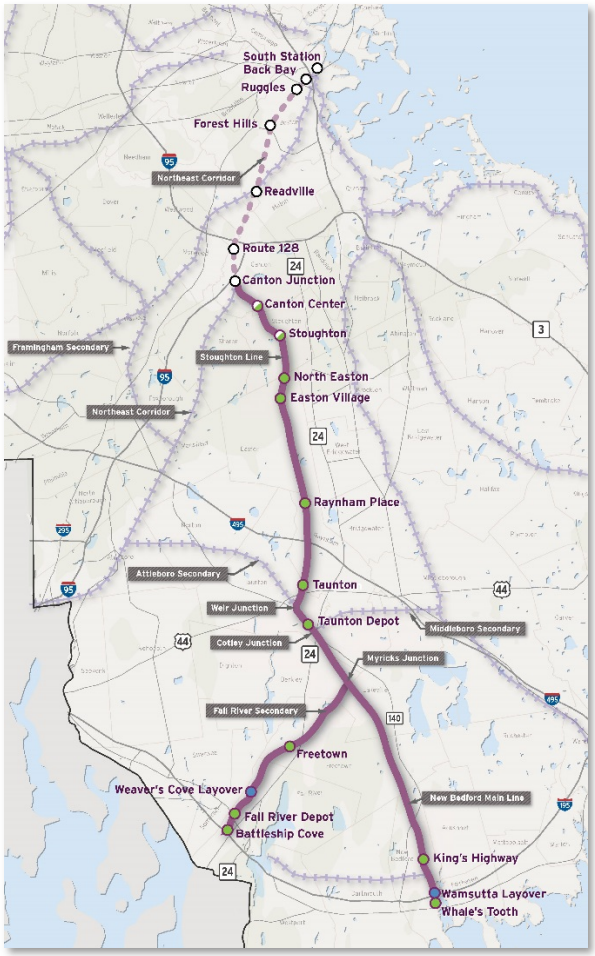
South Coast Rail
CAD Standards Manual



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Introduction

The MBTA's South Coast Rail (SCR) project will require the preparation of numerous design drawings. This manual provides the standards, guidelines, and requirements necessary to ensure that drawings prepared for the SCR project are uniform in appearance and reflect high-quality workmanship. It is recognized that this drafting manual is a living document and therefore is subject to both changes and additions in order to meet changing conditions.

It is intended that all newly created drawings shall be produced in accordance with the standards described in this manual. If existing drawings can be made compatible with minor changes, they may be used with prior approval from the design team.

This document will closely follow the Massachusetts Department of Transportation (MassDOT)'s CAD Standards. This document also provides hyperlinks to all MassDOT support files necessary for the preparation of CAD files relevant to the SCR project.

The purpose of these CAD Standards is to standardize drawing information and improve electronic data sharing between disciplines within the SCR team working on the project.

Please direct any questions or comments about this document to: Email:

ldibenedetto@vhb.com

Software

The SCR Project currently uses the following CAD software products:

AutoCAD
AutoCAD Map 3D
AutoCAD Civil 3D AutoCAD
Raster Design
MicroStation
Inroads/Inrails

PLEASE NOTE:
Actual software versions used by SCR team will change from time to time. Therefore, please refer to the specific project contract or contact the project manager for actual version and submission requirements.

All new projects must use the latest version of the drawing template, available on the SCR ProjectWise website. Please download the current drawing template and supporting files prior to beginning any SCR projects.

Civil 3D Objects

To ensure the integrity and continuity of an efficient workflow and design process throughout the survey, design, construction, and Building Information Modeling (BIM) processes, all SCR tasks shall require the use of Civil 3D objects.

The following design items must be created as Civil 3D objects and must be assigned SCR Civil 3D Object Styles using the provided SCR Civil 3D drawing template:

- POINTS
- SURFACES ALIGNMENTS
- PROFILES
- SECTIONS CORRIDORS
- PIPE NETWORKS

Not all Disciplines use these design elements. Therefore, some disciplines will not have a specific Civil 3D Object requirement. Please refer to each discipline's Civil 3D Objects section for details.

General Requirements

File Types

All project submissions and all project-related Drawing Files shall be provided in the three supported formats listed below:

AutoCAD Drawing Format (.dwg) [Placed in DWG project folder]
AutoCAD Drawing Web Format (.dwf) [Placed in DWF project folder]
Adobe Portable Document Format (.pdf) [Placed in PDF project folder]

PDF files shall be created from within the AutoCAD environment and shall contain layer information. It is required that each drawing or sheet created for a project shall be published and plotted to DWG, DWF, and PDF and placed in the appropriate folder. All external references (DWG, DWF, DGN, PDF, TIFF, MrSID, JPG, etc.) used in support of the creation of these project sheets shall be stored within the XREF folder only. (The XREF folder is a subfolder of DWG).

Discipline Codes

The following discipline codes shall be used in all file naming for all projects. Use the discipline code relative to the authoring discipline, i.e. Traffic creates TR files, Highway Design creates HD files, and Survey creates SV files. Where a file contains plans from more than one discipline, use the predominant discipline code, i.e. HD file prepared by HD contains GT or TR plans.

AR	Architecture
BR	Bridge
CM	Communications
CT	Catenary
CV	Civil
EL	Electrical
EQ	Equipment
EV	Environmental
FN	Furniture
FP	Fire Protection
GD	Grading and Drainage
GN	General
GT	Geotechnical
GX	Grade Crossings
HD	Highway Design
LD	Landscape Design
LO	Layouts
ME	Heating, Ventilating, & Cooling
PF	Profile
PL	Plumbing
PW	Electrical/Power
RD	Record Utility Location
RW	Right of Way
SC	Signals
SD	Standard Details
SG	Signage/Graphics
SP	Site Plans
ST	Structural
SV	Survey

Discipline Codes (Cont)

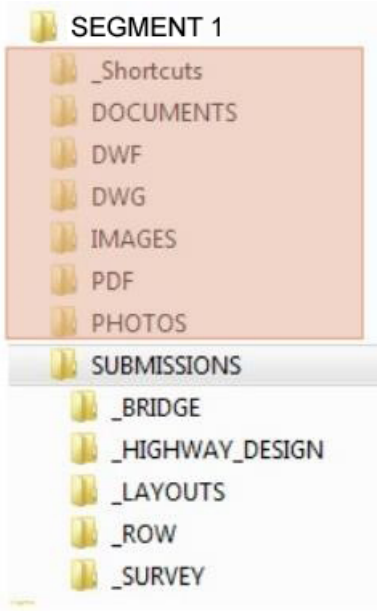
TD	Track Drainage\Culverts
TK	Track
TP	Traction Power
TR	Traffic
UT	Utilities
XS	Cross Sections

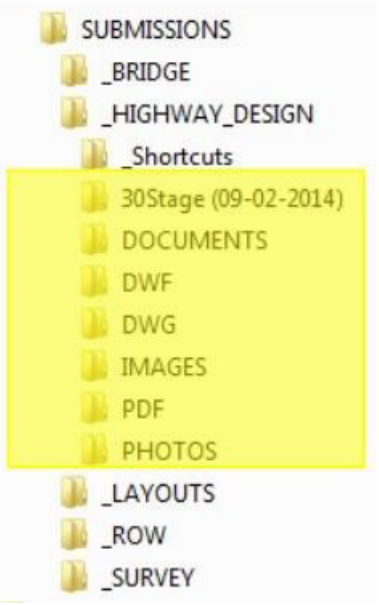
Discipline codes are used in file naming, layer naming, and block naming.

Default Folder Structure

Electronic file submissions shall be provided in the following Default Folder Structure. Each discipline has its own additional requirements; see the respective discipline section of this document for further details.

The Project Folder shall begin with the Segment number, i.e. Segment 1. An optional identifier can be placed after the project file number; the identifier must be enclosed within parentheses. Special characters are not permitted in folder names except for the following; hyphens [-], underscores [_], and/or parenthesis [( )].





Working Folders

The following are the working folders for SCR Project CAD:
_Shortcuts: Created by the Civil 3D Data Shortcut functionality
DOCUMENTS: Supporting files, Standards Audit Reports, Audit Notes, contracts, etc.
DWF: All project drawings plotted to DWF
DWG: All project DWG files
XREFS: All DWG, DWF, DGN, PDF, and IMAGE files inserted as external references (Subfolder of DWG)
IMAGES: All GIS imagery (not used as XREFS)
PDF: All project drawings plotted to PDF
PHOTOS: Camera photographs of project
SUBMISSIONS: Each section has its own submission folder. When needed, you may add folder names with the date of submission beneath the discipline submission folder.

Submission Workflow

When a submission level is reached, ALL folders (excluding SUBMISSIONS folder) shall be copied, intact, to the appropriate submission level folder, i.e. 25Stage, 75Stage, etc. No external reference outside of the folder is permitted.

Do not use the AutoCAD E-Transmit function when submitting project data. Improper binding of XREFs, consolidation of project folders, and destruction of data shortcut functions will occur.

The submission folder created will be the appropriate submission package to the SCR Project Manager. This folder structure must contain ALL supporting data. No external reference outside of the folder structure, for instance DWG, TIFF, BMP, etc., is permitted.

It is the intent of this procedure to maintain the SUBMISSIONS folder as a "snapshot," or archive, of submitted project files at their respective submission level. Once the submission has been reached, work will continue the project, using the files located within the working folders.

File Naming

The following file naming standard shall be followed for all CAD-related files created, used, or submitted to the organization. The Bridge Department has expanded upon this requirement; please refer to the Bridge File Naming section of this document for further details.

This file naming standard applies to all CAD drawings, DWFs, and PDFs used in support of or in conjunction with this CAD Standard.

File names shall begin with their segment number, followed by an underscore and the appropriate discipline code. In the instance where there is more than one file, assign an appropriate sequential number to the end (ex. 1, 2, 3). Special characters are not permitted except for the following: hyphens [-], underscores [_], and/or parenthesis [( )].

Example 1.
A set of engineering design plans and documents were prepared for project file number SEGMENT1.
Acceptable filenames would be as follows:

SEGMENT1_CV1.dwg	*SEGMENT1_ CV1.pdf*	*SEGMENT1_ CV1.dwf*
SEGMENT1_ CV2.dwg	*SEGMENT1_ CV2.pdf*	*SEGMENT1_ CV2.dwf*
SEGMENT1_TR1.dwg	*SEGMENT1_ TR1.pdf*	*SEGMENT1_ TR1.dwf*
SEGMENT1_SV.dwg	*SEGMENT1_SV.pdf*	*SEGMENT1_SV.dwf*
SEGMENT1_RW1.dwg	*SEGMENT1_RW1.pdf*	*SEGMENT1_RW1.dwf*
SEGMENT1_RW2.dwg	*SEGMENT1_RW2.pdf*	*SEGMENT1_RW2.dwf*

Optional File Name Identifier

An optional identifier can be used to enter any information relevant for identification. Simply enclose the information within parenthesis, i.e. (*****). A 15 character maximum is allowed within the parenthesis.

Example 2.
A set of design plans and documents were prepared for project file number SEGMENT1.
Acceptable filenames would be as follows:

SEGMENT1_ST(ClintonSt_BR00.0)
SEGMENT1_TK(Stoughton_ML)
SEGMENT1_CV(Stoughton_Station)

Drawing Setup

Drawing Template

1. The SCR Civil 3D Standard drawing template can be found within the Resources Section. Click here (SCR_Format.dwt)
2. All DWG files created for any SCR project must use this default template.
3. This template includes SCR-specific Civil 3D styles, fonts, dimension styles, (all prefixed with "SCR"), and most of the standard MassDOT Annotation, Design and Survey layers needed for completion of the SCR project.
4. All project data must be located on the following;
   - Horizontal Datum - Massachusetts State Plane Coordinate System of 1983 (NAD83) US Feet
   - Vertical Datum – North American Vertical Datum of 1988 (NAVD88)
   - Or as otherwise specified by the SCR Project Manager.
5. Any information referenced in design drawings ***shall not be moved or rotated from the original coordinates used in the drawing.***

Borders and Sheets – Design Center

1. The Civil 3D drawing template contains a Title Sheet, Index Sheet, and Sample Sheet only.
2. Each SCR section has a standard set of pre-defined sheets. Detailed information as to the contents of each can be found in the Plan Requirements of the appropriate section.
3. The links to these can be found within the Resource Section here.

22x34_STRUCTURAL_SHEETS.dwg
24x36_STRUCTURAL_SHEETS.dwg
CIVIL_SHEETS.dwg
ENVIRONMENTAL_SHEETS.dwg
GEOTECH_SHEETS.dwg
LANDSCAPE_SHEETS.dwg
LAYOUT_SHEETS.dwg
ROW_SHEETS.dwg
SURVEY_SHEETS.dwg
TRAFFIC_SHEETS.dwg
TRACK_SHEETS.dwg
UTILITY_SHEETS.dwg

4. It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.

Scale and Units

All CAD drawing models, i.e. plan views, shall be drafted at full scale in engineering units such that one drawing unit equals one foot. Where sections, elevations, or details are necessary, the use of architectural units is permitted.

Font and Text Styles

The following fonts and text styles are will be used, again following the MassDOT standards. These fonts and text styles are pre-defined within the drawing template. These shall be the only fonts and text styles used on Plan and Detail Sheets.

NAME	DESCRIPTION	SIZE	FONT
DOT-E	Existing Text	(size 0.10)	RomanS
DOT-E-OBL	Existing Text OBLIQUE	(size 0.10)	RomanS
DOT-LO	Layout Text	(size 0.10)	RomanS
DOT-P	Proposed Text	(size 0.125)	Arial
DOT-P-OBL	Proposed Text OBLIQUE	(size 0.125)	Arial
DOT-BR4	Bridge Text	(size 0.125)	RomanS
DOT-BR5	Bridge Text	(size 0.15625)	RomanS
DOT-BR6	Bridge Text	(size 0.1875)	RomanS
DOT-BR8	Bridge Text	(size 0.25)	RomanS
DOT-BR8B	Bridge Text BOLD	(size 0.25)	BOLD
DOT-PB	Proposed Text BOLD	(size 0.125)	Arial Bold
DOT-Street	Street and Town Text	(size 0.25)	Arial Bold
DOT-Title	Title Text for Layout/Survey		RomanT

Text Style Usage

- All existing text other than Bridge, Layouts, and Record Utility shall use the DOT-E text style.
- All proposed text other than Bridge, Layouts, and Record Utility shall use the DOT-P text style.
- For Bridge text style usage, please refer to the Bridge Section in this manual.
- All Layout geometry, stationing, notes, and property owner information text used on Layout Plans shall use the DOT-LO text style.
- All Utility Record Location text shall use the DOT-E-OBL (Existing Text OBLIQUE) text style.
- Street and Town names shall use the DOT-Street text style.
- Layout Titles text that is pre-defined within Layout Titles blocks shall use the DOT-Title text style.
- DOT-PB (Proposed Text Bold) is provided to be used as needed.
- DOT-P-OBL (Proposed Text OBLIQUE) is provided to be used as needed.

Dimension Styles

The following dimension styles shall be the only dimension styles used on plan and detail sheets. These styles are pre-defined within the drawing template.

NAME	DESCRIPTION	FONT
DOT-E	Existing Text (size 0.10)	RomanS
DOT-P	Proposed Text (size 0.125)	Arial
DOT-BR-FT	Bridge Text (size 0.125)	RomanS
DOT-BR-IN	Bridge Text (size 0.125)	RomanS

Multileader Styles

The following multileader styles shall be the only multileader styles used on plan and detail sheets. These styles are pre-defined within the drawing template.

NAME	DESCRIPTION	FONT
DOT-E Arrow	Existing Text (size 0.10)	RomanS
DOT-E Arrow Tilde	Existing Text (size 0.10)	RomanS
DOT-E Dot	Existing Text (size 0.10)	RomanS
DOT-P Arrow	Proposed Text (size 0.125)	Arial
DOT-P Arrow Tilde	Proposed Text (size 0.125)	Arial
DOT-P Dot	Proposed Text (size 0.125)	Arial
DOT-BR_arrow	Bridge Text (size 0.125)	RomanS
DOT-BR_arrow_One Line FR	Bridge Text (size 0.125) For use with fractions	RomanS
DOT-BR_arrow	Bridge Text (size 0.125)	RomanS

Table Styles

The following table styles shall be the only table styles used on plan and detail sheets. These styles are for SCR use and are pre-defined within the drawing template.

NAME	DESCRIPTION	FONT
DOT-E	Existing Text (size 0.10)	RomanS
DOT-P	Proposed Text (size 0.125)	Arial
INDEX	Proposed Text (size 0.125)	Arial

Symbols and Blocks

Symbols have been developed for the proposed SCR construction items. These symbols closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for the SCR project; no substitute symbols will be accepted. Additional symbols may be added for items not listed; however, the list of additional symbols with descriptions must be included with the plan submission to the SCR design team.

Each section has a standard set of pre-defined symbols and blocks. These sets are contained within the DWG files listed below and can be found on the Resources page here.

BRIDGE_SYMBOLS.dwg
GENERAL_SYMBOLS.dwg
GEOTECH_SYMBOLS.dwg
HWYDESIGN_SYMBOLS.dwg
LANDSCAPE_SYMBOLS.dwg
LAYOUT_SYMBOLS.dwg
SURVEY_SYMBOLS.dwg
TRACK_SYMBOLS.DWG
TRAFFIC_SYMBOLS.dwg
UTILITY_SYMBOLS.dwg

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

General Linetype and Text Layer Guidelines

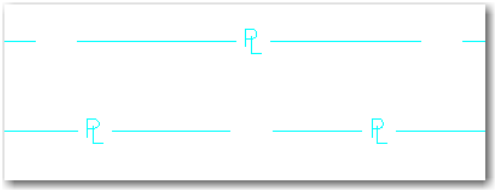
Property Lines

Property boundary line segments shall be drafted as a standard property line on layer EX-SV-LN- PROP, or as a boundary line segment under common ownership (if present) on layer EX-SV-LN- PROP-COMMON.

Standard Property Lines

Standard property boundary line segments shall be drawn on layer EX-SV-LN-PROP and denoted using one of the following methods:

1. For property lines longer in length than 2.5 times the drawing scale (i.e. greater than 50 feet for 1"=20' scale drawing), draw the property boundary line segments with the layer's default linetype (EXIST PROP LINE SYMBOL). This linetype automatically inserts the Property Line symbol at regular intervals along the line:



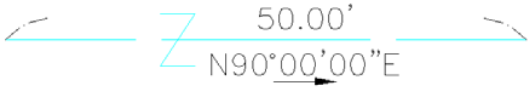
2. For property lines, shorter in length than 2.5 times the drawing scale (i.e. 50 feet for 1" =20' scale drawing) where the property line is not long enough to allow the symbol to be inserted, first change the property boundary line segment linetype to EXIST PROP LINE, then do one of the following:

   - Insert the SV-PL block provided within the template and Survey_Symbols.dwg at various intervals along the property line.
     -or-
   - Add a Civil 3D curve and/or line label object of *MassDOT_SV_EX_PL Symbol* style (provided within the template) at various intervals along the property line.

Property Lines under Common Ownership

When property boundary line segments under common ownership are encountered, they shall be drawn on layer EX-SV-LN-PROP and denoted using one of the following methods:

- Insert the SV-Z block provided within the template. Also, insert the Survey_Symbols.dwg drawing once with its horizontal axis oriented along the property line.
  -or-
- Add a Civil 3D curve and/or line label object of *MassDOT_SV_EX_Z Symbol* style (provided within the template) once along the property line.



Woods and Brush Lines

There are two line types available to be used for Woods and Brush Lines.

WOODS LINE (uses the default object line type scale of 1.0):
TREELINE_L – use when the woods line is located on the left side of the direction of survey. TREELINE_R – use when the woods line is located on the right side of the direction of survey.

BRUSH LINE (assigns an object line type scale of 0.5):
TREELINE_L – use when the brush line is located on the left side of the direction of survey. TREELINE_R – use when the brush line is located on the right side of the direction of survey.

Guardrail Lines

There are four line types available to be used for guardrails.

GRDRAIL-WOOD-LT – use when the wood post guardrail is located on the left side of the direction of survey. This places the posts onto the back of the line, away from the roadway.

GRDRAIL-WOOD-RT – use when the wood post guardrail is located on the right side of the direction of survey. This places the posts onto the back of the line, away from the roadway.

GRDRAIL-STEEL-LT – use when the steel post guardrail is located on the left side of the direction of survey. This places the posts onto the back of the line, away from the roadway.

GRDRAIL-STEEL-RT – use when the steel post guardrail is located on the right side of the direction of survey. This places the posts onto the back of the line, away from the roadway.

Text Layers

When labeling an object with a piece of description text, i.e. GRAN CURB, always place the text onto the TEXT layer for the object, i.e. Drainage rims – EX-UT-DRAIN-TEXT. If no TEXT layer is available, place the text onto the object layer, i.e. EOP = EX-SV-EOP, 3' CLF = EX-SV-FNC-CLF.

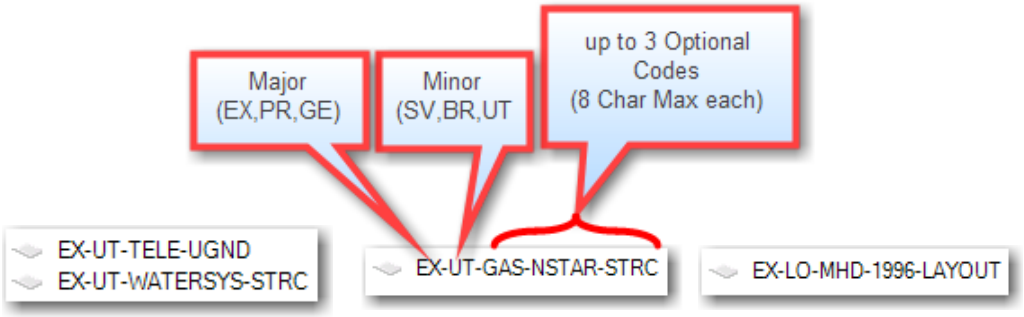
Do not assume that all general text is placed onto the EX-SV-TEXT or PR-HD-TEXT layers.

Layers and Layer Naming

Layer Naming

The drawing template has been provided with standardized layers designed to accommodate information required in any drawing. Every attempt must be made to use the layers provided. In the event that an additional layer is required, the following layer naming procedure shall be used:

Each layer (excluding OB and GE layers) shall be assigned a Major and a Minor code separated by a hyphen (-). Each layer must also use the appropriate Plot Styles provided (see Plot Styles). Three optional Major and Minor codes have been provided to allow for ease of customization should a layer not be available.



The Major Codes are:
EX – Existing Feature

GE – General Feature
(general notes, sheets, title blocks)

PR – Proposed Feature

OB – Civil 3D Object Layers

RD – Record Location Feature

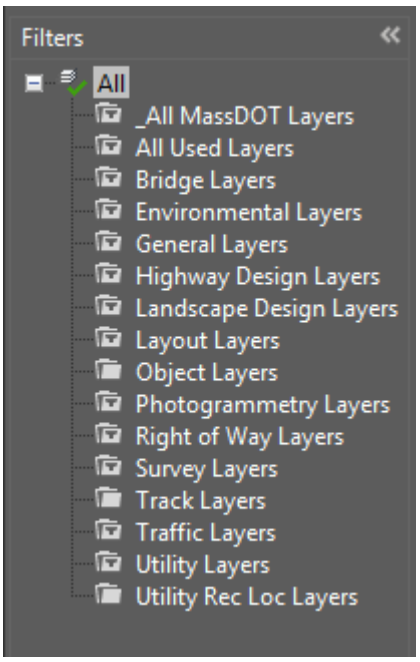
Minor Codes (i.e. Discipline Codes):

AR	Architecture
CV	Civil
CT	Catenary
EL	Electrical
EQ	Equipment
EV	Environmental
FN	Furniture
FP	Fire Protection
GN	General
GT	Geotechnical
GX	Grade Crossings
LD	Landscape Design
ME	Heating, Ventilating, & Cooling
PF	Profile
PL	Plumbing
RW	Right of Way
SC	Signals & Comm.
SG	Signage/Graphics
ST	Structural
SV	Survey
TD	Track
Drainage/Culverts	
TK	Track
TR	Traffic
UT	Utilities
XS	Cross Sections

Optional Codes:
Up to three (3) Optional Codes can be created in order to provide additional information to the layer name. Each optional code cannot be larger than eight (8) characters.

