 30'	T-MPTX-PVMK
\Linear\Pavement Marking\Double Skip Dash\	Pavt Marking 4" Yellow Solid Lt Skip Rt 10' - 30'	T-MPTX-PVMK
\Linear\Pavement Marking\Double Solid\	Pavt Marking 4" Yellow Double Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Double Solid\	Pavt Marking 4" Yellow Double Solid w/Ref	T-MPTX-PVMK
\Linear\Pavement Marking\Double Solid\	Pavt Marking 4" White Double Solid w/Ref	T-MPTX-PVMK

Template Path	Template Name	Level
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 10' - 30'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 10' - 30' w/Ref	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 2' - 4'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 6' - 10'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 10' - 30'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 10' - 30' w/Ref	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 2' - 4'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 6' - 10'	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 12" White Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 24" White Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 4" White Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 4" Yellow Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 6" White Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 6" Yellow Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 8" White Solid	T-MPTX-PVMK
\Linear\Pavement Marking\Single Solid\	Pavt Marking 8" Yellow Solid	T-MPTX-PVMK
\Linear\Profiles\	Profile_Special_Ditch_L	C-DTCH
\Linear\Profiles\	Profile_Special_Ditch_R	C-DTCH
\Linear\Profiles\	PTC_EXST PROF GRND	C-ROAD-PROF
\Linear\Profiles\	PTC_PROP PROF	C-ROAD-PROF-PROP
\Linear\Profiles\	PTC_LEFT SAMP PROF	C-ROAD-PROF-LTOF
\Linear\Profiles\	PTC_RIGHT SAMP PROF	C-ROAD-PROF-RTOF
\Linear\Profiles\	PTC_LAYT-LINE	C-ROAD-PROF-LINE
\Linear\Profiles\	PTC_LAYT-CURVE	C-ROAD-PROF-CURV
\Linear\Rail\	Rail_3D	C-RAIL
\Linear\Rail\	Rail_Ballast	C-RAIL
\Linear\Rail\	Rail_Cant	C-RAIL

Template Path	Template Name	Level
\Linear\Rail\	Rail_Center	C-RAIL
\Linear\Rail\	Rail_Concrete	C-RAIL
\Linear\Rail\	Rail_Concrete_Sleeper	C-RAIL
\Linear\Rail\	Rail_HI-Rail-Access	C-RAIL
\Linear\Rail\	Rail_LT-Concrete_Sleeper	C-RAIL
\Linear\Rail\	Rail_LT-Wooden_Sleeper	C-RAIL
\Linear\Rail\	Rail_Platform	C-RAIL
\Linear\Rail\	Rail_RT-Concrete_Sleeper	C-RAIL
\Linear\Rail\	Rail_RT-Wooden_Sleeper	C-RAIL
\Linear\Rail\	Rail_Subballast	C-RAIL
\Linear\Rail\	Rail_Subballast_Berm	C-RAIL
\Linear\Rail\	Rail_Wooden_Sleeper	C-RAIL
\Linear\Right of Way\	E_ROW	C-PROP-PARC-ROWL
\Linear\Right of Way\	E_ROW_CA	C-PROP-PARC-ROWL
\Linear\Right of Way\	E_ROW_NA	C-PROP-PARC-ROWL
\Linear\Right of Way\	E_ROW_PL	C-PROP-PARC-ROWL
\Linear\Right of Way\	E_ROW_TA	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW_CA	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW_NA	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW_PE	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW_TA	C-PROP-PARC-ROWL
\Linear\Right of Way\	P_ROW_TE	C-PROP-PARC-ROWL
\Linear\Shoulder\	Road_Shoulder	C-SHDR
\Linear\Shoulder\	Road_Shoulder_Inside	C-SHDR
\Linear\Shoulder\	Road_Shoulder_Outside	C-SHDR
\Linear\Sidewalk\	Road_Sidewalk	C-SWLK
\Linear\Sidewalk\	Road_Sidewalk_Back	C-SWLK

Template Path	Template Name	Level
\Linear\Sidewalk\	Road_Sidewalk_Front	C-SWLK
\Linear\Site\	Site_Building	C-TOPO
\Linear\Site\	Site_Grading	C-TOPO-GRAD
\Linear\Site\	Site_Lawn	C-TOPO
\Linear\Site\	Site_Pad	C-TOPO
\Linear\Site\	Site_Parking	C-TOPO
\Linear\Site\	Site_Pond	C-TOPO
\Linear\Site\	Site_Pond_Berm	C-TOPO
\Linear\Site\	Site_Pond_Bottom	C-TOPO
\Linear\Site\	Site_Pond_Elevation	C-TOPO
\Linear\Site\	Site_Pond_Freeboard	C-TOPO
\Linear\Site\	Site_Pond_Top	C-TOPO
\Linear\Site\	Site_Temp_Grading	C-TOPO-GRAD
\Linear\Site\	Site_Yard	C-TOPO
\Linear\Superelevation\	Super_Section	C-ROAD-CORR
\Linear\Terrain Feature\	Terrain_Breakline	C-SURF-WORK
\Linear\Terrain Feature\	Terrain_Exterior	C-SURF-BNDY-EXTR
\Linear\Terrain Feature\	Terrain_Interior	C-SURF-BNDY-INTR
\Linear\Traffic Control\	Barrels_50' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Barrels_100' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Cone_Channelizer_10' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Channelizer_20' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Channelizer_30' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Channelizer_40' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Channelizer_50' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Channelizer_60' Spacing	T-MPTX-ATTN
\Linear\Traffic Control\	Cone_Traffic_10' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Cone_Traffic_20' Spacing	T-MPTX-EQPM

Template Path	Template Name	Level
\Linear\Traffic Control\	Cone_Traffic_30' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Cone_Traffic_40' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Cone_Traffic_50' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Cone_Traffic_60' Spacing	T-MPTX-EQPM
\Linear\Traffic Control\	Reflector Post Orange	T-MPTX-EQPM
\Linear\Traffic Control\	Reflector Post Red	T-MPTX-EQPM
\Linear\Traffic Control\	Reflector Post White	T-MPTX-EQPM
\Linear\Walls\	Wall	C-WALL
\Linear\Walls\	Wall_Bottom	C-WALL
\Linear\Walls\	Wall_Coping	C-WALL
\Linear\Walls\	Wall_Footing	C-WALL
\Linear\Walls\	Wall_Perch	C-WALL
\Linear\Walls\	Wall_Top	C-WALL
\Modeling\Aquaplaning\	Aquaplaning Thematic	Drain_Aquaplaning Surface
\Modeling\Aquaplaning\	Drain_Aquaplaning Acceptable Risk	Drain_Aquaplaning Acceptable Risk
\Modeling\Aquaplaning\	Drain_Aquaplaning Flowline	Drain_Aquaplaning Flowline
\Modeling\Aquaplaning\	Drain_Aquaplaning High Risk	Drain_Aquaplaning High Risk
\Modeling\Aquaplaning\	Drain_Aquaplaning Low Risk	Drain_Aquaplaning Low Risk
\Modeling\Aquaplaning\	Drain_Aquaplaning Unacceptable Risk	Drain_Aquaplaning Unacceptable Risk
\Modeling\Components\Aggregate\	TC_Aggregate Typ A	TC_Aggregate
\Modeling\Components\Aggregate\	TC_Aggregate Typ A Ext	TC_Aggregate
\Modeling\Components\Aggregate\	TC_Aggregate Typ B	TC_Aggregate
\Modeling\Components\Aggregate\	TC_Aggregate Typ C	TC_Aggregate
\Modeling\Components\Aggregate\	TC_Aggregate Typ D	TC_Aggregate
\Modeling\Components\Aggregate\	TC_Riprap	TC_Riprap
\Modeling\Components\Asphalt\	TC_Asph Cold Milling	TC_Asphalt
\Modeling\Components\Asphalt\	TC_Asph Conc Base Cse	TC_Asphalt

Template Path	Template Name	Level
\Modeling\Components\Asphalt\	TC_Asph Conc Intermediate Cse	TC_Asphalt
\Modeling\Components\Asphalt\	TC_Asph Conc Wearing Cse	TC_Asphalt
\Modeling\Components\Concrete\	TC_Channel Concrete	TC_Concrete Channel
\Modeling\Components\Concrete\	TC_Conc Misc	TC_Concrete Misc
\Modeling\Components\Concrete\	TC_Concrete Barrier	TC_Concrete Barrier
\Modeling\Components\Concrete\	TC_Concrete Pavt	TC_Concrete Pavement
\Modeling\Components\Concrete\	TC_Curb	TC_Curb
\Modeling\Components\Concrete\	TC_Gutter	TC_Gutter
\Modeling\Components\Concrete\	TC_Sidewalk	TC_Sidewalk
\Modeling\Components\DNC\	TC_Draft-DNC	TC_Draft-DNC
\Modeling\Components\Existing\	TC_Existing Pavt	TC_Existing Pavement
\Modeling\Components\Existing\	TC_Rock Surface	TC_Rock Surface
\Modeling\Components\Existing\	TC_Unsuitable Material	TC_Unsuitable Material
\Modeling\Components\Grading\	TC_Clearzone	TC_Grass
\Modeling\Components\Grading\	TC_Cutslope	TC_Grass
\Modeling\Components\Grading\	TC_Cutslope Berm	TC_Grass
\Modeling\Components\Grading\	TC_Dirt	TC_Dirt
\Modeling\Components\Grading\	TC_Ditch	TC_Grass
\Modeling\Components\Grading\	TC_Ditch Backslope	TC_Grass
\Modeling\Components\Grading\	TC_Ditch Bottom	TC_Grass
\Modeling\Components\Grading\	TC_Ditch Foreslope	TC_Grass
\Modeling\Components\Grading\	TC_Earth Shoulder	TC_Earth Shoulder
\Modeling\Components\Grading\	TC_Fillslope	TC_Grass
\Modeling\Components\Grading\	TC_Grass	TC_Grass
\Modeling\Components\Grading\	TC_Grass Berm	TC_Grass
\Modeling\Components\Grading\	TC_Grass Burnt	TC_Grass
\Modeling\Components\Grading\	TC_Tieslope	TC_Grass
\Modeling\Components\Grading\	TC_Topsoil	TC_Topsoil

Template Path	Template Name	Level
\Modeling\Components\Guardrail\	TC_Guardrail	TC_Guardrail
\Modeling\Components\Guardrail\	TC_Guardrail Bumper	TC_Guardrail Bumper
\Modeling\Components\Guardrail\	TC_Guardrail Post	TC_Guardrail Post
\Modeling\Components\Rail\	TC_Rail 3D	TC_Rail 3D
\Modeling\Components\Rail\	TC_Rail Ballast	TC_Rail Ballast
\Modeling\Components\Rail\	TC_Rail Clearance	TC_Rail Clearance
\Modeling\Components\Rail\	TC_Rail Concrete Sleeper	TC_Rail Conc Sleeper
\Modeling\Components\Rail\	TC_Rail Platform	TC_Rail Platform
\Modeling\Components\Rail\	TC_Rail Subballast	TC_Rail Subballast
\Modeling\Components\Rail\	TC_Rail Wooden Sleeper	TC_Rail Wood Sleeper
\Modeling\Components\Structural\	TC_Bridge	TC_Bridge
\Modeling\Components\Structural\	TC_Bridge Abutment	TC_Bridge Abutment
\Modeling\Components\Structural\	TC_Bridge Girder	TC_Bridge Girder
\Modeling\Components\Structural\	TC_Ret Wall-Cut	TC_Ret Wall-Cut
\Modeling\Components\Structural\	TC_Ret Wall-Fill	TC_Ret Wall-Fill
\Modeling\Components\Structural\	TC_Structural Fill	TC_Structural Fill
\Modeling\Components\Structural\	TC_Structural Concrete	TC_Structural Concrete
\Modeling\Components\Water\	TC_Water	TC_Water
\Modeling\Corridor Contours\	Major Contours	C-SURF-CONT-MAJR
\Modeling\Corridor Contours\	Minor Contours	C-SURF-CONT-MINR
\Modeling\Corridor Graphics\Controls\	End Condition Exception	Draft_Corr_End Cond Exception
\Modeling\Corridor Graphics\Controls\	Key Station	Draft_Corr_Key Station
\Modeling\Corridor Graphics\Controls\	Point Control	Draft_Corr_Point Control
\Modeling\Corridor Graphics\Controls\	Secondary Alignment	Draft_Corr_Secondary Alignment
\Modeling\Corridor Graphics\Design\	Corridor Graphics - Design	Draft_Corr_Design
\Modeling\Corridor Graphics\Design\	Template Range Graphics - Design	Draft_Corr_Range_Design
\Modeling\Corridor Graphics\Design\	Template Single Drop Graphics - Design	Draft_Corr_TemplateDrop_Design

Template Path	Template Name	Level
\Modeling\Corridor Graphics\Design\	Template Transition Graphics - Design	Draft_Corr_Transition_Design
\Modeling\Corridor Graphics\Final\	Corridor Graphics - Final	C-ROAD-CORR
\Modeling\Corridor Graphics\Final\	Template Range Graphics - Final	C-ROAD-CORR
\Modeling\Corridor Graphics\Final\	Template Single Drop Graphics - Final	Draft_Corr_TemplateDrop_Final
\Modeling\Corridor Graphics\Final\	Template Transition Graphics - Final	Draft_Corr_Transition_Final
\Modeling\Corridor Graphics\Superelevation\	Left Lane	Draft_Corr_Superelevation Left Lane
\Modeling\Corridor Graphics\Superelevation\	Right Lane	Draft_Corr_Superelevation Right Lane
\Modeling\Corridor Graphics\PTC\	PTC-Corr	C-ROAD-CORR
\Modeling\Corridor Meshes\	Bottom Mesh	C-ROAD-CORR
\Modeling\Corridor Meshes\	Top Mesh	C-ROAD-CORR
\Modeling\Points\	Intersecting Profile	Intersecting Profile
\Modeling\Points\	TL_XS Point Label Indicator	C-ROAD-SECT-LABL
\Modeling\Points\Barrier Wall\	Barrier Wall TL3	C-WALL-BARR
\Modeling\Points\Barrier Wall\	Barrier Wall TL4	C-WALL-BARR
\Modeling\Points\Barrier Wall\	Barrier Wall TL5	C-WALL-BARR
\Modeling\Points\Cable Barrier Dynamic XS Label\	Cable Barrier	C-BARR
\Modeling\Points\Fence_Wrought_Iron Dynamic XS Label\	Fence_Wrought_Iron 4ft	Fence_Wrought_Iron
\Modeling\Points\Fence_Wrought_Iron Dynamic XS Label\	Fence_Wrought_Iron 5ft	Fence_Wrought_Iron
\Modeling\Points\Fence_Wrought_Iron Dynamic XS Label\	Fence_Wrought_Iron 6ft	Fence_Wrought_Iron
\Modeling\Points\Guardrail Dynamic XS Label\	Guardrail_Double Sided	Road_Guardrail
\Modeling\Points\Guardrail Dynamic XS Label\	Guardrail_L	Road_Guardrail
\Modeling\Points\Guardrail Dynamic XS Label\	Guardrail_R	Road_Guardrail
\Modeling\Points\Jersey Barrier Dynamic XS Label\	Barrier	Road_Jersey Barrier

Template Path	Template Name	Level
\Modeling\Points\Jersey Barrier Dynamic XS Label\	Barrier with Screen	Road_Jersey Barrier
\Modeling\Points\ROW Dynamic XS Label\	E_ROW	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	E_ROW_CA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	E_ROW_NA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	E_ROW_TA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW_CA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW_NA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW_PE	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW_TA	Draft_XS_Dynamic_View_Labels
\Modeling\Points\ROW Dynamic XS Label\	P_ROW_TE	Draft_XS_Dynamic_View_Labels
\Modeling\Points\Traffic Rail Dynamic XS Label\	Traffic_Rail_SSTR_L	Road_Barrier
\Modeling\Points\Traffic Rail Dynamic XS Label\	Traffic_Rail_SSTR_R	Road_Barrier
\Modeling\Sheets\	Named Boundary	Draft_Named_Boundary
\Modeling\Sight Visibility\	Sight_Achieved	Draft_Sight_Achieved
\Modeling\Sight Visibility\	Sight_Relaxed	Draft_Sight_Relaxed
\Modeling\Sight Visibility\	Sight_Not Achieved	Draft_Sight_Not Achieved
\Modeling\Template Points\Barrier\	TL_Barrier	C-BARR
\Modeling\Template Points\Barrier\	TL_Barrier Sub	C-BARR
\Modeling\Template Points\Barrier\	TL_Median Barrier	C-BARR
\Modeling\Template Points\Barrier\	TL_Median Barrier Sub	C-BARR
\Modeling\Template Points\Channel\	TL_Channel	C-CHAN
\Modeling\Template Points\Channel\	TL_Channel Sub	C-CHAN
\Modeling\Template Points\Corridor Meshes\	Bottom Mesh	Subgrade
\Modeling\Template Points\Corridor Meshes\	Top Mesh	Grade_Finished
\Modeling\Template Points\Curb\	TL_Curb	C-CURB
\Modeling\Template Points\Curb\	TL_Curb Flowline	C-CURB
\Modeling\Template Points\Curb\	TL_Curb Sub	C-CURB

Template Path	Template Name	Level
\Modeling\Template Points\DNC\	TL_Draft-DNC	TL_Draft-DNC
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 4'	C-BARR-VBFN
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 4' - Profile	C-BARR-VBFN
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 5'	C-BARR-VBFN
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 5' - Profile	C-BARR-VBFN
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 6'	C-BARR-VBFN
\Modeling\Template Points\Fence\	Fence_Wrought_Iron 6' - Profile	C-BARR-VBFN
\Modeling\Template Points\Grading\	TL_Ditch_Ctr	C-DTCH
\Modeling\Template Points\Grading\	TL_Ditch_FL	C-DTCH
\Modeling\Template Points\Grading\	TL_End Cond Berm In	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Berm Out	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Clearzone	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Cut Tie	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Dit In	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Dit Out	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Fill Tie	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_End Cond Hinge	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_Grade Greenspace In	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_Grade Greenspace Out	C-TOPO-GRAD
\Modeling\Template Points\Grading\	TL_Median FL Center	C-ROAD-MEDN
\Modeling\Template Points\Grading\	TL_Median FL Left	C-ROAD-MEDN
\Modeling\Template Points\Grading\	TL_Median FL Right	C-ROAD-MEDN
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Cable	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Cable - Profile	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Cable_V2_L	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Cable_V2_R	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Jersey	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Jersey - Profile	C-BARR

Template Path	Template Name	Level
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Jersey w/ Screen	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Jersey w/ Screen - Profile	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Wall_TL - Profile	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Wall_TL3	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Wall_TL4	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Barrier_Wall_TL5	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Double_Sided v1	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Double_Sided v1 - Profile	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Double_Sided v2	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Double_Sided v2 - Profile	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Single_Sided_L	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Single_Sided_L - Profile	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Single_Sided_R	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_Single_Sided_R - Profile	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_V2_Single_Sided_L	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Guardrail_V2_Single_Sided_R	C-GRAL
\Modeling\Template Points\Guardrail and Barrier\	Traffic_Rail_SSTR - Profile	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Traffic_Rail_SSTR_L	C-BARR
\Modeling\Template Points\Guardrail and Barrier\	Traffic_Rail_SSTR_R	C-BARR
\Modeling\Template Points\Median\	TL_Raised Median	C-ROAD-MEDN
\Modeling\Template Points\Paved Ditch\	TL_Paved Ditch	C-DTCH-PAVE
\Modeling\Template Points\Paved Ditch\	TL_Paved Ditch Sub	C-DTCH-BOTM
\Modeling\Template Points\Pavement\	TL_Base Ext Sub	TL_Base Extension Sub
\Modeling\Template Points\Pavement\	TL_Centerline	C-ROAD-CORR
\Modeling\Template Points\Pavement\	TL_Centerline Exist	C-ROAD-CORR
\Modeling\Template Points\Pavement\	TL_Centerline Sub	C-ROAD-CORR

Template Path	Template Name	Level
\Modeling\Template Points\Pavement\	TL_Edge of Milling	TL_Milling Edge
\Modeling\Template Points\Pavement\	TL_Edge of Pavt	C-ROAD-EDGE
\Modeling\Template Points\Pavement\	TL_Edge of Pavt Exist	C-ROAD-EDGE
\Modeling\Template Points\Pavement\	TL_Edge of Pavt Sub	C-ROAD-EDGE
\Modeling\Template Points\Pavement\	TL_Edge of Widen	C-ROAD-EDGE
\Modeling\Template Points\Pavement\	TL_Edge of Widen Sub	C-ROAD-EDGE
\Modeling\Template Points\Pavement\	TL_Lane Line	C-ROAD-LANE
\Modeling\Template Points\Pavement\	TL_Lane Line Sub	C-ROAD-LANE
\Modeling\Template Points\Pavement Marking\Double Skip Dash\	Pavt Marking 4" Yellow Skip Lt Solid Rt 10' - 30'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Double Skip Dash\	Pavt Marking 4" Yellow Solid Lt Skip Rt 10' - 30'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Double Solid\	Pavt Marking 4" Yellow Double Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Double Solid\	Pavt Marking 4" Yellow Double Solid w/Ref	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Double Solid\	Pavt Marking 4" White Double Solid w/Ref	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 10' - 30'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 10' - 30' w/Ref	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 2' - 4'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" White 6' - 10'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 10' - 30'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 10' - 30' w/Ref	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 2' - 4'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Skip Dash\	Pavt Marking 4" Yellow 6' - 10'	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 12" White Solid	T-MPTX-PVMK

Template Path	Template Name	Level
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 24" White Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 4" White Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 4" Yellow Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 6" White Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 6" Yellow Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 8" White Solid	T-MPTX-PVMK
\Modeling\Template Points\Pavement Marking\Single Solid\	Pavt Marking 8" Yellow Solid	T-MPTX-PVMK
\Modeling\Template Points\Pond\	TL_Pond_Berm_In	C-CREK
\Modeling\Template Points\Pond\	TL_Pond_Berm_Out	C-CREK
\Modeling\Template Points\Pond\	TL_Pond_Bottom	C-CREK
\Modeling\Template Points\Pond\	TL_Pond_Elevation	C-CREK
\Modeling\Template Points\Pond\	TL_Pond_Freeboard	C-CREK
\Modeling\Template Points\Pond\	TL_Pond_Top	C-CREK
\Modeling\Template Points\Rail\	TL_Rail	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Ballast	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Ballast Sub	C-ROAD-CORR
\Modeling\Template Points\Rail\	TL_Rail Cant	C-RAIL-CANT-VIEW-CNTR
\Modeling\Template Points\Rail\	TL_Rail Center	C-RAIL-CANT-VIEW-CNTR
\Modeling\Template Points\Rail\	TL_Rail Clearance	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Concrete	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Concrete Sleeper	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Concrete Sleeper Sub	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Subballast	C-ROAD-CORR
\Modeling\Template Points\Rail\	TL_Rail Subballast Berm	C-ROAD-CORR
\Modeling\Template Points\Rail\	TL_Rail Subballast Sub	C-ROAD-CORR

Template Path	Template Name	Level
\Modeling\Template Points\Rail\	TL_Rail Wooden Sleeper	C-RAIL
\Modeling\Template Points\Rail\	TL_Rail Wooden Sleeper Sub	C-RAIL
\Modeling\Template Points\Rail\	TL_Clearance	
\Modeling\Template Points\Shoulder\	TL_Earth Shoulder	C-SHDR
\Modeling\Template Points\Shoulder\	TL_Earth Shoulder Sub	C-SHDR
\Modeling\Template Points\Shoulder\	TL_Edge of Shld	C-SHDR-EDGE
\Modeling\Template Points\Shoulder\	TL_Edge of Shld Exist	C-SHDR-EDGE
\Modeling\Template Points\Shoulder\	TL_Edge of Shld Sub	C-SHDR-BOTM
\Modeling\Template Points\Sidewalk\	TL_Sidewalk	C-SWLK
\Modeling\Template Points\Sidewalk\	TL_Sidewalk Sub	C-SWLK
\Modeling\Template Points\Structural\	TL_Bridge	S-BRDG
\Modeling\Template Points\Structural\	TL_Bridge Sub	S-BRDG
\Modeling\Template Points\Structural\	TL_Girder	C-ROAD-CORR
\Modeling\Template Points\Structural\	TL_Ret Wall	C-WALL-RTWL
\Modeling\Template Points\Structural\	TL_Ret Wall Sub	C-WALL-RTWL
\Modeling\Template Points\Structural\	TL_Retaining Wall	
\Modeling\Template Points\Structural\	TL_Retaining Wall Sub	
\Modeling\Template Points\Traffic Control\	Barrels_50' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Barrels_100' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_10' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_20' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_30' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_40' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_50' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Channelizer_60' Spacing	T-MPTX-ATTN
\Modeling\Template Points\Traffic Control\	Cone_Traffic_10' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Cone_Traffic_20' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Cone_Traffic_30' Spacing	T-MPTX-EQPM

