2012

WMATA CAD Standards

Washington Metropolitan Area Transit Authority

Transit Infrastructure and Engineering Services
CENI/Construction & Design

600 Fifth Street, NW
Washington, DC 20001

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Preface

This is the official published version of WMATA's CAD Manual. This manual establishes the CAD standards that are to be used for all WMATA drawings that pertain to CENI projects (for both new construction, renovation and system upgrades). Ownership of this manual belongs to the CAD Manager and any requested changes must be forwarded to the CAD Manager for consideration. Any approved changes will be reflected in the subsequent revision to this manual and all drawings will be reviewed for compliance with the standards presented herein.

Authorized:

Construction & Design Engineering CAD Manager

Brian James

Signature

12/19/13

Date

Revision No.	Date	Remarks
01	9/4/2013	Minor grammatical changes were made.
02	12/18/2013	Changed ownership from TSFA to CONS in METRO logo

Acknowledgment of Receipt

Position	Name	Signature	Date
Deputy Chief Engineer (ATCS)	Nicholas Croce		12/12/2013
Deputy Chief Engineer (COMS)	Marshall Epler		12/20/13
Deputy Chief Engineer (PWRS)	Ashton Robinson		12/20/2013
Deputy Chief Engineer (DULS)	Ildefonso Burgos		1/15/14
Deputy Chief Engineer (TSFA)	Thomas Robinson		12-20-13
Deputy Chief Engineer (PRGM)	William Fellini		1/14/14
Deputy Chief Engineer (CONS)	Colin Myers		1/15/2014

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It is intended that these WMATA standards are to be used solely by WMATA staff and WMATA contractors or assigns. Distribution to the public is prohibited.

Introduction

The previous edition of the WMATA CAD Standards (2011) was developed to achieve a more uniform, consistent format for project contract drawings throughout the organization, regardless of originating source or requesting division. As architectural and engineering design has evolved into the digital framework we experience today—and it will surely continue to evolve in ways we can't readily anticipate—the need for a consistent set of guiding "rules" is ever more necessary. As drawings are now becoming more and more a collaborative effort undertaken by multiple individuals, including multiple consulting firms and differing internal WMATA operating divisions, once can readily see the value in having a set of consistent guidelines and standards to direct the effort.

Recognizing this need, Harken-Reidar, Inc. was commissioned to develop a set of standards under the oversight of Colin Myers, PE, Don Falken, LS and Terry Keane, AIA intended to help unify CAD drawings between departments and disciplines. The delivery platform of choice within WMATA is Autodesk's AutoCAD and AutoCAD Civil 3D format drawings. The standards delivered consist of AutoCAD files and various support files that will enable WMATA to move forward and evolve the standards into a living and dynamic process.

A natural characteristic of such a dynamic system is of course *change,* including the need to change the guiding set of "standards" themselves due to greater efficiencies being found in alternate methods, software and automation advances, project construction needs for direct machine-manipulation of digital data, etc. So the term "standards" by no means implies "static." This 2012 update to the WMATA CAD Standards is such a change, reflecting lessons learned during the course of an actual production project, soliciting contractor and consultant feedback, and internal WMATA staff feedback. There has been an effort to incorporate as much of the "look and feel" of the prior WMATA standard drawing formats by revisions to block symbols, labeling styles, etc. Other changes have been made that speak to plan production automation strengths in the AutoCAD Civil 3D application, and as such, a great many stylistic standards are now accomplished using predefined symbology and labeling "styles" that may be modified to suit specific project needs.

Likewise, there are some trade-offs in this approach as well due to some restrictions in the automated label and table generation tools. For instance, the look and feel of prior WMATA drawing format curve and spiral numbering and table layouts on plan and profile sheets is still largely a manual process due to the limitation of curve and spiral segment sequencing for label generation requiring a numeric designation only. Prior WMATA preference is to label spirals that abut central curves with the curve name/number followed be an alpha character "A" for the spiral-in and a "B" for the spiral out.

The AutoCAD files have been developed to include the National CAD Standards (NCS) format for most items such as layering and file-naming. Other aspects of the NCS have been modified to support WMATA's specialized field of railway transportation such as the symbols used.