Layer Filters

A standard set of layer filters has been provided within the Layer Manager to organize all layers into their unique discipline groups. The layer filters provided are as follows:



Master Layer List

The following is the Master Layer List of all layers contained within the SCR drawing template:

`	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
0	white	Continuous	SOLID 100%	DO NOT USE
Defpoints	white	Continuous	SOLID 100%	Default Layer - DO NOT USE
EXISTING LAYERS				
EX-BR-COMP	8	DASHDOT2	BR 50%	Existing Bridge Features
EX-BR-COMP-HIDN	8	HIDDEN	BR 50%	Existing Bridge Features - Hidden
EX-BR-HATCH	254	Continuous	SOLID 25%	Existing Bridge Hatching
EX-BR-REBAR	magenta	DASHDOT2	BR 100%	Existing Bridge Rebar
EX-BR-TEXT	141	Continuous	BR 50%	Existing Bridge Text
EX-EV-HAZMAT	41	HIDDEN2	ENVR EXIST	Hazmat Outline Area
EX-EV-REGL-BUFFER-100	240	DASHEDX2	ENVR EXIST	Regulatory – 100 ft. Buffer Zone
EX-EV-REGL-FLOOD	magenta	BORDERX2	ENVR EXIST	Regulatory – Flood Zones
EX-EV-REGL-FLOOD-TEXT	Yellow	Continuous	ENVR EXIST	Regulatory – Flood Zones Text
EX-EV-REGL-MHW	212	BORDER	ENVR EXIST	Regulatory – Mean High Water - Tidal
EX-EV-REGL-OHWL	212	BORDER2	ENVR EXIST	Regulatory – Ordinary High Water - Non-Tidal
EX-EV-REGL-RIVR-FRNT	221	BORDER2	ENVR EXIST	Regulatory – Riverfront Protection Zones (200')
EX-EV-REGL-RIVR-FNRT-25	33	BORDER2	ENVR EXIST	Regulatory – Riverfront Protection Zones (25')
EX-EV-REGL-VPOOL-APPX	91	DASHED2	ENIVR EXIST	Approximate Vernal Pool
EX-EV-REGL-VPOOL-DELN	181	Continuous	ENVIR EXIST	Delineated Vernal Pool
EX-EV-TEXT	magenta	Continuous	ENVR EXIST	Regulatory – Environmental Existing Text
EX-EV-WLFL	231	BORDER2	ENVR EXIST	Regulatory – Riverfront Protection Zones

EX-EV-WLFL-TEXT	232	Continuous	ENVR EXIST	Wetland Flags Text
EX-GT-FEAT	9	Continuous	BR 50%	Geotechnical Existing Features
EX-LD-SITE-FEAT	170	Continuous	SURVEY 100%	Landscape Design Existing Site Features
EX-LD-VEGE	green	Continuous	SURVEY 100%	Landscape Design Existing Trees, Shrubs, and Vegetation
EX-LD-VEGINV	12	Continuous	SURVEY 100%	Landscape Design Existing Invasive Vegetation

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-LO-CT	red	PHANTOM	ROW 100%	Existing County Layout Lines
EX-LO-GEOM	red	Continuous	ROW TEXT	Existing Geometry Text for Layout Lines
EX-LO-RR	red	EXIST RR SIDELINE	ROW 100%	Existing Railroad Layout Lines
EX-LO-SHLO	red	Continuous	ROW 100%	Existing State Highway Layout Lines
EX-LO-TEXT	red	Continuous	ROW TEXT	Existing Text for Layout Information
EX-LO-TN	red	CENTER	ROW 100%	Existing Town/City Layout Lines
EX-LO-TP	red	PHANTOM2	ROW 100%	Existing Turnpike Authority Layout Lines
EX-SV-BL-CT	150	DASHED	ROW 100%	Existing Baseline - County
EX-SV-BL-GEOM	150	Continuous	ROW TEXT	Existing Baseline - Geometry Text
EX-SV-BL-RR	150	EXIST RR SIDELINE	ROW 100%	Existing Baseline - Railroad
EX-SV-BL-SHLO	150	CONST BASELINE	ROW 100%	Existing Baseline - State Highway
EX-SV-BL-TEXT	150	Continuous	ROW TEXT	Existing Baseline - Text
EX-SV-BL-TN	150	DASHED2	ROW 100%	Existing Baseline - City/Town
EX-SV-BL-TP	150	DASHED	ROW 100%	Existing Baseline - Turnpike Authority
EX-SV-BL-XX	150	DASHED2	ROW 100%	Existing Baseline - Miscellaneous
EX-SV-BLDG	9	Continuous	SURVEY 100%	Existing Buildings, Decks
EX-SV-BMRK	red	Continuous	SURVEY 150%	Existing Benchmark Symbols
EX-SV-BMRK-TEXT	red	Continuous	SURVEY 125%	Existing Benchmark Text
EX-SV-BP-ALL	253	Continuous	SURVEY 100%	Existing Survey Point - Default Point Layer
EX-SV-BP-TEXT	253	Continuous	SURVEY 100%	Existing Survey Point - Text Labels
EX-SV-BR-DETL	9	Continuous	SOLID 50%	Existing Bridge Items and Structures
EX-SV-BR-TEXT	9	Continuous	SURVEY 100%	Existing Bridge Text as Surveyed

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-SV-CONT-MJR	142	DASHED	SURVEY 100%	Existing Contours - MAJOR
EX-SV-CONT-MNR	54	DASHED2	SURVEY 80%	Existing Contours - MINOR
EX-SV-CONT-TEXT	red	Continuous	SURVEY 100%	Existing Contours - Text
EX-SV-CONT-USER	172	Continuous	SOLID 50%	Existing User-Defined Contours
EX-SV-CTRL	red	Continuous	SURVEY 150%	Existing Traverse and Photo Control Points
EX-SV-CTRL-TEXT	red	Continuous	SURVEY 125%	Existing Traverse and Photo Control Points Text
EX-SV-CURB-BOT	61	Continuous	SURVEY 125%	Existing Bottom Curb
EX-SV-CURB-TOP	133	Continuous	SURVEY 100%	Existing Top/Back Curb
EX-SV-DETL	8	Continuous	SURVEY 100%	Existing Miscellaneous Detail
EX-SV-EOC	131	Continuous	SURVEY 125%	Existing Edge of Concrete
EX-SV-EOG	9	Continuous	SURVEY 125%	Existing Edge of Soil, Gravel, and Stone
EX-SV-EOP	90	Continuous	SURVEY 125%	Existing Edge of Pavement
EX-SV-EOTHR	9	Continuous	SURVEY 125%	Existing Edge of Other Surface
EX-SV-EROS	55	Continuous	SURVEY 100%	Existing Erosion Control
EX-SV-FIGURE	magenta	Continuous	SURVEY 100%	Existing Survey Figure
EX-SV-FNCE-CLF	37	FENCE-CHAIN LINK	SURVEY 125%	Existing Chain Link or Metal Fences
EX-SV-FNCE-OTHR	37	FENCE-CHAIN LINK	SURVEY 125%	Existing Fences - Other
EX-SV-FNCE-WOOD	37	FENCE-WOOD RAIL	SURVEY 125%	Existing Wood Fences
EX-SV-GRDL-STBM-LT	9	GRDRAIL-STEEL-LT	SURVEY 100%	Existing Steel Post Guardrail and Barrier Left
EX-SV-GRDL-STBM-RT	9	GRDRAIL-STEEL-RT	SURVEY 100%	Existing Steel Post Guardrail and Barrier Right
EX-SV-GRDL-WOOD-LT	9	GRDRAIL-WOOD-LT	SURVEY 100%	Existing Wood Post Guardrail and Barrier Left

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-SV-GRDL-WOOD-RT	9	GRDRAIL-WOOD-RT	SURVEY 100%	Existing Wood Post Guardrail and Barrier Right
EX-SV-GRIDT	white	Continuous	SURVEY 100%	Existing Survey Grid Tick
EX-SV-GRND	9	Continuous	SURVEY 100%	Existing Ground Surface
EX-SV-LN-EASE	white	LINE OF EASE	ROW 100%	Existing Easement Lines
EX-SV-LN-GEOM	white	Continuous	ROW TEXT	Existing Boundary Line Geometry Text
EX-SV-LN-PROP	cyan	EXIST PROP LINE	ROW 100%	Existing Abutting Property Lines
EX-SV-LN-STATE	yellow	EXIST STATE BNDY LINE	ROW 100%	Existing State Boundary Lines
EX-SV-LN-TEXT	white	Continuous	ROW TEXT	Existing Boundary Line Text
EX-SV-LN-TIE	white	DASHED	ROW 100%	Existing Property Tie Lines
EX-SV-LN-TN	yellow	CENTERX2	ROW 100%	Existing Town/City Boundary Lines
EX-SV-LN-ZONE	green	ZONE	ROW 100%	Existing Zoning Lines
EX-SV-LN-ZONE-TEXT	green	ZONE	ROW TEXT	Existing Zoning Lines Text
EX-SV-MONU	red	Continuous	SURVEY 150%	Existing Monuments, Survey Points
EX-SV-MONU-TEXT	red	Continuous	SURVEY 125%	Existing Monuments, Survey Points Text Layer
EX-SV-PH-BLDG	9	Continuous	SURVEY 100%	Photogrammetry - Existing Buildings, Decks
EX-SV-PH-BR-LIMIT	9	Continuous	SURVEY 100%	Photogrammetry – Outline of Existing Bridge
EX-SV-PH-CONT-MJR	143	DASHED	SURVEY 100%	Photogrammetry - Existing Contours - MAJOR
EX-SV-PH-CONT-MNR	57	DASHED2	SURVEY 80%	Photogrammetry - Existing Contours - MINOR
EX-SV-PH-CONT-OBS	magenta	Continuous	SURVEY 100%	Photogrammetry - Outline of Obscured Ground
EX-SV-PH-CONT-TEXT	red	Continuous	SURVEY 100%	Photogrammetry - Existing Contours - Text
EX-SV-PH-CONT-USER	173	Continuous	SOLID 50%	Photogrammetry - Existing User-Defined Contours
EX-SV-PH-CURB-BOT	61	Continuous	SURVEY 125%	Photogrammetry - Existing Bottom Curb

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-SV-PH-CURB-TOP	133	Continuous	SURVEY 100%	Photogrammetry - Existing Top/Back Curb
EX-SV-PH-DETL	8	Continuous	SURVEY 100%	Photogrammetry - Existing Miscellaneous Detail
EX-SV-PH-EOC	131	Continuous	SURVEY 125%	Photogrammetry - Existing Edge of Concrete
EX-SV-PH-EOG	9	Continuous	SURVEY 125%	Photogrammetry - Existing Edge of Soil, Gravel, and Stone
EX-SV-PH-EOP	90	Continuous	SURVEY 125%	Photogrammetry - Existing Edge of Pavement
EX-SV-PH-EOTHR	9	Continuous	SURVEY 125%	Photogrammetry - Existing Edge of Other Surface
EX-SV-PH-EROS	55	Continuous	SURVEY 100%	Photogrammetry - Existing Erosion Control
EX-SV-PH-FNCE-CLF	37	FENCE-CHAIN LINK	SURVEY 125%	Photogrammetry - Existing Chain Link or Metal Fences
EX-SV-PH-FNCE-OTHR	37	FENCE-CHAIN LINK	SURVEY 125%	Photogrammetry - Existing Fences - Other
EX-SV-PH-FNCE-WOOD	37	FENCE-WOOD RAIL	SURVEY 125%	Photogrammetry - Existing Wood Fences
EX-SV-PH-GRDL-STBM-LT	9	GRDRAIL-STEEL-LT	SURVEY 100%	Photogrammetry - Existing Steel Post Guardrail and Barrier LT
EX-SV-PH-GRDL-STBM-RT	9	GRDRAIL-STEEL-RT	SURVEY 100%	Photogrammetry - Existing Steel Post Guardrail and Barrier RT
EX-SV-PH-GRDL-WOOD-LT	9	GRDRAIL-WOOD-LT	SURVEY 100%	Photogrammetry - Existing Wood Post Guardrail and Barrier LT
EX-SV-PH-GRDL-WOOD-RT	9	GRDRAIL-WOOD-RT	SURVEY 100%	Photogrammetry - Existing Wood Post Guardrail and Barrier RT
EX-SV-PH-GRND	9	Continuous	SURVEY 100%	Photogrammetry - Existing Ground Surface
EX-SV-PH-PM-DASH	9	BROKEN LANE LINE	SOLID 50%	Photogrammetry - Existing Pavement Markings - Dashed
EX-SV-PH-PM-SOLID	9	Continuous	SOLID 50%	Photogrammetry - Existing Pavement Markings - Solid
EX-SV-PH-RRTR	9	Continuous	SURVEY 100%	Photogrammetry - Existing Railroad Items
EX-SV-PH-SRF-BDR	white	Continuous	SURVEY 100%	Photogrammetry – Surface - Border

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-SV-PH-SRF-FLT	white	Continuous	SURVEY 100%	Photogrammetry – Surface - Faults, Breaklines
EX-SV-PH-SRF-VIEW	8	Continuous	SURVEY 100%	Photogrammetry – Surface - TIN lines
EX-SV-PH-TEXT	104	Continuous	SURVEY 125%	Photogrammetry - Existing Text
EX-SV-PH-TR-FEAT	181	Continuous	SURVEY 100%	Photogrammetry - Traffic Items
EX-SV-PH-UNI	magenta	Continuous	SURVEY 100%	Photogrammetry - Existing Object Unidentifiable
EX-SV-PH-UTILITY	30	Continuous	UTILITY EXIST	Photogrammetry - Existing Utilities
EX-SV-PH-UTILITY-OVHD	30	HIDDEN	UTILITY EXIST	Photogrammetry - Existing Overhead Wires
EX-SV-PH-VEGE	104	Continuous	SURVEY 100%	Photogrammetry - Existing Vegetation
EX-SV-PH-WALL	163	Continuous	SURVEY 125%	Photogrammetry - Existing Walls - Other
EX-SV-PH-WALL-RETW-LT	163	RETWALL-LEFT	SURVEY 125%	Photogrammetry - Existing Walls - Retaining Left
EX-SV-PH-WALL-RETW-RT	163	RETWALL-RIGHT	SURVEY 125%	Photogrammetry - Existing Walls - Retaining Right
EX-SV-PH-WALL-STONE	163	STONEWALL	SURVEY 125%	Photogrammetry - Existing Walls – Balanced Stone
EX-SV-PH-WETL	blue	DASHED	ENVR EXIST	Photogrammetry - Existing Wetlands, Ponds, Rivers
EX-SV-PH-WETL-TEXT	blue	Continuous	ENVR TEXT	Photogrammetry - Exist Wetlands Text and Symbols
EX-SV-PM-DASH	9	BROKEN LANE LINE	SOLID 50%	Existing Pavement Markings - Dashed
EX-SV-PM-SOLID	9	Continuous	SOLID 50%	Existing Pavement Markings - Solid
EX-SV-PVMT-PATT	8	Continuous	SOLID 75%	Existing Miscellaneous Detail
EX-SV-RRTR	9	Continuous	SURVEY 100%	Existing Railroad Items
EX-SV-SPOT	9	Continuous	SURVEY 100%	Existing Railroad Items
EX-SV-SRF-BDR	white	Continuous	SURVEY 100%	Existing Surface - Border
EX-SV-SRF-FLT	white	Continuous	SURVEY 100%	Existing Surface - Faults, Breaklines
EX-SV-SRF-VIEW	8	Continuous	SURVEY 100%	Existing Surface - TIN lines

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-SV-TRAV-BLTIE	Magenta	Dashed2	SURVEY 100%	Survey Traverse Tie Line
EX-SV-TRAV-GEOM	Magenta	Continuous	SURVEY 100%	Survey Traverse Line Geometry Text
EX-SV-TRAV-LINE	Magenta	CenterX2	SRVEY 100%	Survey Traverse Line
EX-SV-TRAV-TEXT	Magenta	Continuous	SURVEY 100%	Survey Traverse Line Text
EX-SV-TEXT	104	Continuous	SURVEY 125%	Existing Text
EX-SV-TR-FEAT	181	Continuous	SURVEY 100%	Existing Traffic Items
EX-SV-VEGE	104	Continuous	SURVEY 100%	Existing Vegetation
EX-SV-WALL	163	Continuous	SURVEY 125%	Existing Walls - Other
EX-SV-WALL-RETW	163	Continuous	SURVEY 125%	Existing Walls - Retaining
EX-SV-WALL-STONE	163	STONEWALL	SURVEY 125%	Existing Walls – Balanced Stone
EX-SV-WETL	blue	DASHED	ENVR EXIST	Existing Wetlands, Ponds, Rivers
EX-SV-WETL-TEXT	blue	Continuous	ENVR TEXT	Existing Wetlands Text and Symbols
EX-TR-FEAT	181	Continuous	SURVEY 100%	Existing Traffic Items
EX-UT-CATV-STRC	30	Continuous	UTILITY EXIST	Existing Communication/CATV Structures
EX-UT-CATV-TEXT	30	Continuous	UTILITY EXIST	Existing Communication/CATV Text
EX-UT-CATV-UGND	30	HIDDEN2	UTILITY EXIST	Existing Communication/CATV Underground
EX-UT-DRAIN-STRC	252	Continuous	UTILITY EXIST	Existing Drainage Structures
EX-UT-DRAIN-TEXT	252	Continuous	UTILITY EXIST	Existing Drainage Text
EX-UT-DRAIN-UGND	252	HIDDEN2	UTILITY EXIST	Existing Drainage Underground
EX-UT-ELEC-OVHD	11	HIDDEN	UTILITY EXIST	Existing Overhead Wires
EX-UT-ELEC-STRC	11	Continuous	UTILITY EXIST	Existing Electric Structures
EX-UT-ELEC-TEXT	11	Continuous	UTILITY EXIST	Existing Electric Text

EX-UT-ELEC-UGND	11	HIDDEN2	UTILITY EXIST	Existing Electric Underground
EX-UT-GAS-STRC	42	Continuous	UTILITY EXIST	Existing Gas Structures

EXISTING LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
EX-UT-GAS-TEXT	42	Continuous	UTILITY EXIST	Existing Gas Text
EX-UT-GAS-UGND	42	HIDDEN2	UTILITY EXIST	Existing Gas Underground
EX-UT-OIL-STRC	42	Continuous	UTILITY EXIST	Existing Oil Structures
EX-UT-OIL-TEXT	42	Continuous	UTILITY EXIST	Existing Oil Text
EX-UT-OIL-UGND	42	HIDDEN2	UTILITY EXIST	Existing Oil Underground
EX-UT-OTHR-STRC	42	Continuous	UTILITY EXIST	Existing Utility - Other Structures
EX-UT-OTHR-STRC-TEXT	42	Continuous	UTILITY EXIST	Existing Utility - Other Structures
EX-UT-SEWER-STRC	80	Continuous	UTILITY EXIST	Existing Sewer Structures
EX-UT-SEWER-TEXT	80	Continuous	UTILITY EXIST	Existing Sewer Text
EX-UT-SEWER-UGND	80	HIDDEN2	UTILITY EXIST	Existing Sewer Underground
EX-UT-STEAM-STRC	42	Continuous	UTILITY EXIST	Existing Steam Structures
EX-UT-STEAM-TEXT	42	Continuous	UTILITY EXIST	Existing Steam Text
EX-UT-STEAM-UGND	42	HIDDEN2	UTILITY EXIST	Existing Steam Underground
EX-UT-TELE-STRC	30	Continuous	UTILITY EXIST	Existing Telephone/Communication Structures
EX-UT-TELE-TEXT	30	Continuous	UTILITY EXIST	Existing Telephone/Communication Text
EX-UT-TELE-UGND	30	HIDDEN2	UTILITY EXIST	Existing Telephone/Communication Underground
EX-UT-TR-UGND	30	CONDUIT	UTILITY EXIST	Existing Traffic Items - Underground
EX-UT-WATERSYS-STRC	cyan	Continuous	UTILITY EXIST	Existing Water Systems Structures
EX-UT-WATERSYS-TEXT	cyan	Continuous	UTILITY EXIST	Existing Water Systems Text
EX-UT-WATERSYS-UGND	cyan	HIDDEN2	UTILITY EXIST	Existing Water Systems Underground

GENERAL LAYERS

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
GE-DETAILS	white	Continuous	GE-DETAILS	Default General Paperspace Details
GE-DETAILS-COLOR	white	Continuous	COLOR OBJECT	***THAW FOR COLOR PLOTTING ONLY***
GE-DETAILS-PATT	white	Continuous	GE-DETAILS	Default General Paperspace Details - Patterns
GE-IMAGES	white	Continuous	BORDER	Default Images Layer
GE-MTCH	white	Continuous	SOLID 100%	Match Lines and Text
GE-PROF-BASE	white	Continuous	SOLID 100%	Profile - Base
GE-PROF-DESIGN	white	Continuous	SOLID 100%	Profile - Design
GE-PROF-EGC	21	DASHED	SOLID 50%	Profile - Existing Grade Centerline
GE-PROF-EGCT	9	Continuous	SOLID 50%	Profile - Existing Grade Centerline Text
GE-PROF-EGL	red	BORDER2	SOLID 50%	Profile - Existing Grade Left
GE-PROF-EGR	104	DIVIDE2	SOLID 50%	Profile - Existing Grade Right
GE-PROF-ETR	21	DASHED	SOLID 50%	Profile – Existing Top of Rail
GE-PROF-ETRT	21	Continuous	SOLID 50%	Profile – Existing Top of Rail Text
GE-PROF-FGC	white	Continuous	SOLID 100%	Profile - Finish Grade Centerline
GE-PROF-FGCT	white	Continuous	SOLID 100%	Profile - Finish Grade Centerline Text
GE-PROF-FTR	white	Continuous	SOLID 100%	Profile – Finish Top of Rail Text
GE-PROF-FTRT	white	Continuous	SOLID 100%	Profile – Finish Top of Rail Text
GE-PROF-TEXT	white	Continuous	SOLID 100%	Profile – Grid Text
GE-PROF-VGRID	252	Continuous	SOLID 50%	Profile - Profile View Grid Lines
GE-SAMPLE-LINE	yellow	Continuous	SOLID 25%	Sample Line Base Layer
GE-SAMPLE-LINE-GRID	252	Continuous	SOLID 75%	Cross Section - Section View Grid Lines
GE-SHEET	white	Continuous	BORDER	Default Border Layer
GE-SRF-BDR	Yellow	Continuous	SURVEY 100%	Surface Border

GENERAL LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
GE-SRF-GRID	9	Continuous	SURVEY 100%	Surface Grid
GE-SRF-PNTS	red	Continuous	SURVEY 100%	Surface points
GE-SRF-VIEW	8	Continuous	SURVEY 100%	Surface TIN lines
GE-TEXT	white	Continuous	OB TEXT 150%	Default General Paperspace Text
GE-TABLE	White	Continuous	OB TEXT 150%	Default Table Layer
GE-VIEWPORT	white	Continuous	BORDER	Default Paperspace Viewport Layer
GE-XREF	white	Continuous	BORDER	Default External Reference Layer
GE-XSECT	white	Continuous	SOLID 100%	Cross Section
GE-XSECT-EGC	21	HIDDEN2	SOLID 90%	Cross Section - Existing Grade Centerline
GE-XSECT-FGC	white	Continuous	SOLID 100%	Cross Section View
GE-XSECT-TEXT	white	Continuous	SOLID 100%	Cross Section Text
GE-XSECT-VIEW	white	Continuous	SOLID 50%	Cross Section View Base layer

Civil 3D OBJECT LAYERS

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
OB-BASELINE	white	Continuous	ROW 100%	Boundary Line – OBJECT
OB-BASELINE-TEXT	white	Continuous	OB TEXT 150%	Baseline Text for Arrow/Leader – OBJECT
OB-FEATURE-LINE	white	Continuous	SOLID 100%	Feature Line - OBJECT
OB-INTERFER	white	Continuous	SOLID 100%	Interference - OBJECT
OB-PARCEL	white	Continuous	ROW 100%	Parcel - OBJECT
OB-PROFILE	white	Continuous	SOLID 100%	Profile - OBJECT
OB-SURFACE	white	Continuous	SOLID 100%	Surface - OBJECT
OB-SURFACE-COLOR	White	Continuous	COLOR OBJECT	Surface - OBJECT - Color Plotting
OB-SURVEY	white	Continuous	SOLID 100%	Survey - OBJECT
OB-TEXT	white	Continuous	OB TEXT 100%	Text for Arrow/Leader – OBJECT
OB-UTILITY	white	Continuous	UTILITY PROP	Utility Line - OBJECT
OB-UTILITY-TEXT	white	Continuous	OB TEXT 100%	Utility Line and Structure - TEXT

PROPOSED LAYERS

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-BR-CENTER	cyan	CENTER	BR 100%	Proposed Centerline of Components
PR-BR-COMP	red	Continuous	BR 100%	Proposed Bridge Features
PR-BR-COMP-HIDN	red	HIDDEN	BR 100%	Proposed Bridge Features - Hidden
PR-BR-CONST-CENTER	cyan	CENTER	BR 150%	Proposed Centerline of Construction and Survey BL
PR-BR-CONSTJT	white	ZIGZAG	BR 100%	Proposed Construction Joint and Proposed Concrete Surface Cut Line
PR-BR-DIMS	cyan	Continuous	BR 100%	Proposed Bridge Dimensions
PR-BR-DIMS-EXT	cyan	Continuous	BR 50%	Prop Bridge Dimension - Manually Created Extension Lines
PR-BR-HATCH	blue	Continuous	SOLID 50%	Proposed Bridge Hatching
PR-BR-REBAR	magenta	Continuous	BR 200%	Proposed Bridge Rebar
PR-BR-TEXT	yellow	Continuous	BR 100%	Proposed Bridge Text
PR-BR-TEXT-D	Green	Continuous	BR 175%	Proposed Bridge Detail/Section Text
PR-BR-TEXT-S	241	Continuous	BR 150%	Proposed Bridge Sub-Title Text
PR-BR-TEXT-T	red	Continuous	BR 175%	Proposed State Highway Alteration Baseline Ties
PR-EV-EROS	131	Continuous	ENVR PROP	Proposed Environmental - Erosion Control
PR-EV-REGL-MITG	131	Continuous	ENVR PROP	Regulatory – Mitigation Areas
PR-EV-TEXT	131	Continuous	ENVR PROP	Environmental - Proposed Text
PR-EV-WETL-IMPT	131	HIDDEN	ENVR PROP	Wetland Impact Areas
PR-EV-WETL-IMPT-PATT	252	Continuous	SOLID 50%	Wetland Impact Areas Pattern
PR-EV-WETL-IMPT-TEMP	42	HIDDEN	ENVR PROP	Wetland Impact Areas
PR-EV-WETL-TPATT	252	Continuous	SOLID 75%	Wetland Impact Areas Pattern
PR-GT-FEAT	white	Continuous	BR 100%	Proposed Geotechnical Features and Text
PR-HD-ASSM	white	Continuous	SOLID 100%	Proposed Assembly
PR-HD-ASSM-LINK	white	Continuous	SOLID 100%	Proposed Assembly: corridor and section links
PR-HD-ASSM-XSECT	white	Continuous	SOLID 100%	Proposed Assembly: corridor cross section
PR-HD-BL-CT	white	DASHED	ROW 200%	Proposed Baseline - County