Template Path	Template Name	Level
\Modeling\Template Points\Traffic Control\	Cone_Traffic_40' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Cone_Traffic_50' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Cone_Traffic_60' Spacing	T-MPTX-EQPM
\Modeling\Template Points\Traffic Control\	Reflector Post Orange	T-MPTX
\Modeling\Template Points\Traffic Control\	Reflector Post Red	T-MPTX
\Modeling\Template Points\Traffic Control\	Reflector Post White	T-MPTX
\Modeling\Template Points\Trench\	TL_Trench Aggregate	TL_Trench Aggregate
\Modeling\Template Points\Trench\	TL_Trench Base	TL_Trench Base
\Modeling\Template Points\Trench\	TL_Trench Invert	TL_Trench Invert
\Modeling\Template Points\Trench\	TL_Trench Origin	TL_Trench Origin
\Modeling\Template Points\Trench\	TL_Trench Pipe	TL_Trench Pipe
\Modeling\Template Points\Trench\	TL_Trench Soffit	TL_Trench Soffit
\Modeling\Template Points\Water\	TL_Water	C-WATR
\Modeling\Trace Slope\	Low Point	C-CREK-SYMB
\Modeling\Trace Slope\	Pond	C-CREK
\Modeling\Trace Slope\	Trace	C-CREK-LINE
\Points\Existing\Right of Way\	E_Existing_RW	C-PROP-PARC-ROWL
\Points\Existing\Right of Way\	E_Geom_PropertyCorner	C-ROAD-LINE
\Points\Existing\Right of Way\	E_ROW_Pin	C-PROP-PARC-ROWL
\Points\Existing\Right of Way\	E_ROW_PropertyCorner	C-PROP-PARC-ROWL
\Points\Existing\Roadway\	E_Road_Sample_Point	C-ROAD-MARK
\Points\Existing\Structural\	E_Struc_Post	S-STKE
\Points\Existing\Terrain\	E_Terrain_SpotElevation	V-TOPO-SPOT
\Points\Existing\Terrain\	E_Terrain_Tree	V-SITE-VEGE
\Points\Existing\Terrain\	E_Terrain_BoreHole	V-TOPO-BORE
\Points\Existing\Terrain\	E_Terrain_Random	V-TOPO-SPOT
\Points\Existing\Traffic and Safety\	E_Traffic_Sign	T-SIGN
\Points\Existing\Traffic and Safety\	E_Traffic_Signal	T-SGNL

Template Path	Template Name	Level
\Points\Existing\Traffic and Safety\	E_Traffic_LightPole	T-LITE-POLE
\Points\Existing\Utilities\	E_Inlet	V-STRM
\Points\Existing\Utilities\	E_Util_Pole	V-SITE-UTIL
\Points\Guardrail and Barrier\Cable Barrier\	3D Cable Bar LT Lead End	C-BARR
\Points\Guardrail and Barrier\Cable Barrier\	3D Cable Bar LT Trail End	C-BARR
\Points\Guardrail and Barrier\Cable Barrier\	3D Cable Bar RT Lead End	C-BARR
\Points\Guardrail and Barrier\Cable Barrier\	3D Cable Bar RT Trail End	C-BARR
\Points\Guardrail and Barrier\Guardrail TL2\	3D TL2 GR LT Lead End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL2\	3D TL2 GR LT Trail End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL2\	3D TL2 GR RT Lead End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL2\	3D TL2 GR RT Trail End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL3\	3D TL3 GR LT Lead End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL3\	3D TL3 GR LT Trail End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL3\	3D TL3 GR RT Lead End	C-GRAL
\Points\Guardrail and Barrier\Guardrail TL3\	3D TL3 GR RT Trail End	C-GRAL
\Points\Right of Way\	Geom_PropertyCorner	C-PROP-PARC-ROWL
\Points\Right of Way\	Geom_Proposed_RW	C-PROP-PARC-ROWL
\Points\Signage\	Stop Sign	T-SIGN
\Terrain\	PTC_ELEV BAND	C-SURF
\Terrain\	PTC_SLOPE BAND	C-SURF
\Terrain\	PTC_CONT 1' & 5' PROP	C-SURF
\Terrain\	PTC_CONT 2' & 10' PROP	C-SURF
\Terrain\	PTC_CONT 5' & 25' PROP	C-SURF
\Terrain\	PTC_CONT 1' & 5' EXST	C-SURF
\Terrain\	PTC_CONT 2' & 10' EXST	C-SURF
\Terrain\	PTC_CONT 5' & 25' EXST	C-SURF
\Terrain\	PTC_CONT & TRNG	C-SURF
\Terrain\	PTC_BRDR ONLY	C-SURF

Template Path	Template Name	Level
\Volumes\	Volumes_Cut	C-TOPO-CUTT
\Volumes\	Volumes_Fill	C-TOPO-FILL
\Volumes\	Volumes_Unsuitable_Remove Only	Volumes_Unsuitable_Remove Only
\Volumes\	Volumes_Unsuitable_Remove Replace	Volumes_Unsuitable_Remove Replace
\Survey\Annotation\	Survey Topo Label	V-TOPO-SPOT

15.10.2 DRAINAGE AND UTILITY DGNLIB

Template Path	*Template Name*	*Level*
\Annotation\	PTC_SU Annotation	C-ANNO-TEXT
\Annotation\Sheets\Profile\	PTC_Profile_Title-Axis	C-ROAD-PROF-TTLB
\Annotation\Sheets\Profile\	PTC_Profile_Grid-MAJR	C-ROAD-PROF-GRID-MAJR
\Annotation\Sheets\Profile\	PTC_Profile_Grid-MINR	C-ROAD-PROF-GRID-MINR
\Annotation\Sheets\Profile\	PTC_Profile_Title	C-ROAD-PROF-TITL
\Annotation\Sheets\Profile\	PTC_Profile_Text	C-ROAD-PROF-TEXT
\Catchments\3D\	Commercial	C-STRM-AREA
\Catchments\3D\	Grass	C-STRM-AREA
\Catchments\3D\	Pavement	C-STRM-AREA
\Catchments\3D\	Pond	C-STRM-AREA
\Catchments\3D\	Residential Heavy	C-STRM-AREA
\Catchments\3D\	Residential Light	C-STRM-AREA
\Catchments\3D\	Wooded	C-STRM-AREA
\Catchments\Plan\	Commercial	C-STRM-AREA
\Catchments\Plan\	Grass	C-STRM-AREA
\Catchments\Plan\	Pavement	C-STRM-AREA
\Catchments\Plan\	Pond	C-STRM-AREA
\Catchments\Plan\	Residential Heavy	C-STRM-AREA

Template Path	*Template Name*	*Level*
\Catchments\Plan\	Residential Light	C-STRM-AREA
\Catchments\Plan\	Wooded	C-STRM-AREA
\Cell Construction\	Alignment Line	z - Construction
\Cell Construction\	Alignment Point	z - Construction
\Cell Construction\	Connection Region	z - Construction
\Cell Construction\	Node Elev Point	z - Construction
\Cell Construction\	Node Location Point	z - Construction
\Communications\Conduits\Profile\	Comm Line	C-TELP-LINE
\Communications\Conduits\3D\	Comm Line	C-TELP-LINE
\Communications\Conduits\Plan\	Comm Line	C-TELP-LINE
\Communications\Nodes\Profile\	Comm Node	C-TELP
\Communications\Nodes\Plan\	Comm Sensor	C-TELP
\Communications\Nodes\Plan\	Comm Connection Region	C-TELP
\Communications\Nodes\3D Top\	Comm Sensor	C-TELP
\Communications\Nodes\3D Bottom\	Comm Sensor	C-TELP
\Conflicts\Nodes\3D Top\	Borehole	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Top\	Conflict - Confirmed	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	Borehole	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	Conflict - Confirmed	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	Conflict - Field Check Needed	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	Conflict - Potential	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	New Conflict	C-UTIL-CONFLICT
\Conflicts\Nodes\Plan\	Resolved Conflict	C-UTIL-CONFLICT
\Conflicts\Nodes\Profile\	Conflict - Potential	C-UTIL-CONFLICT
\Conflicts\Nodes\Profile\	Conflict - Confirmed	C-UTIL-CONFLICT
\Conflicts\Nodes\Profile\	Conflict - Field Check Needed	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Bottom\	Borehole	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Bottom\	Conflict - Confirmed	C-UTIL-CONFLICT

Template Path	*Template Name*	*Level*
\Conflicts\Nodes\3D Bottom\	Conflict - Field Check Needed	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Bottom\	Conflict - Potential	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Bottom\	New Conflict	C-UTIL-CONFLICT
\Conflicts\Nodes\3D Bottom\	Resolved Conflict	C-UTIL-CONFLICT
\Cross Point Features\	Cross Section Point	C-UTIL
\Cross Point Features\	Intersecting Profile	C-UTIL
\Electrical\Nodes\3D Bottom\	Elec Meter	C-POWR-METR
\Electrical\Nodes\3D Bottom\	Elec Service Pole	C-POWR-POLE
\Electrical\Nodes\3D Bottom\	Elec Transformer	C-POWR-XFMR
\Electrical\Nodes\3D Bottom\	Utility Pole	C-POWR-POLE
\Electrical\Nodes\3D Bottom\	Light Standard Foundation	C-POWR
\Electrical\Nodes\3D Bottom\	Light Standard High Mast Foundation	C-POWR
\Electrical\Nodes\3D Bottom\	Light Control Center Foundation	C-POWR
\Electrical\Nodes\3D Top\	Elec Meter	C-POWR-METR
\Electrical\Nodes\3D Top\	Elec Service Pole	C-POWR-POLE
\Electrical\Nodes\3D Top\	Elec Transformer	C-POWR-XFMR
\Electrical\Nodes\3D Top\	Utility Pole	C-POWR-POLE
\Electrical\Nodes\3D Top\	Light Standard Single	C-POWR
\Electrical\Nodes\3D Top\	Light Standard Twin	C-POWR
\Electrical\Nodes\3D Top\	Light Standard Control Center	C-POWR
\Electrical\Nodes\3D Top\	Light Standard High Mast	C-POWR
\Electrical\Nodes\Plan\	Elec Meter	C-POWR-METR
\Electrical\Nodes\Plan\	Elec Service Pole	C-POWR-POLE
\Electrical\Nodes\Plan\	Elec Transformer	C-POWR-XFMR
\Electrical\Nodes\Plan\	Utility Pole	C-POWR-POLE
\Electrical\Nodes\Plan\	Elec Connection Region	C-POWR
\Electrical\Nodes\Plan\	Light Standard Single	C-POWR
\Electrical\Nodes\Plan\	Light Standard Twin	C-POWR

Template Path	*Template Name*	*Level*
\Electrical\Nodes\Plan\	Light Standard Control Center	C-POWR
\Electrical\Nodes\Plan\	Light Standard High Mast	C-POWR
\Electrical\Nodes\Profile\	Elec Node	C-POWR
\Electrical\Conduits\3D\	Elec Line	C-POWR-COND
\Electrical\Conduits\Profile\	Elec Line	C-POWR-COND
\Electrical\Conduits\Plan\	Elec Line	C-POWR-COND
\Gas\Conduits\Profile\	Gas Line	C-NGAS-LINE
\Gas\Conduits\3D\	Gas Line	C-NGAS-LINE
\Gas\Conduits\3D\	Gas Line (Steel)	C-NGAS-LINE
\Gas\Conduits\Plan\	Gas Line	C-NGAS-LINE
\Gas\Nodes\Profile\	Gas Node	C-NGAS-PROF
\Gas\Nodes\3D Top\	Gas Meter	C-NGAS-METR
\Gas\Nodes\3D Top\	Gas Valve	C-NGAS
\Gas\Nodes\3D Bottom\	Gas Meter	C-NGAS-METR
\Gas\Nodes\3D Bottom\	Gas Valve	C-NGAS
\Gas\Nodes\Plan\	Gas Meter	C-NGAS-METR
\Gas\Nodes\Plan\	Gas Valve	C-NGAS
\Gas\Nodes\Plan\	Gas Connection Region	C-NGAS
\Modeling\Points\	Intersecting Profile	Intersecting Profile
\Storm Water\Conduits\Pipes\3D\	Storm Water (Concrete)	C-STRM-CULV
\Storm Water\Conduits\Pipes\3D\	Storm Water (HDPE)	C-STRM-CULV
\Storm Water\Conduits\Pipes\3D\	Storm Water (Metal)	C-STRM-CULV
\Storm Water\Conduits\Pipes\3D\	Storm Water (PVC)	C-STRM-CULV
\Storm Water\Conduits\Pipes\Plan\	Storm Water	C-STRM-CULV
\Storm Water\Conduits\Pipes\Profile\	Storm Water	C-STRM-CULV
\Storm Water\Conduits\Channels\3D\	Concrete Channel	C-STRM-CHUT-PAVE
\Storm Water\Conduits\Channels\3D\	Grass Channel	C-STRM-CHUT
\Storm Water\Conduits\Channels\Plan\	Channel	C-STRM-CHUT

Template Path	*Template Name*	*Level*
\Storm Water\Conduits\Channels\Profile\	Storm Water	C-STRM-CHUT
\Storm Water\Conduits\Gutters\	Gutters	C-STRM-PIPE
\Storm Water\Conduits\Gutters\	Gutters (3D)	C-STRM-PIPE
\Storm Water\Conduits\Gutters\	Spread Width polygon	C-STRM-AREA
\Storm Water\Nodes\Manholes\3D Bottom\	Leaching Basin (4 ft)	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (42")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (48")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (54")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (60")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (66")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (72")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Tee (All)	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Type 1 (48")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Type 1 (54")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Type 1 (60")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Type 1 (66")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Manhole Type 1 (72")	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Bottom\	Spring Box	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Top\	Manhole B (Cone)	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Top\	Manhole B (Flat)	C-STRM-MHOL
\Storm Water\Nodes\Manholes\3D Top\	Manhole B (Large)	C-STRM-MHOL
\Storm Water\Nodes\Manholes\Plan\	Manhole B	C-STRM-MHOL
\Storm Water\Nodes\Manholes\Plan\	Spring Box	C-STRM-MHOL
\Storm Water\Nodes\Manholes\Plan\	Manhole Connection Region	C-STRM-MHOL
\Storm Water\Nodes\Manholes\Profile\	Profile	C-STRM-MHOL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\3D\	End Section, Conc. (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\3D\	End Section, Conc. (4:1) (24" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\3D\	End Section, Conc. (4:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\3D\	End Section, Conc. (4:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\Plan\	End Section, Conc. (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\Plan\	End Section, Conc. (4:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\Plan\	End Section, Conc. (4:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\4:1\Plan\	End Section, Conc. (4:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\6:1\3D\	End Section, Conc. (6:1) (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Concrete)\6:1\Plan\	End Section, Conc. (6:1) (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\3D\	End Section, Steel (4:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (30" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\End Section (Steel)\4:1\Plan\	End Section, Steel (4:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (21" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (27" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (66" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (72" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (78" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\3D\	FES, Conc. (84" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (21" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (24" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (27" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (66" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (72" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (78" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Concrete)\Plan\	FES, Conc. (84" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (21" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (66" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (72" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (78" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\3D\	FES, Steel (84" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (15" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (21" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (66" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (72" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (78" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\FES (Steel)\Plan\	FES, Steel (84" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Headwall, Outlet (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\3D\	Generic Endwall	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (15" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Headwall, Outlet (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Outlet\Plan\	Generic Endwall	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\3D\	Headwall, Straight (12" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\Straight\3D\	Headwall, Straight (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\3D\	Headwall, Straight (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\3D\	Headwall, Straight (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\3D\	Headwall, Straight (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\Plan\	Headwall, Straight (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\Plan\	Headwall, Straight (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\Plan\	Headwall, Straight (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\Plan\	Headwall, Straight (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\Straight\Plan\	Headwall, Straight (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\3D\	Endwall, EW11 (3:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (30" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\3:1\Plan\	Endwall, EW11 (3:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\3D\	Endwall, EW11 (4:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (36" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\4:1\Plan\	Endwall, EW11 (4:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (42" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\3D\	Endwall, EW11 (6:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (12" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (18" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (24" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (30" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (36" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (42" Dia)	C-STRM-HDWL

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (48" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (54" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\U-shaped w/ Grate\6:1\Plan\	Endwall, EW11 (6:1) (60" Dia)	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\	Headwall Connection Region	C-STRM-HDWL
\Storm Water\Nodes\Headwalls\	Profile	C-STRM-HDWL
\Storm Water\Nodes\Inlets\3D Bottom\	Circular Chamber (4' Dia)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Bottom\	Circular Chamber (5' Dia)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Bottom\	Rectangular Chamber (5'x4')	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Bottom\	Rectangular Chamber (94x44)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Flush Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Flush Grate (Large Chamber)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Flush Grate (Cone Reducer)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Raised Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Raised Grate (Cone Reducer)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet (Domed Grate)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Domed Grate (Cone Reducer)	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Generic Combo	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Generic Curb Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Generic Curb Opening	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Generic Ditch	C-STRM-INLT
\Storm Water\Nodes\Inlets\3D Top\	Inlet Combo (Circular Chamber)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Combo (Circular Chamber)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Combo 2W x 3L -Curved Vane	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Flush Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Raised Grate (Cone Reducer)	C-STRM-INLT

Template Path	*Template Name*	*Level*
\Storm Water\Nodes\Inlets\Plan\	Inlet Domed Grate (Cone Reducer)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Generic Combo	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Generic Curb Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Generic Curb Opening	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Generic Ditch	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Connection Region	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet (Domed Grate)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Flush Grate (Cone Reducer)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Raised Grate	C-STRM-INLT
\Storm Water\Nodes\Inlets\Plan\	Inlet Flush Grate (Large Chamber)	C-STRM-INLT
\Storm Water\Nodes\Inlets\Profile\	Inlet	C-STRM-INLT
\Storm Water\Nodes\Cross Sections\Plan\	Cross Section	C-STRM-STRC
\Storm Water\Nodes\Cross Sections\Plan\	Cross Section - Location Point	C-STRM-STRC
\Storm Water\Nodes\Cross Sections\3D\	Cross section	C-STRM-STRC
\Storm Water\Nodes\Cross Sections\3D\	Cross section - Location Point	C-STRM-STRC
\Storm Water\Nodes\Transitions\Plan\	Transition	C-STRM-STRC
\Storm Water\Nodes\Transitions\3D\	Transition	C-STRM-STRC
\Waste Water\Conduits\3D\	Waste Water (Concrete)	C-SSWR-PIPE
\Waste Water\Conduits\3D\	Waste Water (PVC)	C-SSWR-PIPE
\Waste Water\Conduits\Plan\	Waste Water	C-SSWR-PIPE
\Waste Water\Conduits\Profile\	Waste Water	C-SSWR-PIPE
\Waste Water\Nodes\3D Bottom\	Sanitary Cleanout	C-SSWR
\Waste Water\Nodes\3D Bottom\	Sanitary Manhole	C-SSWR-MHOL
\Waste Water\Nodes\3D Top\	Sanitary Cleanout	C-SSWR
\Waste Water\Nodes\3D Top\	Sanitary Manhole, Cone	C-SSWR-MHOL
\Waste Water\Nodes\3D Top\	Sanitary Manhole, Flat	C-SSWR-MHOL
\Waste Water\Nodes\Plan\	Sanitary Cleanout	C-SSWR
\Waste Water\Nodes\Plan\	Sanitary Manhole	C-SSWR-MHOL

Template Path	*Template Name*	*Level*
\Waste Water\Nodes\Plan\	Sanitary Connection Region	C-SSWR
\Waste Water\Nodes\Profile\	Waste Water	C-SSWR
\Water Distribution\Nodes\3D Top\	Fire Hydrant (Simple)	C-WATR-HYDR
\Water Distribution\Nodes\3D Top\	Fire Hydrant (Standard)	C-WATR-JBOX
\Water Distribution\Nodes\3D Top\	Water Meter (6")	C-WATR-METR
\Water Distribution\Nodes\3D Top\	Water Valve	C-WATR
\Water Distribution\Nodes\3D Bottom\	Fire Hydrant (Simple)	C-WATR-HYDR
\Water Distribution\Nodes\3D Bottom\	Fire Hydrant (Standard)	C-WATR-HYDR
\Water Distribution\Nodes\3D Bottom\	Water Meter (6")	C-WATR-METR
\Water Distribution\Nodes\3D Bottom\	Water Valve	C-WATR
\Water Distribution\Nodes\Plan\	Fire Hydrant	C-WATR-HYDR
\Water Distribution\Nodes\Plan\	Water Meter (6")	C-WATR-METR
\Water Distribution\Nodes\Plan\	Water Valve	C-WATR
\Water Distribution\Nodes\Plan\	Water Connection Region	C-WATR
\Water Distribution\Nodes\Profile\	Water	C-WATR
\Water Distribution\Conduits\3D\	Water Line (Ductile)	C-WATR-PIPE
\Water Distribution\Conduits\3D\	Water Line (HDPE)	C-WATR-PIPE
\Water Distribution\Conduits\3D\	Water Line (PVC)	C-WATR-PIPE
\Water Distribution\Conduits\Plan\	Water Line	C-WATR-PIPE
\Water Distribution\Conduits\Profile\	Water	C-WATR-PIPE
\LIDs\Plan\	Grass	C-VEGE
\LIDs\Plan\	Pavement	V-SITE-MISC
\LIDs\3D\	Grass	C-VEGE
\LIDs\3D\	Pavement	V-SITE-MISC

15.10.3 SURVEY DGNLIB

Template Path	Template Name	Level
\Survey\Annotation\	Survey Field Code	V-NODE-TEXT
\Survey\Annotation\	Survey Flow Arrow	V-NODE-TEXT
\Survey\Annotation\	Survey Point Description	V-NODE-TEXT
\Survey\Annotation\	Survey Point Elevation	V-NODE-TEXT
\Survey\Annotation\	Survey Point Name	V-NODE-TEXT
\Survey\Annotation\	Survey Topo Label	V-NODE-TEXT
\Survey\Element Symbology\	Control Points	Survey_Control Points
\Survey\Element Symbology\	Observations	Survey_Observations
\Survey\Element Symbology\	Setups	Survey_Setups
\Survey\Element Symbology\	Traverse	Survey_Traverse
\Survey\Linear\Control\	E_Surv_Baseline	V-SURV-LINE
\Survey\Linear\Control\	E_Surv_Centerline	V-SURV-LINE
\Survey\Linear\Drainage\	E_Drng_Channel	V-STRM
\Survey\Linear\Drainage\	E_Drng_Culvert	V-STRM
\Survey\Linear\Drainage\	E_Drng_Pipe	V-STRM
\Survey\Linear\Drainage\	E_Drng_Trench	V-STRM
\Survey\Linear\Drainage\	E_Drng_Wetland	V-STRM
\Survey\Linear\Landscaping\	E_Lnsc_Hedge	V-SITE-VEGE
\Survey\Linear\Landscaping\	E_Lnsc_TreeLine	V-SITE-VEGE
\Survey\Linear\Misc\	E_Default	V-SITE-MISC
\Survey\Linear\Rail\	E_Rail_SurveyLine	V-RAIL
\Survey\Linear\Rail\	E_Rail_Track	V-RAIL
\Survey\Linear\Roadway\	E_Road_AsphPavementCrown	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_AsphPavementEdge	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_BarrierWall	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Baseline	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Centerline	V-ROAD-CNTR