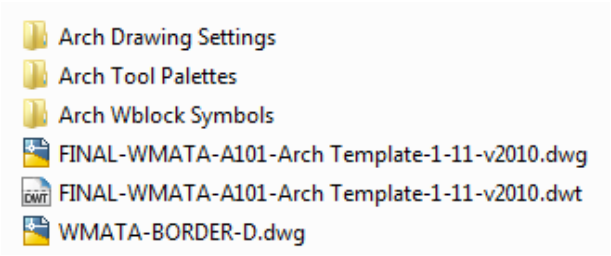
In addition to being used internally in all technical departments, these WMATA standards are intended to be delivered to contractors and consultants that deal with AutoCAD drawing files and related WMATA

design data. It is intended that contractors conform to these standards to improve the dataflow between organizations. It is also intended that these WMATA standards are to be used solely by WMATA staff and WMATA contractors or assigns thereby achieving a consistent data standard for all technical CAD data. These are prohibited for distribution to the public.

Layering Aesthetics: All departments comprising AFC, ARCH, ATC, Landscape, Plumbing, Hazmat, Geotech, Fire Protection, Tcom, Mech, Elec, Interior, Struct, Civil, Survey and Traction Power were engaged to achieve a consistent and current standard on layering aesthetics (such as discipline specific WMATA symbology, colors, line weights and line types). The goal is to create a single look and feel for all WMATA drawings, regardless of the generating or editing department. Colors, lineweights and linestyles have been assigned to all layers.

Unified Plot Styles: Unified WMATA plot style table(s) has been developed to ensure the printed output conforms to the look and feel desired by WMATA for both hardcopy and digital outputs. Plotting is set up for PDF and monochrome plotting.

Folders Delivered: The folder delivered for each discipline includes the Master folder named for the discipline which contains the DWG and DWT drawings. For example, within the Architectural folder shown here, are the DWG and DWT files, the referenced border and 3 support folders. The support folders contain the Arch Drawing Settings (the DWS files), and the Arch WBlock Symbols for all symbols in the Architectural drawings.

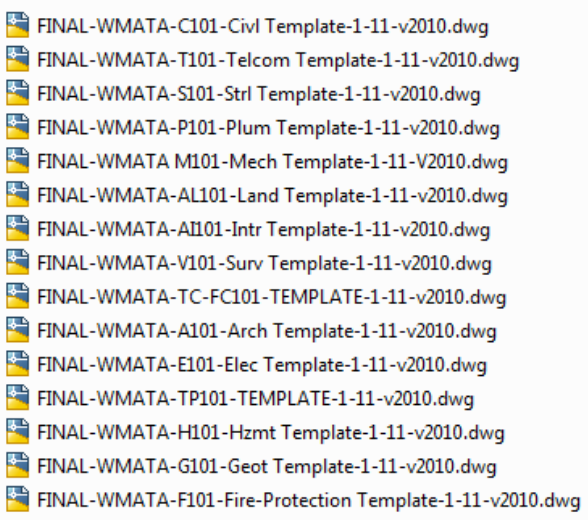


General CAD Standards for All

Description of Files Delivered

Several files and filetypes are being delivered for WMATA's 2012 CAD Standards. They are: .DWG files, .XTP, DWS and DWT files. AutoCAD files are being delivered according NCS standards however, with a slight modification indicating FINAL-WMATA as a prefix to the drawings and the preparation date and v2010 as a suffix. Refer to Figure 1.

Included are .DWT (AutoCAD template) files as well as .DWS (AutoCAD Standards) files for each AutoCAD DWG file shown. Embedded within each file is a hybrid of NCS symbols (AutoCAD blocks) and WMATA symbols, linestyles, notes and abbreviations for various disciplines.



The following folders (Figure 2) are included in the delivery and they contain the DWG, DWT, DWS, and XTP support files.

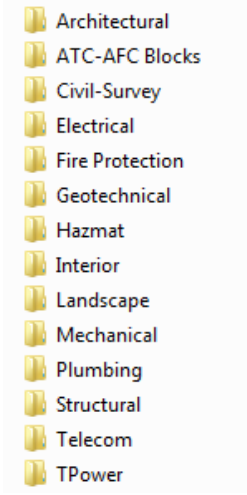


Figure 2. Discipline Folders

The use of .XTP files included in the previous CAD Standards delivery for use by staff members to build the tool palettes on their individual systems providing drag and drop access to the NCS symbols has been dropped due to limitations in the AutoCAD file storage schema (server location names are currently hard-coded into the files making updates and sharing of tool palette files problematic). Therefore, users have two methods of obtaining the symbols for their discipline: 1) direct insertion from within the AutoCAD file using the INSERT command and 2) use of Design Center <Ctrl 2> for drag/drop.