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-HD-BL-GEOM	white	Continuous	ROW 100%	Proposed Baseline - Proposed Geometry Text
PR-HD-BL-RR	white	DASHEDX2	ROW 200%	Proposed Baseline - Railroad
PR-HD-BL-SHLO	white	DASHED	ROW 200%	Proposed Baseline - State Highway
PR-HD-BL-TEXT	white	Continuous	ROW 100%	Proposed Baseline - Proposed Text
PR-HD-BL-TN	white	DASHED2	ROW 200%	Proposed Baseline - City/Town
PR-HD-BL-XX	white	DASHED2	ROW 200%	Proposed Baseline - Miscellaneous
PR-HD-BLDG	white	Continuous	SOLID 100%	Proposed Buildings
PR-HD-CNPY-PATT	white	Continuous	SOLID 75%	Proposed General Design Text
PR-HD-CONT	33	Continuous	SOLID 100%	Proposed Contours
PR-HD-CONT-TEXT	white	Continuous	SOLID 100%	DO NOT USE
PR-HD-CORR	white	Continuous	SOLID 100%	Proposed Corridor
PR-HD-CORR-PATT	141	Continuous	SOLID 100%	Proposed Corridor: corridor patterns
PR-HD-CORR-SHAP	32	Continuous	SOLID 100%	Proposed Corridor and Section Shapes
PR-HD-CORR-SHAP-PATT	white	Continuous	SOLID 100%	Proposed Corridor and Section Shape hatching
PR-HD-CURB	191	Continuous	SOLID 90%	Proposed Curbing
PR-HD-DAYL	green	HIDDEN	SOLID 200%	Proposed Daylight
PR-HD-DETL	140	Continuous	SOLID 100%	Proposed Miscellaneous Items
PR-HD-DRIVEWAY	red	Continuous	SOLID 100%	Proposed Driveway Edge of Pavement
PR-HD-EPAV	red	Continuous	SOLID 200%	Proposed Edge of Pavement
PR-HD-FNCE-CLF	62	FENCE – CHAIN LINK	SOLID 100%	Proposed Fence – Chain Link
PR-HD-FNCE-WRF	62	FENCE – WOOD RAIL	SOLID 100%	Proposed Fence – Wood Rail
PR-HD-FUT-PATT	white	Continuous	SOLID 75%	PR-HD-FUT-PATT

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-HD-FUT2-PATT	white	Continuous	SOLID 75%	PR-HD-FUT2-PATT
PR-HD-GRAD	white	Continuous	SOLID 100%	Proposed Grading
PR-HD-GRDL-STBM-LT	71	GRDRAIL-STEEL-LT	SOLID 100%	Proposed Guardrail – Steel Posts Left
PR-HD-GRDL-STBM-RT	71	GRDRAIL-STEEL-RT	SOLID 100%	Proposed Guardrail – Steel Posts Right
PR-HD-GRDL-WOOD-LT	71	GRDRAIL-WOOD-LT	SOLID 100%	Proposed Guardrail – Wood Posts Left
PR-HD-GRDL-WOOD-RT	71	GRDRAIL-WOOD-RT	SOLID 100%	Proposed Guardrail – Wood Posts Right
PR-HD-GRVL	white	Continuous	SOLID 100%	Proposed Gravel
PR-HD-HAND-RAIL	white	F-HRAIL-2	SOLID 100%	Proposed Walkway Guardrail
PR-HD-LIMIT-GRAD	70	DASHED2	SOLID 100%	Proposed Limit of Grading
PR-HD-LIMIT-WORK	magenta	DASHED	SOLID 300%	Proposed Limit of Work
PR-HD-PAVERS	white	Continuous	SOLID 100%	Proposed Edge of Pavers
PR-HD-PLTF-PATT	white	Continuous	SOLID 25%	Proposed General Design Text
PR-HD-PVMT-PATT	white	Continuous	SOLID 25%	Proposed General Design Text
PR-HD-SAWCUT	red	DASHED	SOLID 300%	Proposed Sawcut Line
PR-HD-SPOT	white	Continuous	SOLID 100%	Prop Spot Elevations
PR-HD-SPOT-TRK	white	Continuous	SOLID 100%	Proposed Track Spot Elevations
PR-HD-SSLP	white	HIDDEN	SOLID 90%	Proposed Sideslope
PR-HD-TEXT	white	Continuous	SOLID 100%	Proposed General Design Text
PR-HD-TRGT	210	Continuous	SOLID 100%	Proposed Highway Geometry Model Target
PR-HD-WALK	white	Continuous	SOLID 100%	Proposed Sidewalks
PR-HD-WALK-DWP	yellow	Continuous	SOLID 100%	Proposed Detectable Warning Panel
PR-HD-WALK-PATT	white	Continuous	SOLID 100%	Proposed Sidewalks Pattern
PR-HD-WALL-CONC-LT	225	RETWALL-LEFT	SOLID 100%	Proposed Walls – Concrete
PR-HD-WALL-CONC-RT	225	RETWALL-RIGHT	SOLID 100%	Proposed Walls – Concrete

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-HD-WALL-OTHER-LT	225	RETWALL-LEFT	SOLID 100%	Proposed Walls – Other Left
PR-HD-WALL-OTHER-RT	225	RETWALL-RIGHT	SOLID 100%	Proposed Walls – Other Right
PR-HD-WALL-STONE	225	STONEWALL	SOLID 100%	Proposed Walls – Balanced Stone
PR-LD-DETAILS	white	Continuous	SOLID 100%	Proposed Landscaping Details
PR-LD-DIMS	240	Continuous	SOLID 100%	Proposed Landscaping Dimensions
PR-LD-GRCOVER	green	Continuous	SOLID 100%	Proposed Landscaping Ground Cover
PR-LD-HATCH	white	Continuous	SOLID 100%	Proposed Landscaping Hatching
PR-LD-ORNGRASS	yellow	Continuous	SOLID 100%	Proposed Landscaping Ornamental Grass
PR-LD-PERNNL	red	Continuous	SOLID 100%	Proposed Landscaping Perennial Plants
PR-LD-PLNT-TAG	240	Continuous	SOLID 200%	Proposed Landscaping Plant Tag
PR-LD-SEED	green	Continuous	SOLID 100%	Proposed Landscaping Seed Standard
PR-LD-SHRUB	white	Continuous	SOLID 100%	Proposed Landscaping Shrubs
PR-LD-SITE-FURNISH	182	Continuous	SOLID 100%	Proposed Landscaping Site Furnishings
PR-LD-TEXT	240	Continuous	SOLID 100%	Proposed Landscaping Text
PR-LD-TREE	white	Continuous	SOLID 200%	Proposed Landscaping Trees
PR-LD-TREE-PROT	182	Continuous	SOLID 200%	Proposed Landscaping Tree Protection
PR-LO-CT	blue	Continuous	ROW 200%	Proposed County Layout Lines
PR-LO-GEOM	blue	Continuous	ROW 200%	Proposed Geometry Text for Layout Lines
PR-LO-RR	blue	Continuous	ROW 200%	Proposed Railroad Layout Lines
PR-LO-SETBACK	blue	SETBACK	ROW 200%	Proposed Setback Lines
PR-LO-SETBACK-TEXT	blue	Continuous	ROW 100%	Proposed Setback Text

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-LO-SHALT	blue	Continuous	ROW 200%	Proposed State Highway Alteration Lines
PR-LO-SHALT-Ties	Blue	DASHED2	ROW 100%	Proposed State Highway Alteration Baseline Ties
PR-LO-SHDISC	blue	DASHED	ROW 200%	Proposed State Highway Discontinuance Lines
PR-LO-SHLO-SPRCD	blue	DASHED	ROW 100%	Proposed State Highway Superseded Layout Lines
PR-LO-TEXT	blue	Continuous	ROW 200%	Proposed Text for Layout Information
PR-LO-TN	blue	Continuous	ROW 200%	Proposed Town/City Layout Lines
PR-RW-FEE-CITY	32	Continuous	ROW 200%	Proposed Town/City Fee Taking
PR-RW-FEE-DRAIN	163	Continuous	ROW 200%	Proposed Drainage Fee Taking
PR-RW-FEE-STATE	51	Continuous	ROW 200%	Proposed State Fee Taking
PR-RW-MISC	211	Continuous	ROW 200%	Proposed Miscellaneous Items
PR-RW-MONU	84	Continuous	ROW 200%	Proposed Right of Way Text
PR-RW-PERMEASE-CT	211	LINE OF EASE	ROW 200%	Proposed Permanent Easement County
PR-RW-PERMEASE-DRAIN	141	LINE OF EASE	ROW 200%	Proposed Permanent Drainage Easement
PR-RW-PERMEASE-PATT	252	Continuous	SOLID 25%	Proposed Permanent Easement Hatch
PR-RW-PERMEASE-ST	41	LINE OF EASE	ROW 200%	Proposed Permanent Easement STATE
PR-RW-PERMEASE-TN	211	LINE OF EASE	ROW 200%	Proposed Permanent Easement CITY
PR-RW-TEMPEASE	42	LINE OF EASE	ROW 200%	Proposed Temporary Easement
PR-RW-TEMPEASE-PATT	42	Continuous	SOLID 50%	Proposed Temporary Easement Hatch
PR-RW-TEXT	211	Continuous	ROW 100%	Proposed Right of Way Text
PR-TK-BL-GEOM	white	Continuous	SOLID 100%	Proposed Track Centerline Cardinal Points
PR-TK-BL-GEOM-FR	white	Continuous	SOLID 100%	Proposed Track Centerline Cardinal Points for Fall River
PR-TK-BL-GEOM-NB	white	Continuous	SOLID 100%	Proposed Track Centerline Cardinal Points for New Bedford

PR-TK-BL-GEOM-ST	white	Continuous	SOLID 100%	Proposed Track Centerline Cardinal Points for Stoughton

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-TK-BL-RR	white	Continuous	SOLID 200%	Proposed Track Centerlines
PR-TK-RR-RR-FR	white	Continuous	SOLID 200%	Proposed Track Centerline for Fall River
PR-TK-RR-RR-FRR	white	Continuous	SOLID 200%	Proposed Track Centerline for Fall River Realignment
PR-TK-RR-RR-NB	white	Continuous	SOLID 200%	Proposed Track Centerline for New Bedford
PR-TK-RR-RR-NBR	white	Continuous	SOLID 200%	Proposed Track Centerline for New Bedford Realignment
PR-TK-RR-RR-ST	white	Continuous	SOLID 200%	Proposed Track Centerline for Stoughton Line
PR-TK-RR-RR-STR	white	Continuous	SOLID 200%	Proposed Track Centerline for Stoughton Realignment
PR-TK-BL-TEXT	white	Continuous	SOLID 100%	Proposed Track Centerline Stationing Text
PR-TK-BL-TEXT-FR	white	Continuous	SOLID 100%	Proposed Track Centerline Stationing Text for Fall River
PR-TK-BL-TEXT-NB	white	Continuous	SOLID 100%	Proposed Track Centerline Stationing Text for New Bedford
PR-TK-BL-TEXT-ST	white	Continuous	SOLID 100%	Proposed Track Centerline Stationing Text for Stoughton
PR-TK-TNOT-FR	white	Continuous	SOLID 100%	Proposed Track Turnouts Fall River
PR-TK-TNOT-NB	white	Continuous	SOLID 100%	Proposed Track Turnouts New Bedford
PR-TK-TNOT-ST	white	Continuous	SOLID 100%	Proposed Track Turnouts Stoughton
PR-TR-FEAT	31	Continuous	SOLID 100%	Proposed Traffic Items
PR-TR-LGHT	31	Continuous	SOLID 100%	Proposed Traffic Lighting

PR-TR-PVMK	31	Continuous	SOLID 100%	Proposed Traffic Pavement Markings
PR-TR-SGNL	31	Continuous	SOLID 100%	Proposed Traffic Signals

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-TR-SGNS	31	Continuous	SOLID 100%	Proposed Traffic Signs
PR-TR-TEXT	31	Continuous	SOLID 100%	Proposed Traffic Text
PR-TR-UGND	31	CONDUIT	UTILITY PROP	Proposed Traffic Items - Underground
PR-UT-CATV-STRC	40	Continuous	UTILITY PROP	Proposed Communication/CATV
PR-UT-CATV-TEXT	40	Continuous	UTILITY PROP	Proposed Communication/CATV Text
PR-UT-CATV-UGND	40	Continuous	UTILITY PROP	Proposed Communication/CATV Underground
PR-UT-DRAIN-DITCH	white	DASHEDX2	UTILITY PROP	Proposed Drainage Ditch
PR-UT-DRAIN-PROF	white	Continuous	UTILITY PROP	Proposed Drainage Profile
PR-UT-DTAIN-STRC	white	Continuous	UTILITY PROP	Proposed Drainage Structures
PR-UT-DRAIN-TEXT	white	Continuous	UTILITY PROP	Proposed Drainage Text
PR-UT-DRAIN-UGND	white	Continuous	UTILITY PROP	Proposed Drainage Pipes
PR-UT-DRAIN-UGND-PATT	white	Continuous	UTILITY PROP	Proposed Drainage Hatching
PR-UT-DUCE-ROW-ALT	192	Continuous	UTILITY PROP	Proposed DUCE Right of Way Alteration
PR-UT-ELEC-OVHD	red	HIDDEN	UTILITY PROP	Proposed Overhead Wires
PR-UT-ELEC-STRC	red	Continuous	UTILITY PROP	Proposed Electric Structures
PR-UT-ELEC-TEXT	red	Continuous	UTILITY PROP	Proposed Electric Text
PR-UT-ELEC-UGND	red	Continuous	UTILITY PROP	Proposed Electric Underground
PR-UT-GAS-STRC	44	Continuous	UTILITY PROP	Proposed Gas Structures
PR-UT-GAS-TEXT	44	Continuous	UTILITY PROP	Proposed Gas Text
PR-UT-GAS-UGND	44	Continuous	UTILITY PROP	Proposed Gas Underground

PR-UT-SEWER-PROF	93	Continuous	UTILITY PROP	Proposed Sewer Profile
PR-UT-SEWER-STRC	93	Continuous	UTILITY PROP	Proposed Sewer Structures

PROPOSED LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
PR-UT-SEWER-TEXT	93	Continuous	UTILITY PROP	Proposed Sewer Text
PR-UT-SEWER-UGND	93	Continuous	UTILITY PROP	Proposed Sewer Pipes
PR-UT-SEWER-UGND-PATT	white	Continuous	UTILITY PROP	Proposed Sewer Hatching
PR-UT-TELE-STRC	40	Continuous	UTILITY PROP	Proposed Telephone Structures
PR-UT-TELE-TEXT	40	Continuous	UTILITY PROP	Proposed Telephone Text
PR-UT-TELE-UGND	40	Continuous	UTILITY PROP	Proposed Telephone Underground
PR-UT-WATERSYS-PROF	150	Continuous	UTILITY PROP	Proposed Water System Profile
PR-UT-WATERSYS-STRC	150	Continuous	UTILITY PROP	Proposed Water System Structures
PR-UT-WATERSYS-TEXT	150	Continuous	UTILITY PROP	Proposed Water System Text
PR-UT-WATERSYS-UGND	150	Continuous	UTILITY PROP	Proposed Water System Pipes
PR-UT-WATERSYS-UGND-PATT	white	Continuous	UTILITY PROP	Proposed Water System Hatching

RECORD LOCATION LAYERS

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
RD-UT-CATV-STRC	34	Continuous	UTILITY EXIST	Record Location Communication/CATV Structures
RD-UT-CATV-TEXT	34	Continuous	UTILITY EXIST	Record Location Communication/CATV Text
RD-UT-CATV-UGND	30	HIDDEN2	UTILITY EXIST	Record Location Communication/CATV
RD-UT-DRAIN-STRC	251	Continuous	UTILITY EXIST	Record Location Drainage Structures
RD-UT-DRAIN-TEXT	251	Continuous	UTILITY EXIST	Record Location Drainage Text
RD-UT-DRAIN-UGND	251	HIDDEN2	UTILITY EXIST	Record Location Drainage Underground
RD-UT-ELEC-OVHD	15	HIDDEN	UTILITY EXIST	Record Location Overhead Wires

RECORD LOCATION LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
RD-UT-ELEC-STRC	15	Continuous	UTILITY EXIST	Record Location Electric Structures
RD-UT-ELEC-TEXT	15	Continuous	UTILITY EXIST	Record Location Electric Text
RD-UT-ELEC-UGND	15	HIDDEN2	UTILITY EXIST	Record Location Electric Underground
RD-UT-GAS STRC	52	Continuous	UTILITY EXIST	Record Location Gas Structures
RD-UT-GAS-TEXT	52	Continuous	UTILITY EXIST	Record Location Gas Text
RD-UT-GAS-UGND	52	HIDDEN2	UTILITY EXIST	Record Location Gas Underground
RD-UT-OIL-STRC	52	Continuous	UTILITY EXIST	Record Location Oil Structures
RD-UT-OIL-TEXT	52	Continuous	UTILITY EXIST	Record Location Oil Text
RD-UT-OIL-UGND	52	HIDDEN2	UTILITY EXIST	Record Location Oil Underground
RD-UT-OTHR-STRC	52	Continuous	UTILITY EXIST	Record Location Utility - Other Structures
RD-UT-SEWER-STRC	126	Continuous	UTILITY EXIST	Record Location Sewer Structures
RD-UT-SEWER-TEXT	126	Continuous	UTILITY EXIST	Record Location Sewer Text
RD-UT-SEWER-UGND	126	HIDDEN2	UTILITY EXIST	Record Location Sewer Underground
RD-UT-STEAM-STRC	52	Continuous	UTILITY EXIST	Record Location Steam Structures
RD-UT-STEAM-TEXT	52	Continuous	UTILITY EXIST	Record Location Steam Text
RD-UT-STEAM-UGND	52	HIDDEN2	UTILITY EXIST	Record Location Steam Underground
RD-UT-TELE-STRC	34	Continuous	UTILITY EXIST	Record Location Telephone/Communication Structures
RD-UT-TELE-TEXT	34	Continuous	UTILITY EXIST	Record Location Telephone/Communication Text
RD-UT-TELE-UGND	34	HIDDEN2	UTILITY EXIST	Record Location Telephone/Communication Underground
RD-UT-TR-UGND	34	CONDUIT	UTILITY EXIST	Record Location Traffic Items - Underground
RD-UT-WATERSYS-STRC	142	Continuous	UTILITY EXIST	Record Location Water Systems Structures

RECORD LOCATION LAYERS (CONT)

LAYER NAME	COLOR	LINETYPE	PLOT STYLE	DESCRIPTION
RD-UT-WATERSYS-TEXT	142	Continuous	UTILITY EXIST	Record Location Water Systems Text
RD-UT-WATERSYS-UGND	142	HIDDEN2	UTILITY EXIST	Record Location Water Systems Underground

Plot Styles

Purpose

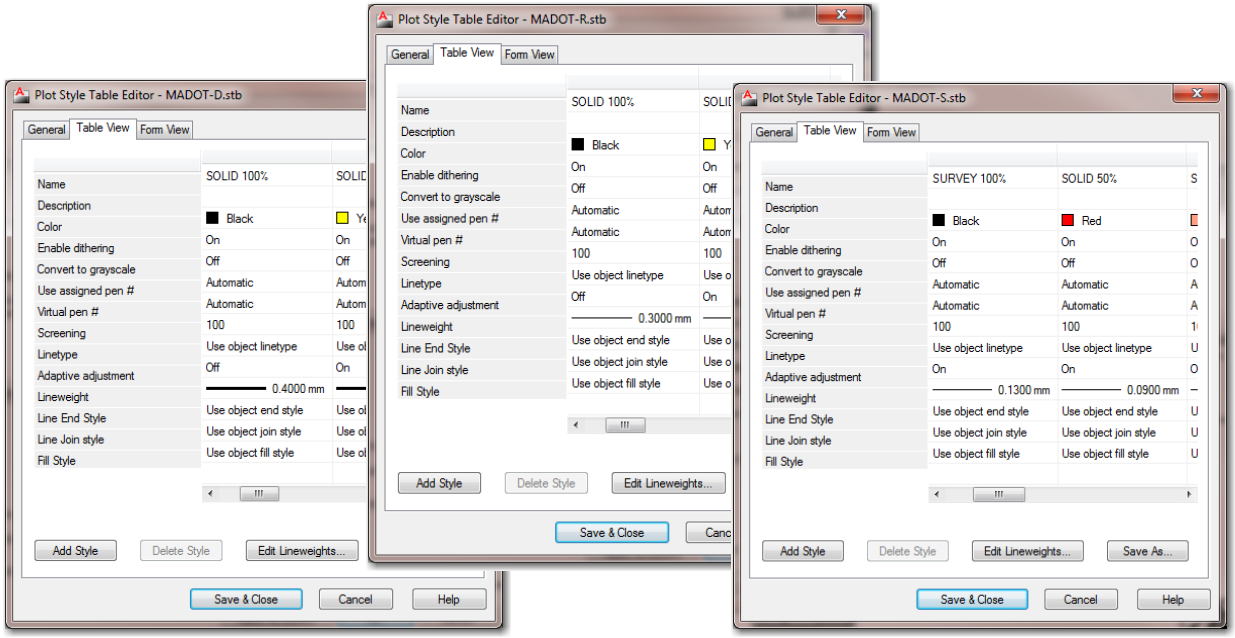
The SCR project will use MassDOT Highway Division standard plot styles to aid in plotting. These plot styles are intended to provide seamless integration while passing DWG files back and forth between all disciplines.

Definitions

MassDOT Highway Division has adopted the following named plot style standards:

MADOT-C.stb (use this for Color Plotting, i.e. presentations)
MADOT-D.stb (use this for all Design sections)
MADOT-E.stb (use this for all Environmental Color Plotting)
MADOT-R.stb (use this for all Right-of-Way, Layouts)
MADOT-S.stb (use this for all Survey)
MADOT-U.stb (use this for all Utility Color Plotting)

These plot style standards can be found on the Resources page here.



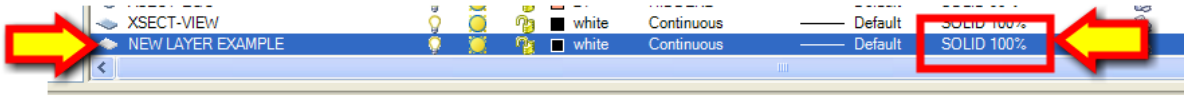
Using Plot Styles

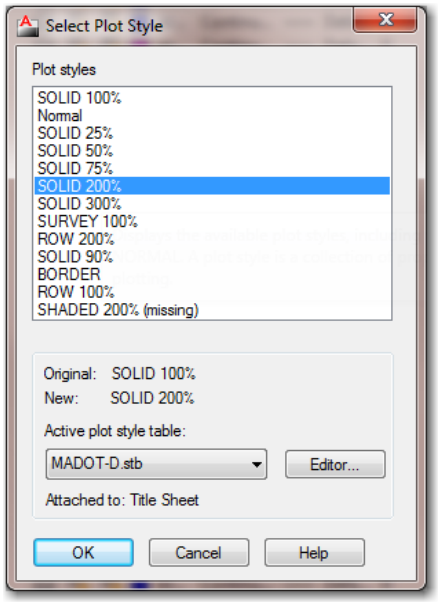
All the default Civil 3D objects and/or layers contained within the SCR drawing template have all the appropriate styles pre-assigned to them.

The plot styles have been created to ensure that each Section can maintain its own plotting requirements without affecting the plotting within other Sections.

For example, a survey base plan will be plotted dark and solid within the Survey Division using the MADOT-S.stb file, while within the Design Divisions, using the MADOT-D.stb file, the survey base plan information will be automatically plotted grayscale/shaded, and the proposed design information will be plotted dark and solid. Right of Way and Layouts drawings will be plotted using the MADOT-R.stb file; the survey base plan information will be shown as grayscale/shaded, the proposed design information as dark and solid, and the Right of Way information (boundary lines, easement lines and text etc.) as bold.

When creating NEW layers or objects, users will need to assign plot styles appropriately using the following suggested steps. After the layer has been created inside the Layer Properties Manager, select the plot style entry, as shown:





PLEASE NOTE:

The user will need to migrate existing CAD drawings to use these new standards before plotting. Doing so will provide the appropriate plot settings adopted by MassDOT.