Template Path	Template Name	Level
\Survey\Linear\Roadway\	E_Road_ConcPavementCrown	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_ConcPavementEdge	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_ConcSlabs	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Curb	V-ROAD-CURB
\Survey\Linear\Roadway\	E_Road_Curb_Back	V-ROAD-CURB
\Survey\Linear\Roadway\	E_Road_Curb_Face	V-ROAD-CURB
\Survey\Linear\Roadway\	E_Road_Curb_Flowline	V-ROAD-CURB
\Survey\Linear\Roadway\	E_Road_CurbRamp	V-ROAD-CURB
\Survey\Linear\Roadway\	E_Road_Driveway	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_EdgeOfGravel	V-ROAD-EDGE
\Survey\Linear\Roadway\	E_Road_EdgeOfPavement	V-ROAD-EDGE
\Survey\Linear\Roadway\	E_Road_Embankment	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Fence	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Gate	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Guardrail	V-ROAD-GRAL
\Survey\Linear\Roadway\	E_Road_LaneEdge	V-ROAD-SHDR
\Survey\Linear\Roadway\	E_Road_LaneLine	V-ROAD-SHDR
\Survey\Linear\Roadway\	E_Road_Median	V-ROAD-SHDR
\Survey\Linear\Roadway\	E_Road_Pavement	V-ROAD-SHDR
\Survey\Linear\Roadway\	E_Road_Shoulder	V-ROAD-SHDR
\Survey\Linear\Roadway\	E_Road_Sidewalk	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Sidewalk_Back	V-ROAD-MISC
\Survey\Linear\Roadway\	E_Road_Sidewalk_Front	V-ROAD-MISC
\Survey\Linear\Structural\	E_Strc_Tunnel	V-SITE-MISC
\Survey\Linear\Structures\	E_Brdg_Abutment	V-BRDG
\Survey\Linear\Structures\	E_Brdg_Deck	V-BRDG-DECK
\Survey\Linear\Structures\	E_Brdg_Pier	V-BRDG
\Survey\Linear\Structures\	E_Brdg_Railing	V-BRDG

Template Path	Template Name	Level
\Survey\Linear\Structures\	E_Strc_Barn	V-BRDG
\Survey\Linear\Structures\	E_Strc_Building	V-BRDG
\Survey\Linear\Structures\	E_Strc_Foundation	V-BRDG
\Survey\Linear\Structures\	E_Strc_House	V-BRDG
\Survey\Linear\Topography\	E_Topo_Berm	V-SITE
\Survey\Linear\Topography\	E_Topo_Breakline	V-SITE
\Survey\Linear\Topography\	E_Topo_DitchBottom	V-SITE
\Survey\Linear\Topography\	E_Topo_DitchFlow	V-SITE
\Survey\Linear\Topography\	E_Topo_DitchTop	V-SITE
\Survey\Linear\Topography\	E_Topo_Island	V-SITE
\Survey\Linear\Topography\	E_Topo_Pond	V-SITE
\Survey\Linear\Topography\	E_Topo_Ridgeline	V-SITE
\Survey\Linear\Topography\	E_Topo_Rock	V-SITE
\Survey\Linear\Topography\	E_Topo_SlopeBottom	V-SITE
\Survey\Linear\Topography\	E_Topo_SlopeTop	V-SITE
\Survey\Linear\Topography\	E_Topo_SpotElevation	V-SITE
\Survey\Linear\Topography\	E_Topo_TerrainSlope	V-SITE
\Survey\Linear\Topography\	E_Topo_WaterEdge	V-SITE
\Survey\Linear\Traffic\	E_Traf_PavmentMark	V-ROAD-MRKG
\Survey\Linear\Utilities\	E_Util_Comm	V-COMM
\Survey\Linear\Utilities\	E_Util_Comm-Above	V-COMM
\Survey\Linear\Utilities\	E_Util_CommFiber	V-COMM
\Survey\Linear\Utilities\	E_Util_Elec	V-POWR
\Survey\Linear\Utilities\	E_Util_ElecOH	V-POWR
\Survey\Linear\Utilities\	E_Util_Fuel	V-FUEL
\Survey\Linear\Utilities\	E_Util_Gas	V-NGAS
\Survey\Linear\Utilities\	E_Util_Misc	V-SURV-LINE
\Survey\Linear\Utilities\	E_Util_Sanitary	V-SSWR

Template Path	Template Name	Level
\Survey\Linear\Utilities\	E_Util_Thermal	V-SURV-LINE
\Survey\Linear\Utilities\	E_Util_Water	V-WATR
\Survey\Point\Control\	E_Surv_Anchor	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_Beacon	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_IronRod	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonConc	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonDrilled	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonNail	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonOther	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonPipe	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonStake	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonStampDisk	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonStampPlate	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_MonWoodPost	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_Point	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_PropertyCorner	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_SurveyControl	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_Target	V-CTRL-NODE
\Survey\Point\Control\	E_Surv_Traverse	V-CTRL-NODE
\Survey\Point\Drainage\	E_Drng_Inlet	V-STRM
\Survey\Point\Drainage\	E_Drng_Manhole	V-STRM
\Survey\Point\Drainage\	E_Drng_ManholeCone	V-STRM
\Survey\Point\Drainage\	E_Drng_Marsh	V-STRM
\Survey\Point\Drainage\	E_Drng_Misc	V-STRM
\Survey\Point\Drainage\	E_Drng_Spring	V-STRM
\Survey\Point\Drainage\	E_Drng_Swamp	V-STRM
\Survey\Point\Drainage\	E_Drng_TideGuage	V-STRM
\Survey\Point\Drainage\	E_Drng_UnderDrain	V-STRM

Template Path	Template Name	Level
\Survey\Point\Landscaping\	E_Lnsc_Flower	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Grass	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Gravel	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Hedge	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Plant	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Shrub	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_ShrubCon	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_ShrubDec	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Soil	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_Tree	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeCitrus	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeConiferous	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeCypress	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeDecid	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeOak	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreePalm	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreePalmClump	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreePine	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeStump	V-SITE-VEGE
\Survey\Point\Landscaping\	E_Lnsc_TreeUnknown	V-SITE-VEGE
\Survey\Point\Misc\	E_Default	V-NODE
\Survey\Point\Misc\	E_Misc_Bench	V-NODE
\Survey\Point\Misc\	E_Misc_Boring	V-NODE
\Survey\Point\Misc\	E_Misc_CoreTestHole	V-NODE
\Survey\Point\Misc\	E_Misc_Dumpster	V-NODE
\Survey\Point\Misc\	E_Misc_FirePit	V-NODE
\Survey\Point\Misc\	E_Misc_FlagPole	V-NODE
\Survey\Point\Misc\	E_Misc_GatePost	V-NODE

Template Path	Template Name	Level
\Survey\Point\Misc\	E_Misc_Grave	V-NODE
\Survey\Point\Misc\	E_Misc_Grill	V-NODE
\Survey\Point\Misc\	E_Misc_Incinerator	V-NODE
\Survey\Point\Misc\	E_Misc_Mailbox	V-NODE
\Survey\Point\Misc\	E_Misc_MonitorWell	V-NODE
\Survey\Point\Misc\	E_Misc_PlaygrndEq	V-NODE
\Survey\Point\Misc\	E_Misc_Silo	V-NODE
\Survey\Point\Misc\	E_Misc_TestHole	V-NODE
\Survey\Point\Misc\	E_Misc_WindMill	V-NODE
\Survey\Point\Rail\	E_Rail_CrossingGate	V-RAIL
\Survey\Point\Rail\	E_Rail_MilePost	V-RAIL
\Survey\Point\Rail\	E_Rail_Signal	V-RAIL
\Survey\Point\Rail\	E_Rail_Switch	V-RAIL
\Survey\Point\Rail\	E_Rail_WarnSign	V-RAIL
\Survey\Point\Road\	E_Road_ROWMonC	V-ROAD-MISC
\Survey\Point\Road\	E_Road_ROWMonS	V-ROAD-MISC
\Survey\Point\Roadway\	E_Road_CattleGrd	V-ROAD-MISC
\Survey\Point\Structures\	E_Strc_Piling	V-SITE-MISC
\Survey\Point\Traffic\	E_Traf_Buoy	V-TRFF
\Survey\Point\Traffic\	E_Traf_DelCircle	V-TRFF
\Survey\Point\Traffic\	E_Traf_DelPost	V-TRFF
\Survey\Point\Traffic\	E_Traf_ElecLightPole	V-TRFF
\Survey\Point\Traffic\	E_Traf_Handicap	V-TRFF
\Survey\Point\Traffic\	E_Traf_ParkingMeter	V-TRFF
\Survey\Point\Traffic\	E_Traf_PedSignal	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalCntrl	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalHead	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalHeadPedistal	V-TRFF

Template Path	Template Name	Level
\Survey\Point\Traffic\	E_Traf_SignalMastArm	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalMCS	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalSpan	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignalSPS	V-TRFF
\Survey\Point\Traffic\	E_Traf_SignSPS	V-TRFF
\Survey\Point\Traffic\	E_Util_ElecLightPole	V-TRFF
\Survey\Point\Utilities\	E_Util_CommAntenna	V-COMM
\Survey\Point\Utilities\	E_Util_CommCableBox	V-COMM
\Survey\Point\Utilities\	E_Util_CommManhole	V-COMM
\Survey\Point\Utilities\	E_Util_CommSattelite	V-COMM
\Survey\Point\Utilities\	E_Util_CommTower	V-COMM
\Survey\Point\Utilities\	E_Util_ElecFloodLight	V-POWR
\Survey\Point\Utilities\	E_Util_ElecLightPole	V-POWR
\Survey\Point\Utilities\	E_Util_ElecLightPoleHighMast	V-POWR
\Survey\Point\Utilities\	E_Util_ElecManhole	V-POWR
\Survey\Point\Utilities\	E_Util_ElecMeter	V-POWR
\Survey\Point\Utilities\	E_Util_ElecOutlet	V-POWR
\Survey\Point\Utilities\	E_Util_ElecPole	V-POWR
\Survey\Point\Utilities\	E_Util_ElecPoleH	V-POWR
\Survey\Point\Utilities\	E_Util_ElecPoleTrans	V-POWR
\Survey\Point\Utilities\	E_Util_ElecPullBox	V-POWR
\Survey\Point\Utilities\	E_Util_ElecrPoleTrans	V-POWR
\Survey\Point\Utilities\	E_Util_ElecServiceCab	V-POWR
\Survey\Point\Utilities\	E_Util_ElecTower	V-POWR
\Survey\Point\Utilities\	E_Util_ElecTransformer	V-POWR
\Survey\Point\Utilities\	E_Util_ElecTransTower	V-POWR
\Survey\Point\Utilities\	E_Util_FuelFillCap	V-FUEL
\Survey\Point\Utilities\	E_Util_FuelPump	V-FUEL

Template Path	Template Name	Level
\Survey\Point\Utilities\	E_Util_FuelStorageTank	V-FUEL
\Survey\Point\Utilities\	E_Util_GasManhole	V-NGAS
\Survey\Point\Utilities\	E_Util_GasMarker	V-NGAS
\Survey\Point\Utilities\	E_Util_GasMeter	V-NGAS
\Survey\Point\Utilities\	E_Util_GasRegulator	V-NGAS
\Survey\Point\Utilities\	E_Util_GasValve	V-NGAS
\Survey\Point\Utilities\	E_Util_GasValveBox	V-NGAS
\Survey\Point\Utilities\	E_Util_GasValveCover	V-NGAS
\Survey\Point\Utilities\	E_Util_GasVent	V-NGAS
\Survey\Point\Utilities\	E_Util_MiscGuages	V-NODE
\Survey\Point\Utilities\	E_Util_MiscGuyAnchor	V-NODE
\Survey\Point\Utilities\	E_Util_MiscGuyPole	V-NODE
\Survey\Point\Utilities\	E_Util_MiscManhole	V-NODE
\Survey\Point\Utilities\	E_Util_MiscMeter	V-NODE
\Survey\Point\Utilities\	E_Util_MiscPump	V-NODE
\Survey\Point\Utilities\	E_Util_MiscReg	V-NODE
\Survey\Point\Utilities\	E_Util_MiscValve	V-NODE
\Survey\Point\Utilities\	E_Util_MiscValveBox	V-NODE
\Survey\Point\Utilities\	E_Util_MiscValveCover	V-NODE
\Survey\Point\Utilities\	E_Util_MiscVent	V-NODE
\Survey\Point\Utilities\	E_Util_SanCleanout	V-SSWR
\Survey\Point\Utilities\	E_Util_SanDumpStation	V-SSWR
\Survey\Point\Utilities\	E_Util_SanManhole	V-SSWR
\Survey\Point\Utilities\	E_Util_SanPumpMH	V-SSWR
\Survey\Point\Utilities\	E_Util_SanPumpSta	V-SSWR
\Survey\Point\Utilities\	E_Util_SanValve	V-SSWR
\Survey\Point\Utilities\	E_Util_SanValveBox	V-SSWR
\Survey\Point\Utilities\	E_Util_SanValveCover	V-SSWR

Template Path	Template Name	Level
\Survey\Point\Utilities\	E_Util_SanVent	V-SSWR
\Survey\Point\Utilities\	E_Util_TelBooth	V-COMM
\Survey\Point\Utilities\	E_Util_TelManhole	V-COMM
\Survey\Point\Utilities\	E_Util_TelPed	V-COMM
\Survey\Point\Utilities\	E_Util_TelPole	V-COMM
\Survey\Point\Utilities\	E_Util_WaterFireHydrant	V-WATR
\Survey\Point\Utilities\	E_Util_WaterManhole	V-WATR
\Survey\Point\Utilities\	E_Util_WaterMeter	V-WATR
\Survey\Point\Utilities\	E_Util_WaterSprinkler	V-WATR
\Survey\Point\Utilities\	E_Util_WaterStandpipe	V-WATR
\Survey\Point\Utilities\	E_Util_WaterStorageTank	V-WATR
\Survey\Point\Utilities\	E_Util_WaterValve	V-WATR
\Survey\Point\Utilities\	E_Util_WaterValveBox	V-WATR
\Survey\Point\Utilities\	E_Util_WaterValveCover	V-WATR
\Survey\Point\Utilities\	E_Util_WaterWell	V-WATR
\Survey\PTC Point\	V-STRM-STRC-AD	V-STRM-STRC
\Survey\PTC Point\	V-STRM-STRC-BHW	V-STRM-STRC
\Survey\PTC Point\	V-STRM-STRC-INL	V-STRM-STRC
\Survey\PTC Point\	V-STRM-STRC-MHSS	V-STRM-STRC
\Survey\PTC Point\	V-STRM-STRC-THW	V-STRM-STRC
\Survey\PTC Point\	V-STRM-STRC	V-STRM-STRC
\Survey\PTC Point\	V-FUEL-TANK-AST	V-FUEL-TANK
\Survey\PTC Point\	V-FUEL-TANK-UST	V-FUEL-TANK
\Survey\PTC Point\	V-FUEL-TANK	V-FUEL-TANK
\Survey\PTC Point\	V-CTRL-NODE-SHOT	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-CM	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-IP	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-IPP	V-CTRL-NODE-SHOT

Template Path	Template Name	Level
\Survey\PTC Point\	V-CTRL-NODE-SHOT-NAIL	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-REBAR	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-RRS	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-STK	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-CTRL-NODE-SHOT-STONE	V-CTRL-NODE-SHOT
\Survey\PTC Point\	V-TOPO-BRKL	V-TOPO-BRKL
\Survey\PTC Point\	V-ROAD-CURB	V-ROAD-CURB
\Survey\PTC Point\	V-ROAD-CONC	V-ROAD-CONC
\Survey\PTC Point\	V-SITE-SIGN	V-SITE-SIGN
\Survey\PTC Point\	V-SITE-SIGN-SIGN	V-SITE-SIGN
\Survey\PTC Point\	V-SITE-SIGN-TCS	V-SITE-SIGN
\Survey\PTC Point\	V-CTRL-BMRK	V-CTRL-BMRK
\Survey\PTC Point\	V-BLDG-MISC	V-BLDG-MISC
\Survey\PTC Point\	V-BLDG-MISC-BOL	V-BLDG-MISC
\Survey\PTC Point\	V-TOPO-BORE	V-TOPO-BORE
\Survey\PTC Point\	V-BRDG	V-BRDG
\Survey\PTC Point\	V-BRDG-CURB	V-BRDG-CURB
\Survey\PTC Point\	V-BRDG-CRWN	V-BRDG-CRWN
\Survey\PTC Point\	V-BRDG-DECK	V-BRDG-DECK
\Survey\PTC Point\	V-BRDG-SWLK	V-BRDG-SWLK
\Survey\PTC Point\	V-BLDG-OTLN	V-BLDG-OTLN
\Survey\PTC Point\	V-SITE-WALL	V-SITE-WALL
\Survey\PTC Point\	V-TOPO-EWAT	V-TOPO-EWAT
\Survey\PTC Point\	V-SITE-UTIL	V-SITE-UTIL
\Survey\PTC Point\	V-SITE-UTIL-GUYA	V-SITE-UTIL
\Survey\PTC Point\	V-SITE-UTIL-GUYP	V-SITE-UTIL
\Survey\PTC Point\	V-SITE-UTIL-LP	V-SITE-UTIL
\Survey\PTC Point\	V-SITE-UTIL-UP	V-SITE-UTIL

Template Path	Template Name	Level
\Survey\PTC Point\	V-SITE-MISC	V-SITE-MISC
\Survey\PTC Point\	V-SITE-MISC-CIST	V-SITE-MISC
\Survey\PTC Point\	V-SITE-MISC-CBX	V-SITE-MISC
\Survey\PTC Point\	V-SITE-MISC-FP	V-SITE-MISC
\Survey\PTC Point\	V-SITE-MISC-MB	V-SITE-MISC
\Survey\PTC Point\	V-SITE-MISC-POST	V-SITE-MISC
\Survey\PTC Point\	V-RAIL-EQPM	V-RAIL-EQPM
\Survey\PTC Point\	V-RAIL-EQPM-CROS	V-RAIL-EQPM
\Survey\PTC Point\	V-ROAD-CNTR	V-ROAD-CNTR
\Survey\PTC Point\	V-CATV	V-CATV
\Survey\PTC Point\	V-CATV-CLM	V-CATV
\Survey\PTC Point\	V-CATV-CPED	V-CATV
\Survey\PTC Point\	V-RAIL-CNTR	V-RAIL-CNTR
\Survey\PTC Point\	V-CATV-MOC	V-CATV
\Survey\PTC Point\	V-SSWR	V-SSWR
\Survey\PTC Point\	V-SSWR-CO	V-SSWR
\Survey\PTC Point\	V-SSWR-MOSAN	V-SSWR
\Survey\PTC Point\	V-SSWR-STP	V-SSWR
\Survey\PTC Point\	V-TOPO-CONC	V-TOPO-CONC
\Survey\PTC Point\	V-ROAD-CRWN	V-ROAD-CRWN
\Survey\PTC Point\	V-NODE-MISC	V-NODE
\Survey\PTC Point\	V-NODE-MISC-DH	V-NODE
\Survey\PTC Point\	V-NODE-MISC-RK	V-NODE
\Survey\PTC Point\	V-TOPO-SPOT	V-TOPO-SPOT
\Survey\PTC Point\	V-ROAD-MRKG-YELL	V-ROAD-MRKG-YELL
\Survey\PTC Point\	V-POWR-INST-EMR	V-POWR-INST
\Survey\PTC Point\	V-POWR-INST-EBX	V-POWR-INST
\Survey\PTC Point\	V-POWR-INST	V-POWR-INST

Template Path	Template Name	Level
\Survey\PTC Point\	V-SITE-DVWY	V-SITE-DVWY
\Survey\PTC Point\	V-POWR	V-POWR
\Survey\PTC Point\	V-POWR-EP	V-POWR
\Survey\PTC Point\	V-POWR-MOE	V-POWR
\Survey\PTC Point\	V-ROAD-EDGE	V-ROAD-EDGE
\Survey\PTC Point\	V-ROAD-SHDR	V-ROAD-SHDR
\Survey\PTC Point\	V-POWR-STRC	V-POWR-STRC
\Survey\PTC Point\	V-POWR-STRC-EVLT	V-POWR-STRC
\Survey\PTC Point\	V-POWR-STRC-MHE	V-POWR-STRC
\Survey\PTC Point\	V-SITE-VEGE	V-SITE-VEGE
\Survey\PTC Point\	V-SITE-VEGE-SHR	V-SITE-VEGE
\Survey\PTC Point\	V-SITE-VEGE-TREEC	V-SITE-VEGE
\Survey\PTC Point\	V-SITE-VEGE-TREED	V-SITE-VEGE
\Survey\PTC Point\	V-SITE-FNCE	V-SITE-FNCE
\Survey\PTC Point\	V-WATR-INST	V-WATR-INST
\Survey\PTC Point\	V-WATR-INST-FH	V-WATR-INST
\Survey\PTC Point\	V-WATR-INST-WM	V-WATR-INST
\Survey\PTC Point\	V-WATR-INST-WV	V-WATR-INST
\Survey\PTC Point\	V-RAIL	V-RAIL
\Survey\PTC Point\	V-FUEL	V-FUEL
\Survey\PTC Point\	V-NGAS	V-NGAS
\Survey\PTC Point\	V-NGAS-GLM	V-NGAS
\Survey\PTC Point\	V-NGAS-MOG	V-NGAS
\Survey\PTC Point\	V-NGAS-INST	V-NGAS-INST
\Survey\PTC Point\	V-NGAS-INST-GMR	V-NGAS-INST
\Survey\PTC Point\	V-NGAS-INST-GV	V-NGAS-INST
\Survey\PTC Point\	V-ROAD-GRAL	V-ROAD-GRAL
\Survey\PTC Point\	V-NGAS-STRC	V-NGAS-STRC

Template Path	Template Name	Level
\Survey\PTC Point\	V-NGAS-STRC-MHG	V-NGAS-STRC
\Survey\PTC Point\	V-STRM	V-STRM
\Survey\PTC Point\	V-STRM-MOSS	V-STRM
\Survey\PTC Point\	V-STRM-RRP	V-STRM
\Survey\PTC Point\	V-TRFF	V-TRFF
\Survey\PTC Point\	V-CATV-STRC	V-CATV-STRC
\Survey\PTC Point\	V-CATV-STRC-MHC	V-CATV-STRC
\Survey\PTC Point\	V-SSWR-STRC	V-SSWR-STRC
\Survey\PTC Point\	V-SSWR-STRC-MHSAN	V-SSWR-STRC
\Survey\PTC Point\	V-SSWR-STRC-SET	V-SSWR-STRC
\Survey\PTC Point\	V-COMM-STRC	V-COMM-STRC
\Survey\PTC Point\	V-COMM-STRC-MHT	V-COMM-STRC
\Survey\PTC Point\	V-COMM-STRC-TELPED	V-COMM-STRC
\Survey\PTC Point\	V-WATR-STRC	V-WATR-STRC
\Survey\PTC Point\	V-WATR-STRC-MHW	V-WATR-STRC
\Survey\PTC Point\	V-COMM	V-COMM
\Survey\PTC Point\	V-COMM-MOT	V-COMM
\Survey\PTC Point\	V-COMM-TLM	V-COMM
\Survey\PTC Point\	V-WATR	V-WATR
\Survey\PTC Point\	V-WATR-MOW	V-WATR
\Survey\PTC Point\	V-WATR-WELL	V-WATR
\Survey\PTC Point\	V-SITE-MRKG	V-SITE-MRKG
\Survey\PTC Point\	V-ROAD-MRKG	V-ROAD-MRKG
\Survey\PTC Point\	V-SSWR-PIPE	V-SSWR-PIPE
\Survey\PTC Point\	V-BLDG-SWLK	V-BLDG-SWLK
\Survey\PTC Point\	V-TRFF-INST	V-TRFF-INST
\Survey\PTC Point\	V-TRFF-INST-TSCB	V-TRFF-INST
\Survey\PTC Point\	V-ROAD-MISC	V-ROAD-MISC

Template Path	Template Name	Level
\Survey\PTC Point\	V-STRM-PIPE	V-STRM-PIPE
\Survey\PTC Point\	V-SITE-VEGE-WETL-WET	V-SITE-VEGE-WETL
\Survey\PTC Point\	V-SITE-VEGE-WETL	V-SITE-VEGE-WETL
\Terrain\	Existing_Boundary	E_Terrain_Exterior
\Modeling\Points\	Intersecting Profile	Intersecting Profile