NCS File Naming standards

1) Architectural Projects Identifier
2) Discipline Codes
3) Drawing Type Codes (General, Discipline related)
4) File Sequence Number

AA - FP1.DWG

Text Style Standards

The following font standards are built into the DWG and DWT files as Text Styles. They are described as follows:

- **WMATA-Title** with the Arial font and a Bold font style, no embedded text height, and width=1
- **WMATA-Dimtext** with Romans font, no embedded text height and a width factor of 0.8,
- **WMATA-Standard**, with the Romans font, no embedded text height, and width=1
- **WMATA-Room** with the Arial font a regular font style, no embedded text height and a with a width of 0.8,
- **WMATA-Annotative** with the Romans font, no embedded text height, Annotative, width=1
- **WMATA-Legend** with a Monospac821 BT font a roman font style, no embedded text height and a width of 0.8.

Note: The following figures identify the Text Styles.

AaBbCcD

Figure 4. WMATA Title test style

Figure 5. WMATA Dimtext text style

Figure 6. WMATA Standard text style

Figure 7. WMATA Room text style

Figure 8. WMATA Annotative text style

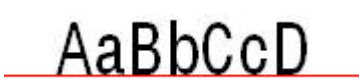


Figure 9. WMATA Legend text style

Dimension Styles

The following Dimension styles are built into the DWG and DWT files:

- WMATA_Arch_1,
- WMATA_Engr_1,
- WMATA_Strl_1,
- WMATA_Civil_1.

The following figures identify the Dimension Styles.

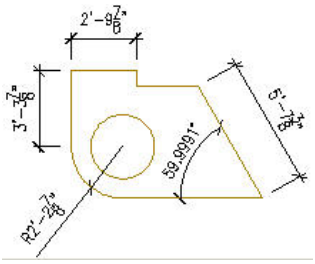


Figure 10. Arch dimension style

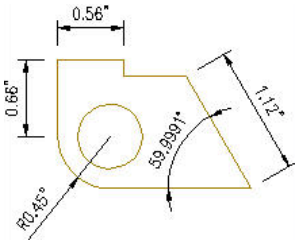


Figure 11. Strl dimension style

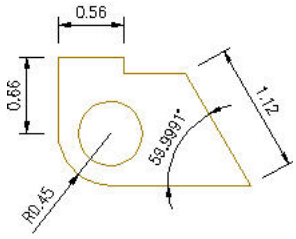


Figure 12. Engr and Civil dimension style

Layouts, Plotting, Pen Tables and Cross Referenced files

A cross-referenced file containing the WMATA sheet border is included in several of the Layouts within each drawing. This file was provided by WMATA and is called WMATA-Border-D.DWG. The following figures identify the Layouts. The supplied Layouts are shown in Figures 13 and 14:

Figure 13. WMATA Cover Sheet Layout

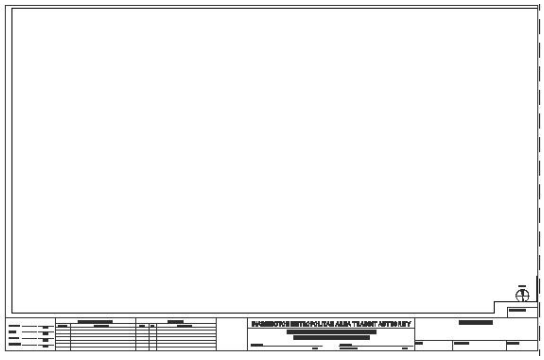


Figure 14. WMATA PDF Sheet Layout

The pen tables to use when plotting are the AutoCAD delivered, Monochrome and ACAD styles. Layouts are set to display "Display Plot styles" from within each layout. The PDF Sheet Style is configured for generating PDF files from within AutoCAD.

Units Setup

The Units setup within each discipline's file is set to the measurements established by WMATA. All CAD drawing models should be drafted at full scale in architectural (or engineering) units, such that one drawing unit equals one inch, such that 1/8" = 1' (or 1"=50').
The units are set as follows for each discipline:

- **Final-WMATA-A101-Arch Template-1-11-v2010.dwg** (Architectural) is set to Architectural units, to a display precision of 1/16". Angular units are set to a display precision of 4 places and the units are Decimal degrees. The "Units to scale inserted contents" is set to inches.
- **Final-WMATA-I101-Intr Template-1-11-v2010.dwg** (Interior) is set to Architectural units, to a display precision of 1/16". Angular units are set to a display precision of 4 places and the units are Decimal degrees. The "Units to scale inserted contents" is set to inches.
- **Final-WMATA-AL101-Land Template-1-11-v2010.dwg** (Landscape) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to unitless.
- **Final-WMATA-C101-Civl Template-1-11-v2010.dwg** (Civil) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to feet.
- **Final-WMATA-E101-Elec Template-1-11-v2010.dwg** (Electrical) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to unitless.
- **Final-WMATA-F101-Fire-Protection Template-1-11-v2010.dwg** (Fire Protection) is set to Architectural units, to a display precision of 1/16". Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to inches.
- **Final-WMATA-G101-Geot Template-1-11-v2010.dwg** (Geotechnical) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to unitless.
- **Final-WMATA-H101-Hzmt Template-1-11-v2010.dwg** (Hazmat) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to unitless.
- **Final-WMATA-P101-Plum Template-1-11-v2010.dwg** (Plumbing) is set to Architectural units, to a display precision of 1/16". Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to inches.
- **Final-WMATA-S101-Strl Template-1-11-v2010.dwg** (Structural) is set to Engineering units, to a display precision of 0'-0.00". Angular units are set to a display precision of 4 places and the units are Decimal degrees. "Units to scale inserted contents" is set to inches.

- **Final-WMATA-T101-Telecom Template-1-11-v2010.dwg** (Telecom) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. “Units to scale inserted contents” is set to unitless.
- **Final-WMATA-V101-Surv Template-1-11-v2010.dwg** (Surveying) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. “Units to scale inserted contents” is set to feet.
- **Final-WMATA-M101-Mech Template-1-11-v2010.dwg** (Mechanical) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. “Units to scale inserted contents” is set to unitless.
- **Final-WMATA-TC-FC101-Template-1-11-v2010.dwg** (Automated Train Control and Automated Fare Control) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. “Units to scale inserted contents” is set to unitless.
- **Final-WMATA-TP101-Template-1-11-v2010.dwg** (Traction Power) is set to Decimal units, to a display precision of 2 places. Angular units are set to a display precision of 4 places and the units are Decimal degrees. “Units to scale inserted contents” is set to unitless.

The **AutoCAD Drawing Options** have been set for a view resolution of 10,000 and a Maxsort of 2000.

NCS Layering Standards, General

The following NCS layering standards was maintained in the layer development for WMATA and its disciplines.

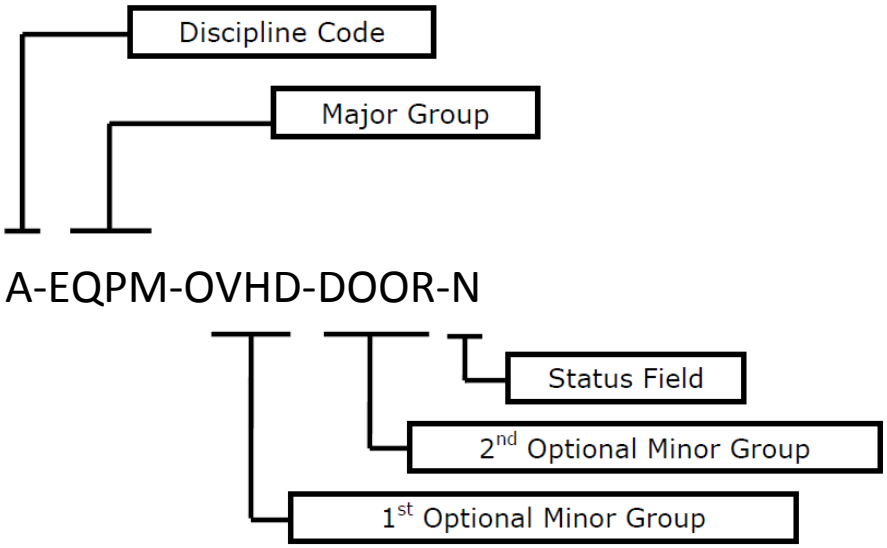


Figure 15. WMATA NCS Layer Format

Examples of codes, groups and fields. Other codes can be developed as needed however, the format derived from the NCS should be maintained. An example is **Traction Power**, although they could fall under Electrical, but traditionally Electrical is reserved for "household or light" electrical; whereas, Traction Power is heavy duty electrical. Therefore, Traction Power could be under the Discipline code of TP, since T is already used.

Discipline Code

- A – Architectural
- B – Geotechnical (Borings)
- E – Electrical
- F – Fire Protection
- G – General
- H – Hazmat
- I – Arch Interior
- L – Landscape
- M – Mechanical
- P – Plumbing
- S – Structural
- T –Telecom
- V – Survey
- C – Civil
- TP-Traction Power

Major Groups

- -Wall- – Walls
- -Doors- – Doors
- -Lite- – Lighting fixtures

-Cols- – Columns, etc.