If the drawing is set to color-based plot styles, use the command CONVERTPSTYLES to switch your drawing and assign the appropriate plot styles to each layer.

Policy on Model Space vs. Paper Space

The use of both Model Space and Paper Space is necessary to create clean looking drawing files and documents within the AutoCAD environment that are consistent with one another. Therefore, it is a requirement that all DWG files in use, or in support of projects, for the SCR Project shall use the following environments:

Model Space -
One of the two primary spaces in which objects reside. A geometric model is placed in a three- dimensional coordinate space called model space. A project will be created, annotated, and dimensioned within model space.

All drawing models shall be drawn in model space and shall be drawn to actual scale. Any additional item that helps define the model or add model data such as details, dimensions, elevations, names, descriptive text, etc. shall be drawn in model space.

Paper Space -
One of the two primary spaces in which objects reside. Layouts of specific views of the project model, border and title block, and general notes are placed within Paper Space to print a clean and consistent document.

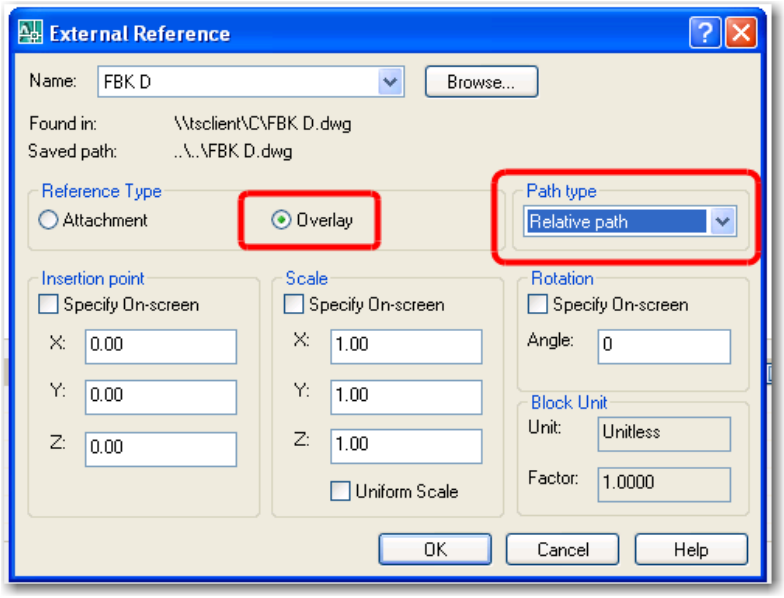
All secondary drawing elements shall be placed in Paper Space. Title block, sheet notes, titles, and legends shall be considered secondary drawing elements.

Note: Any information referenced in design drawings shall not be moved or rotated from the original coordinates used in the drawing. When copying model space information between drawings (NON-CIVIL 3D OBJECTS), verify that the UCS coordinates in both drawings are set to "World" prior to executing the copy-paste commands.

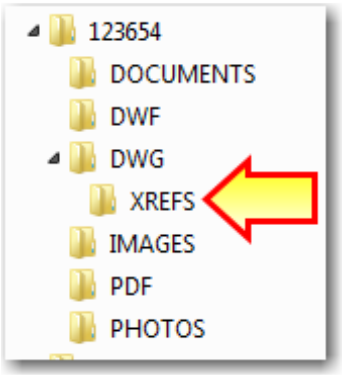
Policy on External References

All externally referenced source drawings (XREFs) shall be inserted on layer GE-XREF. This layer shall remain locked in order to avoid accidentally moving or erasing the reference drawing.

All externally referenced source drawings shall be inserted as OVERLAYS and set to RELATIVE PATH. The use of XREFs as "attachments" or "full path" will not be accepted.



All externally referenced files (DWG, DWF, DGN, PDF, TIFF, MrSID, JPG, etc.) shall be stored within the discipline-specific XREF folder, found within each discipline's DWG folder.



The use of temporary XREFs is allowed. However, when the temporary XREF is no longer needed, DETACH the temporary XREF properly through the External Reference Manager.
DO NOT SIMPLY DELETE THE XREF WITHIN THE DWG FILE.
*Note: Externally referenced data shall not be moved or rotated from the original coordinates used in the drawing.

Pipe Networks (Civil 3D only)

Civil 3D pipe network styles and network part lists are provided in the SCR Civil 3D template for existing, record location, and proposed storm sewers as well as for existing and record location sanitary sewer utilities. The following are notes on proper usage of pipe networks for SCR projects:

- Existing and record location pipe objects should reflect the field observations or record location, elevations, sizes, and material of the pipes and structures being modeled as accurately as possible.

- If necessary, pipe and structure sizes and/or materials may be added to the pipe network parts lists either by adding part families from the Civil 3D pipe network catalog or by modifying the Civil 3D pipe network catalog itself.

- Pipe and structure objects shall use the proper style to represent the correct status of the utility, i.e. existing, record location, or proposed.

- Structure objects shall use the proper style to represent the correct frame and cover/grate combination.

- Annotation: The SCR template provides an array of options for labeling and displaying pipe network data. These options are based on utility status, utility type, and amount of object data to display. In addition, the SCR template provides both structure and pipe tables for creating storm sewer schedules.

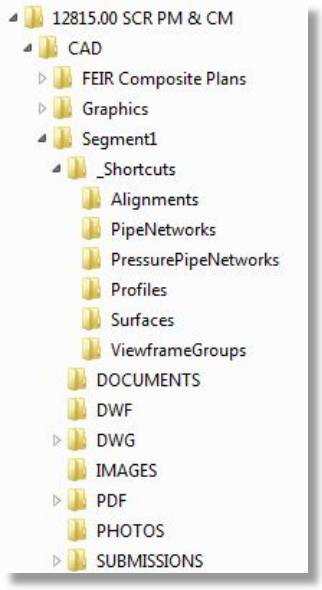
- Civil 3D has a built-in software limitation in the stock Civil 3D Imperial pipe network catalog. The Material definition for the Reinforced Concrete Pipe part family is set to "Constant," and unless the catalog is modified, the material will only list "Reinforced Concrete" as the pipe material. Due to this limitation, Civil 3D does not allow these pipes to be labeled automatically with the common abbreviation "RCP." MassDOT has provided pipe labels specifically to address this and to allow for automatic labeling of reinforced concrete pipes as "RCP" without having to modify the pipe network catalog. These styles can be identified as having "RCP" in the label style name.

- The MassDOT part lists' Pipe Rule and Structure Rule sets are based upon the latest edition of the MassDOT Standard Specifications and Construction Details.

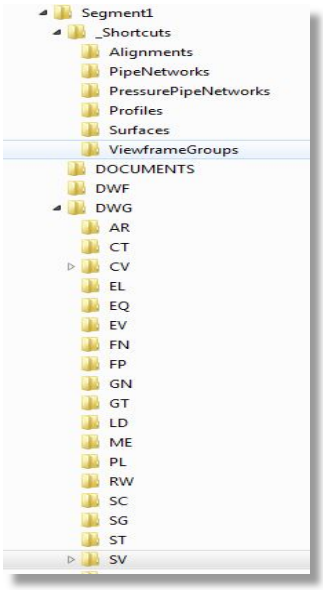
Data Shortcuts (Civil 3D only)

When Data Shortcuts are used, the following procedures shall be followed to allow for the seamless transfer of project files after the data references have been created:

The Data Shortcut folder, specifically the *"_Shortcuts"* folder which contains the available links to referenced Civil 3D objects, shall be in the Project ROOT folder above any discipline-specific folder. No drawings shall be located within these folders.



All survey base drawings (DWG files) containing either Civil 3D alignments or Civil 3D surfaces that are intended to be referenced through Data Shortcuts shall be first copied to the Segment#/DWG/SV folder. The Civil 3D alignment(s) or surface object(s) contained within the survey base drawings shall then be referenced through Data Shortcuts into design DWGs.



All design drawings (DWG files) containing Civil 3D alignments, surfaces, profiles, or pipe networks that are intended to be referenced through Data Shortcuts shall be stored in the Highway Design DWG folder.

CAD Standard Review Process

A CAD Standards Review must be performed for all project submissions.

Prior to submitting any project, a CAD Standard Review should be performed as described below to assist with conformance to the SCR CAD Standard. This process will notify the user of any deviations from the required standards.

All project drawings should be checked using the supplied drawing standards file (SCR_Format_r2.2.dws), which is located here.

Standards Audit Report

The Autodesk Batch Standards Checker application shall be used to audit all project drawings for compliance with the MassDOT CAD Standard. A **Standards Audit Report**, as shown below, will be generated and provides a list of deviations from the MassDOT CAD Standard. The Standards Audit Report shall be included with every project submission.

STANDARDS AUDIT REPORT

C:\SCR\K78ps01\30Stage\Check1.chx

Show:
- (•) Overview
- ( ) Plug-ins
- ( ) Standards
- ( ) Problems
- ( ) Ignored Problems
- ( ) All

For:
- [x] All Drawings
- [x] K78PS01HD1.dwg
- [x] K78PS01SV.dwg

Overview

Created by:
RReid

Created on:
Wednesday, February 01, 2012

Summary:

Drawing	Problems	Ignored problems
K78PS01SV.dwg	20	0
K78PS01HD1.dwg	20	0
Totals	40	0

Audit Notes Document

A supporting **Audit Notes document** will also be required to validate, in detail, all instances of non- conformity with the MassDOT CAD Standards, or to confirm adherence to these standards.

The Batch Standards Checker, found within AutoCAD, shall be used to perform this CAD review. A Standards Audit Report will be generated and will provide a list of deviations from the SCR CAD Standard.

CAD Standard Review Workflow

The following procedures are required to be followed to create the Standards Audit Report and the Audit Notes associated with it.

1. Launch the version-applicable Autodesk Batch Standards Checker application.
2. Add all project drawings to be audited.
3. Choose the version of the drawing standards file (.dws file), which corresponds to the version of the drawing template used to create the drawing.
4. Execute Start Check command.
5. Once the check has completed, a Standards Audit Report is displayed.
6. Select "SHOW > PROBLEMS" on the left side of the report.
7. Export this Report to HTM using the following file naming convention:
    - For all projects excluding Bridge Projects:
      File names shall begin with the project file number (available through the MassDOT Project Manager), followed by the appropriate submittal designation enclosed in brackets, i.e. [25Stage], [PSE], etc., and followed by (AUDITREPORT). Example: 123456[75Stage](AUDITREPORT).htm
    - For Bridge Projects:
      File names shall begin with the project file number (available through the MassDOT Project Manager), followed by the appropriate Sketch Plans or Construction Drawings Submittal designation enclosed in brackets, i.e. [SP1], [S2], [SF], etc., and followed by (AUDITREPORT). Example: 123456[SP1](AUDITREPORT).htm
8. An Audit Notes document, in PDF format, shall be prepared using the *MassDOT CAD Standard Audit Notes.doc*, provided in the CAD Standard download. The Audit Notes document shall list all instances of non-conformity with the MassDOT CAD Standards (if any), and shall provide an explanation for each item listed as a "problem" in the Standards Audit Report.
    - **For all projects excluding Bridge Projects:**
      File names shall begin with the project file number followed by the appropriate submittal designation enclosed in brackets, i.e. [25Stage], [PSE], etc., and followed by (AUDITNOTES). Example: 123456[75Stage](AUDITNOTES).pdf
    - **For Bridge Projects:**
      File names shall begin with the project file number followed by the appropriate Sketch Plans or Construction Drawings Submittal designation enclosed in brackets,
      i.e. [SP1], [S2], [SF], etc., and followed by (AUDITNOTES). Example: 123456[SP1](AUDITNOTES).pdf
9. Place the Standards Audit Report and the associated Audit Notes within the CAD Standards Check folder in the project CAD folder (See section on Digital Submission Requirements).

Bridge

File Naming

Sketch Plans

The file name of every drawing in a set of Bridge Sketch Plans shall begin with the respective project file/SCR number assigned (available through the SCR Project Manager), followed by an underscore and the discipline code for bridges (BR), followed by the respective sheet number or respective sheet range in the referenced Sketch Plans set (1, 2, 3, 1-10, 11-15, etc.), and followed by the Bridge Number in parenthesis.

For example, for a drawing file containing sheets 3, 4, 5, and 6 of a set of Sketch Plans with the following data:

Bridge Project File Number:	SEGMENT1
Sheet Nos. 3, 4, 5, and 6:	3-6
Bridge Number:	D-06-007

The proper filename would be: SEGMENT1_BR3-6(D06007)

Construction Drawings

The file name of every drawing in a set of Bridge Construction Drawings shall begin with the project file/MBTA number assigned (available through the MBTA Project Manager), followed by an underscore and the bridge discipline code (BR), followed by the respective sheet number or respective sheet range in the referenced Construction Drawings set (1, 2, 3, 1-10, 11-15, etc.), and followed by the Bridge Number in parenthesis.

For example, for a drawing file containing sheets 17 through 25 of a set of Construction Drawings with the following data:

Bridge Project File Number:	SEGMENT1
Sheet Nos. 17-25:	17-25
Bridge Number:	D-06-007

The proper filename would be: SEGMENT1_BR17-25(D06007)

Submission Text Block

To track the date and submission level of a bridge project's Sketch Plans and Structural Submittals, a text block showing the submission level, the submittal designation, and the actual date of submission to the MBTA has been provided in the lower right corner of each bridge layout sheet (shown below).

All drawings in the submitted set must contain the referenced text block with the above required information. The following list identifies Sketch Plan and Structural Submittal submission levels and their respective submittal designations to be used in the text block on each submitted drawing:

- First Sketch Plans submittal set SP1
- Second Sketch Plans submittal set SP2
- Nth Sketch Plans submittal set SP#
- SPF

PF

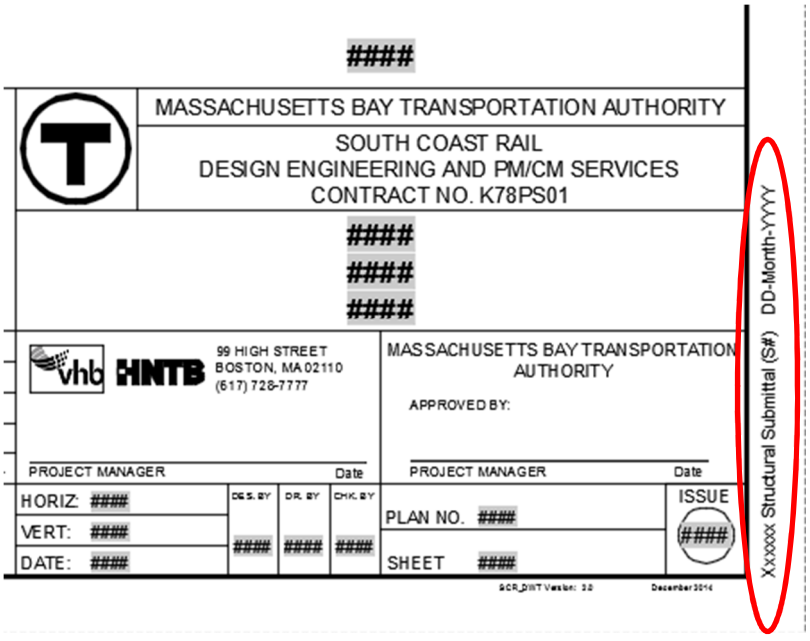
- S1
- S2

1 S#

- SF

"F

For example, the figure below demonstrates the modified text block:

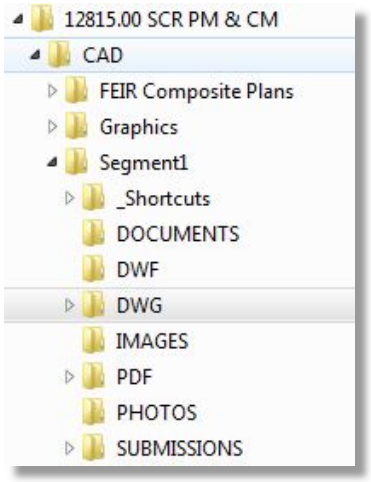


File Submission Requirements

Actual software version used by the SCR team internally will change from time to time. Therefore, please refer to the specific project contract or check with the Project Manager for actual version and submission requirements.

Folder Structure

All Bridge electronic file submissions shall be submitted within the following Folder Structure. Please see the Default Folder Structure in the General Section for descriptions of these folders.

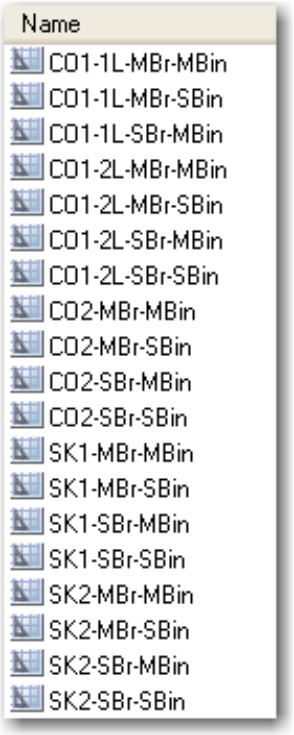


Bridge Plan Requirements

All Bridge Construction Drawings shall conform to both the MassDOT LRFD Bridge Manual and Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide. The CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between this CAD Standard document and any other MassDOT Highway Division manuals currently in use, this CAD Standard document must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Bridge Construction Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "22x34_Structural_Sheets.dwg" CAD file. This file contains standard borders and standard title blocks for all Bridge Construction Drawings. The following layouts are included:



Default Naming Convention:

CO1 = Construction First Sheet
CO2 = Construction Subsequent Sheets
SK1 = Sketch Plan First Sheet
SK2 = Sketch Plan Second Sheet
1L = 1 Line Description
2L = 2 Line Description

MBr = Multi Bridge Number
MBin = Multi BIN
SBr = Single Bridge Number
SBin = Single BIN

No other borders will be accepted.
It is recommended that DesignCenter be used to drag-n-drop these layouts into a project DWG.

ATTENTION

Do not use the "22x34_Structural_Sheets.dwg" file for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, dimension styles or plot styles.
BRIDGE_SHEETS.dwg can be found in the Resources Section by clicking here.

Bridge Symbols and Blocks

A Bridge Section symbol and block library is available within the "BRIDGE_SYMBOLS.dwg" file. The file can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

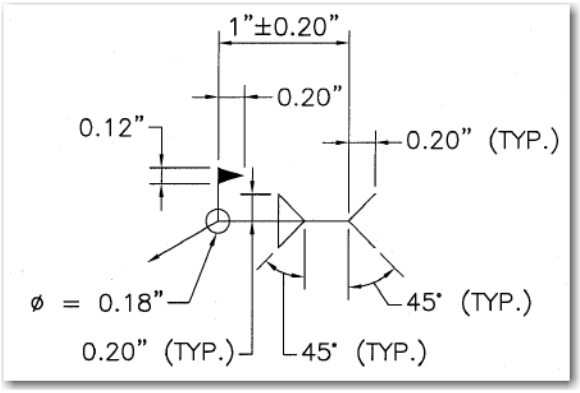
Section Symbols and Section Tails

These symbols (found in the BRIDGE_SYMBOLS.dwg) are used together to indicate the plane along which a section view is being taken. The section symbol is comprised of a split circle superimposed on an arrow. This arrow, along with the tail arrow, indicates the direction of the section view. The line that divides the split circle into two text blocks is always drawn horizontal. The top text block gives the section number; the bottom text block gives the sheet number on which the section view is shown. Sections shall be numbered in consecutive order from the start to the end of the bridge construction drawings. The first section that appears on the bridge construction drawings shall be Section 1; there shall be no repetition of any section number.

Welding Symbols

Weld and welding symbols (found in the BRIDGE_SYMBOLS.dwg) shall be consistent with AWS 2.4 Standard Symbols for Welding, Brazing, and Nondestructive Examination. The symbol provided within the BRIDGE_SYMBOLS.dwg CAD file shall be modified as required to convey all information necessary to construct the welded joint as designed.

Standard Welding Symbol



Bridge Graphical Standards

Bridge Standard Detail Drawings

Bridge Standard Detail Drawings shall be inserted as unexploded blocks into model space at a scale of 1. Where editing the block is necessary, use the AutoCAD Block Editor to edit the block in place.

When displaying the detail within paper space, create a viewport to the scale noted within the detail. This will size the detail appropriately for plotting purposes.

Concrete Excavation Surface Cut Line

The PR-BR-CONSTJT layer shall be used as follows:

- To represent the concrete cut line (on elevation views) or the concrete cut surface (in section views) on existing concrete construction when defining limits of concrete excavation.
- To represent the interface between old and new concrete on details with existing and proposed construction. Use the layer in this case ONLY if the interface was created through the excavation of existing concrete construction.
- To represent the raked finish given to a concrete surface against which a second pour of concrete will be placed, for instance the top of a bridge deck under the sidewalk slab.

The PR-BR-COMP layer shall be used when concrete is proposed to be cast onto an existing unexcavated concrete surface.

Centerlines

The PR-BR-CENTER layer shall be used to indicate the following:

- The centerlines of beams, both for dimensioning purposes and for indicating the location of beams on the plan view of an abutment or pier.
- The centerlines of bearings on abutment or pier plan views, on bridge seat cross sections, on framing Construction Drawings, and elsewhere.
- The centerlines of bolts, holes, and any other object intended to be used for dimensioning.

The centerline of construction or the baseline of survey shall be formatted on all bridge plans per the graphical standards specified in the following table and placed on the PR-BR- CONST-CENTER layer.

DESCRIPTION	SYMBOL	HEIGHT	DIA.	TO BE USED WITH	APPEARANCE
WHOLE STATION:					
PROPOSED PLAN	○		0.125"	℄ OF CONST. & SURVEY ℄	
KEY PLAN	○		0.094"	℄ OF CONST. & SURVEY ℄	
TICK MARK:					
PROPOSED PLAN	|	0.125"		℄ OF CONST. & SURVEY ℄	
KEY PLAN	|	0.094"		℄ OF CONST. & SURVEY ℄	

MassDOT has provided Civil 3D alignment object and label styles to correctly format the centerline of construction or the baseline of survey based on the above table. All alignment objects for bridge centerline of construction or baseline of survey shall be assigned the MassDOT_Bridge Construction Centerline alignment style. For Bridge alignments shown on Bridge Key Plans, the MassDOT_Bridge Key Plan alignment label set shall be used. For alignments shown on all Bridge plans other than Bridge Key Plans, the MassDOT_Bridge alignment label set shall be used.

Witness/Hatch Lines

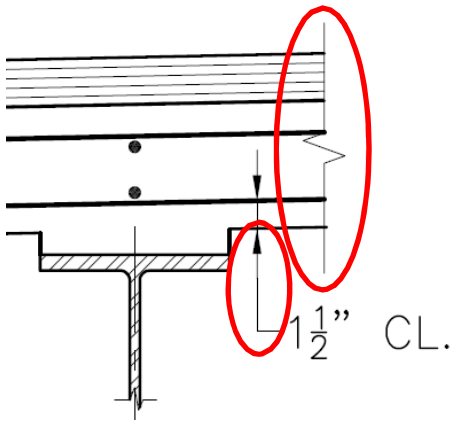
The PR-BR-HATCH layer shall be used to draw witness lines when dimensioning. PR-BR-HATCH shall also be used for hatching and cross hatching.

Dimension Lines

The PR-BR-DIMS layer shall be used for all dimensions. The dimension style DOT-BR-FT shall be used for dimensions 24" and greater. The dimension style DOT-BR-IN shall be used for dimensions of less than 24".

Manually Created Dimension Extension Lines

The PR-BR-DIMS-EXT layer shall be used in situations where a dimension line needs to be manually extended or where a line needs to be drawn with a line weight matching that of the typical dimension line, i.e. break lines.

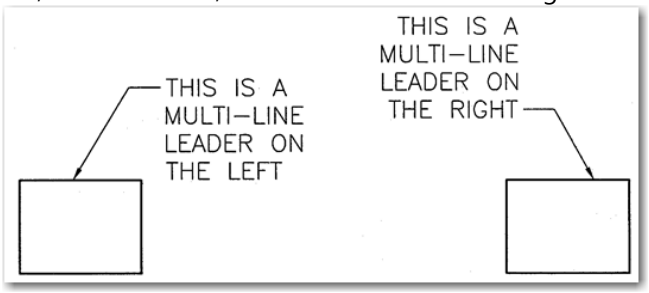


Off-Detail Dimension Lines

The PR-BR-DIMS layer shall be used with two ARROW symbols (found in the BRIDGE_SYMBOLS.dwg) at one end to indicate that a particular dimension or spacing of objects continues beyond the edge of the given detail in the direction of the double arrows.

Text with Leaders

The PR-BR-DIMS layer shall be used for all text with leaders. The DOT-BR multi-leader style shall be used for single line text, multi-line text, or multi-line text containing fractional dimensions.



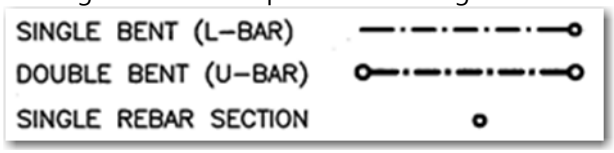
DOT-BR-One Line FR shall be used with fractions. The fraction shall stack horizontally and the leader line tail shall be aligned with the fraction line.