15.11 OPENROADS DESIGNER FEATURE DEFINITIONS

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
Point			
ABOVE GROUND STORAGE TANK	EXISTING ABOVE GROUND STORAGE TANK	AST	Point\Existing\PTC\ABOVE GROUND STORAGE TANK
AREA DRAIN	EXISTING AREA DRAIN	AD	Point\Existing\PTC\AREA DRAIN
AXLE	EXISTING AXLE	AXLE	Point\Existing\PTC\AXLE
BARN SPIKE	EXISTING BARN SPIKE	SPK	Point\Existing\PTC\BARN SPIKE
BENCHMARK	EXISTING BENCHMARK	BM	Point\Existing\PTC\BENCHMARK
BILLBOARD	EXISTING BILLBOARD	BIL	Point\Existing\PTC\BILLBOARD
BORING	EXISTING BORING	BOR	Point\Existing\PTC\BORING
BOTTOM OF BALLAST	EXISTING BOTTOM OF BALLAST	RRB	Point\Existing\PTC\BOTTOM OF BALLAST
BOTTOM OF BANK	EXISTING BOTTOM OF BANK	BB	Point\Existing\PTC\BOTTOM OF BANK
BOTTOM OF CONCRETE BARRIER	EXISTING BOTTOM OF CONCRETE BARRIER	BCBAR	Point\Existing\PTC\BOTTOM OF CONCRETE BARRIER
BOTTOM OF CURB	EXISTING BOTTOM OF CURB	BC	Point\Existing\PTC\BOTTOM OF CURB
BOTTOM OF HEADWALL	EXISTING BOTTOM OF HEADWALL	BHW	Point\Existing\PTC\BOTTOM OF HEADWALL
BOTTOM OF WALL	EXISTING BOTTOM OF WALL	BW	Point\Existing\PTC\BOTTOM OF WALL
BREAKLINE	EXISTING BREAKLINE	BRE	Point\Existing\PTC\BREAKLINE
BRIDGE BEAM SEAT	EXISTING BRIDGE BEAM SEAT	BRBS	Point\Existing\PTC\BRIDGE BEAM SEAT
BRIDGE BOTTOM OF ABUTMENT	EXISTING BRIDGE BOTTOM OF ABUTMENT	BRABUT	Point\Existing\PTC\BRIDGE BOTTOM OF ABUTMENT
BRIDGE BOTTOM OF BEAM	EXISTING BRIDGE BOTTOM OF BEAM	BRBEAM	Point\Existing\PTC\BRIDGE BOTTOM OF BEAM
BRIDGE BOTTOM OF CURB	EXISTING BRIDGE BOTTOM OF CURB	BRBC	Point\Existing\PTC\BRIDGE BOTTOM OF CURB
BRIDGE BOTTOM OF PARAPET	EXISTING BRIDGE BOTTOM OF PARAPET	BRPAR	Point\Existing\PTC\BRIDGE BOTTOM OF PARAPET
BRIDGE BOTTOM OF PEDESTAL	EXISTING BRIDGE BOTTOM OF PEDESTAL	BRPED	Point\Existing\PTC\BRIDGE BOTTOM OF PEDESTAL

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
BRIDGE BOTTOM OF PIER	EXISTING BRIDGE BOTTOM OF PIER	BRPIER	Point\Existing\PTC\BRIDGE BOTTOM OF PIER
BRIDGE BOTTOM OF WINGWALL	EXISTING BRIDGE BOTTOM OF WINGWALL	BRAW	Point\Existing\PTC\BRIDGE BOTTOM OF WINGWALL
BRIDGE CROWN ROAD	EXISTING BRIDGE CROWN ROAD	BRCR	Point\Existing\PTC\BRIDGE CROWN ROAD
BRIDGE DECK	EXISTING BRIDGE DECK	BRDK	Point\Existing\PTC\BRIDGE DECK
BRIDGE DECK JOINT	EXISTING BRIDGE DECK JOINT	BRDJT	Point\Existing\PTC\BRIDGE DECK JOINT
BRIDGE FOOTER	EXISTING BRIDGE FOOTER	BRF	Point\Existing\PTC\BRIDGE FOOTER
BRIDGE LOW CHORD	EXISTING BRIDGE LOW CHORD	BRLC	Point\Existing\PTC\BRIDGE LOW CHORD
BRIDGE SCUPPER	EXISTING BRIDGE SCUPPER	BRSCUP	Point\Existing\PTC\BRIDGE SCUPPER
BRIDGE SIDEWALK	EXISTING BRIDGE SIDEWALK	BRSW	Point\Existing\PTC\BRIDGE SIDEWALK
BRIDGE TOP OF ABUTMENT	EXISTING BRIDGE TOP OF ABUTMENT	TABUT	Point\Existing\PTC\BRIDGE TOP OF ABUTMENT
BRIDGE TOP OF CURB	EXISTING BRIDGE TOP OF CURB	BRTC	Point\Existing\PTC\BRIDGE TOP OF CURB
BRIDGE TOP OF PARAPET	EXISTING BRIDGE TOP OF PARAPET	TPAR	Point\Existing\PTC\BRIDGE TOP OF PARAPET
BRIDGE TOP OF PEDESTAL	EXISTING BRIDGE TOP OF PEDESTAL	TPED	Point\Existing\PTC\BRIDGE TOP OF PEDESTAL
BRIDGE TOP OF PIER	EXISTING BRIDGE TOP OF PIER	TPIER	Point\Existing\PTC\BRIDGE TOP OF PIER
BRIDGE TOP OF WINGWALL	EXISTING BRIDGE TOP OF WINGWALL	TAW	Point\Existing\PTC\BRIDGE TOP OF WINGWALL
BRIDGE WHEEL GUARD	EXISTING BRIDGE WHEEL GUARD	BRWG	Point\Existing\PTC\BRIDGE WHEEL GUARD
BUILDING	EXISTING BUILDING	BUI	Point\Existing\PTC\BUILDING
BUILDING CORNER	EXISTING BUILDING CORNER	BUIC	Point\Existing\PTC\BUILDING CORNER
CABLE LINE MARKER	EXISTING CABLE LINE MARKER	CLM	Point\Existing\PTC\CABLE LINE MARKER
CABLE PEDESTAL	EXISTING CABLE PEDESTAL	CPED	Point\Existing\PTC\CABLE PEDESTAL

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
CABLE TRAY	EXISTING CABLE TRAY	CTRAY	Point\Existing\PTC\CABLE TRAY
CABLE TV MANHOLE	EXISTING CABLE TV MANHOLE	MHC	Point\Existing\PTC\CABLE TV MANHOLE
CABLE TV MARKOUT	EXISTING CABLE TV MARKOUT	MOC	Point\Existing\PTC\CABLE TV MARKOUT
CALL BOX	EXISTING CALL BOX	CBX	Point\Existing\PTC\CALL BOX
CANAL	EXISTING CANAL	CAN	Point\Existing\PTC\CANAL
CATINARY POLE	EXISTING CATINARY POLE	CAT	Point\Existing\PTC\CATINARY POLE
CELL TOWER	EXISTING CELL TOWER	CT	Point\Existing\PTC\CELL TOWER
CENTERLINE	EXISTING CENTERLINE	CL	Point\Existing\PTC\CENTERLINE
CENTERLINE TRACK	EXISTING CENTERLINE TRACK	CLRR	Point\Existing\PTC\CENTERLINE TRACK
CHECK BSHOT	EXISTING CHECK BSHOT	CHK	Point\Existing\PTC\CHECK BSHOT
CISTERN	EXISTING CISTERN	CIST	Point\Existing\PTC\CISTERN
CLEANOUT	EXISTING CLEANOUT	CO	Point\Existing\PTC\CLEANOUT
COLUMN	EXISTING COLUMN	COL	Point\Existing\PTC\COLUMN
CONCRETE	EXISTING CONCRETE	CONC	Point\Existing\PTC\CONCRETE
CONCRETE MONUMENT	EXISTING CONCRETE MONUMENT	CM	Point\Existing\PTC\CONCRETE MONUMENT
CONCRETE NAIL	EXISTING CONCRETE NAIL	CN	Point\Existing\PTC\CONCRETE NAIL
CONIFEROUS TREE	EXISTING CONIFEROUS TREE	TREEC	Point\Existing\PTC\CONIFEROUS TREE
CREEK	EXISTING CREEK	CRE	Point\Existing\PTC\CREEK
CROSS GATE	EXISTING CROSS GATE	CG	Point\Existing\PTC\CROSS GATE
CROSS SIGN	EXISTING CROSS SIGN	CROS	Point\Existing\PTC\CROSS SIGN
CROSS SIGNAL	EXISTING CROSS SIGNAL	CRS	Point\Existing\PTC\CROSS SIGNAL
CROWN ROAD	EXISTING CROWN ROAD	CR	Point\Existing\PTC\CROWN ROAD
DECIDUOUS TREE	EXISTING DECIDUOUS TREE	TREED	Point\Existing\PTC\DECIDUOUS TREE
DELINIATOR POST	EXISTING DELINIATOR POST	DEL	Point\Existing\PTC\DELINIATOR POST

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
DISK	EXISTING DISK	DSC	Point\Existing\PTC\DISK
DITCH	EXISTING DITCH	DIT	Point\Existing\PTC\DITCH
DITCH CENTERLINE	EXISTING DITCH CENTERLINE	DITCL	Point\Existing\PTC\DITCH CENTERLINE
DOUBLE YELLOW LINE	EXISTING DOUBLE YELLOW LINE	DYL	Point\Existing\PTC\DOUBLE YELLOW LINE
DRAINFIELD	EXISTING DRAINFIELD	DF	Point\Existing\PTC\DRAINFIELD
DRILL HOLE	EXISTING DRILL HOLE	DH	Point\Existing\PTC\DRILL HOLE
EDGE DRIVE	EXISTING EDGE DRIVE	ED	Point\Existing\PTC\EDGE DRIVE
EDGE OF ROADWAY	EXISTING EDGE OF ROADWAY	ER	Point\Existing\PTC\EDGE OF ROADWAY
EDGE OF SHOULDER	EXISTING EDGE OF SHOULDER	ES	Point\Existing\PTC\EDGE OF SHOULDER
EDGE OF WOODS	EXISTING EDGE OF WOODS	EW	Point\Existing\PTC\EDGE OF WOODS
ELECTRIC BOX	EXISTING ELECTRIC BOX	EBX	Point\Existing\PTC\ELECTRIC BOX
ELECTRIC MANHOLE	EXISTING ELECTRIC MANHOLE	MHE	Point\Existing\PTC\ELECTRIC MANHOLE
ELECTRIC METER	EXISTING ELECTRIC METER	EMR	Point\Existing\PTC\ELECTRIC METER
ELECTRIC POLE	EXISTING ELECTRIC POLE	EP	Point\Existing\PTC\ELECTRIC POLE
ELECTRIC VAULT	EXISTING ELECTRIC VAULT	EVLT	Point\Existing\PTC\ELECTRIC VAULT
ELECTRICAL MARKOUT	EXISTING ELECTRICAL MARKOUT	MOE	Point\Existing\PTC\ELECTRICAL MARKOUT
FENCE LINE	EXISTING FENCE LINE	FEN	Point\Existing\PTC\FENCE LINE
FENCE POST	EXISTING FENCE POST	FNP	Point\Existing\PTC\FENCE POST
FENCE RIGHT-OF-WAY	EXISTING FENCE RIGHT-OF-WAY	FENRW	Point\Existing\PTC\FENCE RIGHT-OF-WAY
FIELD	EXISTING FIELD	FIE	Point\Existing\PTC\FIELD
FINISHED FLOOR ELEVATION	EXISTING FINISHED FLOOR ELEVATION	FFE	Point\Existing\PTC\FINISHED FLOOR ELEVATION
FIRE HYDRANT	EXISTING FIRE HYDRANT	FH	Point\Existing\PTC\FIRE HYDRANT

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
FLAG PERSON LOCATION	EXISTING FLAG PERSON LOCATION	FPL	
FLAG POLE	EXISTING FLAG POLE	FP	Point\Existing\PTC\FLAG POLE
FLARED END SECTION	EXISTING FLARED END SECTION	FES	Point\Existing\PTC\FLARED END SECTION
FLOWLINE	EXISTING FLOWLINE	FL	Point\Existing\PTC\FLOWLINE
FROG	EXISTING FROG	FROG	Point\Existing\PTC\FROG
GARAGE	EXISTING GARAGE	GARAGE	Point\Existing\PTC\GARAGE
GAS ISLAND	EXISTING GAS ISLAND	GI	Point\Existing\PTC\GAS ISLAND
GAS LINE MARKER	EXISTING GAS LINE MARKER	GLM	Point\Existing\PTC\GAS LINE MARKER
GAS MANHOLE	EXISTING GAS MANHOLE	MHG	Point\Existing\PTC\GAS MANHOLE
GAS MARKOUT	EXISTING GAS MARKOUT	MOG	Point\Existing\PTC\GAS MARKOUT
GAS METER	EXISTING GAS METER	GMR	Point\Existing\PTC\GAS METER
GAS VALVE	EXISTING GAS VALVE	GV	Point\Existing\PTC\GAS VALVE
GAS VALVE CURB STOP	EXISTING GAS VALVE CURB STOP	GVCS	Point\Existing\PTC\GAS VALVE CURB STOP
GAS WELL	EXISTING GAS WELL	GW	Point\Existing\PTC\GAS WELL
GATE	EXISTING GATE	GATE	Point\Existing\PTC\GATE
GROUND SHOT	EXISTING GROUND SHOT	REG	
GUIDE RAIL ATTENUATOR	EXISTING GUIDE RAIL ATTENUATOR	GRATT	Point\Existing\PTC\GUIDE RAIL ATTENUATOR
GUIDE RAIL FACE	EXISTING GUIDE RAIL FACE	GR	Point\Existing\PTC\GUIDE RAIL FACE
GUY POLE	EXISTING GUY POLE	GUYP	Point\Existing\PTC\GUY POLE
GUY WIRE ANCHOR	EXISTING GUY WIRE ANCHOR	GUYA	Point\Existing\PTC\GUY WIRE ANCHOR
HEDGE	EXISTING HEDGE	HED	Point\Existing\PTC\HEDGE
HUB TACK	EXISTING HUB TACK	HT	Point\Existing\PTC\HUB TACK
IMPACT ATTENUATOR	EXISTING IMPACT ATTENUATOR	IATT	Point\Existing\PTC\IMPACT ATTENUATOR

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
INLET	EXISTING INLET	INL	Point\Existing\PTC\INLET
INVERT	EXISTING INVERT	INV	Point\Existing\PTC\INVERT
IRON PIN	EXISTING IRON PIN	IP	Point\Existing\PTC\IRON PIN
IRON PIPE	EXISTING IRON PIPE	IPP	Point\Existing\PTC\IRON PIPE
JUNCTION BOX	EXISTING JUNCTION BOX	JB	Point\Existing\PTC\JUNCTION BOX
LAKE	EXISTING LAKE	LAKE	Point\Existing\PTC\LAKE
LANDSCAPE AREA	EXISTING LANDSCAPE AREA	LSA	Point\Existing\PTC\LANDSCAPE AREA
LIGHT POST	EXISTING LIGHT POST	LP	Point\Existing\PTC\LIGHT POST
LIGHT STANDARD	EXISTING LIGHT STANDARD	LS	Point\Existing\PTC\LIGHT STANDARD
LIMIT OF DISTURBANCE	EXISTING LIMIT OF DISTURBANCE	LOD	Point\Existing\PTC\LIMIT OF DISTURBANCE
LOOP DETECTOR	EXISTING LOOP DETECTOR	LOOP	Point\Existing\PTC\LOOP DETECTOR
MACADAM	EXISTING MACADAM	MAC	Point\Existing\PTC\MACADAM
MAG NAIL	EXISTING MAG NAIL	MAG	Point\Existing\PTC\MAG NAIL
MAILBOX	EXISTING MAILBOX	MB	Point\Existing\PTC\MAILBOX
MICROWAVE TOWER	EXISTING MICROWAVE TOWER	MT	Point\Existing\PTC\MICROWAVE TOWER
MONITORING WELL	EXISTING MONITORING WELL	MW	Point\Existing\PTC\MONITORING WELL
NAIL	EXISTING NAIL	NAIL	Point\Existing\PTC\NAIL
OUT BUILDING	EXISTING OUT BUILDING	SHED	Point\Existing\PTC\OUT BUILDING
OVERHANG ROOF	EXISTING OVERHANG ROOF	OR	Point\Existing\PTC\OVERHANG ROOF
OVERHEAD CABLE LINE	EXISTING OVERHEAD CABLE LINE	OHC	Point\Existing\PTC\OVERHEAD CABLE LINE
OVERHEAD ELECTRIC LINE	EXISTING OVERHEAD ELECTRIC LINE	OHE	Point\Existing\PTC\OVERHEAD ELECTRIC LINE
OVERHEAD TELEPHONE LINE	EXISTING OVERHEAD TELEPHONE LINE	OHT	Point\Existing\PTC\OVERHEAD TELEPHONE LINE
OVERHEAD WIRE	EXISTING OVERHEAD WIRE	OHW	Point\Existing\PTC\OVERHEAD WIRE
P K NAIL	EXISTING P K NAIL	PKN	Point\Existing\PTC\P K NAIL

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
PARKING STRIPE	EXISTING PARKING STRIPE	PS	Point\Existing\PTC\PARKING STRIPE
PERCOLATION HOLE	EXISTING PERCOLATION HOLE	PERC	Point\Existing\PTC\PERCOLATION HOLE
PETROLEUM LINE MARKER	EXISTING PETROLEUM LINE MARKER	PLM	Point\Existing\PTC\PETROLEUM LINE MARKER
POND	EXISTING POND	POND	Point\Existing\PTC\POND
POOL	EXISTING POOL	POOL	Point\Existing\PTC\POOL
PORCH	EXISTING PORCH	POR	Point\Existing\PTC\PORCH
POST	EXISTING POST	PST	Point\Existing\PTC\POST
RAILROAD SPIKE	EXISTING RAILROAD SPIKE	RRS	Point\Existing\PTC\RAILROAD SPIKE
RAILROAD SWITCH	EXISTING RAILROAD SWITCH	RRSW	Point\Existing\PTC\RAILROAD SWITCH
REBAR	EXISTING REBAR	REBAR	Point\Existing\PTC\REBAR
REBAR W/ CAP	EXISTING REBAR W/ CAP	RWC	Point\Existing\PTC\REBAR W/ CAP
RIP-RAP	EXISTING RIP-RAP	RRP	Point\Existing\PTC\RIP-RAP
RIVER	EXISTING RIVER	RIV	
ROAD KILL	EXISTING ROAD KILL	RK	Point\Existing\PTC\ROAD KILL
SAND MOUND	EXISTING SAND MOUND	SM	Point\Existing\PTC\SAND MOUND
SANITARY SEWER LINE	EXISTING SANITARY SEWER LINE	SL	Point\Existing\PTC\SANITARY SEWER LINE
SANITARY SEWER MANHOLE	EXISTING SANITARY SEWER MANHOLE	MHSAN	Point\Existing\PTC\SANITARY SEWER MANHOLE
SANITARY SEWER MARKOUT	EXISTING SANITARY SEWER MARKOUT	MOSAN	Point\Existing\PTC\SANITARY SEWER MARKOUT
SEPTIC TANK	EXISTING SEPTIC TANK	SET	Point\Existing\PTC\SEPTIC TANK
SHRUB	EXISTING SHRUB	SHR	Point\Existing\PTC\SHRUB
SIDEWALK	EXISTING SIDEWALK	SW	Point\Existing\PTC\SIDEWALK
SIGN	EXISTING SIGN	SIGN	Point\Existing\PTC\SIGN
SILO	EXISTING SILO	SILO	Point\Existing\PTC\SILO
SILT FENCE	EXISTING SILT FENCE	SF	Point\Existing\PTC\SILT FENCE

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
SINGLE WHITE LINE	EXISTING SINGLE WHITE LINE	SWL	Point\Existing\PTC\SINGLE WHITE LINE
SINGLE YELLOW LINE	EXISTING SINGLE YELLOW LINE	SYL	Point\Existing\PTC\SINGLE YELLOW LINE
SKIP LINE	EXISTING SKIP LINE	SKL	Point\Existing\PTC\SKIP LINE
SOIL TEST PIT	EXISTING SOIL TEST PIT	STP	Point\Existing\PTC\SOIL TEST PIT
SPRING	EXISTING SPRING	SPR	Point\Existing\PTC\SPRING
STAKE	EXISTING STAKE	STK	Point\Existing\PTC\STAKE
STEPS	EXISTING STEPS	STEPS	Point\Existing\PTC\STEPS
STONE FENCE	EXISTING STONE FENCE	STFEN	Point\Existing\PTC\STONE FENCE
STONE MONUMENT	EXISTING STONE MONUMENT	STONE	Point\Existing\PTC\STONE MONUMENT
STONE ROW	EXISTING STONE ROW	SR	Point\Existing\PTC\STONE ROW
STORM SEWER MANHOLE	EXISTING STORM SEWER MANHOLE	MHSS	Point\Existing\PTC\STORM SEWER MANHOLE
STORM SEWER MARKOUT	EXISTING STORM SEWER MARKOUT	MOSS	Point\Existing\PTC\STORM SEWER MARKOUT
STREAM	EXISTING STREAM	STR	Point\Existing\PTC\STREAM
TELEPHONE LINE MARKER	EXISTING TELEPHONE LINE MARKER	TLM	Point\Existing\PTC\TELEPHONE LINE MARKER
TELEPHONE MANHOLE	EXISTING TELEPHONE MANHOLE	MHT	Point\Existing\PTC\TELEPHONE MANHOLE
TELEPHONE MARKOUT	EXISTING TELEPHONE MARKOUT	MOT	Point\Existing\PTC\TELEPHONE MARKOUT
TELEPHONE PEDESTAL	EXISTING TELEPHONE PEDESTAL	TELPED	Point\Existing\PTC\TELEPHONE PEDESTAL
TELEPHONE POLE	EXISTING TELEPHONE POLE	TEP	Point\Existing\PTC\TELEPHONE POLE
TEMPORARY CHANNELING DEVICE	EXISTING TEMPORARY CHANNELING DEVICE	TCD	Point\Existing\PTC\TEMPORARY CHANNELING DEVICE
TEMPORARY CONSTRUCTION SIGN	EXISTING TEMPORARY CONSTRUCTION SIGN	TCS	Point\Existing\PTC\TEMPORARY CONSTRUCTION SIGN
TOP OF BALLAST	EXISTING TOP OF BALLAST	RRT	Point\Existing\PTC\TOP OF BALLAST

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TOP OF BANK	EXISTING TOP OF BANK	TB	Point\Existing\PTC\TOP OF BANK
TOP OF CONCRETE BARRIER	EXISTING TOP OF CONCRETE BARRIER	TCBAR	Point\Existing\PTC\TOP OF CONCRETE BARRIER
TOP OF CURB	EXISTING TOP OF CURB	TC	Point\Existing\PTC\TOP OF CURB
TOP OF HEADWALL	EXISTING TOP OF HEADWALL	THW	Point\Existing\PTC\TOP OF HEADWALL
TOP OF PIPE	EXISTING TOP OF PIPE	TOP	Point\Existing\PTC\TOP OF PIPE
TOP OF RAILROAD TRACK	EXISTING TOP OF RAILROAD TRACK	TRR	Point\Existing\PTC\TOP OF RAILROAD TRACK
TOP OF REVEAL	EXISTING TOP OF REVEAL	TR	Point\Existing\PTC\TOP OF REVEAL
TOP OF WALL	EXISTING TOP OF WALL	TW	Point\Existing\PTC\TOP OF WALL
TRAFFIC CAMERA	EXISTING TRAFFIC CAMERA	TCAM	Point\Existing\PTC\TRAFFIC CAMERA
TRAFFIC SIGNAL CONTROL BOX	EXISTING TRAFFIC SIGNAL CONTROL BOX	TSCB	Point\Existing\PTC\TRAFFIC SIGNAL CONTROL BOX
TRAFFIC SIGNAL MAST	EXISTING TRAFFIC SIGNAL MAST	TRM	
TRAFFIC SIGNAL POLE	EXISTING TRAFFIC SIGNAL POLE	TRS	Point\Existing\PTC\TRAFFIC SIGNAL POLE
TREE ROW	EXISTING TREE ROW	TREER	
UNDERGROUND STORAGE TANK	EXISTING UNDERGROUND STORAGE TANK	UST	Point\Existing\PTC\UNDERGROUND STORAGE TANK
UTILITY POLE	EXISTING UTILITY POLE	UP	Point\Existing\PTC\UTILITY POLE
VARIABLE MESSAGE SIGN	EXISTING VARIABLE MESSAGE SIGN	VMS	Point\Existing\PTC\VARIABLE MESSAGE SIGN
WATER	EXISTING WATER	WAT	Point\Existing\PTC\WATER
WATER LINE MARKER	EXISTING WATER LINE MARKER	WLM	Point\Existing\PTC\WATER LINE MARKER
WATER MANHOLE	EXISTING WATER MANHOLE	MHW	Point\Existing\PTC\WATER MANHOLE
WATER MARKOUT	EXISTING WATER MARKOUT	MOW	Point\Existing\PTC\WATER MARKOUT
WATER METER	EXISTING WATER METER	WM	Point\Existing\PTC\WATER METER
WATER TOWER	EXISTING WATER TOWER	WT	Point\Existing\PTC\WATER TOWER