Proposed Rebar Sections

The symbols below represent the end view of a proposed rebar in section views. The symbols also represent bent bars, such as L or U bars, where the bent leg is not in the plane of the drawing. The filled circle s y m b o l of the given diameter is used to represent all rebars in the specified scale regardless of the rebars' actual diameters.

Existing Rebar Sections

The symbols below represent the end view of an existing rebar in section views where existing and proposed rebars are shown together and represent bent bars, such as L or U bars, where the bent leg is not in the plane of the drawing. The open circle symbol of the given diameter is used to represent all existing rebars in the specified scale regardless of the rebars' actual diameters.



Text Styles and Usage

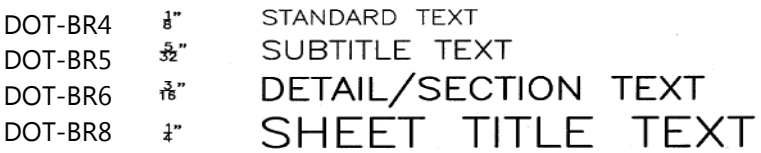
The text style to be used on Bridge Section Construction Drawings shall be as shown below:

DOT-BR4 (placed on EX-BR-TEXT or PR-BR-TEXT layers) shall be used for all lettering on the Construction Drawings. This includes annotating details, notes, dimensions, etc.

DOT-BR5 (placed on PR-BR-TEXT-S layer) shall be used for subtitles on individual detail drawings.

DOT-BR6 (placed on PR-BR-TEXT-D layer) shall be used for individual detail drawing titles including section designations.

DOT-BR8 (predefined within BRIDGE_SHEETS.dwg) shall be used to give a title to an entire sheet.



Abbreviations

Abbreviations may be used on SCR Bridge Construction Drawings. A standard list of abbreviations has been provided below. Periods, where shown, are not to be omitted so that the reader can be sure that these abbreviations are intentional and are not misspelled words.

When using abbreviations, the following guidelines must be adhered to:

1. An abbreviation may be used when there is no doubt of its meaning and when it saves significant space on drawings.

2. Avoid use of abbreviations on the Plan and Elevation sheet.

3. Do not abbreviate important words in titles.

4. For words whose abbreviations are not universally recognized in the construction industry, the word should be spelled out and followed with the abbreviation in parenthesis the first time the abbreviation appears on the Construction Drawings. The abbreviation may be used in the document thereafter.

5. Abbreviations should not be used in the text of notes unless they are conventional abbreviations, for instance H.S. Bolt for High Strength Bolt.

List of Standard Abbreviations

A	
Abutment	ABUT.
Alternate	ALT.
And	&
Annual Average Daily Traffic	AADT
Approach slab	APPR. SLAB
Approximate	APPROX. At
@ Avenue	AVE.
B	
Barrels	BBL.
Beam Number 1	BM. #1
Bearing, Bearings	BRG., BRGS.
Bench mark	B.M.
Bituminous	BIT.
Bottom	BOT.
Boulevard	BLVD.
Bridge Number A-01-001	BR. NO. A-01-001
C	
Catch basin	C.B.
Cast-in-place	C.I.P.
Cast iron pipe	C.I. PIPE
Cement	CEM.
Center to Center	C. TO C.
Clearance, Clear	CL.
Concrete	CONC.
Construction	CONST.
Culvert	CULV.
Chamfer	CHAMF.
D	
Degrees (angular)	°
Degrees (thermal)	ºF
Diameter	DIA. or Ø
Distance	DIST.
Dowel	DWL.
Drive	DR.
E	
Each	EA.
East	E.
East (for survey bearings)	E
Eastbound	E.B.
East Taunton Station	ETS
Elevation	EL.
Equal (as in equal spaces)	EQ.
Expansion	EXP.
Existing	EXIST.
Exterior	EXT.
F	
Fall River Secondary	FRS
Fall River Depot	FRD
Far Face	F.F.
Federal Highway Administration	FHWA
Figure, Figures	FIG., FIGS.
Floor Beam Number 1	F.B. #1
Freetown Station	FRE
G	
Galvanized	GALV.
Gage	GA.
H	
Hexagonal Head	HEX. HEAD
High Performance Concrete	H.P.Concrete High
Performance Steel	H.P.S. High
Strength	H.S. Highway
HWY. Horizontal	HORIZ.
Hot Mix Asphalt	HMA
I	
Inside Diameter	I.D.
Interior	INT.

Standard Abbreviations (Cont.)

J

Joint	JT.

K

Kips	K
Kips per Square Inch	KSI
Kips per Square Foot	KSF
King's Highway Station	KHS

L

Latex Modified Concrete	L.M.C.
Longitudinal	LONGIT.
Lump Sum	L.S.

M

Manhole	M.H.
Massachusetts Department of Transportation	MassDOT
Massachusetts Bay Transportation Authority	MBTA
Maximum	MAX.
Middleborough Secondary	MS
Miles per Hour	MPH
Minimum	MIN.
Miscellaneous	MISC.
Modified	MOD.

N

Near Face	N.F.
New Jersey Barrier	N.J. BARRIER North
New Bedford Main Line	NBML
N. North (for survey bearings)	N
Northbound	N.B.
Northeast(erly)	N.E. Northwest(erly)
N.W. Not to Scale	N.T.S.
Number	NO. or #
Numbers	NOS.

O

On Center	O.C.
Outside Diameter	O.D.
Outside to Outside	O. TO O.

P

Pavement	PVMT.
Perpendicular	PERP.
Pilgrim Junction Station	PJT
Point of Compound Curvature	P.C.C. Point
of Curvature	P.C. Point of
Intersection	P.I. Point of
Tangency	P.T. Point of
Vertical Curvature	P.V.C. Point of
Vertical Intersection	P.V.I. Point of
Vertical Tangency	P.V.T. Polyvinyl
Chloride Pipe	P.V.C. PIPE Pounds per
Square Inch	PSI Proposed
PROP.	

R

Radius =	R =
Railroad	RR.
Reinforced, Reinforcing	REINF.
Remove	REM.
Remove and Reset	R. & R.
Required	REQ'D
Retaining Wall	RET. WALL
Right Of Way	R.O.W.
Road	RD.
Roadway	RDWY.
Route	RTE.

S

Seconds	SEC.
Section	SECT.
Sheet number 1	SH. #1
Sidewalk	SDWK.
South	S.
South (for survey bearings)	S
Southeast(erly)	S.E. Southwest(erly)
S.W.	
Southbound	S.B.
Spaces	SP.

Standard Abbreviations (Cont.)

S (cont)	
Specification	SPEC.
Speed (design speed)	V
Square	SQ.
Square feet	SF
Square inches	SI
Stainless steel	S.S.
Station	STA.
Stay-In-Place Forms	S.I.P. FORMS
Street	ST.
Surfacing	SURF.
Symmetrical	SYM.
T	
Tangent	TAN.
Temporary	TEMP.
Tons per square foot	TSF
Typical	TYP.
V	
Variable	VAR.
Vertical	VERT.
Vertical Curve	V.C.
W	
Wamsutta Layover	WAM
Wearing Surface	W.S.
Weaver Cove Layover	WVR
West	W.
West (for survey bearings)	W
Westbound	W.B.
Whales Tooth Station	WTS
Wingwall	W.W.
Working Point	W.P.
Wrought Iron Pipe	W.I. PIPE

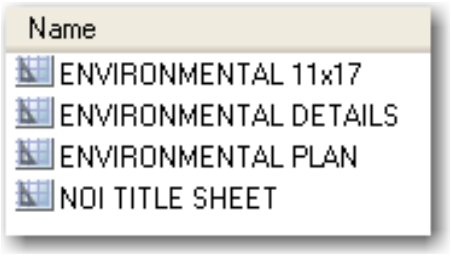
Environmental

Environmental Plan Requirements

All Environmental Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG). The PDDG CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDG CAD Standard must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "ENVIRONMENTAL_SHEETS.dwg" CAD file. The CAD file contains standard borders for all design-related plans; the following layouts are included:



No other borders will be accepted.
It is recommended that DesignCenter be used to drag-n-drop these layouts into a project DWG.
ENVIRONMENTAL_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

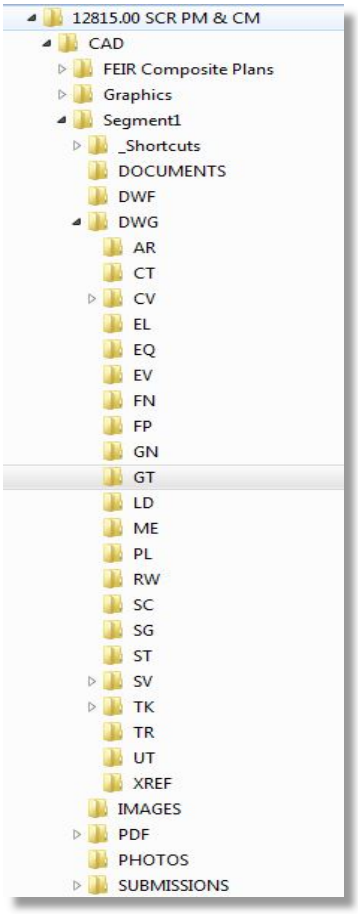
Do not use the ENVIRONMENTAL_SHEETS.dwg file for any design-related AutoCAD work as the file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Geotechnical

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

Folder Structure

The Geotechnical Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see Default Folder Structure in the General Section for descriptions of these folders.



PHOTOS – files associated with site photographs, pictures
IMAGES – scanned field notes, research, etc… (Non-externally referenced images)

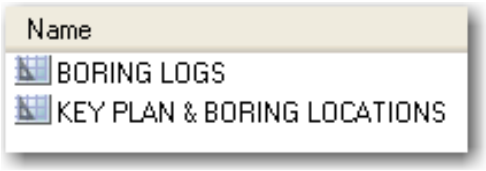
Geotechnical Plan Requirements

All Geotechnical Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG). The PDDG CAD Standard is the sole location of all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDGCAD Standard must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed at the lower right corner of each paper space border and is placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. Please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, have been created within the "GEOTECH_SHEETS.dwg" CAD file. This CAD file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that DesignCenter be used to drag-n-drop these layouts into a project DWG.
GEOTECH_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the GEOTECH_SHEETS.dwg file for any design related AutoCAD work as the file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Geotechnical Symbols and Blocks

Symbols have been developed for the proposed construction items to closely represent those symbols provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for MassDOT; no substitute symbols will be accepted. Additional symbols may be added for items not listed; however, the list of additional symbols with descriptions must be included with the plan submission to MassDOT.

A Geotechnical Section symbol and block library is available within the "GEOTECH_SYMBOLS.dwg" file; the file can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

Highway Design

Civil 3D Objects

The following design items must be created as AutoCAD Civil 3D objects and must be assigned MassDOT Civil 3D Object Styles using the provided MassDOT Civil 3D drawing template.

POINTS
SURFACES
ALIGNMENTS
PROFILES – SECTIONS
CORRIDORS
PIPE NETWORKS

Title Sheet Revision Block

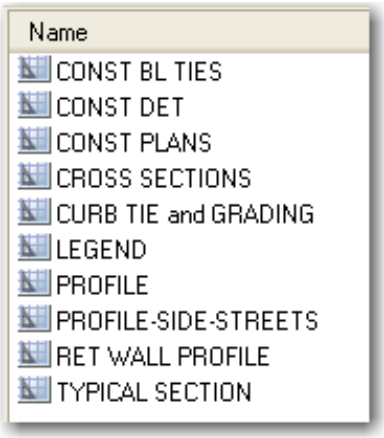
The revision block on the title sheet shall be used to track submission and re-submission revision dates during the project design phase. All information shall be cleared from the revision block on the Title Sheet mylar when the project is advertised. From this point on, the revision block shall be used to track all revisions during the project construction phase and shall become a permanent part of the Title Sheet.

Highway Design Plan Requirements

All Highway Design Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG) The PDDG CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDG must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals, currently in use, which are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

When creating Paper Space layouts for Highway Design, a default set of sheets, i.e. layouts, have been created within the "HWYDESIGN_SHEETS.dwg" CAD file. This CAD file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that DesignCenter be used to drag-n-drop these layouts into a project DWG.
HWYDESIGN_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the HWYDESIGN_SHEETS.dwg file for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Highway Design Symbols and Blocks

Symbols have been developed for the proposed construction items to closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for MassDOT; no substitute symbols will be accepted. Additional symbols may be added for items not listed; the list of additional symbols with descriptions must be included with the plan submission to MassDOT.

A Highway Design Section symbol and block library is available within the "HWYDESIGN_SYMBOLS.dwg" file; the file can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

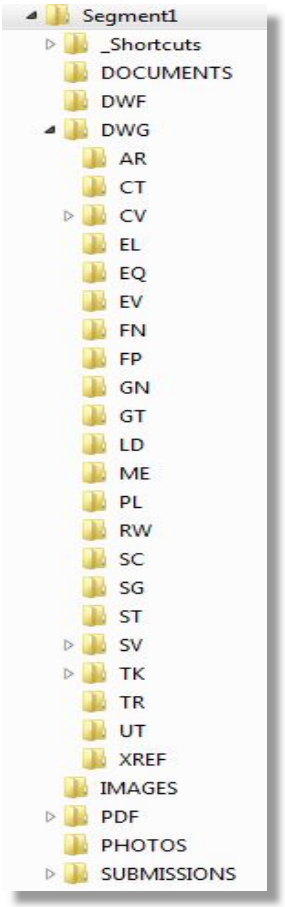
Landscape Design

File Submission Requirements

PLEASE NOTE:
Actual software version used by MassDOT internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

Folder Structure

The MassDOT Highway Division's Landscape Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see Default Folder Structure in the General Section for descriptions of folders.



PHOTOS – files associated with site photographs, pictures
IMAGES – scanned field notes, research, etc. (Non-externally referenced images)

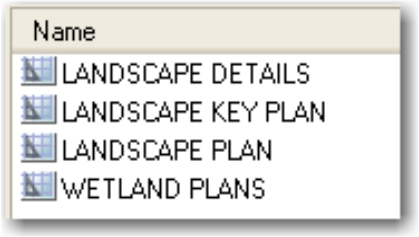
Landscape Design Plan Requirements

All Landscape Design Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG). The PDDG CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDG must be adhered to. The PDDG is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. Please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "LANDSCAPE_SHEETS.dwg" CAD file. The file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.
LANDSCAPE_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the LANDSCAPE_SHEETS.dwg for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Landscape Design Symbols and Blocks

Symbols have been developed for the proposed construction items to closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for MassDOT; no substitute symbols will be accepted. Additional symbols may be added for items not listed; however, the list of additional symbols with descriptions must be included with the plan submission to MassDOT.

A Landscape Section symbol and block library is available within the "LANDSCAPE_SYMBOLS.dwg" file, which can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

Landscape Planting Plans

Existing Vegetation

Ensure that existing trees and other vegetation within the project limits are shown on the plans, including size and type.

Invasive Plants

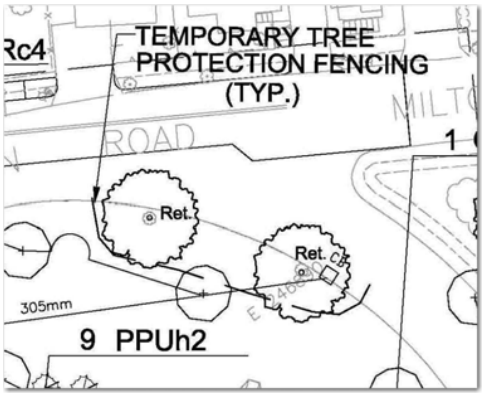
If applicable, identify and delineate invasive plant species within and bordering the project limits. Include approximate area of plants.

Survey Layers

Show all layers such as utilities, signs, signals, and lighting in order to avoid plant placement conflicts.

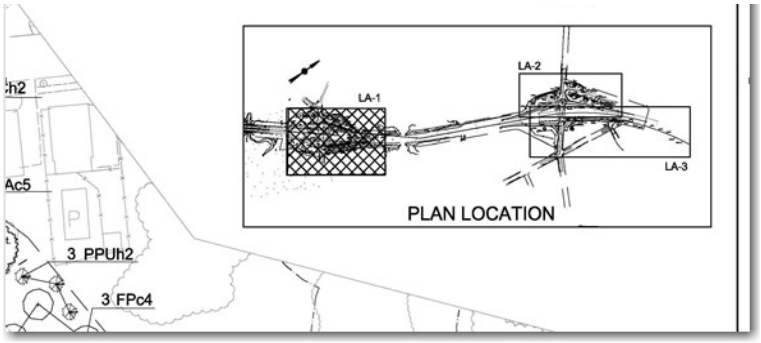
Tree Protection

Show tree protection measures on the Construction and Landscape Plans.
Include tree protection for existing trees within or adjacent to construction staging areas.



Key Plan

Landscape key plans are useful on interchange, large corridor, and shared-use path projects. Show a smaller key plan on each sheet with the corresponding sheet highlighted for reference. Inclusion of a Key Plan is optional.



North Arrow

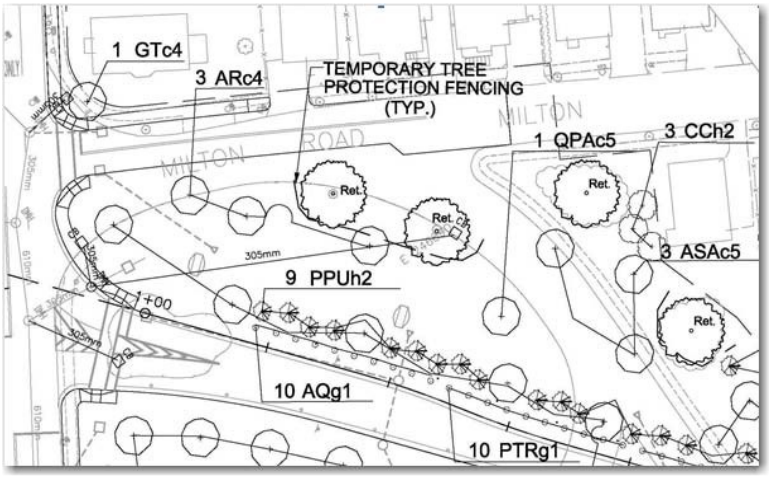
Show a north arrow on all landscape plans except detail sheets.

Bar Scale

Show a bar scale on all landscape plans. Detail sheets may include bar scales as needed.

Plant Symbols

Show plant symbol graphics to accurately show proper plant spacing of plant material based on the species type and specified size. Link groups of the same plant species together with a continuous leader line and label with a quantity and an alphanumeric symbol that corresponds to the plant list. (See Plant List on next page for more information).



Plant List

Provide a plant list on each sheet that corresponds to the plants located on that sheet. Include a summary plant list with landscape details.

Plant lists should include the following:

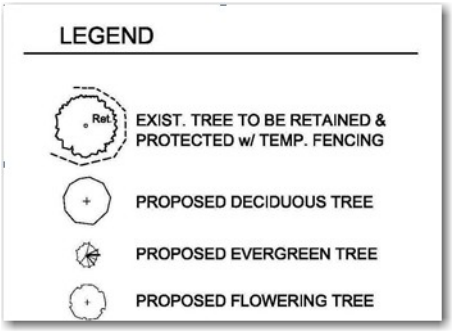
- Quantity for Each Species
- Symbol (alphanumeric)
- Description (per MassDOT Nomenclature and List of Standard Items)
- Botanical Name
- Specified Size
- Comments/Notes
- Quantity per Area (where applicable)

PLANT LIST–SHEET

SYM	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES					
AMCh3	3	Amelanchier canadensis	Shad Tree	1–1.5" caliper	
MCRBh2	5	Malus 'Red Baron'	Crabapple–Columnar 'Red Baron'	6–8 FT	
TONh2	14	Thuja occidentalis 'Nigra'	Arborvitae–Eastern 'Nigra'	6–8 FT	

Legend

Provide a legend on each sheet for symbols, hatch patterns, and other relevant information.

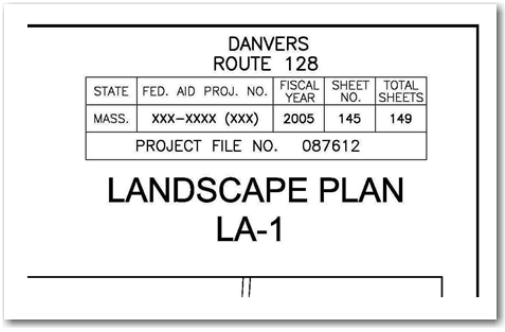


Notes

Add or remove notes from the standard note block as necessary. Notes should avoid repeating information contained in specifications in order to avoid conflicts.

Supplemental Sheet Numbers (Optional)

Limit supplemental sheet references to the landscape set (LA 1, LA 2, etc.).



Wetland Replication Plans

On Wetland Replication Plans, show the following (where applicable):

Existing Conditions

- Legend
- Existing Wetland Delineation Limits
- Impacted Area Limits
- Impacted Area Size
- 100 Ft Buffer Zone
- 100 Ft Floodplain
- 200 Ft Riverfront Area
- Existing Vegetation Limits (include inventory of plant species)
- Invasive Species (where applicable)
- Non-tidal Wetlands
    - Include Elevation for Ordinary High Water Level
- Tidal Wetlands
    - Include Elevation for:
        - Mean Low Water Line (MLW)
        - Mid Tide Line (MT)
          Mean High Tide Line (MHW)
        - High Tide Line (HTL)
            - HTL is also known as Mean Higher Line, High Water Line, or Spring Tide Line.
- Hydrologic Monitoring Location
    - Tide gauges, piezometers, etc. (where applicable)
- Reference Wetland Area (where applicable)

Proposed
Legend
Notes
Erosion control measures
Existing trees to remain (include protection measures)
Wetland mitigation limits & area (restoration, replication, enhancement)
Grading contours- (typically 1 foot intervals) Include proposed water line for non-tidal wetlands and proposed intertidal zones for tidal wetlands, including:
Mean Low Water line (MLW)
Mid Tide line
Mean High Tide line (MHW)
High Tide Line (HTL) Also known as: Mean Higher High Water or Spring Tide line

Also, include this information in a table format on the plan.

- Plantings (See Landscape Plan requirements)
- Seeding limits and type
- Invasive Species treatment areas
- Temporary Wildlife barriers- Goose exclusion Fence, Turtle Barriers, etc. (where applicable)
- Hydrologic monitoring locations: tidal gauges, piezometers, etc. (where applicable)

Layouts

Layouts Plan Requirements

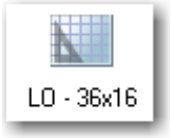
All Layouts Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide This CAD Standard is the sole location for all MassDOT Highway Division CAD related standards. Where inconsistencies occur between this CAD Standard document and any other MassDOT Highway Division manuals currently in use, this CAD Standard document must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals, currently in use, which are not specifically addressed herein.

All Drawings must be created using the current version of the MassDOT drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. Please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

Layouts Section title blocks can be obtained from the "LAYOUT_SYMBOLS.dwg"

When creating Paper Space layouts, a default set of sheets, i.e. layouts, have been created within the "LAYOUT_SHEETS.dwg" CAD file. This contains standard borders for all Layouts Section related plans. The following layouts are included,



No other borders will be accepted.

The use of DesignCenter to drag-n-drop these layouts into a project DWG is recommended.

ATTENTION

Do not use the LAYOUTS_SHEETS.dwg for any design related AutoCAD work. They do not contain the necessary layers, text styles, dimension styles or plot styles.

Layouts Symbols and Blocks

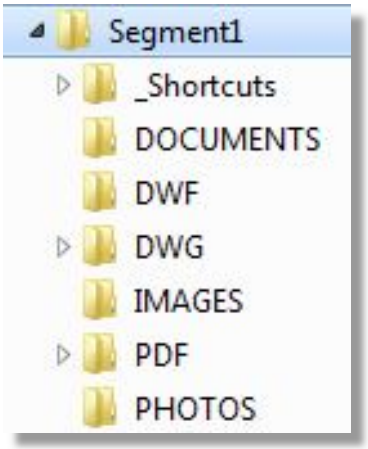
Symbols have been developed for the proposed construction items to closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for SCR; no substitute symbols will be accepted. Additional symbols may be added for items not listed; however, the list of additional symbols with descriptions must be included with the plan submission.

A Layouts Section symbol and block library is available within the "LAYOUT_SYMBOLS.dwg" file; the file can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

Folder Structure

The Layouts Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see the Default Folder Structure in the General Section for descriptions of folders.



Text Style Specific to Layout Plans

All layout geometry, stationing, notes, and property owner information text used on Layout Plans shall use the DOT-LO text style.