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
WATER VALVE	EXISTING WATER VALVE	WV	Point\Existing\PTC\WATER VALVE
WATER VALVE CURB STOP	EXISTING WATER VALVE CURB STOP	WVCS	Point\Existing\PTC\WATER VALVE CURB STOP
WATERWAY SOUNDING	EXISTING WATERWAY SOUNDING	SND	Point\Existing\PTC\WATERWAY SOUNDING
WELL	EXISTING WELL	WELL	Point\Existing\PTC\WELL
WETLAND FLAG	EXISTING WETLAND FLAG	WET	Point\Existing\PTC\WETLAND FLAG
WETLAND PROBE	EXISTING WETLAND PROBE	WETP	Point\Existing\PTC\WETLAND PROBE
WOOD LINE	EXISTING WOOD LINE	WL	Point\Existing\PTC\WOOD LINE
Linear Feature Definition			
TL_Barrier FG	Concrete Barrier Finished Grade	CBFG	Linear\Template Points\Barrier\TL_Barrier
TL_Barrier UG	Concrete Barrier Under Grade	CBUG	Linear\Template Points\Barrier\TL_Barrier Sub
TL_Med Bar Bot	Median Barrier Bottom Point	MBB	Linear\Template Points\Barrier\TL_Median Barrier
TL_Med Bar Low	Median Barrier Lower Point	MBL	Linear\Template Points\Barrier\TL_Median Barrier
TL_Med Bar Mid	Median Barrier MIddle Point	MBM	Linear\Template Points\Barrier\TL_Median Barrier
TL_Med Bar Pavt	Median Barrier Pavement Point	MBP	Linear\Template Points\Barrier\TL_Median Barrier
TL_Med Bar Toe	Median Barrier Toe Point	MBTOE	Linear\Template Points\Barrier\TL_Median Barrier Sub
TL_Med Bar Top	Median Barrier Top Point	MBT	Linear\Template Points\Barrier\TL_Median Barrier
TL_Channel FG	Concrete Channel Finished Grade	CCFG	Linear\Template Points\Channel\TL_Channel
TL_Channel UG	Concrete Channel Under Grade	CCUG	Linear\Template Points\Channel\TL_Channel Sub
TL_Curb Back Bot	Bottom Back of Curb	TL_Curb Back Bot	Linear\Template Points\Curb\TL_Curb Sub
TL_Curb Back Mid	Midpoint Along Back of Curb	TL_Curb Back Mid	Linear\Template Points\Curb\TL_Curb Sub
TL_Curb Back Top	Top Back of Curb	TL_Curb Back Top	Linear\Template Points\Curb\TL_Curb

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Curb Bot Mid	Intermediate Curb Bottom Hinge Point	TL_Curb Bot Mid	Linear\Template Points\Curb\TL_Curb Sub
TL_Curb Face Bot	Curb Face Bottom not at Flowline	TL_Curb Face Bot	Linear\Template Points\Curb\TL_Curb Sub
TL_Curb Face FL	Curb Flowline	TL_Curb Face FL	Linear\Template Points\Curb\TL_Curb Flowline
TL_Curb Face Top	Top Face of Curb	TL_Curb Face Top	Linear\Template Points\Curb\TL_Curb
TL_Curb Front Bot	Bottom Front of Curb at Edge of Pavement Hinge	TL_Curb Front Bot	Linear\Template Points\Curb\TL_Curb Sub
TL_Curb Front Top	Top Front of Curb at Edge of Pavement Hinge	TL_Curb Front Top	Linear\Template Points\Curb\TL_Curb
TL_Draft-DNC	Do Not Construct Null Point	TL_Draft-DNC	Linear\Template Points\DNC\TL_Draft-DNC
TL_Fence_Wrought_Iron 4ft	3D Wrought Iron Fence 4'	WIF4	Linear\Template Points\Fence\TL_Fence_Wrought_Iron 4'
TL_Fence_Wrought_Iron 5ft	3D Wrought Iron Fence 5'	WIF5	Linear\Template Points\Fence\TL_Fence_Wrought_Iron 5'
TL_Fence_Wrought_Iron 6ft	3D Wrought Iron Fence 6'	WIF6	Linear\Template Points\Fence\TL_Fence_Wrought_Iron 6'
TL_Ditch_Ctr	TL_Ditch_Ctr	DC	Linear\Template Points\Grading\TL_Ditch_Ctr
TL_Ditch_FL	TL_Ditch_FL	DF	Linear\Template Points\Grading\TL_Ditch_FL
TL_End Cond Berm In	End Condition Berm Inside Edge	TL_End Cond Berm In	Linear\Template Points\Grading\TL_End Cond Berm In
TL_End Cond Berm Out	End Condition Berm Outside Edge	TL_End Cond Berm Out	Linear\Template Points\Grading\TL_End Cond Berm Out
TL_End Cond Clearzone	End Condition Clearzone Hinge	TL_End Cond Clearzone	Linear\Template Points\Grading\TL_End Cond Clearzone
TL_End Cond Cut Tie	End Condition Ditch Cut Tie	TL_End Cond Cut Tie	Linear\Template Points\Grading\TL_End Cond Cut Tie
TL_End Cond Dit In	End Condition Ditch Inside Edge	TL_End Cond Dit In	Linear\Template Points\Grading\TL_End Cond Dit In
TL_End Cond Dit Out	End Condition Ditch Outside Edge	TL_End Cond Dit Out	Linear\Template Points\Grading\TL_End Cond Dit Out
TL_End Cond Fill Tie	End Condition Ditch Fill Tie	TL_End Cond Fill Tie	Linear\Template Points\Grading\TL_End Cond Fill Tie

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_End Cond Hinge	End Condition Hinge	TL_End Cond Hinge	Linear\Template Points\Grading\TL_End Cond Hinge
TL_Grade Greenspace In	Grading Greenspace Inside Edge	TL_Grade Greenspace In	Linear\Template Points\Grading\TL_Grade Greenspace In
TL_Grade Greenspace Out	Grading Greenspace Outside Edge	TL_Grade Greenspace Out	Linear\Template Points\Grading\TL_Grade Greenspace Out
TL_Median FL Center	Median Flowline Center	TL_Median FL Center	Linear\Template Points\Grading\TL_Median FL Center
TL_Median FL Left	Median Flowline Left Side	TL_Median FL Left	Linear\Template Points\Grading\TL_Median FL Left
TL_Median FL Right	Median Flowline Right Side	TL_Median FL Right	Linear\Template Points\Grading\TL_Median FL Right
TL_Barrier_Cable	3D Cable Barrier	CB	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Cable
TL_Barrier_Cable_V2_L	Barrier_Cable_V2_L	CB	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Cable_V2_L
TL_Barrier_Cable_V2_R	Barrier_Cable_V2_R	CB	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Cable_V2_R
TL_Barrier_Jersey	3D Jersey Barrier	JB	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Jersey
TL_Barrier_Jersey w/ Screen	3D Jersey Barrier w/ Screen	JBS	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Jersey w/ Screen
TL_Barrier_Wall_TL3	Barrier_Wall_TL3	Barrier_Wall_TL3	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Wall_TL3
TL_Barrier_Wall_TL4	Barrier_Wall_TL4	Barrier_Wall_TL4	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Wall_TL4
TL_Barrier_Wall_TL5	Barrier_Wall_TL5	Barrier_Wall_TL5	Linear\Template Points\Guardrail and Barrier\TL_Barrier_Wall_TL5
TL_Guardrail_Double_Sided v1	3D Guardrail Double Sided v1	GRDS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_Double_Sided v1
TL_Guardrail_Double_Sided v2	3D Guardrail Double Sided v2	GRDS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_Double_Sided v2
TL_Guardrail_Single_Sided_L	3D Guardrail Single Sided	GRSS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_Single_Sided_L
TL_Guardrail_Single_Sided_R	3D Guardrail Single Sided	GRSS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_Single_Sided_R

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Guardrail_V2_Single_Sided_L	Guardrail_V2_Single_Sided_L	GRSS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_V2_Single_Sided_L
TL_Guardrail_V2_Single_Sided_R	Guardrail_V2_Single_Sided_R	GRSS	Linear\Template Points\Guardrail and Barrier\TL_Guardrail_V2_Single_Sided_R
TL_Traffic_Rail_SSTR_L	Traffic_Rail_SSTR_L	TR	Linear\Template Points\Guardrail and Barrier\TL_Traffic_Rail_SSTR_L
TL_Traffic_Rail_SSTR_R	Traffic_Rail_SSTR_R	TR	Linear\Template Points\Guardrail and Barrier\TL_Traffic_Rail_SSTR_R
TL_Raised Med Base	Raised Median Strip Base	RMBASE	Linear\Template Points\Median\TL_Raised Median
TL_Raised Med Bot	Raised Median Strip Bot	RMB	Linear\Template Points\Median\TL_Raised Median
TL_Raised Med Top	Raised Median Strip Top	RMT	Linear\Template Points\Median\TL_Raised Median
TL_Paved Ditch In Bot	Paved Ditch Inside Bottom	PDIB	Linear\Template Points\Paved Ditch\TL_Paved Ditch Sub
TL_Paved Ditch In FL Bot	Paved Ditch Inside Flowline Bottom	PDIFB	Linear\Template Points\Paved Ditch\TL_Paved Ditch Sub
TL_Paved Ditch In FL Top	Paved Ditch Inside Flowline Top	PDIFT	Linear\Template Points\Paved Ditch\TL_Paved Ditch
TL_Paved Ditch In Top	Paved Ditch Inside Top	PDIT	Linear\Template Points\Paved Ditch\TL_Paved Ditch
TL_Paved Ditch Out Bot	Paved Ditch Outside Bottom	PDOB	Linear\Template Points\Paved Ditch\TL_Paved Ditch Sub
TL_Paved Ditch Out FL Bot	Paved Ditch Outside Flowline Bottom	PDOFB	Linear\Template Points\Paved Ditch\TL_Paved Ditch Sub
TL_Paved Ditch Out FL Top	Paved Ditch Outside Flowline Top	PDOFT	Linear\Template Points\Paved Ditch\TL_Paved Ditch
TL_Paved Ditch Out Top	Paved Ditch Outside Top	PDOT	Linear\Template Points\Paved Ditch\TL_Paved Ditch
TL_Base Ext	Base Extension	TL_Base Ext	Linear\Template Points\Pavement\TL_Base Ext
TL_Base Ext 1	Base Extension	TL_Base Ext 1	Linear\Template Points\Pavement\TL_Base Ext 1
TL_Centerline	Pavt CL Top	TL_Centerline	Linear\Template Points\Pavement\TL_Centerline
TL_Centerline 1	Pavt CL Bottom of Layer 1	TL_Centerline 1	Linear\Template Points\Pavement\TL_Centerline Sub
TL_Centerline 2	Pavt CL Bottom of Layer 2	TL_Centerline 2	Linear\Template Points\Pavement\TL_Centerline Sub
TL_Centerline 3	Pavt CL Bottom of Layer 3	TL_Centerline 3	Linear\Template Points\Pavement\TL_Centerline Sub
TL_Centerline 4	Pavt CL Bottom of Layer 4	TL_Centerline 4	Linear\Template Points\Pavement\TL_Centerline Sub

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Centerline Exist	Centerline Exist	TL_Centerline Exist	Linear\Template Points\Pavement\TL_Centerline Exist
TL_Edge of Milling	Edge of Milling	TL_Edge of Milling	Linear\Template Points\Pavement\TL_Edge of Milling
TL_Edge of Pavt	Edge of Pavt	TL_Edge of Pavt	Linear\Template Points\Pavement\TL_Edge of Pavt
TL_Edge of Pavt 1	Edge of Pavt Bottom of Layer 1	TL_Edge of Pavt 1	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Edge of Pavt 2	Edge of Pavt Bottom of Layer 2	TL_Edge of Pavt 2	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Edge of Pavt 3	Edge of Pavt Bottom of Layer 3	TL_Edge of Pavt 3	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Edge of Pavt 4	Edge of Pavt Bottom of Layer 4	TL_Edge of Pavt 4	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Edge of Pavt 5	Edge of Pavt Bottom of Layer 5	TL_Edge of Pavt 5	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Edge of Pavt Exist	Edge of Pavement Exist	TL_Edge of Pavt Exist	Linear\Template Points\Pavement\TL_Edge of Pavt Exist
TL_Edge of Shld	Edge of Shld Top	TL_Edge of Shld	Linear\Template Points\Pavement\TL_Edge of Shld
TL_Edge of Shld 1	Edge of Shld Bottom of Layer 1	TL_Edge of Shld 1	Linear\Template Points\Pavement\TL_Edge of Shld Sub
TL_Edge of Shld 2	Edge of Shld Bottom of Layer 2	TL_Edge of Shld 2	Linear\Template Points\Pavement\TL_Edge of Shld Sub
TL_Edge of Shld 3	Edge of Shld Bottom of Layer 3	TL_Edge of Shld 3	Linear\Template Points\Pavement\TL_Edge of Shld Sub
TL_Edge of Shld 4	Edge of Shld Bottom of Layer 4	TL_Edge of Shld 4	Linear\Template Points\Pavement\TL_Edge of Shld Sub
TL_Edge of Shld Exist	Edge of Shoulder Exist	TL_Edge of Shld Exist	Linear\Template Points\Pavement\TL_Edge of Shld Exist
TL_Edge of Widen	Edge of Widening Top	TL_Edge of Widen	Linear\Template Points\Pavement\TL_Edge of Widen
TL_Edge of Widen 1	Edge of Widening Bottom of Layer 1	TL_Edge of Widen 1	Linear\Template Points\Pavement\TL_Edge of Widen Sub
TL_Edge of Widen 2	Edge of Widening Bottom of Layer 2	TL_Edge of Widen 2	Linear\Template Points\Pavement\TL_Edge of Widen Sub
TL_Edge of Widen 3	Edge of Widening Bottom of Layer 3	TL_Edge of Widen 3	Linear\Template Points\Pavement\TL_Edge of Widen Sub

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Edge of Widen 4	Edge of Widening Bottom of Layer 4	TL_Edge of Widen 4	Linear\Template Points\Pavement\TL_Edge of Widen Sub
TL_Lane Line A	Lane Line A Top	TL_Lane Line A	Linear\Template Points\Pavement\TL_Lane Line
TL_Lane Line A1	Lane Line A Bottom of Layer 1	TL_Lane Line A1	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line A2	Lane Line A Bottom of Layer 2	TL_Lane Line A2	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line A3	Lane Line A Bottom of Layer 3	TL_Lane Line A3	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line A4	Lane Line A Bottom of Layer 4	TL_Lane Line A4	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line B	Lane Line B Top	TL_Lane Line B	Linear\Template Points\Pavement\TL_Lane Line
TL_Lane Line B1	Lane Line B Bottom of Layer 1	TL_Lane Line B1	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line B2	Lane Line B Bottom of Layer 2	TL_Lane Line B2	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line B3	Lane Line B Bottom of Layer 3	TL_Lane Line B3	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Lane Line B4	Lane Line B Bottom of Layer 4	TL_Lane Line B4	Linear\Template Points\Pavement\TL_Lane Line Sub
TL_Pavt Wedge 1	Pavement Wedge Bottom of Layer 1	TL_Pavt Wedge 1	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Pavt Wedge 2	Pavement Wedge Bottom of Layer 2	TL_Pavt Wedge 2	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Pavt Wedge 3	Pavement Wedge Bottom of Layer 3	TL_Pavt Wedge 3	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Pavt Wedge 4	Pavement Wedge Bottom of Layer 4	TL_Pavt Wedge 4	Linear\Template Points\Pavement\TL_Edge of Pavt Sub
TL_Pavt Marking 4in Yellow Skip Lt Solid Rt 10ft - 30ft	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Double Skip Dash\TL_Pavt Marking 4" Yellow Skip Lt Solid Rt 10' - 30'
TL_Pavt Marking 4in Yellow Solid Lt Skip Rt 10ft - 30ft	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Double Skip Dash\TL_Pavt Marking 4" Yellow Solid Lt Skip Rt 10' - 30'
TL_Pavt Marking 4in White Double Solid w/Ref	Pavement Marking White w/Ref	PMY	Linear\Template Points\Pavement Marking\Double Solid\TL_Pavt Marking 4" White Double Solid w/Ref

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Pavt Marking 4in Yellow Double Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Double Solid\TL_Pavt Marking 4" Yellow Double Solid
TL_Pavt Marking 4in Yellow Double Solid w/Ref	Pavement Marking Yellow w/Ref	PMY	Linear\Template Points\Pavement Marking\Double Solid\TL_Pavt Marking 4" Yellow Double Solid w/Ref
TL_Pavt Marking 4in White 10ft - 30ft	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" White 10' - 30'
TL_Pavt Marking 4in White 10ft - 30ft w/Ref	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" White 10' - 30' w/Ref
TL_Pavt Marking 4in White 2ft - 4ft	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" White 2' - 4'
TL_Pavt Marking 4in White 6ft - 10ft	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" White 6' - 10'
TL_Pavt Marking 4in Yellow 10ft - 30ft	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" Yellow 10' - 30'
TL_Pavt Marking 4in Yellow 10ft - 30ft w/Ref	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" Yellow 10' - 30' w/Ref
TL_Pavt Marking 4in Yellow 2ft - 4ft	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" Yellow 2' - 4'
TL_Pavt Marking 4in Yellow 6ft - 10ft	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Skip Dash\TL_Pavt Marking 4" Yellow 6' - 10'
TL_Pavt Marking 12in White Solid	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 12" White Solid
TL_Pavt Marking 24in White Solid	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 24" White Solid
TL_Pavt Marking 4in White Solid	Pavement Marking White	PMW	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 4" White Solid
TL_Pavt Marking 4in Yellow Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 4" Yellow Solid
TL_Pavt Marking 6in White Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 6" White Solid
TL_Pavt Marking 6in Yellow Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 6" Yellow Solid
TL_Pavt Marking 8in White Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 8" White Solid
TL_Pavt Marking 8in Yellow Solid	Pavement Marking Yellow	PMY	Linear\Template Points\Pavement Marking\Single Solid\TL_Pavt Marking 8" Yellow Solid

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Pond_Berm_In	TL_Pond_Berm_In	PBI	Linear\Template Points\Pond\TL_Pond_Berm_In
TL_Pond_Berm_Out	TL_Pond_Berm_Out	PBO	Linear\Template Points\Pond\TL_Pond_Berm_Out
TL_Pond_Bottom	TL_Pond_Bottom	PB	Linear\Template Points\Pond\TL_Pond_Bottom
TL_Pond_Elevation	TL_Pond_Elevation	PE	Linear\Template Points\Pond\TL_Pond_Elevation
TL_Pond_Freeboard	TL_Pond_Freeboard	PF	Linear\Template Points\Pond\TL_Pond_Freeboard
TL_Pond_Top	TL_Pond_Top	PT	Linear\Template Points\Pond\TL_Pond_Top
TL_Rail	Rail - Steel	RS	Linear\Template Points\Rail\TL_Rail
TL_Rail Ballast	Rail Ballast Top	RBT	Linear\Template Points\Rail\TL_Rail Ballast
TL_Rail Ballast 1	Rail Ballast Bottom	RBB	Linear\Template Points\Rail\TL_Rail Ballast
TL_Rail Cant	Rail Cant	RC	Linear\Template Points\Rail\TL_Rail Cant
TL_Rail Center	Rail Center	RCTR	Linear\Template Points\Rail\TL_Rail Center
TL_Rail Clearance Env	Rail Clearance Envelope	RCE	Linear\Template Points\Rail\TL_Clearance
TL_Rail Concrete	Rail Concrete	RCONC	Linear\Template Points\Rail\TL_Rail Concrete
TL_Rail Concrete Sleeper	Rail Concrete Sleeper Top	RCST	Linear\Template Points\Rail\TL_Rail Concrete Sleeper
TL_Rail Concrete Sleeper 1	Rail Concrete Sleeper Bottom	RCSB	Linear\Template Points\Rail\TL_Rail Concrete Sleeper
TL_Rail Subballast	Rail Subballast Top	RST	Linear\Template Points\Rail\TL_Rail Subballast
TL_Rail Subballast 1	Rail Subballast Bottom	RSBOT	Linear\Template Points\Rail\TL_Rail Subballast
TL_Rail Subballast Berm	Rail Subballast Berm	RSB	Linear\Template Points\Rail\TL_Rail Subballast Berm
TL_Rail Wooden Sleeper	Rail Wooden Sleeper Top	RWST	Linear\Template Points\Rail\TL_Rail Wooden Sleeper
TL_Rail Wooden Sleeper 1	Rail Wooden Sleeper Bottom	RWSB	Linear\Template Points\Rail\TL_Rail Wooden Sleeper
TL_ES Inside Bot	Earth Shoulder Inside Bottom	ESIB	Linear\Template Points\Shoulder\TL_Earth Shoulder Sub
TL_ES Inside Top	Earth Shoulder Inside Top	ESIT	Linear\Template Points\Shoulder\TL_Earth Shoulder
TL_ES Outside Bot	Earth Shoulder Outside Bottom	ESOB	Linear\Template Points\Shoulder\TL_Earth Shoulder Sub
TL_ES Outside Top	Earth Shoulder Outside Top	ESOT	Linear\Template Points\Shoulder\TL_Earth Shoulder
TL_SW Back Bot	Sidewalk Back Bottom	TL_SW Back Bot	Linear\Template Points\Sidewalk\TL_Sidewalk Sub

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_SW Back Top	Sidewalk Back Top	TL_SW Back Top	Linear\Template Points\Sidewalk\TL_Sidewalk
TL_SW Front Bot	Sidewalk Front Bottom	TL_SW Front Bot	Linear\Template Points\Sidewalk\TL_Sidewalk Sub
TL_SW Front Top	Sidewalk Front Top	TL_SW Front Top	Linear\Template Points\Sidewalk\TL_Sidewalk
TL_Bridge FG	Concrete Bridge Finished Grade	CBRFG	Linear\Template Points\Structural\TL_Bridge
TL_Bridge UG	Concrete Bridge Under Grade	CBRUG	Linear\Template Points\Structural\TL_Bridge Sub
TL_Girder	Concrete Bridge Girder	CBRG	Linear\Template Points\Structural\TL_Girder
TL_Ret Wall FG	Retaining Wall Finished Grade	RWFG	Linear\Template Points\Structural\TL_Retaining Wall
TL_Ret Wall UG	Retaining Wall Under Grade	RWUG	Linear\Template Points\Structural\TL_Retaining Wall Sub
TL_Barrels_100ft Spacing	3D Construction Barrels	Barrels 100ft	Linear\Template Points\Traffic Control\TL_Barrels_100ft Spacing
TL_Barrels_50ft Spacing	3D Construction Barrels	Barrels 50ft	Linear\Template Points\Traffic Control\TL_Barrels_50ft Spacing
TL_Cone_Channelizer_10ft Spacing	3D Channelizer Cone 10' Spacing	CC10	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_10' Spacing
TL_Cone_Channelizer_20ft Spacing	3D Channelizer Cone 20' Spacing	CC20	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_20' Spacing
TL_Cone_Channelizer_30ft Spacing	3D Channelizer Cone 30' Spacing	CC30	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_30' Spacing
TL_Cone_Channelizer_40ft Spacing	3D Channelizer Cone 40' Spacing	CC40	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_40' Spacing
TL_Cone_Channelizer_50ft Spacing	3D Channelizer Cone 50' Spacing	CC50	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_50' Spacing
TL_Cone_Channelizer_60ft Spacing	3D Channelizer Cone 60' Spacing	CC60	Linear\Template Points\Traffic Control\TL_Cone_Channelizer_60' Spacing
TL_Cone_Traffic_10ft Spacing	3D Traffic Cones 10' Spacing	TC10	Linear\Template Points\Traffic Control\TL_Cone_Traffic_10' Spacing
TL_Cone_Traffic_20ft Spacing	3D Traffic Cones 20' Spacing	TC20	Linear\Template Points\Traffic Control\TL_Cone_Traffic_20' Spacing
TL_Cone_Traffic_30ft Spacing	3D Traffic Cones 30' Spacing	TC30	Linear\Template Points\Traffic Control\TL_Cone_Traffic_30' Spacing

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TL_Cone_Traffic_40ft Spacing	3D Traffic Cones 40' Spacing	TC40	Linear\Template Points\Traffic Control\TL_Cone_Traffic_40' Spacing
TL_Cone_Traffic_50ft Spacing	3D Traffic Cones 50' Spacing	TC50	Linear\Template Points\Traffic Control\TL_Cone_Traffic_50' Spacing
TL_Cone_Traffic_60ft Spacing	3D Traffic Cones 60' Spacing	TC60	Linear\Template Points\Traffic Control\TL_Cone_Traffic_60' Spacing
TL_Reflector_Post_Orange	Reflector Post Orange	RPO	Linear\Template Points\Traffic Control\TL_Reflector_Post_Orange
TL_Reflector_Post_Red	Reflector Post Red	RPR	Linear\Template Points\Traffic Control\TL_Reflector_Post_Red
TL_Reflector_Post_White	Reflector Post White	RPW	Linear\Template Points\Traffic Control\TL_Reflector_Post_White
TL_Trench Aggregate	Trench Aggregate	TA	Linear\Template Points\Trench\TL_Trench Aggregate
TL_Trench Base	Trench Base	TB	Linear\Template Points\Trench\TL_Trench Base
TL_Trench Invert	Trench Invert	TI	Linear\Template Points\Trench\TL_Trench Invert
TL_Trench Origin	Trench Origin	TO	Linear\Template Points\Trench\TL_Trench Origin
TL_Trench Pipe	Trench Pipe	TP	Linear\Template Points\Trench\TL_Trench Pipe
TL_Trench Soffit	Trench Soffit	TS	Linear\Template Points\Trench\TL_Trench Soffit
TL_Water	Water	TL_Water	Linear\Template Points\Water\TL_Water
Terrain_Breakline	Terrain Breakline	TBL	Linear\Terrain Feature\Terrain_Breakline
Terrain_Exterior	Terrain Exterior Boundary	TEB	Linear\Terrain Feature\Terrain_Exterior
Terrain_Interior	Terrain Interior Breakline	TIB	Linear\Terrain Feature\Terrain_Interior
Terrain_Major_Contour	Terrain Major Contour	TMjC	Linear\Terrain Feature\Terrain_Minor_Contour
Terrain_Minor_Contour	Terrain Minor Contour	TMnC	Linear\Terrain Feature\Terrain_Minor_Contour
Barrels_100ft Spacing	3D Construction Barrels	Barrels 100ft	Linear\Traffic Control\Barrels_100ft Spacing
Barrels_50ft Spacing	3D Construction Barrels	Barrels 50ft	Linear\Traffic Control\Barrels_50ft Spacing
Cone_Channelizer_10ft Spacing	3D Channelizer Cone 10' Spacing	CC10	Linear\Traffic Control\Cone_Channelizer_10' Spacing
Cone_Channelizer_20ft Spacing	3D Channelizer Cone 20' Spacing	CC20	Linear\Traffic Control\Cone_Channelizer_20' Spacing

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
Cone_Channelizer_30ft Spacing	3D Channelizer Cone 30' Spacing	CC30	Linear\Traffic Control\Cone_Channelizer_30' Spacing
Cone_Channelizer_40ft Spacing	3D Channelizer Cone 40' Spacing	CC40	Linear\Traffic Control\Cone_Channelizer_40' Spacing
Cone_Channelizer_50ft Spacing	3D Channelizer Cone 50' Spacing	CC50	Linear\Traffic Control\Cone_Channelizer_50' Spacing
Cone_Channelizer_60ft Spacing	3D Channelizer Cone 60' Spacing	CC60	Linear\Traffic Control\Cone_Channelizer_60' Spacing
Cone_Traffic_10ft Spacing	3D Traffic Cones 10' Spacing	TC10	Linear\Traffic Control\Cone_Traffic_10' Spacing
Cone_Traffic_20ft Spacing	3D Traffic Cones 20' Spacing	TC20	Linear\Traffic Control\Cone_Traffic_20' Spacing
Cone_Traffic_30ft Spacing	3D Traffic Cones 30' Spacing	TC30	Linear\Traffic Control\Cone_Traffic_30' Spacing
Cone_Traffic_40ft Spacing	3D Traffic Cones 40' Spacing	TC40	Linear\Traffic Control\Cone_Traffic_40' Spacing
Cone_Traffic_50ft Spacing	3D Traffic Cones 50' Spacing	TC50	Linear\Traffic Control\Cone_Traffic_50' Spacing
Cone_Traffic_60ft Spacing	3D Traffic Cones 60' Spacing	TC60	Linear\Traffic Control\Cone_Traffic_60' Spacing
Reflector_Post_Orange	Reflector Post Orange	RPO	Linear\Traffic Control\Reflector_Post_Orange
Reflector_Post_Red	Reflector Post Red	RPR	Linear\Traffic Control\Reflector_Post_Red
Reflector_Post_White	Reflector Post White	RPW	Linear\Traffic Control\Reflector_Post_White
Wall	Structural Wall	StrW	Linear\Walls\Wall
Wall_Bottom	Structural Wall Bottom	StrWB	Linear\Walls\Wall_Bottom
Wall_Coping	Structural Wall Coping	StrWC	Linear\Walls\Wall_Coping
Wall_Footing	Structural Wall Footing	StrWF	Linear\Walls\Wall_Footing
Wall_Perch	Structural Wall Perch	StrWP	Linear\Walls\Wall_Perch
Wall_Top	Structural Wall Top	STRWT	Linear\Walls\Wall_Top
Alignment Feature Definition			
Rural Divided Corridor	Rural Divided Corridor	Rural Divided Corridor	Linear\Preliminary Planning\Preliminary Planning

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
Rural Undivided Corridor	Rural Undivided Corridor	Rural Undivided Corridor	Linear\Preliminary Planning\Preliminary Planning
PTC_BASC	Geometry Baseline	PTC_ALGN	Linear\Alignment\PTC_BASC
PTC_EXST	Geometry Baseline	PTC_ALGN	Linear\Alignment\PTC_EXST
PTC_INTR	Geometry Baseline	PTC_ALGN	Linear\Alignment\PTC_INTR
PTC_INTR BASC	Geometry Baseline	PTC_ALGN	Linear\Alignment\PTC_INTR BASC
PTC_LAYT	Geometry Baseline	PTC_ALGN	Linear\Alignment\PTC_LAYT
PTC_OFFS	PTC Baseline Offset	PTC_ALGN_OFFS	Linear\Alignment\PTC_OFFS
PTC_PROP	PTC PROPSED BASELINE	PTC_ALGN	Linear\Alignment\PTC_PROP
Superelevation			
Superelevation	Superelevation	SE	Linear\Superelevation\Super_Section
Corridor			
Rail Design	Rail Design Phase	Rail Corridor	
Rail Final	Rail Final Phase	Rail Corridor	
Design	Design Phase	Corridor	
Final	Final Phase	Corridor	
Final w/ Contours	Final Phase w/ Contours	Corridor	
Linear Template			
Design	Design Phase	Linear Template	
Final	Final Phase	Linear Template	
Final w/ Contours	Final Phase w/ Contours	Linear Template	
Surface Template			
Disable Linear Features	Disable 3D Linear Features	NoLF	
Enable Linear Features	Enable 3D Linear Features	LF	
Terrain			
PTC_ELEV BAND	PTC Elevation Bands	PTC_ELEV_BAND	Surface\Terrain\PTC_ELEV BAND

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
PTC_SLOPE BAND	PTC Slope Bands	PTC_SLOP_BAND	Surface\Terrain\PTC_SLOPE BAND
PTC_CONT 1' & 5' EXST	PTC Existing Contours 1' & 5'	PTC_EXST_CONT	Surface\Terrain\PTC_CONT 1' & 5' EXST
PTC_CONT 2' & 10' EXST	PTC Existing Contours 2' & 10'	PTC_EXST_CONT	Surface\Terrain\PTC_CONT 2' & 10' EXST
PTC_CONT 5' & 25' EXST	PTC Existing Contours 5' & 25'	PTC_EXST_CONT	Surface\Terrain\PTC_CONT 5' & 25' EXST
PTC_CONT 1' & 5' PROP	PTC Proposed Contours 1' & 5'	PTC_PROP_CONT	Surface\Terrain\PTC_CONT 1' & 5' PROP
PTC_CONT 2' & 10' PROP	PTC Proposed Contours 2' & 10'	PTC_PROP_CONT	Surface\Terrain\PTC_CONT 2' & 10' PROP
PTC_CONT 5' & 25' PROP	PTC Proposed Contours 5' & 25'	PTC_PROP_CONT	Surface\Terrain\PTC_CONT 5' & 25' PROP
PTC_BRDR ONLY	PTC Boundary	PTC_BRDR	Surface\Terrain\PTC_Boundary
PTC_CONT & TRNG	PTC Contours & Triangles	PTC_TRNG	Surface\Terrain\PTC_CONT & TRNG
Mesh			
TC_Aggregate Typ A	Aggregate Type A	TC_Aggregate Typ A	Surface\Modeling\Aggregate\TC_Aggregate Typ A
TC_Aggregate Typ A Ext	Aggregate Type A Ext	TC_Aggregate Type A Ext	Surface\Modeling\Aggregate\TC_Aggregate Typ A Ext
TC_Aggregate Typ B	Aggregate Type B	TC_Aggregate Typ B	Surface\Modeling\Aggregate\TC_Aggregate Typ B
TC_Aggregate Typ C	Aggregate Type C	TC_Aggregate Typ C	Surface\Modeling\Aggregate\TC_Aggregate Typ C
TC_Aggregate Typ D	Aggregate Type D	TC_Aggregate Typ D	Surface\Modeling\Aggregate\TC_Aggregate Typ D
TC_Riprap	Riprap	TC_Riprap	Surface\Modeling\Aggregate\TC_Riprap
TC_Asph Cold Milling	Asphalt Concrete Milling	TC_Asph Cold Milling	Surface\Modeling\Asphalt\TC_Asph Cold Milling
TC_Asph Conc Base Cse	Asphalt Concrete Base Course	TC_Asph Conc Base Cse	Surface\Modeling\Asphalt\TC_Asph Conc Base Cse
TC_Asph Conc Intermediate Cse	Asphalt Concrete Intermediate Course	TC_Asph Conc Intermediate Cse	Surface\Modeling\Asphalt\TC_Asph Conc Intermediate Cse

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TC_Asph Conc Wearing Cse	Asphalt Concrete Wearing Course	TC_Asph Conc Wearing Cse	Surface\Modeling\Asphalt\TC_Asph Conc Wearing Cse
TC_Channel Concrete	Paved Ditches	TC_Channel Concrete	Surface\Modeling\Concrete\TC_Channel Concrete
TC_Conc Misc	Conc Misc	TC_Conc Misc	Surface\Modeling\Concrete\TC_Conc Misc
TC_Concrete Barrier	Concrete Barrier	TC_Concrete Barrier	Surface\Modeling\Concrete\TC_Concrete Barrier
TC_Concrete Pavt	Concrete Pavement	TC_Concrete Pavt	Surface\Modeling\Concrete\TC_Concrete Pavt
TC_Curb	Curb	TC_Curb	Surface\Modeling\Concrete\TC_Curb
TC_Curb and Gutter Typ 1	Curb and Gutter Type 1	TC_Curb and Gutter Typ 1	Surface\Modeling\Concrete\TC_Curb
TC_Curb and Gutter Typ 2	Curb and Gutter Type 2	TC_Curb and Gutter Typ 2	Surface\Modeling\Concrete\TC_Curb
TC_Gutter	Gutter	TC_Gutter	Surface\Modeling\Concrete\TC_Curb
TC_MED-Raised Paved	Median Raised Paved	TC_MED-Raised Paved	Surface\Modeling\Concrete\TC_Sidewalk
TC_Sidewalk	Sidewalk	TC_Sidewalk	Surface\Modeling\Concrete\TC_Sidewalk
TC_Draft-DNC	Do Not Construct	TC_Draft-DNC	Surface\Modeling\DNC\TC_Draft-DNC
TC_Existing Pavt	Existing Pavement	TC_Existing Pavt	Surface\Modeling\Existing\TC_Existing Pavt
TC_Rock Surface	Rock Surface	TC_Rock Surface	Surface\Modeling\Existing\TC_Rock Surface
TC_Unsuitable Material	Unsuitable Material	TC_Unsuitable Material	Surface\Modeling\Existing\TC_Unsuitable Material
TC_Clearzone	Clearzone	TC_Clearzone	Surface\Modeling\Grading\TC_Grass
TC_Cutslope	Cutslope	TC_Cutslope	Surface\Modeling\Grading\TC_Grass
TC_Cutslope Berm	Cutslope Berm	TC_Cutslope Berm	Surface\Modeling\Grading\TC_Grass
TC_Dirt	Dirt	TC_Dirt	Surface\Modeling\Grading\TC_Dirt
TC_Ditch	Ditch - Complete	TC_Ditch	Surface\Modeling\Grading\TC_Grass
TC_Ditch Backslope	Ditch Backslope	TC_Ditch Backslope	Surface\Modeling\Grading\TC_Grass

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TC_Ditch Bottom	Ditch Bottom	TC_Ditch Bottom	Surface\Modeling\Grading\TC_Grass
TC_Ditch Foreslope	Ditch Foreslope	TC_Ditch Foreslope	Surface\Modeling\Grading\TC_Grass
TC_Earth Shoulder	Earth Shoulder	TC_Earth Shoulder	Surface\Modeling\Grading\TC_Grass
TC_Fillslope	Fillslope	TC_Fillslope	Surface\Modeling\Grading\TC_Grass
TC_Grass	Grass	TC_Grass	Surface\Modeling\Grading\TC_Grass
TC_Grass Berm Back	Grass Berm Back	TC_Grass Berm Back	Surface\Modeling\Grading\TC_Grass
TC_Grass Berm Front	Grass Berm Front	TC_Grass Berm Front	Surface\Modeling\Grading\TC_Grass
TC_Grass Burnt	Grass Burnt	TC_Grass Burnt	Surface\Modeling\Grading\TC_Grass Burnt
TC_Med-Depressed	Med-Depressed	TC_Med-Depressed	Surface\Modeling\Grading\TC_Grass
TC_Tieslope	Tieslope	TC_Tieslope	Surface\Modeling\Grading\TC_Grass
TC_Topsoil	Topsoil	TC_Topsoil	Surface\Modeling\Grading\TC_Topsoil
TC_Guardrail	Guardrail	TC_Guardrail	Surface\Modeling\Guardrail\TC_Guardrail
TC_Guardrail Bumper	Guardrail Bumper	TC_Guardrail Bumper	Surface\Modeling\Guardrail\TC_Guardrail Bumper
TC_Guardrail Post	Guardrail Post	TC_Guardrail Post	Surface\Modeling\Guardrail\TC_Guardrail Post
Bottom Mesh	Bottom Mesh from Corridor	BM	Surface\Modeling\Corridor Meshes\Bottom Mesh
Top Mesh	Top Mesh from Corridor	TM	Surface\Modeling\Corridor Meshes\Top Mesh
TC_Rail 3D	Rail 3D	TC_Rail 3D	Surface\Modeling\Rail\TC_Rail 3D
TC_Rail Ballast	Rail Ballast	TC_Rail Ballast	Surface\Modeling\Rail\TC_Rail Ballast
TC_Rail Clearance Env	Rail Clearance Env	TC_Rail Clearance Env	Surface\Modeling\Rail\TC_Rail Clearance Env
TC_Rail Concrete Sleeper	Rail Concrete Sleeper	TC_Rail Concrete Sleeper	Surface\Modeling\Rail\TC_Rail Concrete Sleeper
TC_Rail Platform	Rail Platform	TC_Rail Platform	Surface\Modeling\Rail\TC_Rail Platform

Feature Definition Name	*Feature Definition Description*	*Feature Definition Name*	*Linear Feature Symbology*
TC_Rail Subballast	Rail Subballast	TC_Rail Subballast	Surface\Modeling\Rail\TC_Rail Subballast
TC_Rail Wooden Sleeper	Rail Wooden Sleeper	TC_Rail Wooden Sleeper	Surface\Modeling\Rail\TC_Rail Wooden Sleeper
TC_Bridge	Bridge	TC_Bridge	Surface\Modeling\Structural\TC_Bridge
TC_Bridge Abutment	Bridge Abutment	TC_Bridge Abutment	Surface\Modeling\Structural\TC_Bridge Abutment
TC_Bridge Girder	Bridge Girder	TC_Bridge Girder	Surface\Modeling\Structural\TC_Bridge Girder
TC_Ret Wall-Cut	Ret Wall-Cut	TC_Ret Wall-Cut	Surface\Modeling\Structural\TC_Ret Wall-Cut
TC_Ret Wall-Fill	Ret Wall-Fill	TC_Ret Wall-Fill	Surface\Modeling\Structural\TC_Ret Wall-Fill
TC_Structural Concrete	Structural Concrete	TC_Structural Concrete	Surface\Modeling\Structural\TC_Structural Concrete
TC_Structural Fill	Structural Fill	TC_Structural Fill	Surface\Modeling\Structural\TC_Structural Fill
Volumes_Cut	Cut Volumes Mesh	VC	Surface\Volumes\Volumes_Cut
Volumes_Fill	Fill Volumes Mesh	VF	Surface\Volumes\Volumes_Fill
TC_Water	Water	TC_Water	Surface\Modeling\Water\TC_Water
Sight Visibility			
Overtaking Sight Distance	Overtaking Sight Distance	OSD	Linear\Sight Visibility\Achieved Sight Lines
Passing Sight Distance	Passing Sight Distance	PSD	Linear\Sight Visibility\Achieved Sight Lines
Stopping Sight Distance	Stopping Sight Distance	SSD	Linear\Sight Visibility\Achieved Sight Lines

15.12 COLOR MAPPING TABLE

No.	Color	RGB Value
1		255,0,0
2		255,255,0
3		0,255,0
4		0,255,255
5		0,0,255
6		255,0,255
7		255,255,255
8		127,127,127
9		219,219,219
10		255,0,0
11		255,102,102
12		204,0,0
13		204,102,102
14		153,0,0
15		153,51,51
20		255,51,0

No.	Color	RGB Value
21		255,153,102
23		204,102,102
24		153,51,0
30		255,102,0
31		255,204,102
32		204,102,0
33		204,153,102
35		153,102,51
37		102,102,51
40		255,204,0
41		255,204,102
42		204,153,0
43		204,153,102
46		102,102,0
50		255,255,0
51		255,255,102

No.	Color	RGB Value
52		204,204,0
53		204,204,102
54		153,153,0
60		204,255,0
61		204,255,102
62		153,204,0
71		204,255,102
80		51,255,0
81		153,255,102
82		51,204,0
83		102,204,102
90		0,255,0
92		0,204,0
93		102,204,102
96		0,102,0
100		0,255,51

No.	Color	RGB Value
110		0,255,102
120		0,255,204
121		102,255,204
130		0,255,255
131		102,255,255
132		0,204,204
133		102,204,204
140		0,204,255
141		102,204,255
142		0,153,204
143		102,153,204
144		0,102,153
148		0,51,51
150		0,102,255
170		0,0,255
172		0,0,204

No.	Color	RGB Value
180		51,0,255
190		102,0,255
191		204,102,255
192		102,0,204
194		51,0,13
200		204,0,255
201		204,102,255
202		153,0,204
210		255,0,255
211		255,102,255
212		204,0,204
220		255,0,191
221		255,102,204
222		204,0,153
223		204,102,153

No.	Color	RGB Value
230		255,0,102
231		255,102,204
232		204,0,102
234		153,0,51
240		255,0,51
241		255,102,153
242		204,0,51
244		153,0,51
250		84,84,84
251		117,117,117
252		153,153,153 1
253		186,186,186
254		219,219,219
255		0,0,0

15.13 PLAN PRODUCTION

15.13.1 CIVIL 3D PLAN PRODUCTION

15.13.1.1 SHEET SET MANAGER WORKFLOW

To create plot sheets, the PTC Standard-Sheet Set.dst file must be used. Open Sheet Set Manager via the application menu or by typing SSM at the command line. Select Open from the first drop-down list and navigate to the DST file.

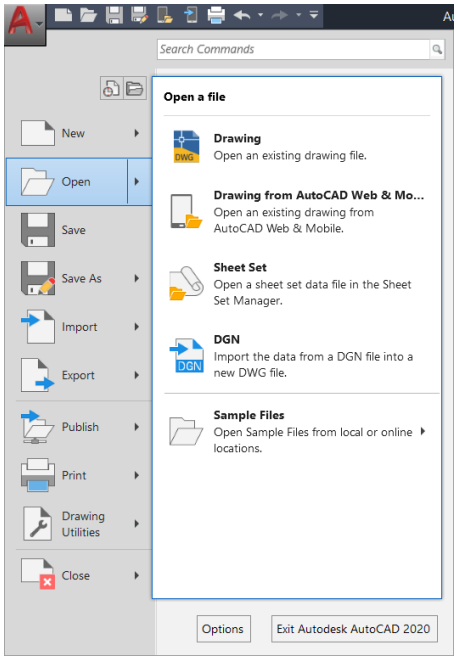


Figure 15-6 Open the Sheet Set from Application Menu

Step 1: Create a new sheet from the Sheet Set Manager.

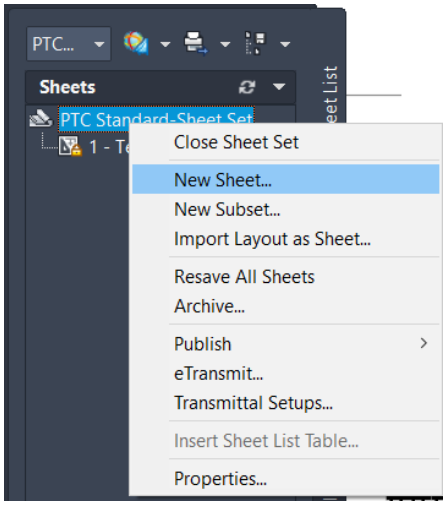


Figure 15-7 Create a New Sheet from the Sheet Set Manager

Step 2: When prompted for the drawing template file name, select the appropriate PTC standard sheet template. When using AutoCAD, the template titled “PTC Standard-Contract Borders.dwt” must be used. When using Civil 3D, the sheet template is selected according to the type of sheet that is being created from the following templates, “PTC Plan over Profile Sheet-C3D.dwt, PTC Plan Sheet-C3D.dwt, PTC Profile Sheet-C3D.dwt, and PTC Section Sheet-C3D.dwt”. Choose the appropriate layout size.

Step 3: Once the page size has been selected, the new sheet dialogue box opens prompting the user to number the sheet, provide the sheet title, and the name of the file.

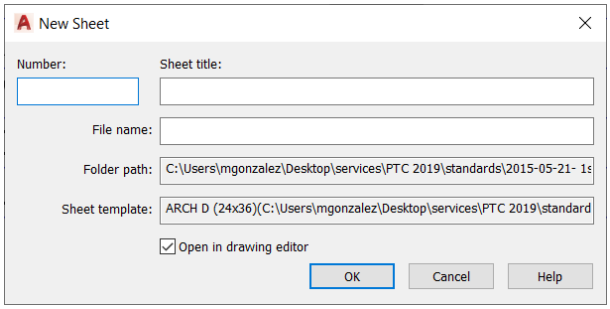


Figure 15-8 New Sheet Dialog Box

Step 4: To apply the proper project-specific text in the contract border, fill out the appropriate property within the sheet set by right clicking on the sheet set title in SSM and selecting Properties. There are two custom property sets, those for the entire sheet set which will be applied to all sheets (Sheet Set Custom Properties) and those for individual sheets within the sheet set which will be specific to each individual sheet (Sheet Custom Properties). The Sheet Custom Properties can be accessed by right-clicking on the sheet name in SSM and selecting Properties. The sheet number and sheet name are determined upon creation of the sheet in Step 3 and can be renumbered/renamed at any time.