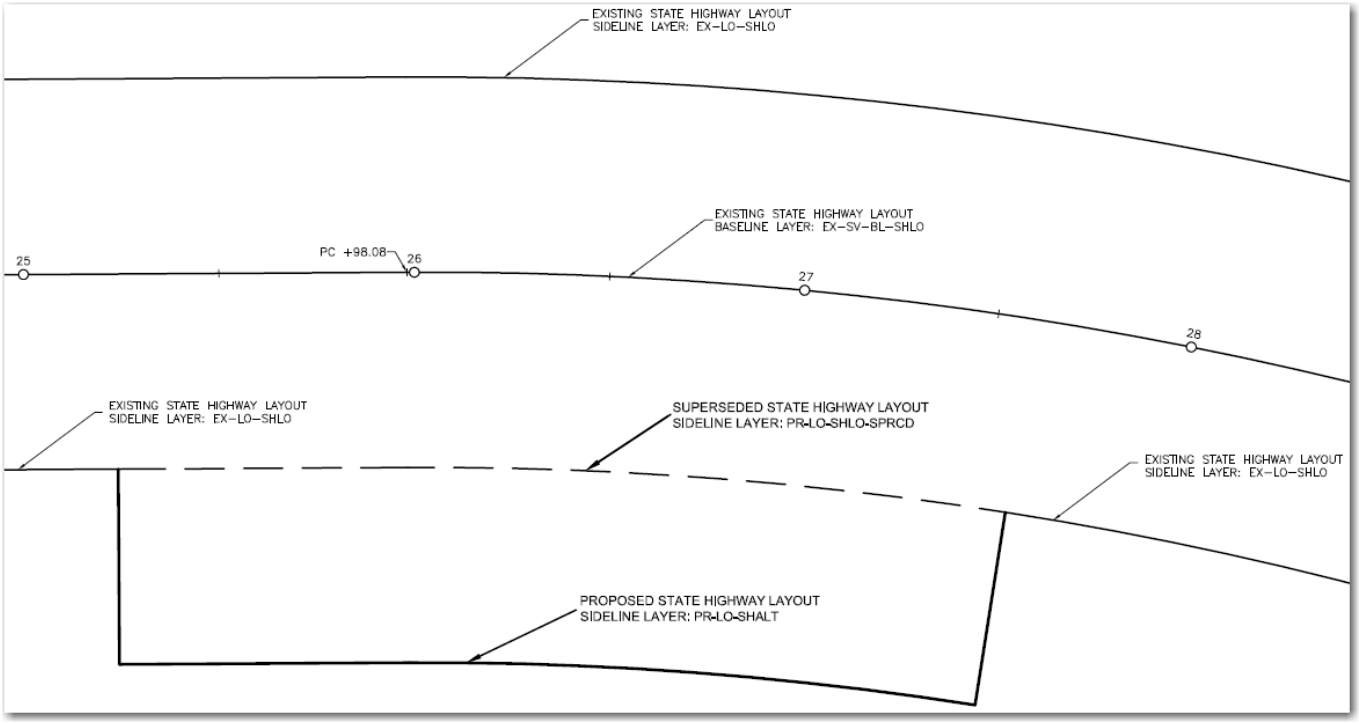
Layer Naming Requirement Specific to Layout Layer Use

It is required that all layers include at least one layer reference. Acceptable references include Layout Number, Recorded Book and Page, and/or Year of Layout. The following are examples of the required layer naming format:

EX-LO-SHLO-1923-BK12-PG45
EX-LO-SHLO-1977
EX-LO-SHLO-1944-LO1234.

State Highway Layout (and Alteration) – Line Style Graphic

- An alteration line to a State Highway Layout (SHLO) is a BOLD, continuous line or curve with either bearing and distance or radius and length indicated on the outside of the line or curve, respectively. Use layer PR-LO-SHALT.
- The superseded State Highway Layout line is a thin, dashed line. Use layer PR-LO-SHLO-SPRCD.
- The existing State Highway Layout line is a thin, continuous line. Use layer EX-LO-SHLO.
- The existing State Highway Layout Baseline is a thin, continuous line. Use layer EX-SV-BL-SHLO and the Civil 3D Alignment Object Style MassDOT_Record_Baseline.



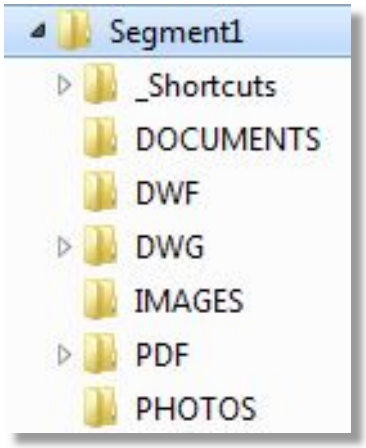
Right of Way

File Submission Requirements

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

Folder Structure

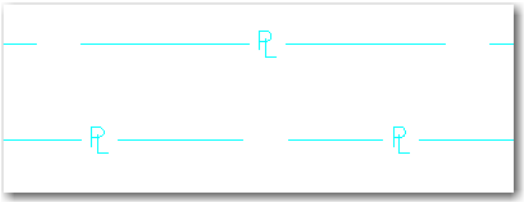
The Right of Way Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see the Default Folder Structure in the General Section for descriptions of folders.



Right of Way – Property Line Style Graphic

All property lines shall be denoted using one of the following two methods:

1. Using the property line layer, EX-SV-LN-PROP, create a line using the layer's defined default line type. Then, using the SV_PL block provided within the Survey_Symbols.dwg file, insert this block at various intervals along the property line.



2. Set the <current layer> to EX-SV-LN-PROP, set the <current line type> to use the EXIST PROP LINE SYMBOL line type.

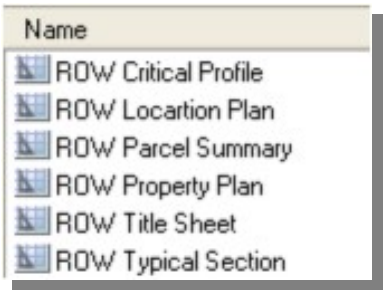
Right of Way Plan Requirements

All Right of Way Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG). The PDDG CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDG must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. Please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "ROW_SHEETS.dwg" CAD file. This CAD file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.
The ROW_SHEETS.dwg file can be found in the Resources Section by clicking here.

ATTENTION

Do not use the ROW_SHEETS.dwg file for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Survey

File Submission Requirements

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

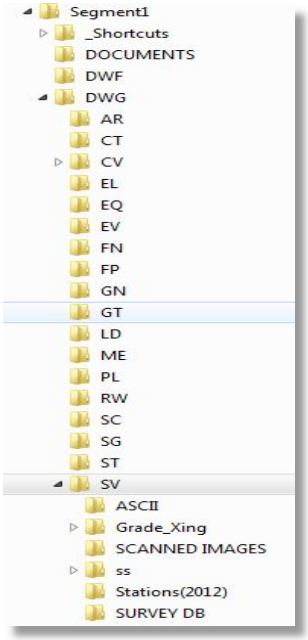
Civil 3D Objects

The following design items must be created as AutoCAD Civil 3D objects and must be assigned Civil 3D Object Styles using the provided SCR Civil 3D drawing template:

- POINTS
- SURFACES
- ALIGNMENTS
- PROFILES - SECTIONS
- PIPE NETWORKS

Folder Structure

Survey Section requires that all electronic file submissions shall be submitted within the following Folder Structure. Please see the Default Folder Structure in the General Section for descriptions of folders.



Additional Folders Not Previously Listed:

PHOTOS – files associated with site photographs, pictures
SCANNED IMAGES – scanned field notes, research, etc. (Non-externally referenced images)
SURVEY DB – location for the Civil 3D Survey Database and supporting FBK, ASCII Text files.

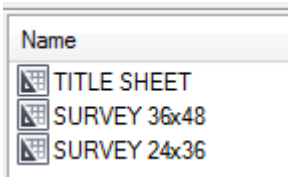
Survey Plan Requirements

All Survey Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide. The PDDP CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDP and any other MassDOT Highway Division manuals currently in use, thee PDDP CAD Standard must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and is placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. For more information, please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "SURVEY_SHEETS.dwg" CAD file. This CAD file contains standard borders and title blocks for all design-related plans. The following layout is included:



No other borders will be accepted.
It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.
SURVEY_ SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the SURVEY_SHEETS.dwg file for any design related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Survey Symbols and Blocks

Symbols have been developed for the existing survey items to closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for MassDOT; no substitute symbols will be accepted. Additional symbols may be added for items not listed; the list of additional symbols with descriptions must be included with the plan submission to MassDOT.

A Survey Section symbol and block library is available within the "SURVEY_SYMBOLS.dwg" file, which can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

Description Key Sets

A standard MassDOT Description Code set is included within the SCR drawing template:

All survey projects shall use the "MassDOT Survey" description key set, shown at left. An asterisk (*) has been appended to each description key code in order to allow the use of Civil 3D multi-code capability for field-to-finish line work.

The file *MassDOT Data Collector File.txt* is available on the Resources page. This file is a text file that lists the MassDOT Description Key Codes. The codes in the file can be transferred to a data collector. The list of Description Key Codes must be used for MassDOT Baseplan preparation. All listed features must be described with the corresponding code; no substitute codes will be accepted.

A miscellaneous code (Z*) has been provided in the instance that a feature is not listed.

Figure Prefixes

A standard figure prefix database has been provided. This database automatically places field-to-finish line work onto the proper MassDOT layers. Please refer to the Resource Section for the appropriate version.

A sample point file, *MassDOT TESTPNTS.txt*, and sample field book, *MassDOT Points and Figures.FBK*, are available on the Resource Section for testing.

The *MassDOT Testpnts.txt* file contains data for point codes, each with a different MassDOT description code. You may wish to import these points into a drawing as an example of the layers, description codes, and symbols.

The *Points and Figures.fbk* file contains data for point codes and figure codes; each code has a different MassDOT description code. You may wish to import this file into a drawing as an example of the layers, description codes, symbols, and figures.

The following table contains both Description Keys and Figure Prefixes. Since the field-to-finish functionality uses the same codes, codes that do not have Figure Prefixes associated with them are SHADED. Any code that is not shaded has both a Description Key and a Figure Prefix. Parameters used in Description Key Codes are noted in BOLD. See the section following the code list for the explanation of the proper use of Parameters in Description Keys.
The * noted in each code simply refers to the ability to use multiple codes for a single location;
the * is not required in the proper coding of a point.

~?	BAD CODE
BCB*	BOTTOM BIT. CURB
BCC*	BOTTOM CONC CURB
BCE*	BOTTOM SLOPED EDGING CURB
BCG*	BOTTOM GRANITE CURB
BCO*	BOTTOM CURB - OTHER
BD*	BUILDING
BRAB*	BRIDGE - ABUTMENT BOT
BRAT*	BRIDGE - ABUTMENT TOP
BRCB*	BRIDGE - CONCRETE BEAM
BRCL*	BRIDGE - COLUMN
BRCN*	BRIDGE - CONCRETE
BRDK*	BRIDGE - DECK
BRFB*	BRIDGE - EXPOSED FOOTING BOTTOM
BRFT*	BRIDGE - EXPOSED FOOTING TOP
BRIB*	BRIDGE - I BEAM
BRJB*	BRIDGE - JERSEY BARRIER
BRMP*	BRIDGE - METAL PLATE
BROT*	BRIDGE - OTHER
BRPR*	BRIDGE - PIER TOP
BRPS*	BRIDGE - PIER (POINT)
BRRL*	BRIDGE - RAILING
BRSM*	BRIDGE - STRUCT MEMBER
BRSS*	BRIDGE - STRUCT MEMBER (POINT)
BRST*	BRIDGE - STEEL
BRWB*	BRIDGE - WINGWALL BOTTOM
BRWD*	BRIDGE - WOOD
BRWT*	BRIDGE - WINGWALL TOP
BRXJ*	BRIDGE - EXPANSION JOINT
BS*	BOTTOM OF SLOPE
BWL*	BROKEN WHITE LINE
BYL*	BROKEN YELLOW LINE
CBC*	CATCH BASIN CENTER
CBDF*	CATCH BASIN - D FRAME
CBE*	CATCH BASIN – BACK CENTER EDGE
CBR*	CATCH BASIN - ROUND
CC*	CONCRETE COVER
CI*	CURB INLET
CL*	CENTER LINE - MISCELLANEOUS
CR*	CROWN OF ROAD
CS*	CHANGE IN SLOPE

CUBC*	CULVERT - CONCRETE BOX
CUBS*	CULVERT - STONE BOX
CUCC*	CULVERT - CONCRETE CIRCULAR
CUCS*	CULVERT - STONE CIRCULAR
DAMC*	DAM - CONCRETE
DAMO*	DAM - OTHER
DECK*	DECK - HSE OR BLDG
DEMT*	ELECTRIC METER
DFPL*	FLAG POLE
DGFP*	GAS PUMP
DGMT*	GAS METER
DI*	DROP INLET
DL*	DITCH LINE
DMBX*	MAILBOX
DMHR*	METAL HAND RAIL
DOC*	OIL
DPCR*	$1 $2 POST
DPLN*	PLANTER
DPSQ*	$1 $2 POST
DROC*	ROCK OUTCROP
DSCN*	STAIRS - CONC
DSPP*	STAND PIPE
DSTR*	STAIRS
DVLT*	VAULT UNDERGROUND
DVPP*	VENT PIPE
DWP*	DETECTABLE WARNING PAD – ADA
DWEL*	WELL
DWHL*	CONCRETE WHEEL STOP
DWMT*	WATER METER
DYL*	DBL YELLOW LINE
EC*	EDGE CONC
EG*	EDGE GRAVEL
EHH*	ELECTRIC HAND HOLE
EL*	EDGE GRASS/LAWN
EM*	EDGE MATERIAL PILE
EO*	EDGE OF OTHER SURFACE TYPE
EP*	EDGE PAVE - BITUMINOUS
ERP*	EDGE RIPRAP
EW*	EDGE OF WATER
FCBW*	FENCE - BARBED WIRE
FCCL*	FENCE - CHAIN LINK

FCCR*	FENCE - CEDAR RAIL
FCGA*	FENCE - GATE POST
FCIP*	FENCE - IRON PIPE
FCOT*	FENCE - OTHER
FCS*	FENCE - SEDIMENTATION
FCWD*	FENCE - WOOD
FES*	FES $1 $2 FLARED END SECTION
FFE*	FINISHED FLOOR ELEV
FL*	STREAM/RIVER FLOW LINE
FN*	FOUNDATION
GCSL*	GUARD RAIL - CABLE - STL POSTS LEFT OF DIR OF SURVEY
GCSR*	GUARD RAIL - CABLE - STL POSTS RIGHT OF DIR OF SURVEY
GCTL*	GUARD RAIL - CABLE - TRIA POSTS LEFT OF DIR OF SURVEY
GCTR*	GUARD RAIL - CABLE - TRIA POSTS RIGHT OF DIR OF SURVEY
GFL*	GAS FILL - GAS STATION
GGT*	GAS GATE
GPL*	GPL $1 - GUY POLE
GRET*	GUARD RAIL - END TREATMENT
GRTD*	GUARD RAIL - STL THRIE BEAM DBL FACED
GRTL*	GUARD RAIL - STL THRIE BEAM POSTS LEFT OF DIR OF SURVEY
GRTR*	GUARD RAIL - STL THRIE BEAM POSTS RIGHT OF DIR OF SURVEY
GRWD*	GUARD RAIL - STL W BEAM DBL FACED
GRWL*	GUARD RAIL - STL W BEAM POSTS LEFT OF DIR OF SURVEY
GRWR*	GUARD RAIL - STL W BEAM POSTS RIGHT OF DIR OF SURVEY
GTBH*	BHL $1 – BORING HOLE
GTOW*	MW $1 – MONITORING WELL
GTTP*	TP $1 – TEST PIT
GWA*	GUY WIRE ANCHOR
HB*	HAYBALES FOR EROSION CONTROL
HC*	HEADWALL - CONC
HO*	HEADWALL - OTHER
HS*	HEADWALL - STONE
HYD*	HYDRANT
INV*	INV $1 $2 - INVERT
JBDF*	PRECAST CONC BARRIER (DBL FACED)
JBSF*	PRECAST CONC BARRIER (SINGLE FACED)
LPDL*	LIGHT POST DOUBLE LIGHT
LPL*	LIGHT POLE SINGLE LIGHT
MBMK*	BENCHMARK $1 $2 $3 $4
MDHL*	DRILL HOLE
MDSK*	DISK $1 $2 $3
MELP*	ESCUTCHEON PIN LEAD PLUG
MFLY*	CHK SHOT
MHC*	CATV MANHOLE
MHD*	DRAIN MANHOLE
MHE*	ELECTRIC MANHOLE
MHG*	GAS MANHOLE
MHM*	STEAM MANHOLE
MHO*	MANHOLE - MISC
MHS*	SEWER MANHOLE
MHT*	TELEPHONE MANHOLE
MHW*	WATER MANHOLE
MIPE*	IP $1 $2 – IRON PIPE
MMAG*	MAG NAIL
MMHB*	$1 $2 $3 $4 MASSACHUSETTS HIGHWAY BOUND
MMON*	$1 $2 $3 $4 – MONUMENT
MPHB*	$1 $2 $3 $4 PHOTO CONTROL - BOTH
MPHH*	$1 $2 $3 $4 PHOTO CONTROL - HORIZONTAL
MPHV*	$1 $2 $3 $4 PHOTO CONTROL - VERTICAL
MPKN*	PK NAIL
MREB*	$1 $2 REBAR/IRON PIN
MRRS*	RAILROAD SPIKE
MRST*	TOWN LINE ROAD STONE
MSTN*	STAKE & NAIL
MTBD*	TOWN BOUND
MTRV*	$1 $2 $3 $4 – TRAVERSE STATION
MXCT*	X-CUT
OH*	OVERHANG
OS*	ON SLOPE
OW*	OVERHEAD WIRE
PELH*	SPOT ELEV - HIGH POINTS
PELL*	SPOT ELEV - LOW POINTS
PELV*	SPOT ELEV - INTER SHOTS
RRRM*	RUBBER MAT
RRSG*	RAILROAD SIGNAL
RRSW*	RAILROAD SWITCH
RRTK*	RAILROAD TRACKS
SI*	SILL - DOOR, BUILDING, FOUNDATION

SWA*	SWALE
SWL*	SOLID WHITE LINE
SYL*	SOLID YELLOW LINE
TC*	TOP OF CURB
TFCC*	TRAFFIC SIGNAL CONTROLLER CABINET
TFEA*	END OF MAST ARM
TFFB*	FLASHING BEACON
TFHS*	HANDICAP SPACE - PAVEMENT MARKING
TFMA*	TRAFFIC SIGNAL MAST ARM POLE
TFMR*	TRANSFORMER
TFMT*	PARKING METER
TFPB*	TRAFFIC PULL BOX
TFPD*	TRAFFIC SIGNAL - PEDESTRIAN
TFS1*	SIGN
TFS2*	SMALL SIGN - DOUBLE POST
TFSG*	TRAFFIC SIGNAL – POST MOUNTED
TFSN*	BILLBOARD OR OTHER LARGE GROUND SIGN
TFSO*	OVERHEAD SIGN (LOCATION OF OVRHNG)
TFSS*	SIGN
TFSW*	TRAFFIC SIGNAL SPAN WIRE ASSEMBLY POLE
TFUL*	LOOP DETECTOR
TPL*	TROLLEY POLE
TRNP*	CROSS COUNTRY TRANSMISSION POLE
TS*	TOP OF SLOPE
UC*	UTILITY - CABLE LINE
UD*	UTILITY - DRAINAGE
UE*	UTILITY - ELECTRIC
UFB*	UFB $1 - UTILITY POLE & FIRE BOX
UG*	UTILITY - GAS
ULT*	ULT $1 – UTILITY POLE SINGLE LIGHT
UM*	UTILITY - STEAM
UO*	UTILITY - MISCELLANEOUS
UPDL*	UPDL $1 – UTILITY POLE DOUBLE LIGHT
UPL*	UPL $1 – UTILITY POLE
US*	UTILITY - SEWER
UT*	UTILITY - TELEPHONE
UW*	UTILITY - WATER
VGBF*	BF#$1 $2 $3 $4 – BANK FLAG
VGBU*	BUSH
VGCA*	CULTIVATED AREA EDGE
VGHE*	HEDGE
VGSM*	$1" $2 – TREE (LESS THAN 10")
VGST*	STUMP
VGT*	$1"$2 - TREE (10" AND LARGER)
VGWA*	SWAMP/MARSH OR WETLAND OUTLINE
VGWF*	WF# $1 $2 $3 $4 – WETLAND FLAG
VGWL*	WOODS OR BRUSH LINE
WGT*	WATER GATE
WLBR*	WALL - BRICK (FACE @ GROUND)
WLCN*	WALL - CONCRETE (FACE @ GROUND)
WLDF*	WALL - DOUBLE FACED (FACE @ GROUND)
WLOT*	WALL - OTHER (FACE @ GROUND)
WLPT*	WALL - POINTED WALL (FACE @ GROUND)
WLRT*	WALL - RETAINING (FACE @ GROUND)
WLSM*	WALL - STONE MASONRY
WLST*	WALL - STONEWALL
WLTP*	WALL - TOP (ANY TYPE)
WWPV*	PAVED WATERWAY
WSO*	WATER SHUT OFF
Z*	$1 $2 $3 $4 MISCELLANEOUS CODE (ANY CODE NOT FOUND)

Description Key Codes with Parameters

The following description key codes use parameters, or additional information, within the code.
A short description of what shall be included within the code is shown as <…>.
Do not include special characters such as #, ", ?, or !.

DPCR <diameter in inches> <material>
DPSQ <size in inches> <material>
FES <FES width in inches> <material>
GPL <number>
GTBH <number>
GTOW <well number>
GTTP <test pit number>
INV <pipe diameter in inches> <pipe material>
MBMK <set> <set in/on> <USER> <USER> MDSK
<type> <number> <year>
MIPE <diameter in inches> <USER>
MMHB <type/mark of location> <USER> <USER> <USER> MMON
<type/mark of location> <USER> <USER> <USER> MPHB <set>
<MassDOT name if applicable> <USER> <USER> MPHH <set>
<MassDOT name if applicable> <USER> <USER> MPHV <set>
<MassDOT name if applicable> <USER> <USER> MREB <USER>
<USER>
MTRV <set> <MassDOT name if applicable> <USER> <USER>
UFB <pole number>
ULT <pole number>
UPDL <pole number>
UPL <pole number>
VGBF <number> <USER> <USER> <USER>
VGSM <diameter in inches> <type>
VGT <diameter in inches> <type>
VGWF <number> <USER> <USER> <USER> Z
<USER> <USER> <USER> <USER>

Tree Code Description Key

The VGT tree code has been redefined to automate the sizing of the tree symbol. The VGSM tree code, which is used for smaller caliper trees, uses a uniformly sized symbol. Both codes are automatically labeled with both the size and the tree type. Tree types of CON and DEC for coniferous trees and deciduous trees, respectively, have been established.

The code will use the descriptor (VGSM or VGT), followed by a space, then the diameter (in inches) of the tree trunk (do not use the ” character to represent inches in the code), followed by a space, and finally the tree type, CON or DEC. See the following examples;

Wetland Flag Code Description Key

The wetland flag code has been redefined to automate the symbol and automatically label the symbol with the flag number. The code will use the VGWF descriptor, followed by a space, then the flag number.
See the following examples:

When using the wetland flag code, the Wetland Flag symbol and text label will be placed onto the EX-SV-WETL-TEXT layer separate from the Wetland Line layer, EX-SV-WETL.

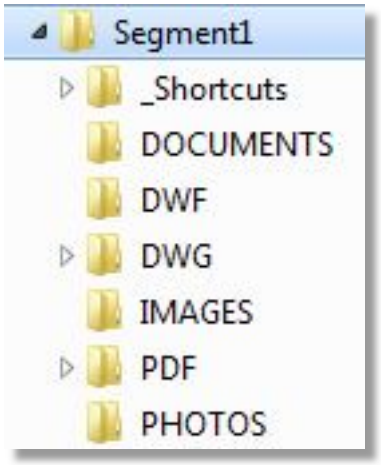
Track

File Submission Requirements

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

Folder Structure

The MBTA Track Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see Default Folder Structure in the General Section for descriptions of folders.



Additional Folder Descriptions:
IMAGES – scanned field notes, research, etc. (Non-externally referenced images)
PHOTOS – files associated with site photographs, pictures

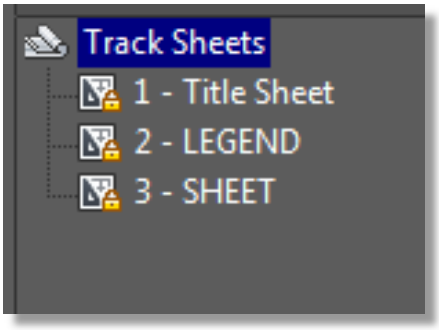
Track Plan Requirements

All Track Drawings shall conform to MBTA Design Standards.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and is placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. Please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "TRACK_SHEET.dwg" CAD file. This CAD file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.
TRACK_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the TRACK_SHEETS.dwg file for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Track Symbols and Blocks

Symbols have been developed for the proposed construction items. These symbols must be used for plans prepared for the SCR Project; no substitute symbols will be accepted. Additional symbols may be added for items not listed; a list of additional symbols with descriptions must be included with the plan submission.

A Track Section symbol and block library is available within the "TRACK_SYMBOLS.dwg" file, which can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

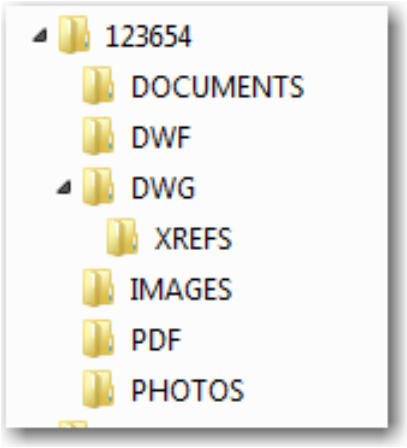
Traffic

File Submission Requirements

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

Folder Structure

The MassDOT Highway Division's Traffic Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see Default Folder Structure in the General Section for descriptions of folders.