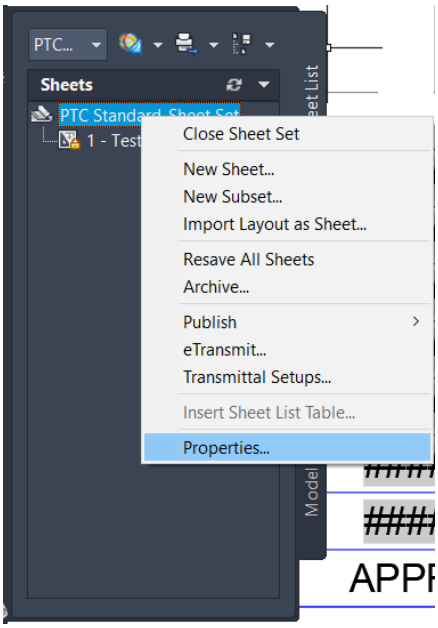


Figure 15-9 Open Sheet Set Properties

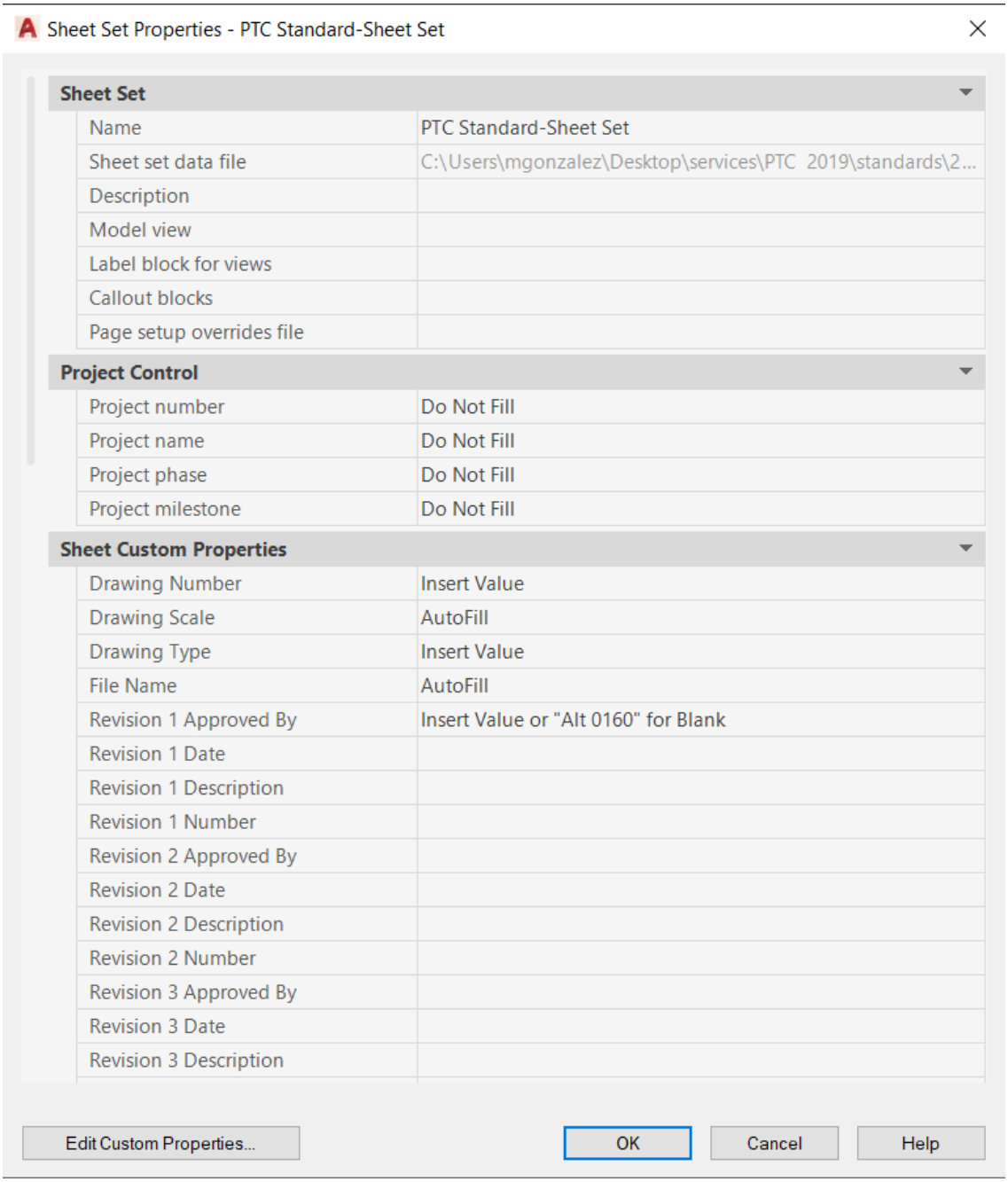


Figure 15-10 Sheet Set Properties

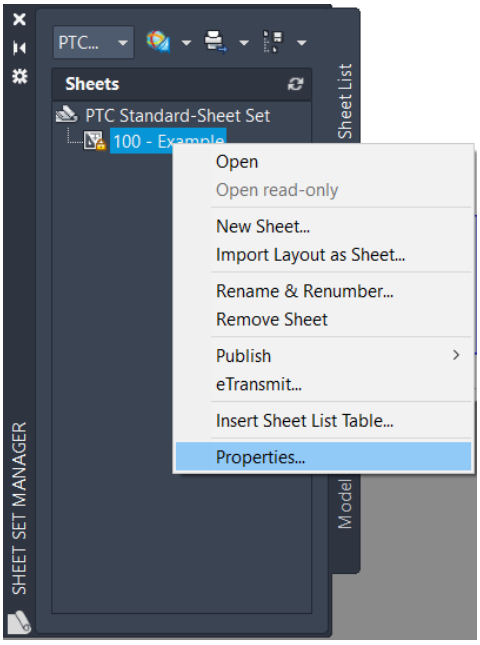


Figure 15-11 Open Sheet Properties

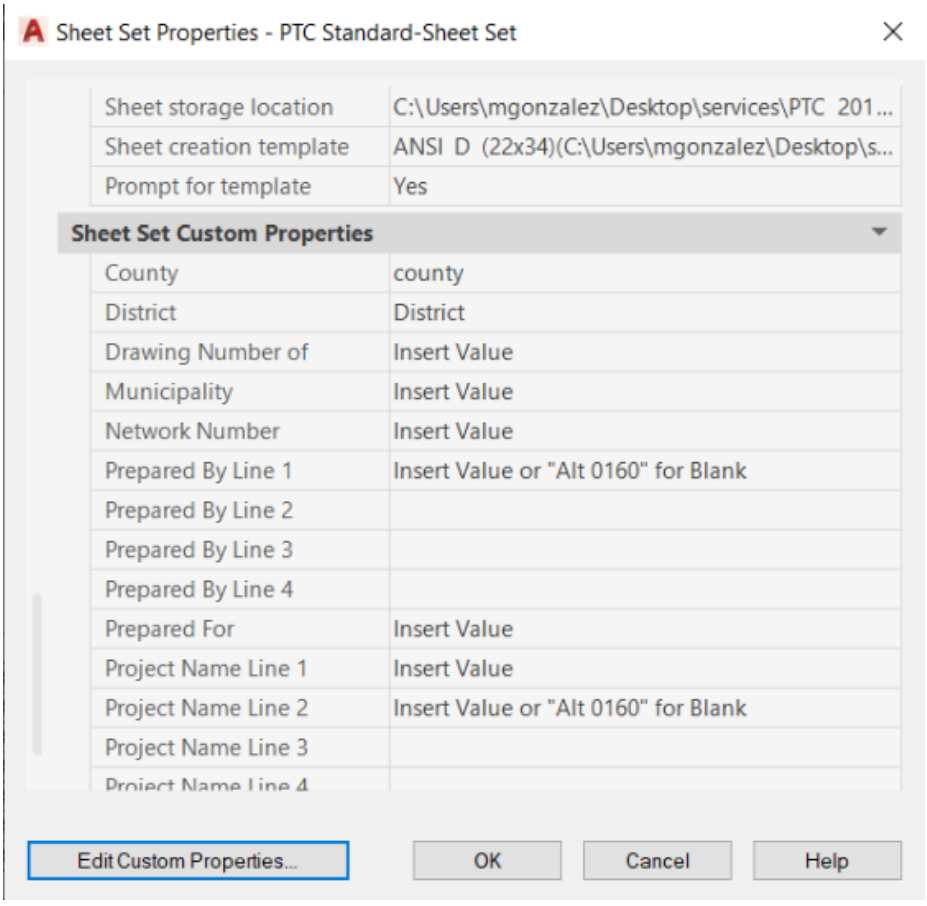


Figure 15-12 Sheet Properties

The following table indicates which properties are controlled by the sheet set and which by the sheet.

Table 15-3 Sheet Set and Sheet Properties

Field #	*Property Definition*	*Sheet Set or Sheet*
1	Drawing Number	Sheet
2	Drawing Scale	Sheet
3	Drawing Type	Sheet
4	File Name (AutoFill)	Sheet
5	Revision 1 Approved By	Sheet
6	Revision 1 Date	Sheet
7	Revision 1 Description	Sheet
8	Revision 1 Number	Sheet
9	Revision 2 Approved By	Sheet
10	Revision 2 Date	Sheet
11	Revision 2 Description	Sheet
12	Revision 2 Number	Sheet
13	Revision 3 Approved By	Sheet
14	Revision 3 Date	Sheet
15	Revision 3 Description	Sheet
16	Revision 3 Number	Sheet
17	Revision 4 Approved By	Sheet
18	Revision 4 Date	Sheet
19	Revision 4 Description	Sheet
20	Revision 4 Number	Sheet
21	Revision 5 Approved By	Sheet
22	Revision 5 Date	Sheet
23	Revision 5 Description	Sheet
24	Revision 5 Number	Sheet
25	Revision 6 Approved By	Sheet

Field #	*Property Definition*	*Sheet Set or Sheet*
26	Revision 6 Date	Sheet
27	Revision 6 Description	Sheet
28	Revision 6 Number	Sheet
29	Revision 7 Approved By	Sheet
30	Revision 7 Date	Sheet
31	Revision 7 Description	Sheet
32	Revision 7 Number	Sheet
33	Sheet Name Line 1	Sheet
34	Sheet Name Line 2	Sheet
35	Sheet Name Line 3	Sheet
36	Sheet Name Line 4	Sheet
37	Sheet Name Line 5	Sheet
38	Sheet Number (AutoFill)	Sheet
39	Structure Number	Sheet
40	County	Sheet Set
41	District	Sheet Set
42	Drawing Number of	Sheet Set
43	Municipality	Sheet Set
44	Network Number	Sheet Set
45	Prepared By Line 1	Sheet Set
46	Prepared By Line 2	Sheet Set
47	Prepared By Line 3	Sheet Set
48	Prepared By Line 4	Sheet Set
49	Prepared For	Sheet Set
50	Project Name Line 1	Sheet Set

Field #	*Property Definition*	*Sheet Set or Sheet*
51	Project Name Line 2	Sheet Set
52	Project Name Line 3	Sheet Set
53	Project Name Line 4	Sheet Set
54	Project Name Line 5	Sheet Set
55	Sheet Number of	Sheet Set
56	WSB Number	Sheet Set

15.13.1.2 CIVIL 3D PLAN PRODUCTION WORKFLOW

Civil 3D's Plan and Production Tools can be used for automated sheet creation. The following types of sheets can be created using these tools:

- Plan Sheets
- Profile Sheets
- Section Sheets
- Plan over Profile Sheets

15.13.1.2.1 STEPS FOR CREATING PLAN AND PROFILE SHEETS

The steps for creating plan and profile sheets are described below:

Step 1: Create view frames along an alignment by selecting the Create View Frames button on the Plan Production Panel on the Output Tab of the Ribbon.

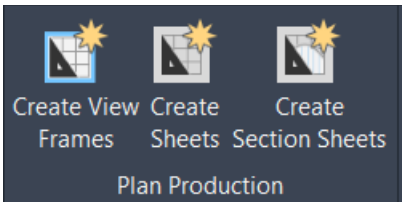


Figure 15-13 Plan Production Panel

Step 2: Set the view frame group properties in the Create View Frames manager. The view frame group properties include the alignment, size of the view frames, view frame rotation, and various styles.

Step 3: Choose the appropriate template file; PTC Plan over Profile Sheet-C3D.dwt, PTC Plan Sheet-C3D.dwt, or PTC Profile Sheet-C3D.dwt for automated sheet production. Template files contain empty sheet layouts that are used to populate the automatically created sheets. Template files can be set up for Plan View, Profile View, or Plan over Profile view at predetermined scales.

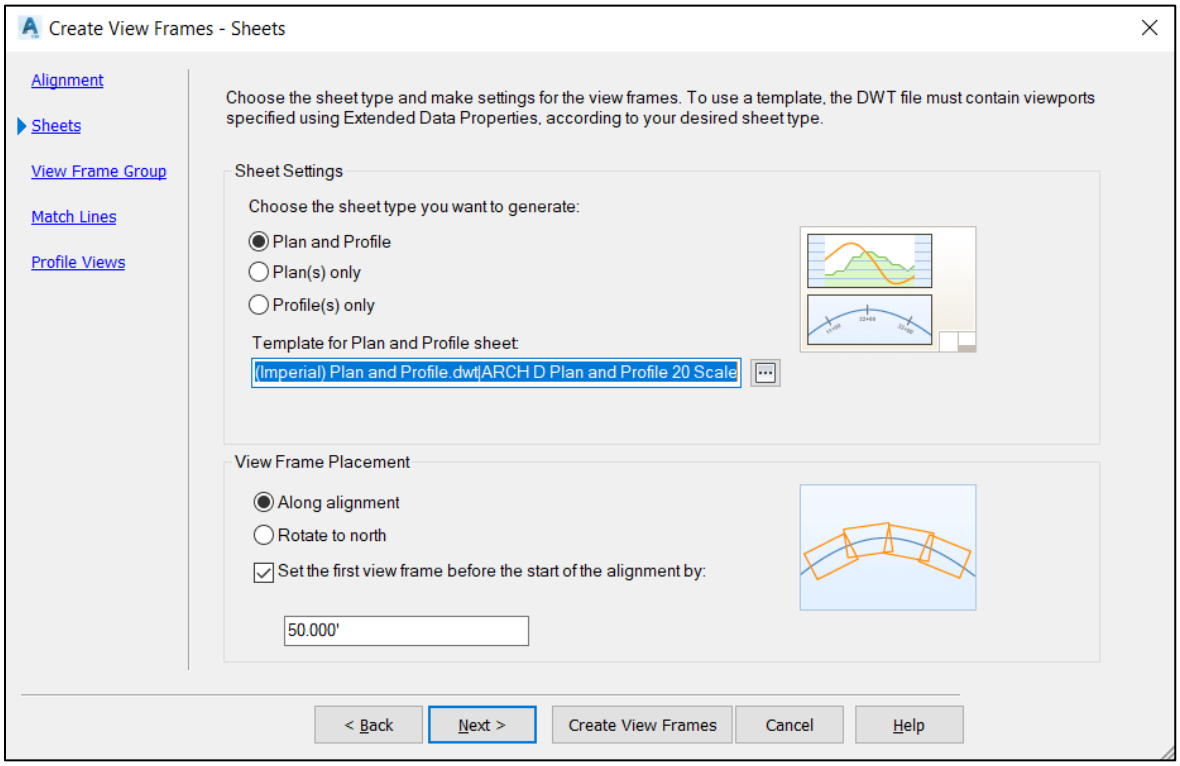


Figure 15-14 Create View Frames Manager

Step 4: Select the Create View Frames button to create view frames along the alignment. The sheets are created in the following step.

Step 5: Select the Create Sheets button on the Plan Production Panel on the Output Tab of the Ribbon.

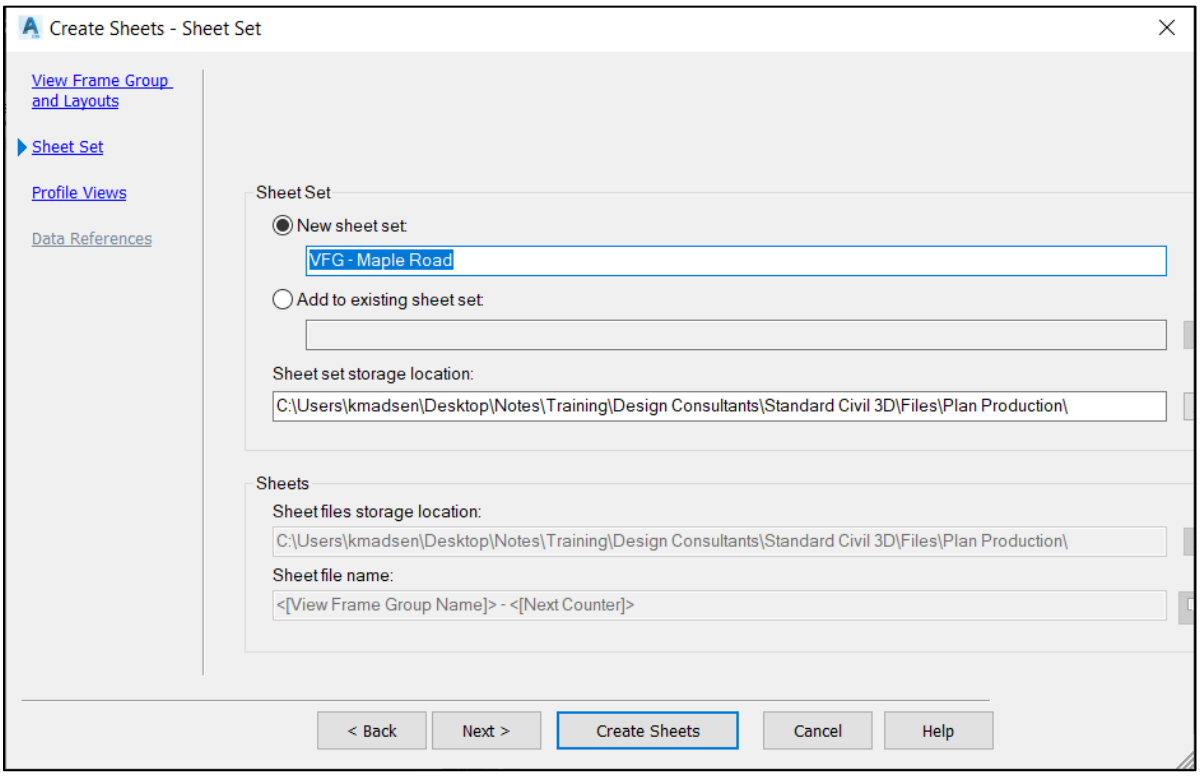


Figure 15-15 Create Sheets Manager

Step 6: In the Create Sheets Manager, users can choose to save the created sheets in the current drawing or a new drawing. Sheets can be added to a new sheet set or an existing sheet set. Select the Create Sheets button to create the sheets. The sheet names will be listed in the Sheet Set Manager.

15.13.1.2.2 STEPS FOR CREATING SECTION SHEETS

Cross Section Sheets must be created at 5 Scale or 10 Scale, ANSI D 22x34.

The steps for creating section sheets are described below:

Step 1: Create section views for a sample line group using the Create Multiple Views button on the Profile and Section Views panel on the Home tab of the Ribbon.

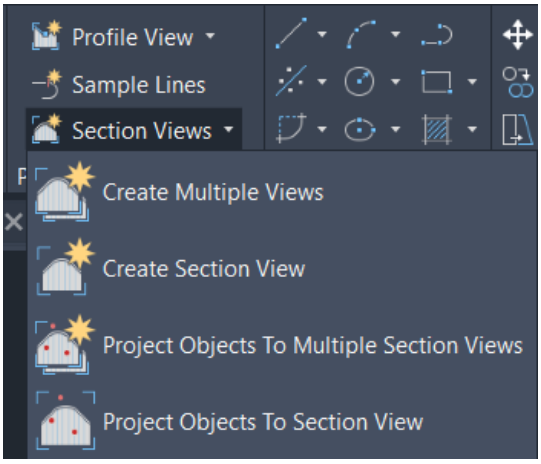


Figure 15-16 Create Multiple Views

Step 2: In the Create Multiple Section Views manager section view properties can be assigned. The sheets production template, PTC Section Sheet-C3D.dwt, must be selected here for automated sheet creation.

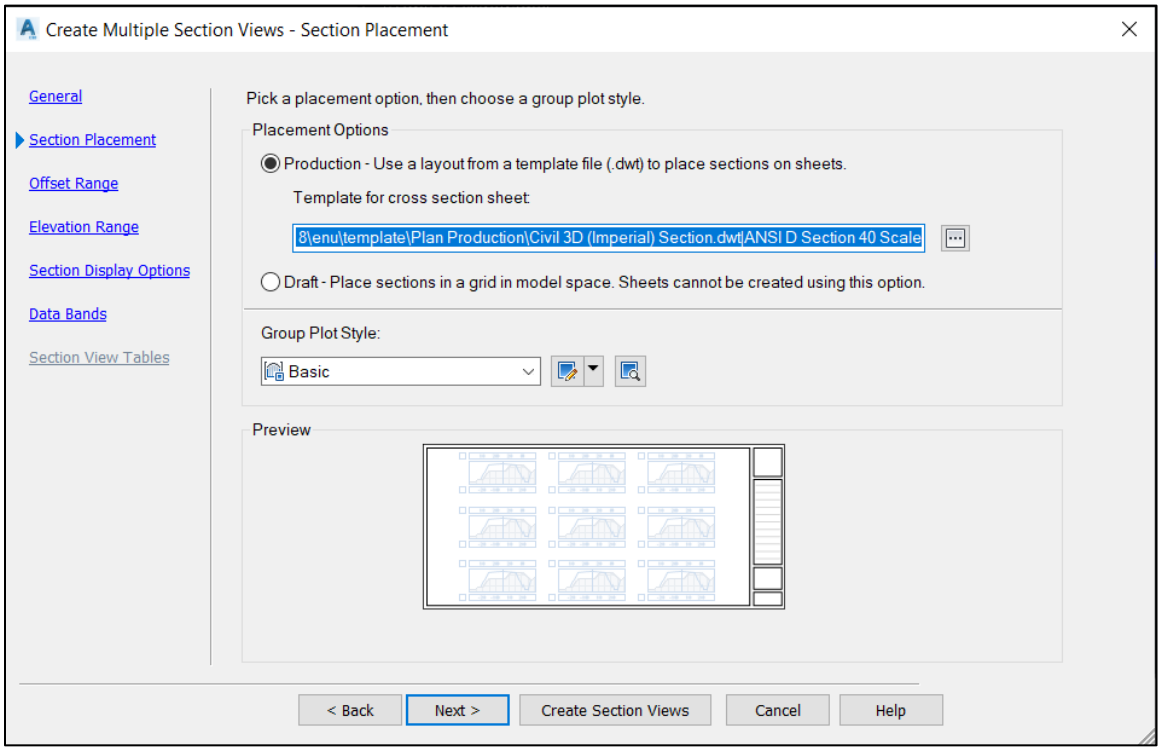


Figure 15-17 Create Multiple Section Views Manager

Step 3: Select the Create Section Views button to create the section views.

Step 4: To create section sheets, select the Create Section Sheets button on the Plan Production Panel on the Output Tab of the Ribbon.

Step 5: In the Create Section Sheets Manager, users can choose to create a new sheet set or add the created sheets to an existing sheet set. Note that all the created layouts will be created in the current drawing.