Additional Folder Descriptions:
PHOTOS – files associated with site photographs, pictures
IMAGES – scanned field notes, research, etc. (Non-externally referenced images)

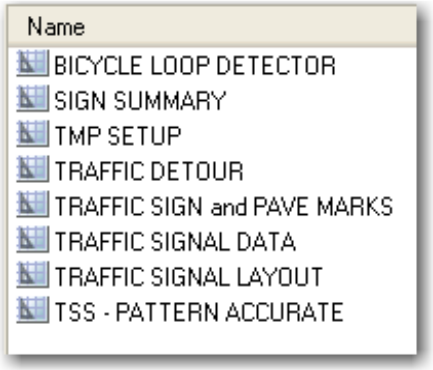
Traffic Plan Requirements

All Traffic Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG). The PDDG CAD Standard is the sole location for all MassDOT Highway Division CAD-related standards. Where inconsistencies occur between the PDDG and any other MassDOT Highway Division manuals currently in use, the PDDG must be adhered to. Requirements remain in effect from other MassDOT Highway Division manuals currently in use that are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and is placed on a no-plot layer. All necessary layers, text styles, plot styles, and dimension styles are included within this template.

The use of Paper Space is now a requirement. For more information, please refer to the "Policy on Model Space vs. Paper Space" located earlier within this document.

When creating Paper Space layouts, a default set of sheets, i.e. layouts, has been created within the "TRAFFIC_SHEETS.dwg" CAD file. This file contains standard borders and title blocks for all design-related plans. The following layouts are included:



No other borders will be accepted.
It is recommended that Design Center be used to drag-n-drop these layouts into a project DWG.
TRAFFIC_SHEETS.dwg can be found in the Resources Section by clicking here.

ATTENTION

Do not use the TRAFFIC_SHEETS.dwg file for any design-related AutoCAD work. The file does not contain the necessary layers, text styles, plot styles, or dimension styles.

Traffic Symbols and Blocks

Symbols have been developed for the proposed construction items to closely represent those provided in Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide, 2006. These symbols must be used for plans prepared for MassDOT; no substitute symbols will be accepted. Additional symbols may be added for items not listed; the list of additional symbols with descriptions must be included with the plan submission to MassDOT.

A Traffic Section symbol and block library is available within the "TRAFFIC_SYMBOLS.dwg" file, which can be found on the Resources page by clicking here.

NOTE: It is recommended that Design Center be used to drag-n-drop these symbols and blocks into a project DWG.

Utilities

File Submission Requirements

PLEASE NOTE:
Actual software version used by SCR internally will change from time to time. Therefore, please refer to the specific project contract or check with the project manager for actual version and submission requirements.

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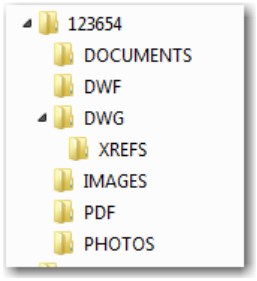
Folder Structure

The MassDOT Highway Division's Utilities Section requires that all electronic file submissions be submitted within the following Folder Structure. Please see the Default Folder Structure in the General Section for descriptions of folders.



Using Utility Layers

MassDOT Highway Division has three (3) categories of utilities to be shown on plans. These are Existing, Proposed, and Record.

EXISTING (Layer convention EX-UT-)
Utility objects that have been observed and/or field located shall be placed on the appropriate EX-UT- layer. Only field located utilities and their descriptions are to be placed on EX-UT- layers.

RECORD (Layer convention RD-UT-)
Utility objects that have not been observed and/or physically located shall be placed on the appropriate RD- UT- layer. Only utility locations that are derived from Dig Safe markings, from evidence such as pavement patches, and/or from record drawings are to be placed on the RD-UT- layers.

PROPOSED (Layer convention PR-UT-)
Utility objects that are being designed for future installation shall be placed on the appropriate PR-UT- layer. The tie in structure/facility for the proposed utility shall remain on the existing or record layer as appropriate.

Utilities Plan and Plotting Requirements

All Utility Drawings shall conform to Chapter 18 (Plans, Specifications, & Estimates) of the Massachusetts Highway Department Project Development & Design Guide (PDDG) and the Engineering Directive No. E-11-003 (ED). The PDDG/ED CAD Standard is the sole location for all MassDOT Highway Division CAD related standards. Where inconsistencies occur between the PDDG/ED CAD Standard and any other MassDOT Highway Division manuals currently in use, the PDDG/ED CAD Standard must be adhered to. It is not intended to remove any requirements from other MassDOT Highway Division manuals currently in use which are not specifically addressed herein.

All Drawings must be created using the current version of the SCR drawing template. The version number of the drawing template is listed within the lower right corner of each paper space border and placed on a no-plot layer. All default layers, text styles, plot styles, and dimension styles are included within this template.

All base utility layers and colors have been defined within the drawing template. Where additional utility layer names are needed to further define a utility, please conform to the Layer Naming requirements defined previously in this document. Please use the default color assigned to the base utility; no other colors will be accepted.

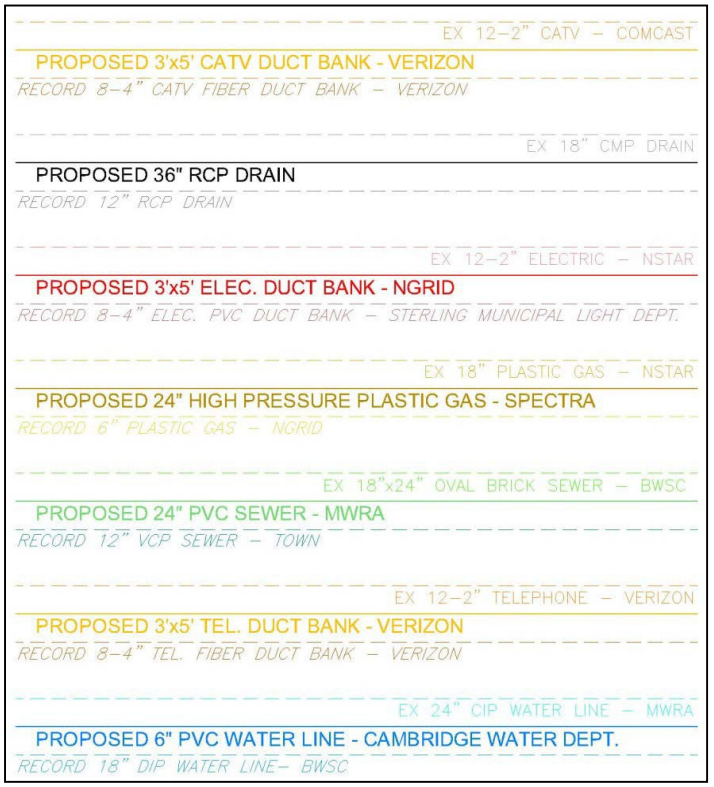
All Utility Plans must have a color coded Legend located on each sheet.

All utility lines shall be clearly labeled as follows:

Size of Utility
Utility Type
Utility Owner

The Designer shall be responsible for contacting the utility companies to verify the location and type of utilities found within the project limits that may or may not be on the Survey Base Plan.

Pursuant to a requirement for printing color utility plans listed within the Engineering Directive E-11-003, a color plot style has been provided. When producing color utility prints, please use the MADOT-U.stb file. See the Resource Section for all plot styles here.



Resource Section – Support Files

The SCR Project Wise web site shall be used for direct download of the following files which shall be used in design and plan preparation.

Please Note – These files will be updated periodically. Please check for updates and download the latest versions of all files prior to beginning any project.

Civil 3D Drawing Template

Current version of the drawing template is listed below. The information can be found and downloaded by clicking here.

NOTE only the current version of the drawing template will be updated with improvements and additions, as they occur. Older versions will be available but will not be updated.

SCR_Format.dwt

Drawing Standards Files

Current and Prior versions of the drawing standards files are listed below. The information can be found and downloaded by clicking here.

SCR_Format.dws

Plot Styles

The currently available plot styles are listed below. The information can be found and downloaded by clicking here.

MADOT-C.stb for Color Plotting
MADOT-D.stb for Design Sections Plotting
MADOT-E.stb for Environmental Color Plotting
MADOT-R.stb for Right of Way Plotting
MADOT-S.stb for Survey Plotting
MADOT-U.stb for Utility Color Plotting

Symbol Libraries

Each discipline has a standard set of pre-defined symbols, blocks, and title blocks as is listed below. The information can be found and downloaded by clicking here.

BRIDGE_SYMBOLS.dwg
ELECTRICAL_SYMBOLS.DWG
GENERAL_SYMBOLS.DWG
GEOTECH_SYMBOLS.dwg g
HWYDESIGN_SYMBOLS.dwg
LANDSCAPE_SYMBOLS.dwg
LAYOUT_SYMBOLS.dwg
SURVEY_SYMBOLS.dwg
TRACK_SYMBOLS.dwg
TRAFFIC_SYMBOLS.dwg
TRACK_SYMBOLS.dwg
UTILITY_SYMBOLS.dwg

Paper Space Layout Sheets

Each discipline has a standard set of pre-defined layout sheets as is listed below. The information can be found and downloaded by clicking here.

BRIDGE_SHEETS.dwg
HWYDESIGN_SHEETS.dwg
GEOTECH_SHEETS.dwg
LANDSCAPE_SHEETS.dwg
LAYOUT_SHEETS.dwg
ROW_SHEETS.dwg
SURVEY_SHEETS.dwg
TRAFFIC_SHEETS.dwg
TRACK_SHEETS.dwg
UTILITY_SHEETS.dwg

Survey Support Files

The Survey Section of the MassDOT Highway Division has provided the following files in support of performing survey base plans. The information can be found and downloaded by clicking here.

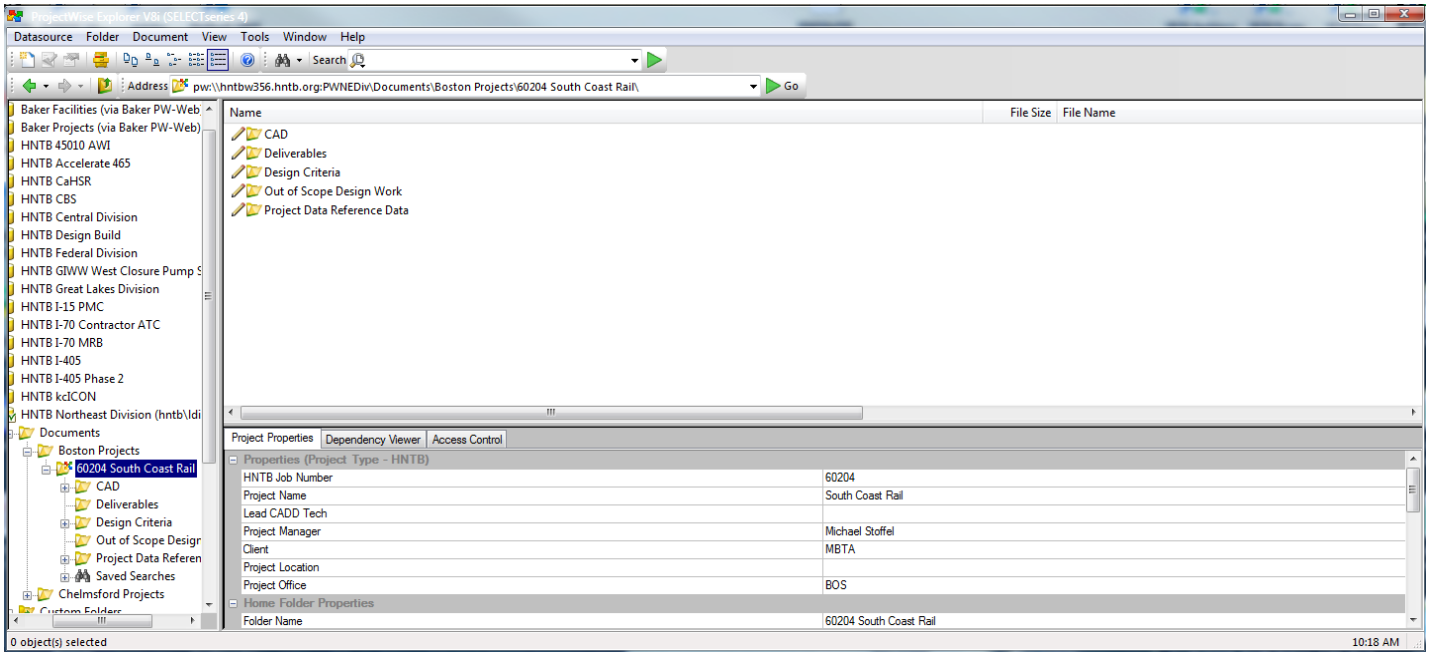
Figure Prefix Database	MassDOT_Survey.fdb_xdef
Linework Code Set	MassDOT.f2f_xdef
Sample Datasets	MassDOT_TESTPNTS.txt MassDOT_Points_N_Figures.fbk MassDOT_Data_Collector_File.txt

Appendix A

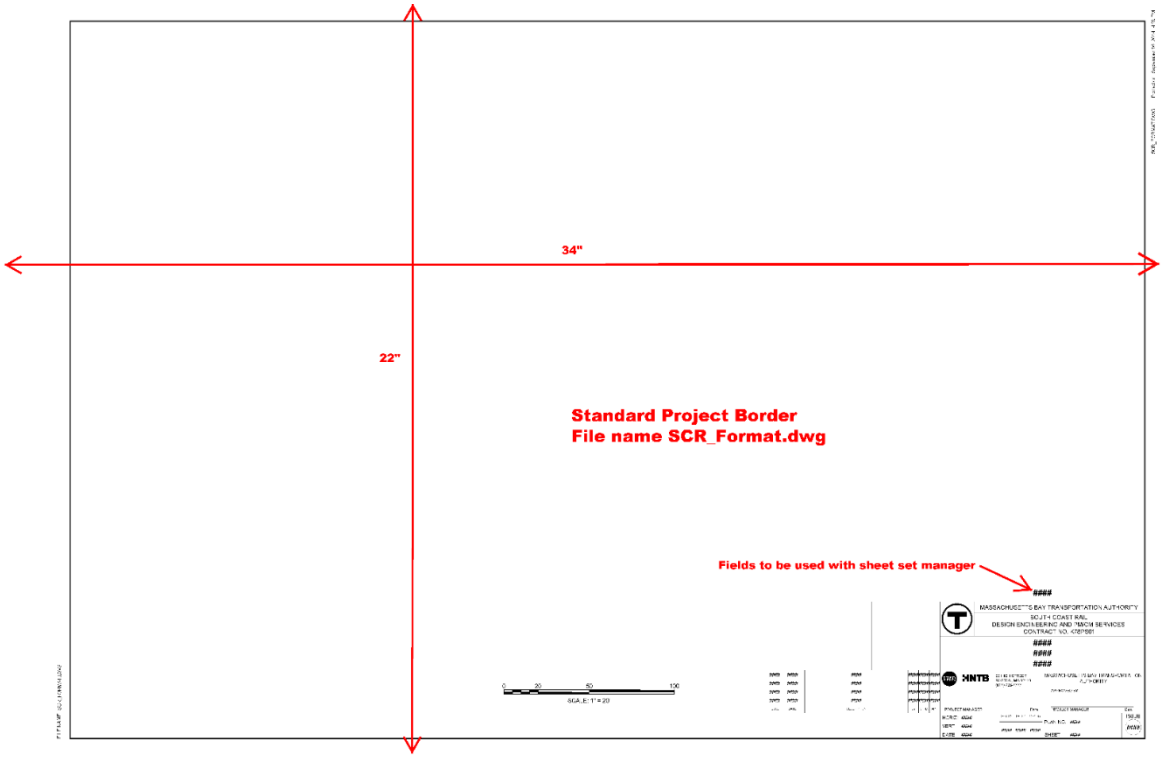
The HNTB ProjectWise© website for external users provides guidance and information for use of ProjectWise features and is found at: https://pw.hntb.com/

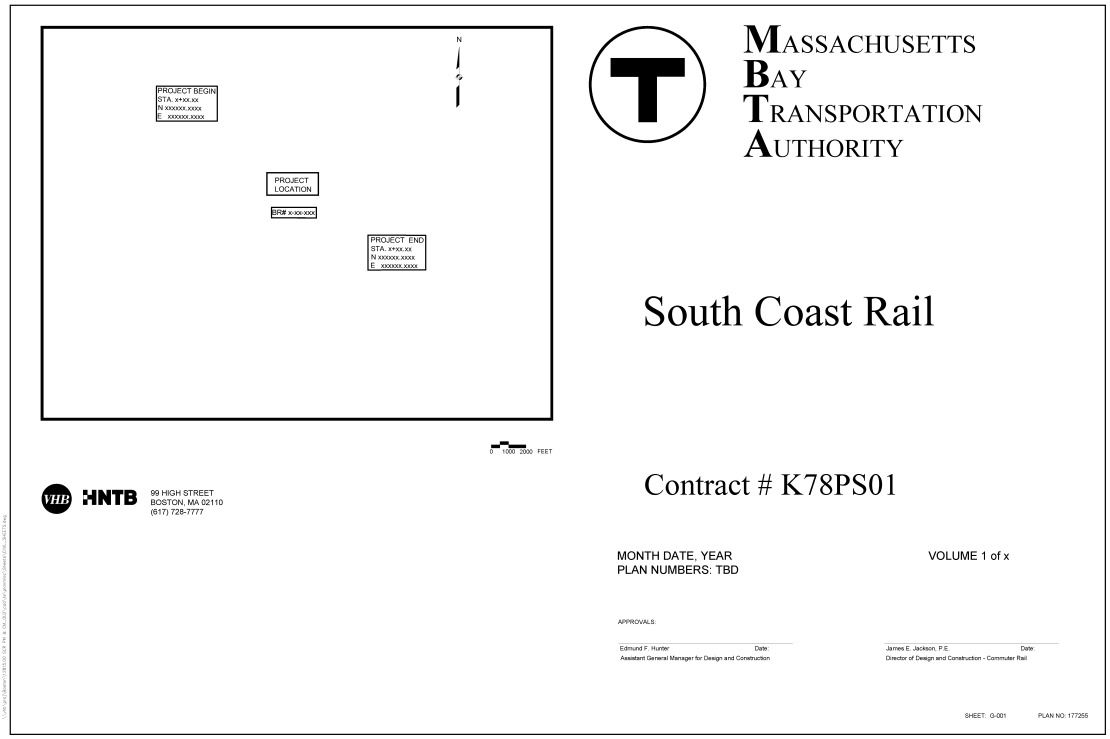
The training link https://pw.hntb.com/training/ contains video introductions to using HNTB's ProjectWise© system.