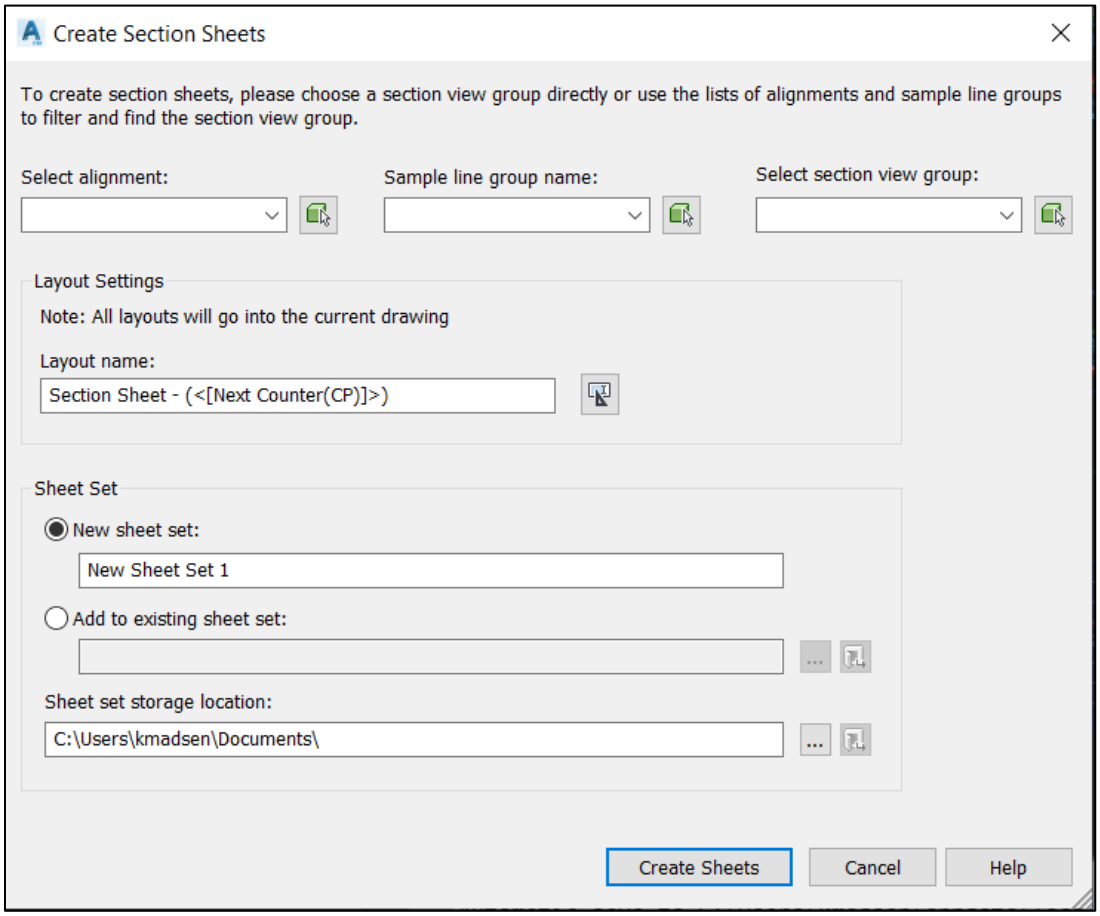


Figure 15-18 Create Section Sheets

15.13.2 OPENROADS DESIGNER PLAN PRODUCTION

15.13.2.1 SHEET INDEX WORKFLOW

OpenRoads Designer has a sheet index available for each WorkSet to assist with sheet production. The DGNWS file located in each WorkSet folder, loads a Sheet Index into Project Explorer that can be utilized with sheet creation. When creating a WorkSet, it is imperative for the template to reference the WorkSet 'Example Project' or take appropriate workflows to copy the DGNWS to be linked to a WorkSet. This will ensure that the DGNWS file has the same custom properties that were created for the PTC title blocks a part of sheet DGNLIBs.

The DGNLIBs that hold all the sheet standards and title blocks are located on your server's location of 'Bentley\OpenRoads Designer CE\Configuration\Organization-Civil\PTC CAD Standards\Dgnlib\Sheet Seeds'. The title blocks in these files all have custom properties built in to reference the sheet index, this includes all properties listed in the table below.

Table 15-4 Sheet Index and Sheet Properties

Property Definition	*Sheet Index or Sheet Properties*
Drawing Number	Sheet Properties
Drawing Type	Sheet Properties

Property Definition	*Sheet Index or Sheet Properties*
File Name (AutoFill)	Sheet Properties
Revision 1 Approved By	Sheet Properties
Revision 1 Date	Sheet Properties
Revision 1 Description	Sheet Properties
Revision 1 Number	Sheet Properties
Revision 2 Approved By	Sheet Properties
Revision 2 Date	Sheet Properties
Revision 2 Description	Sheet Properties
Revision 2 Number	Sheet Properties
Revision 3 Approved By	Sheet Properties
Revision 3 Date	Sheet Properties
Revision 3 Description	Sheet Properties
Revision 3 Number	Sheet Properties
Revision 4 Approved By	Sheet Properties
Revision 4 Date	Sheet Properties
Revision 4 Description	Sheet Properties
Revision 4 Number	Sheet Properties
Revision 5 Approved By	Sheet Properties
Revision 5 Date	Sheet Properties
Revision 5 Description	Sheet Properties
Revision 5 Number	Sheet Properties
Revision 6 Approved By	Sheet Properties
Revision 6 Date	Sheet Properties
Revision 6 Description	Sheet Properties
Revision 6 Number	Sheet Properties

Property Definition	*Sheet Index or Sheet Properties*
Revision 7 Approved By	Sheet Properties
Revision 7 Date	Sheet Properties
Revision 7 Description	Sheet Properties
Revision 7 Number	Sheet Properties
Sheet Name Line 1	Sheet Properties
Sheet Name Line 2	Sheet Properties
Sheet Name Line 3	Sheet Properties
Sheet Name Line 4	Sheet Properties
Sheet Name Line 5	Sheet Properties
Sheet Number (AutoFill)	Sheet Index
Structure Number	Sheet Properties
County	Sheet Index
District	Sheet Index
Drawing Number of	Sheet Index
Municipality	Sheet Index
Network Number	Sheet Index
Prepared By Line 1	Sheet Index
Prepared By Line 2	Sheet Index
Prepared By Line 3	Sheet Index
Prepared By Line 4	Sheet Index
Project Name Line 1	Sheet Index
Project Name Line 2	Sheet Index
Project Name Line 3	Sheet Index
Project Name Line 4	Sheet Index
Project Name Line 5	Sheet Index

Property Definition	*Sheet Index or Sheet Properties*
Sheet Number of	Sheet Index
WSB Number	Sheet Index

The following steps discuss how to update the Sheet Index:

Step 1: Open Project Explorer and open the Sheet Index for editing (boxed in red below) per appropriate WorkSet.

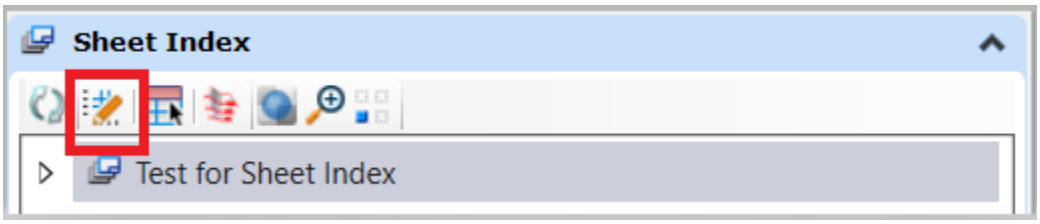


Figure 15-19 Open Sheet Index for Editing

Step 2: Add Sheets to Sheet Index. This can be completed by either dragging the sheet model from the Models dialog box and dropping it into the Sheet Index or by selecting 'Add Sheets' shown in figure below. If selecting Add Sheets this allows you to navigate through Windows Explorer and select any DGN file.

Note: Sheets can automatically be added to the Sheet Index when creating drawing and sheet files via the plan production tools with Named Boundaries. Once sheets are added to the sheet index, they will automatically update the sheet number and total sheet number for all sheets in the set.

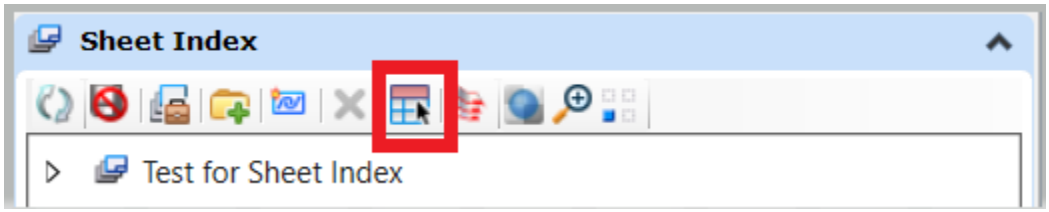


Figure 15-20 Add Sheets to Sheet Index

Step 3: Select 'Manage Sheet Index' in Project Explorer and update all index properties appropriate to the project. Anything updated a part of the Index Properties will automatically update all sheets.

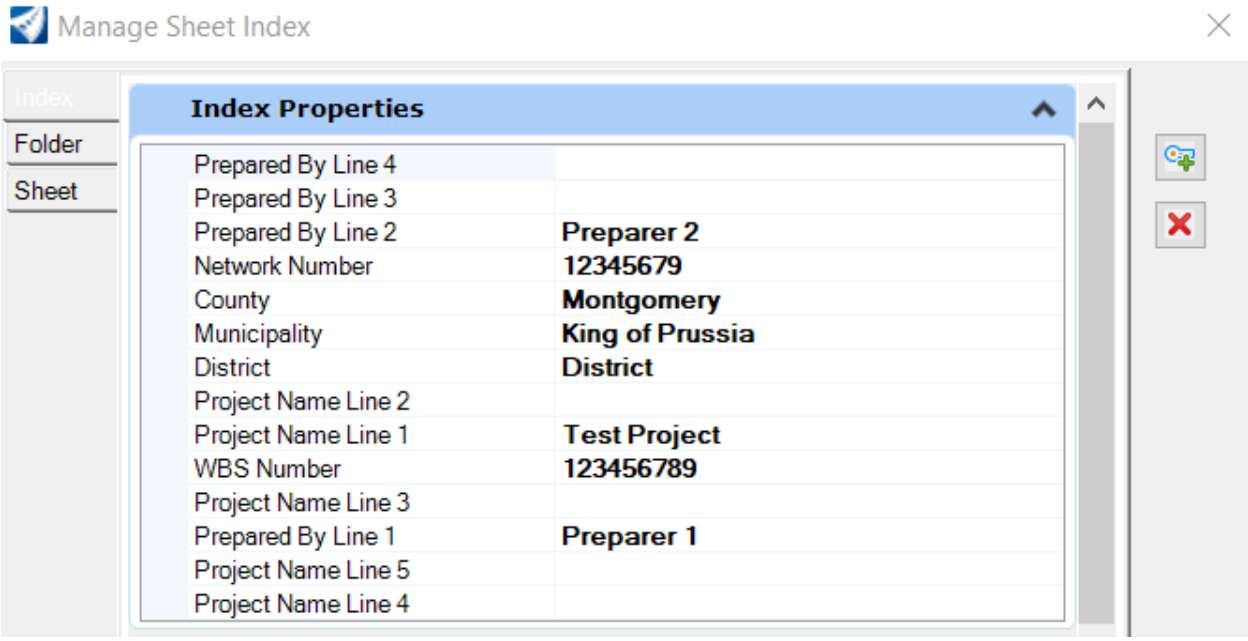


Figure 15-21 Manage Sheet Index - Update Properties

Step 4: Update the individual sheet properties by selecting the individual sheet in Project Explorer, then opening the Properties dialog and updating any appropriate information per sheet model (Figure 15-21).

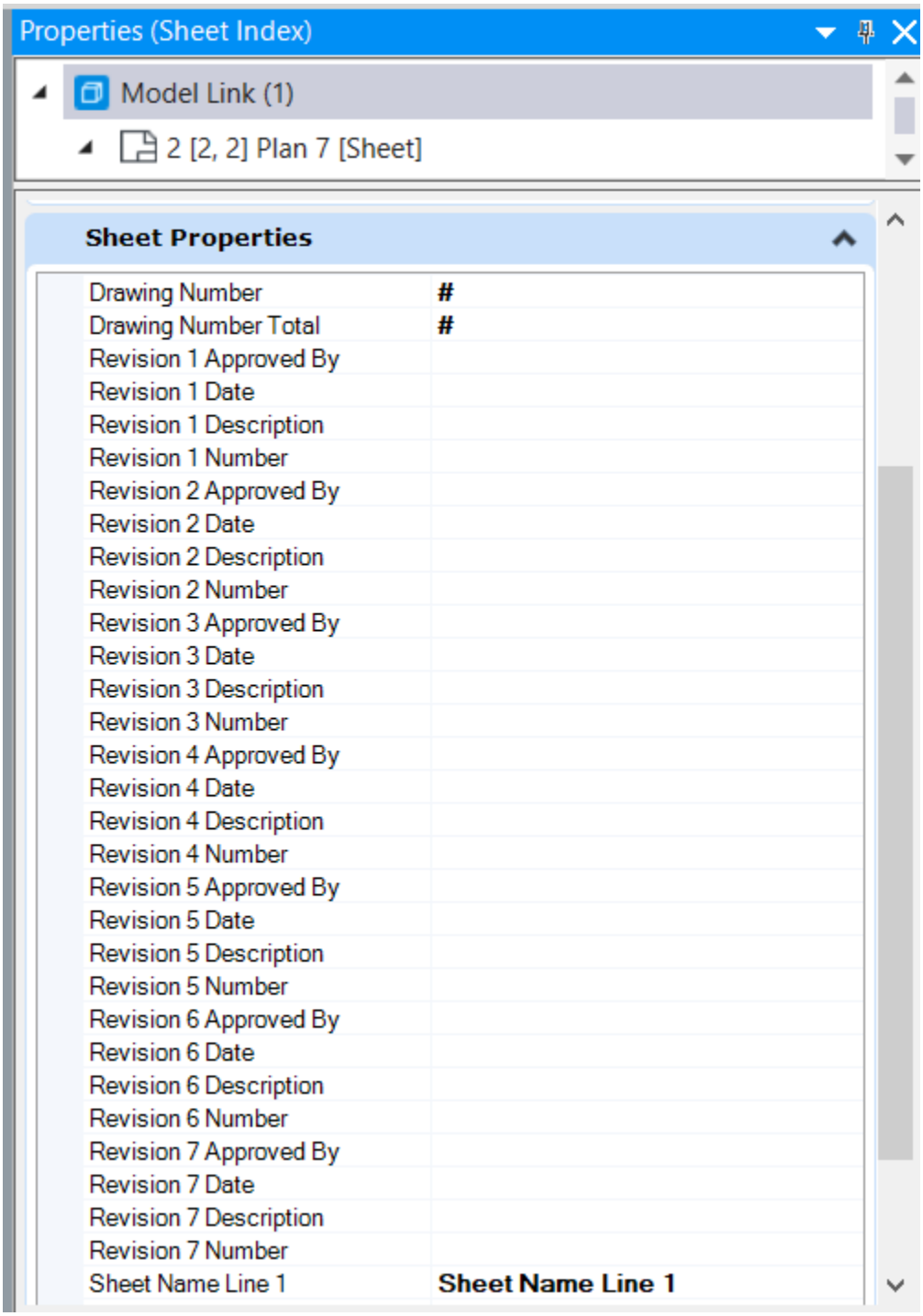


Figure 15-22 Sheet Index Properties

15.13.2.2 OPENROADS PLAN PRODUCTION WORKFLOW

OpenRoads Designer's Plan and Production Tools can be used for automated sheet creation. The following types of sheets can be created using these tools:

- Plan Sheets
- Profile Sheets
- Section Sheets
- Plan over Profile Sheets

15.13.2.2.1 STEPS FOR CREATING PLAN, PROFILE AND CROSS SECTION SHEETS

The steps for creating plan and profile sheets are described below:

Step 1: Create Named Boundaries to define the clipping areas of the plan and profile sheets along an alignment. You can create new Named Boundaries by selecting the icon under the Drawing Production tab. The named boundary dialog box presents the following options for creating Drawings:

 Civil Plan

 Civil Profile

 Civil Cross Section

Step 2: Select the appropriate Drawing Seed for the sheet and scale (i.e. 'ANSI D Plan Sheet – 50 Scale'). This will automatically populate the Detail Scale, Offsets, and Length for the named boundary. Select the start and stop location along the alignment.

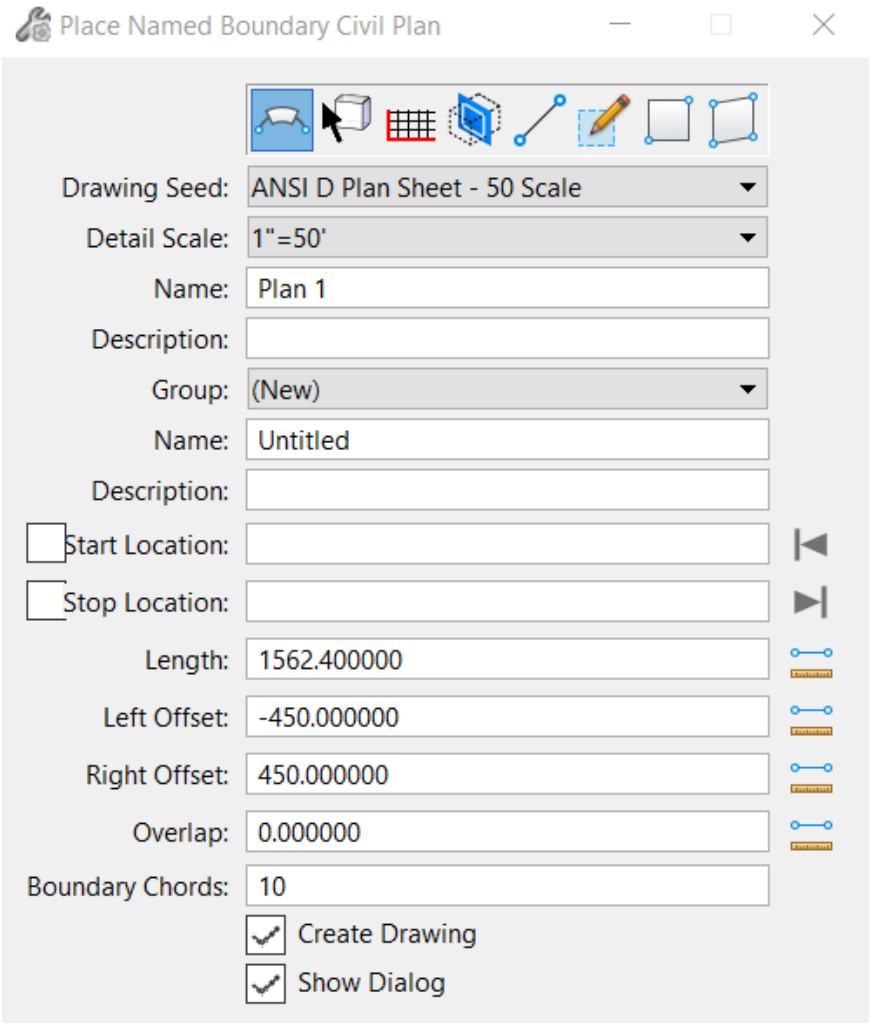


Figure 15-23 Named Boundary Dialog for Civil Plans

Step 3: Once the Named Boundary is created, a Create Drawing Dialog box will display. If the Drawing Seed was previously selected in the Named Boundary dialog box, then the appropriate sheet models and scale sizes will automatically populate. Annotation groups can be added, or any other settings adjusted.

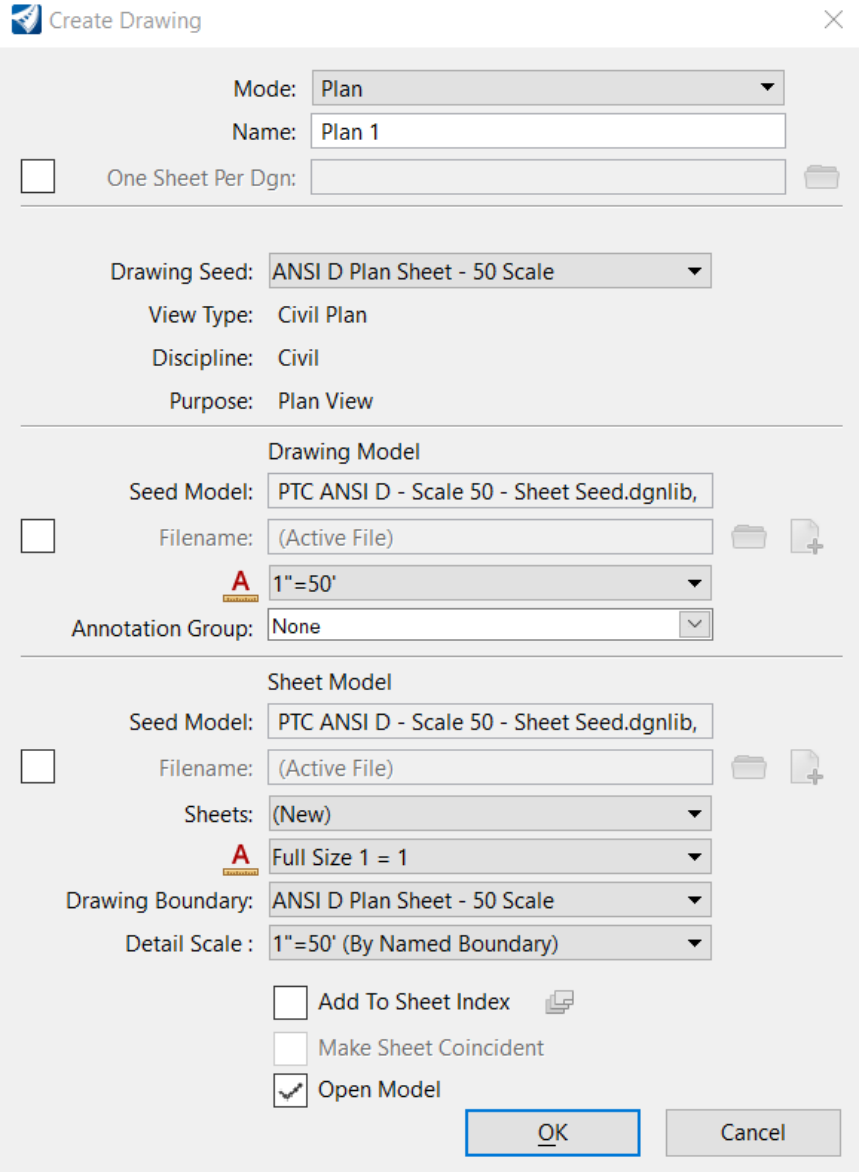


Figure 15-24 Create Drawing Dialog Box

Step 4: Create Sheet Models. This will automatically populate a sheet model with the appropriate border attached, named boundary, and external references from the model. Any additional annotations are placed within the created drawing models, not the sheet models.

15.13.2.2.2 CROSS SECTION SHEETS

Cross Section sheets are created similarly to Plan and Profile sheets. Cross sections can be created after a corridor is designed. All cross-section sheets are created in their own design file with all appropriate references attached to this file. Cross sections are generated from what is displayed in the Default-3D model, which means only 3D elements will be displayed within cross sections. Open the 3D model in order to see what will be cut into the cross sections. Then, once created, the named boundaries are placed in the 3D model relative to a selected alignment.

Cross Section Sheets must be created at 5 Scale or 10 Scale, ANSI D 22x34.

15.13.3 PLAN PRODUCTION TEMPLATES

Below lists the available plan production templates included in the standard support files for all roadway and horizontal plans.

Table 15-5 Available Sheet Templates (C3D) and Sheet Seed Files (ORD) Plan Production

Plan Sheet	*Plan over Profile Sheet*	*Profile Sheet*	*Section Sheet*
ANSI D (22x34) 20 Scale	ANSI D (22x34) 20 Scale	ANSI D (22x34) 20 Scale	ANSI D (22x34) 5 Scale
ANSI D (22x34) 25 Scale	ANSI D (22x34) 25 Scale	ANSI D (22x34) 25 Scale	ANSI D (22x34) 10 Scale
ANSI D (22x34) 40 Scale	ANSI D (22x34) 40 Scale	ANSI D (22x34) 40 Scale	
ANSI D (22x34) 50 Scale	ANSI D (22x34) 50 Scale	ANSI D (22x34) 50 Scale	
34 x 36			
34 x 48			
34 x 60			
34 x 72			
34 x 96			
34 x 108			
34 x 120			

For Bentley ORD, all sheet seed files are saved as DGNLIBs. Any unnecessary Sheet Seeds can be deleted in order to increase loading time.

15.14 PROJECT INFORMATION MODELING & CAD STANDARDS QUALITY REVIEW REPORT

Under development…

15.15 AUTODESK MODEL CHECKER

Under development…

15.16 MODEL REVIEW CHECKLISTS

Under development…