The SCR ProjectWise Site

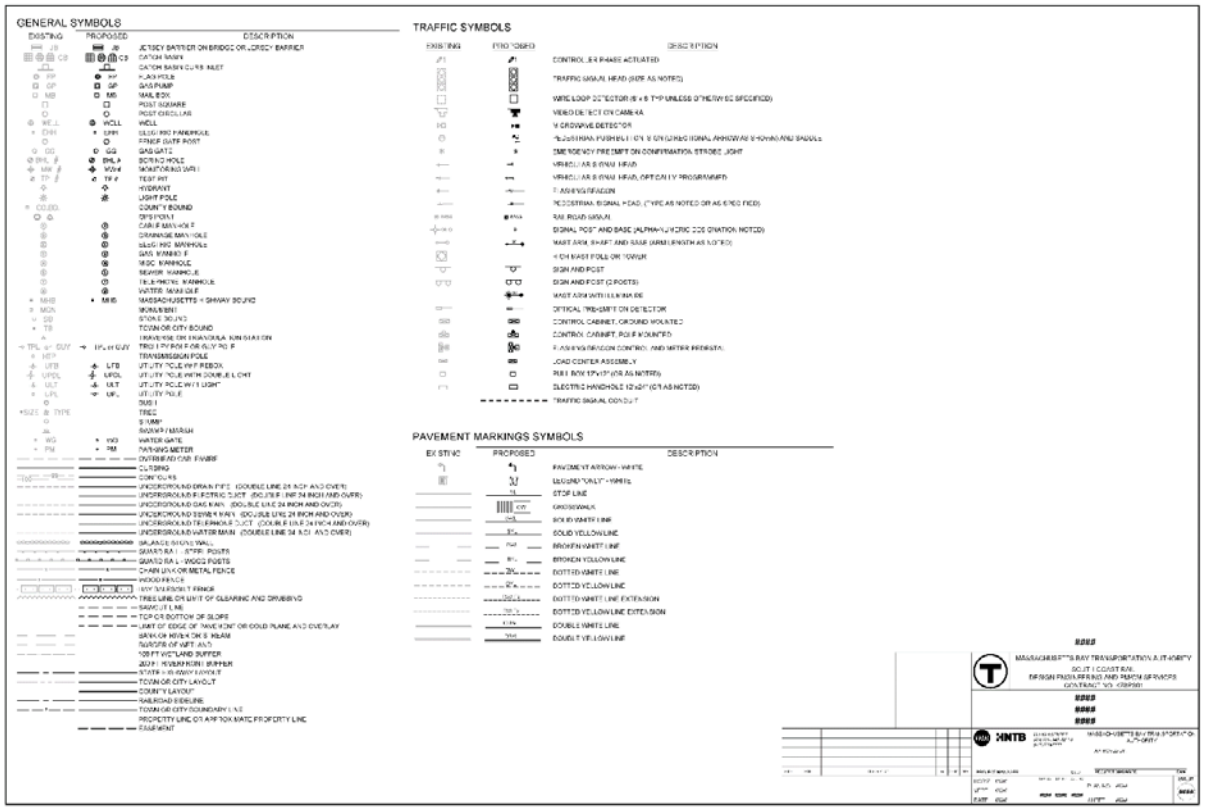


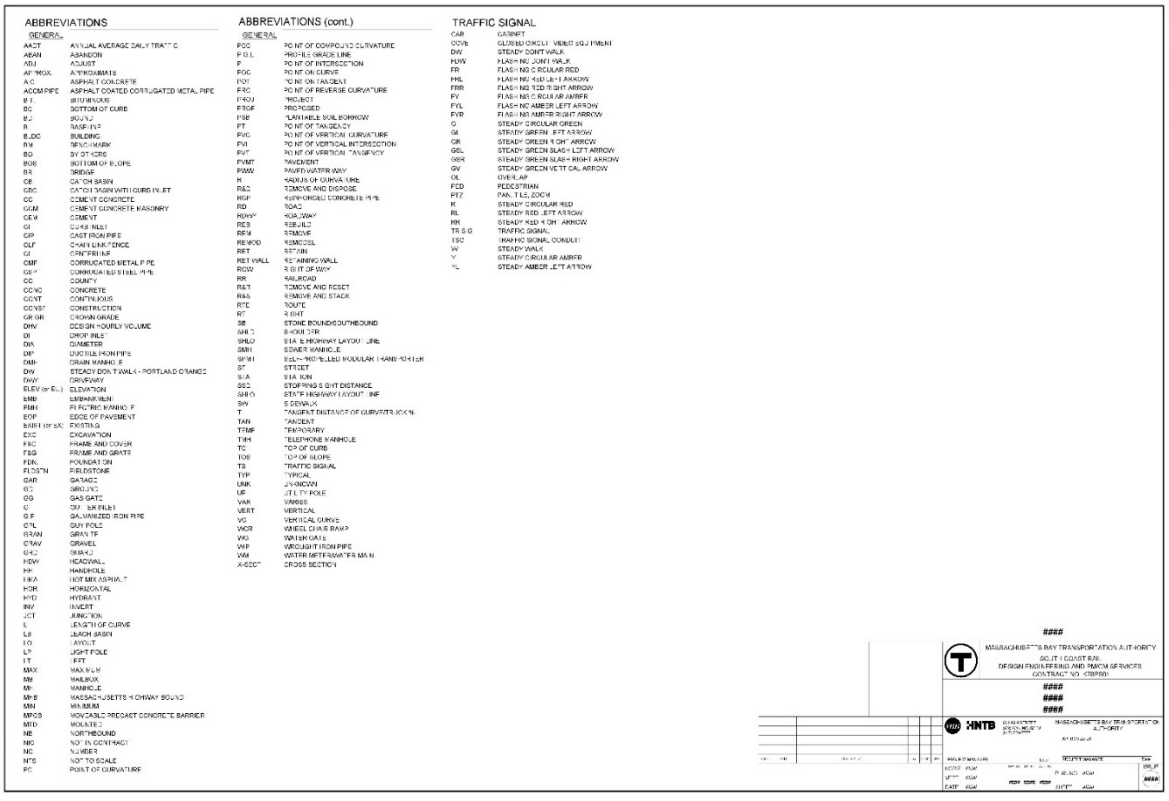
Appendix B – Sample Sheets





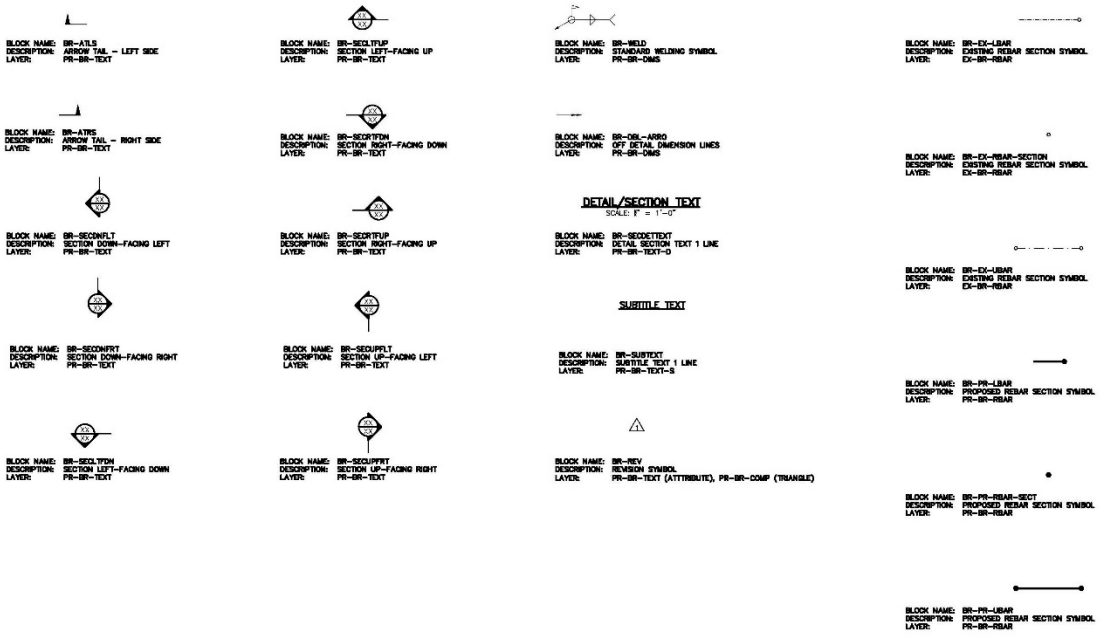
Appendix C – Legend and Abbreviations



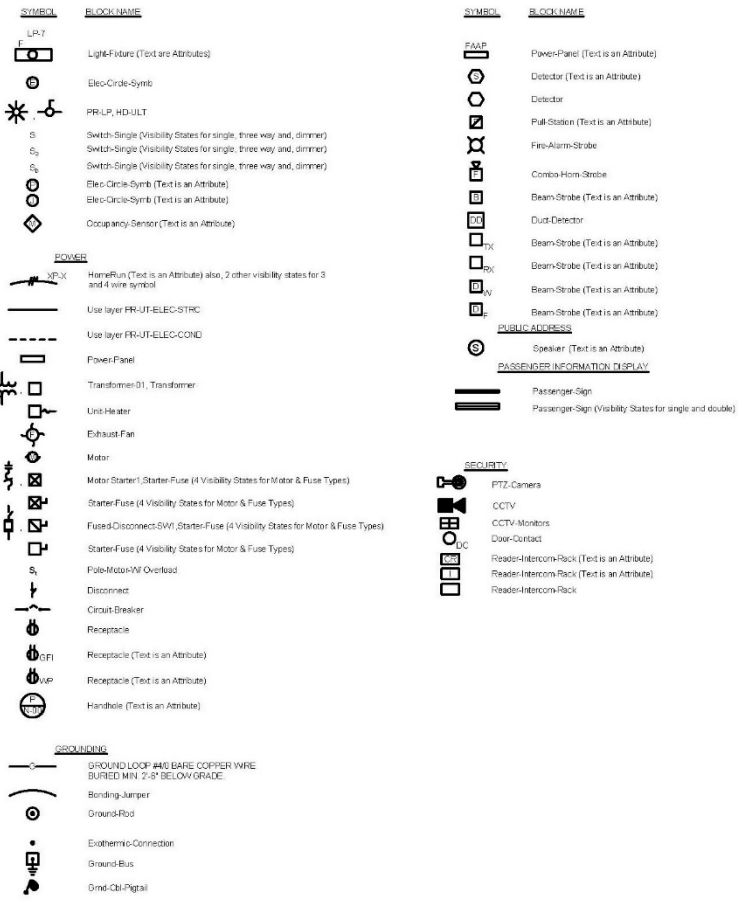


Appendix D – Symbols

Bridge



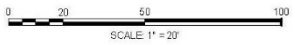
Electrical



Appendix D – Symbols

General

BLOCK NAME: GE-NORTH
DESCRIPTION: NORTH ARROW - TRUE, SP, ASSUMED, MAGNETIC
LAYER: GE-TEXT
DYNAMIC BLOCK - CLICK TO CHOOSE NORTH



BLOCK NAME: GE-BARSC
DESCRIPTION: SCALE BAR - HORIZONTAL AND VERTICAL
LAYER: GE-TEXT
DYNAMIC BLOCK - CLICK TO CHANGE SCALES

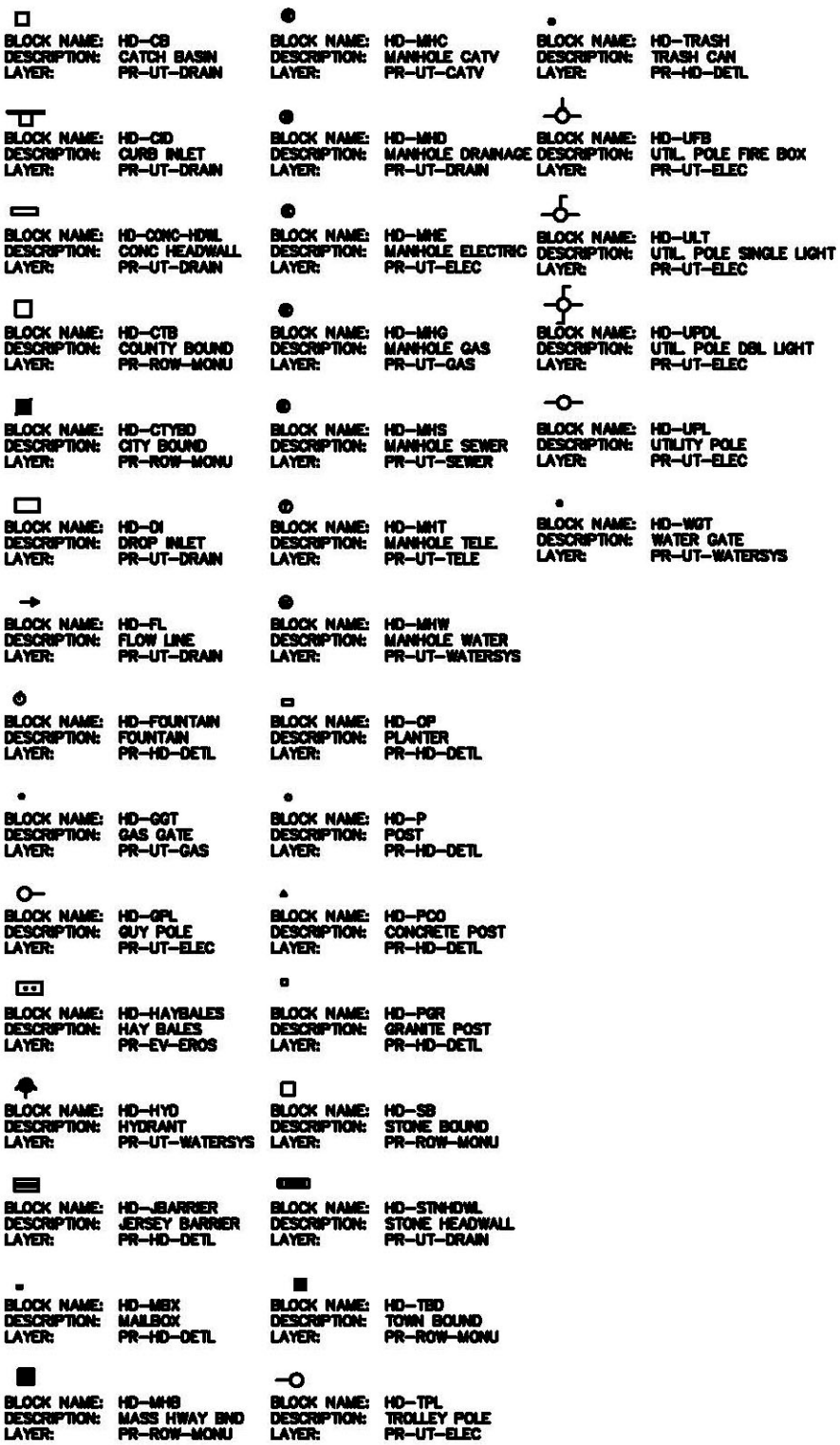
BLOCK NAME: MatchLn_Top
DESCRIPTION: Match Line Block Text above
LAYER: GE-MTCH
DYNAMIC BLOCK - CLICK TO Stretch LT & RT and Also and Align Parameter

BLOCK NAME: MatchLn_Bot
DESCRIPTION: Match Line Block Text Below
LAYER: GE-MTCH
DYNAMIC BLOCK - CLICK TO Stretch LT & RT and Also and Align Parameter

Appendix D – Symbols

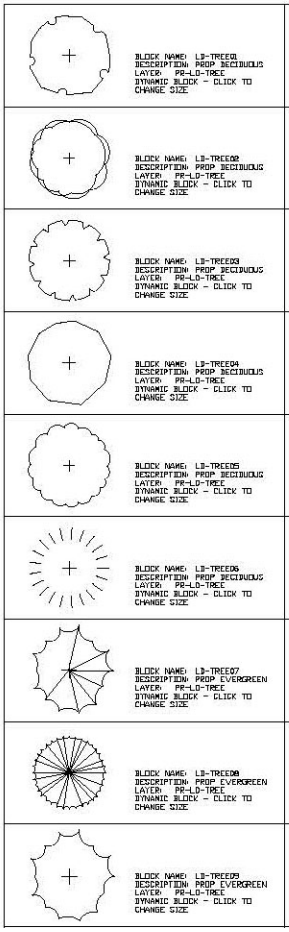
Geotech

Highway Design



Appendix D – Symbols

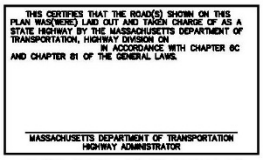
Geotech



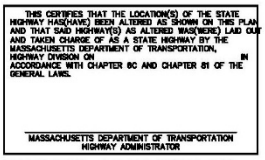
Highway Design

Appendix D – Symbols

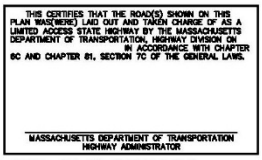
Layout



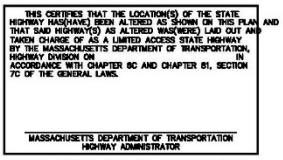
BLOCK NAME: LO-CB-STATE-LO
DESCRIPTION: STATE - LAYOUT
LAYER: GE-TEXT



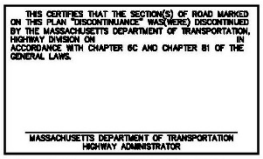
BLOCK NAME: LO-CB-STATE-ALT
DESCRIPTION: STATE - ALTERATION
LAYER: GE-TEXT



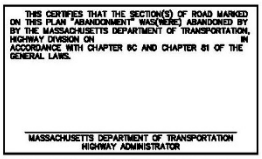
BLOCK NAME: LO-CB-STATE-LALO
DESCRIPTION: STATE - LIMITED ACCESS LAYOUT
LAYER: GE-TEXT



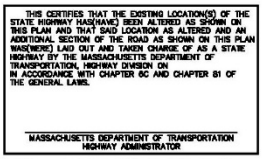
BLOCK NAME: LO-CB-STATE-LAALT
DESCRIPTION: STATE - LIMITED ACCESS ALTERATION
LAYER: GE-TEXT



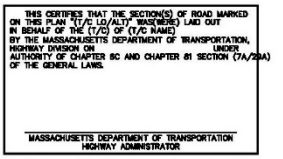
BLOCK NAME: LO-CB-STATE-DISC
DESCRIPTION: STATE - DISCONTINUANCE
LAYER: GE-TEXT



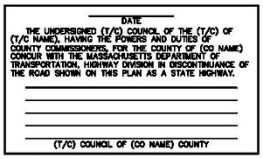
BLOCK NAME: LO-CB-STATE-ABAND
DESCRIPTION: STATE - ABANDONMENT
LAYER: GE-TEXT



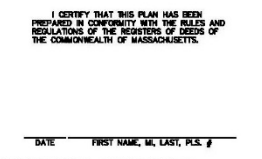
BLOCK NAME: LO-CB-STATE-ALT-SECT
DESCRIPTION: STATE - ALTERATION - SECTION
LAYER: GE-TEXT



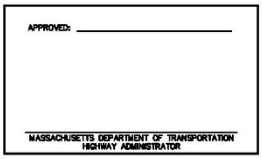
BLOCK NAME: LO-CB-CITY-ALT-7A-29A
DESCRIPTION: CITY LAYOUT ALTERATION CHAPTER 81 / SECT 7A(29A)
LAYER: GE-TEXT



BLOCK NAME: LO-CB-CTYCNCL-DISC
DESCRIPTION: CITY COUNCIL - DISCONTINAUNCE
LAYER: GE-TEXT



BLOCK NAME: LO-REG-PLS
DESCRIPTION: REGISTRY OF DEEDS PLS SIGNATURE
LAYER: GE-TEXT



BLOCK NAME: LO-EASE-SIGN
DESCRIPTION: EASEMENT - SIGNATURE
LAYER: GE-TEXT

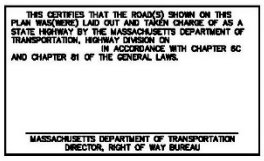
BLOCK NAME: LO-NORTH-NAD83
DESCRIPTION: NORTH ARROW NAD83
LAYER: GE-SHEET

BLOCK NAME: LO-NORTH-MAGN
DESCRIPTION: NORTH ARROW MAGNETIC
LAYER: GE-SHEET

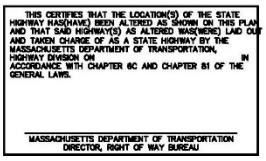
BLOCK NAME: LO-NORTH-TRUE
DESCRIPTION: NORTH ARROW TRUE
LAYER: GE-SHEET

Appendix D – Symbols

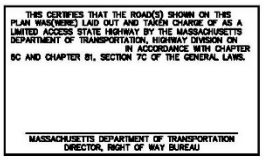
Layout (Cont)



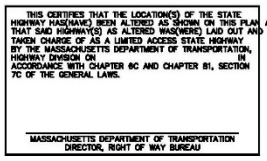
BLOCK NAME: LO-CB-STATE-LO-DIR
DESCRIPTION: STATE - LAYOUT DIRECTOR ROW BUREAU
LAYER: GE-TEXT



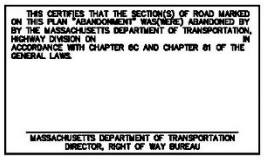
BLOCK NAME: LO-CB-STATE-ALT-DIR
DESCRIPTION: STATE - ALTERATION DIRECTOR ROW BUREAU
LAYER: GE-TEXT



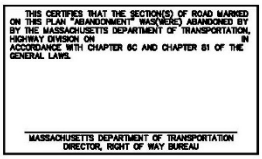
BLOCK NAME: LO-CB-STATE-LALO-DIR
DESCRIPTION: STATE - LIMITED ACCESS LAYOUT DIRECTOR ROW BUREAU
LAYER: GE-TEXT



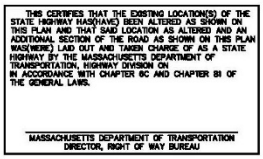
BLOCK NAME: LO-CB-STATE-LAALT-DIR
DESCRIPTION: STATE - LIMITED ACCESS ALTERATION DIRECTOR ROW BUREAU
LAYER: GE-TEXT



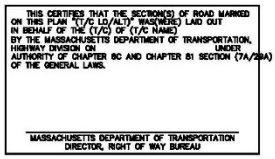
BLOCK NAME: LO-CB-STATE-DISC-DIR
DESCRIPTION: STATE - DISCONTINUANCE DIRECTOR ROW BUREAU
LAYER: GE-TEXT



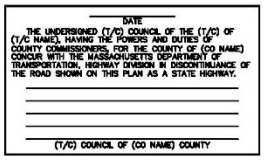
BLOCK NAME: LO-CB-STATE-ABAND-DIR
DESCRIPTION: STATE - ABANDONMENT DIRECTOR ROW BUREAU
LAYER: GE-TEXT



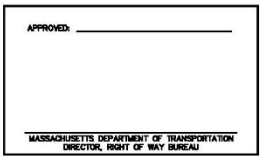
BLOCK NAME: LO-CB-STATE-ALT-SECT-DIR
DESCRIPTION: STATE - ALTERATION - SECTION DIRECTOR ROW BUREAU
LAYER: GE-TEXT



BLOCK NAME: LO-CB-CITY-ALT-7A-29A-DIR
DESCRIPTION: CITY LAYOUT ALTERATION CHAPTER 81 / SECT 7A(29A) DIRECTOR ROW BUREAU
LAYER: GE-TEXT



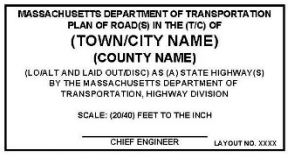
BLOCK NAME: LO-CB-CTYCNCL-DISC-DIR
DESCRIPTION: CITY COUNCIL - DISCONTINUANCE DIRECTOR ROW BUREAU
LAYER: GE-TEXT



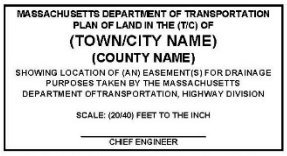
BLOCK NAME: LO-EASE-SIGN-DIR
DESCRIPTION: EASEMENT - SIGNATURE DIRECTOR ROW BUREAU
LAYER: GE-TEXT

Appendix D – Symbols

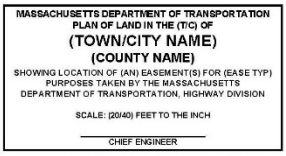
Layout (Cont)



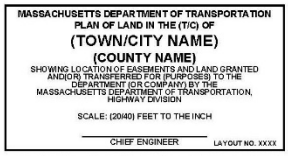
BLOCK NAME: LO-TB-STATE-LOALT-DISC
DESCRIPTION: STATE - LAYOUT ALTERATION AND LAYOUT DISCONTINUANCE
LAYER: GE-TEXT



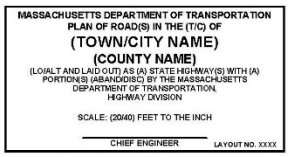
BLOCK NAME: LO-TB-STATE-DRAIN
DESCRIPTION: STATE - DRAIN
LAYER: GE-TEXT



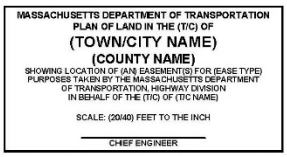
BLOCK NAME: LO-TB-STATE-EASE
DESCRIPTION: STATE - EASEMENT
LAYER: GE-TEXT



BLOCK NAME: LO-TB-STATE-GRANT-TRANS
DESCRIPTION: STATE LAND GRANT/TRANSFER
LAYER: GE-TEXT

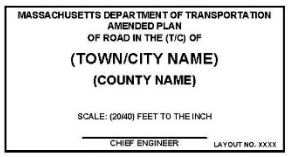


BLOCK NAME: LO-TB-STATE-ABAND-DISC
DESCRIPTION: STATE LAYOUT WITH ABANDONMENT OR DISCONTINUANCE
LAYER: GE-TEXT

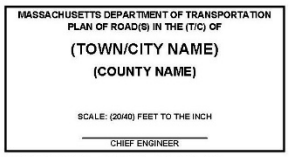


BLOCK NAME: LO-TB-STATE-EASE-TOWN
DESCRIPTION: EASEMENT TAKEN ON BEHALF OF CITY/TOWN
LAYER: GE-TEXT

BLOCK NAME: LO-TB-SPOT
DESCRIPTION: STATE - SPOT TAKING
LAYER: GE-TEXT



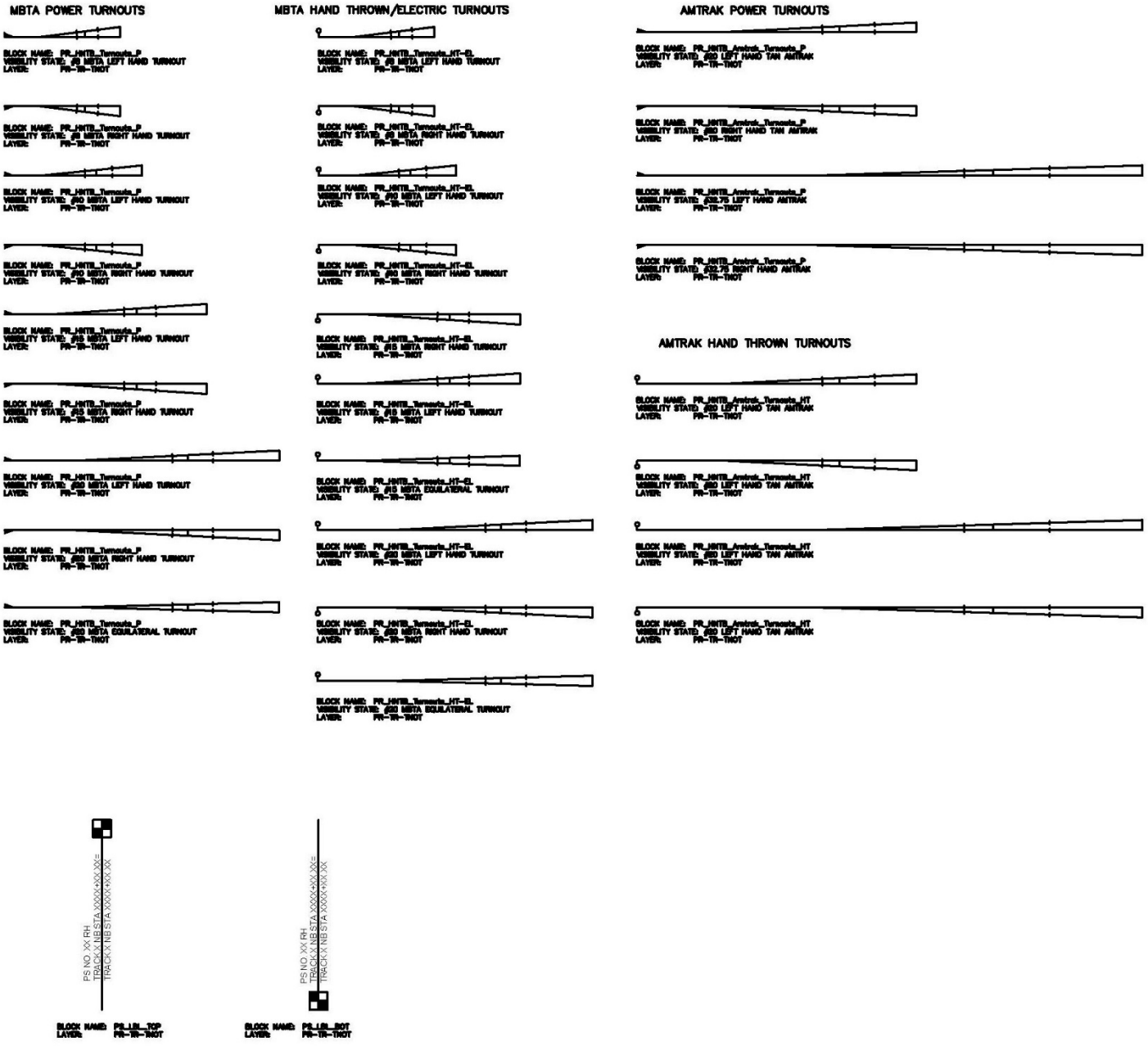
BLOCK NAME: LO-TB-AMEND
DESCRIPTION: AMENDMENT
LAYER: GE-TEXT



BLOCK NAME: LO-TB-STATE-SR
DESCRIPTION: STATE - SALE REMAINDER
LAYER: GE-TEXT

Appendix D – Symbols

Track



Appendix D – Symbols

Layout

BLOCK NAME: HD–CONTROL–CABINET
DESCRIPTION: CONTROL CABINET
LAYER: PR–TR–FEAT

BLOCK NAME: HD–RRSG
DESCRIPTION: RAILROAD SIGNAL
LAYER: PR–TR–SGNL

BLOCK NAME: HD–LPL
DESCRIPTION: LIGHT POLE
LAYER: PR–TR–LGHT

BLOCK NAME: HD–SG
DESCRIPTION: SIGNAL
LAYER: PR–TR–SGNL

BLOCK NAME: HD–LPDL
DESCRIPTION: DOUBLE LIGHT POLE
LAYER: PR–TR–LGHT

BLOCK NAME: HD–PED
DESCRIPTION: PEDESTRIAN SIGNAL
LAYER: PR–TR–SGNL

BLOCK NAME: HD–PEDHEAD
DESCRIPTION: PEDESTRIAN SIGNAL HEAD
LAYER: PR–TR–SGNL

BLOCK NAME: HD–PB
DESCRIPTION: PULL BOX
LAYER: PR–TR–FEAT

BLOCK NAME: HD–SIGN1
DESCRIPTION: 1–POST SIGN
LAYER: PR–TR–SGNS

BLOCK NAME: HD–SIGN2
DESCRIPTION: 2–POST SIGN
LAYER: PR–TR–SGNS

Appendix D – Symbols

Utilities