1st Optional Minor Group
-FULL- – Full Height
-DIMS- – Dimensions, etc.

2nd Optional Minor Group
-IDEN- – Identification
-PATT- – Pattern, etc.

Status Field
-N – New work
-D – Demolition
-E – Existing
-T – Temporary work
-F – Future work
-X – Not in contract, etc.
-0-9 – Phases

New, Existing and Demolition are already built into the layers provided.

Colors provided allocate Reds for New data, greens for Existing data and Blues for Demolition data.

Linestyles ranging from AutoCAD basic styles to many custom styles are provided for each layer.

Lineweights have been placed on each layer ranging from Default to .09, .15, .25 and .35 mm.

General Annotation

Annotation comprises text, dimensions, title block and sheet borders, detail references and other elements on CAD drawings that do not represent physical aspects of a site or building. Annotation is designated by the major group ANNO, which can be combined with any discipline code. Types of annotation are designated below:

*-ANNO-DIMS dimensions
*-ANNO-KEYN keynotes
*-ANNO-LEGN legends and schedules
*-ANNO-NOTE notes
*-ANNO-NPLT construction lines, non-plotting information, viewports
*-ANNO-REDL redlines
*-ANNO-REVS revisions
*-ANNO-SYMB symbols
*-ANNO-TEXT text
*-ANNO-TTLB title blocks and sheet borders

Elevations, Sections, and Three-Dimensional Drawings

Special groups of layers can be identified within each discipline for elevations, sections, details, and three-dimensional views. Defined layer groups are as follows:

*-ELEV	elevations
*-ELEV-OTLN	building outlines
*-ELEV-IDEN	component identification numbers
*-ELEV-PATT	textures and hatch patterns
*-SECT	sections
*-SECT-MBND	materials beyond section cut
*-SECT-PATT	textures and hatch patterns

*-SECT-MCUT	materials cut by section
*-SECT-IDEN	component identification numbers
*-DETL	details
*-DETL-IDEN	component identification numbers
*-DETL-PATT	textures and hatch patterns
*-DETL-MBND	material beyond section cut
*-DETL-MCUT	material cut by section

Layer Name Formatting									
# 1	A-WALL	=	Discipline Code	+	Major Group				
# 2	A-WALL-FULL	=	Discipline Code	+	Major Group	+	Minor Group		
# 3	A-WALL-DEMO	=	Discipline Code	+	Major Group	+	Status Code		
# 4	A-WALL-FULL-E	=	Discipline Code	+	Major Group	+	Minor Group	+	Status Code

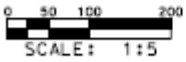
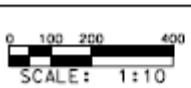
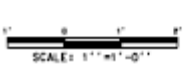
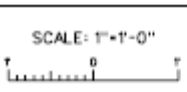
General Symbols

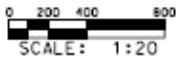
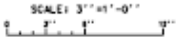
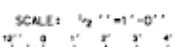
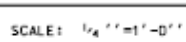
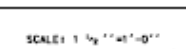
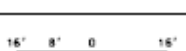
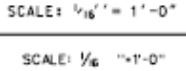
The following NCS symbols are shown under the general category. Other discipline specific symbols are shown under their respective headings below. These general symbols can be found in the **ANNO** drawings. Note: the * indicates the symbol contains fields for text entry.

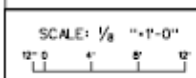
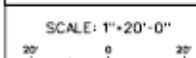
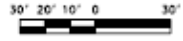
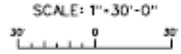
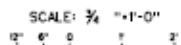
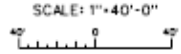
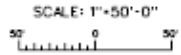
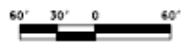
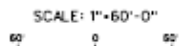
Tool Palettes for General Symbols (Obsolete)

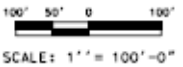
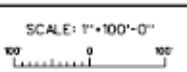
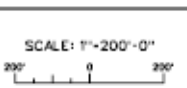
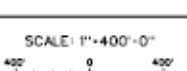
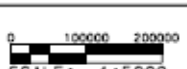
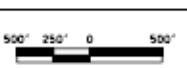
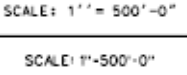
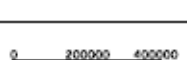
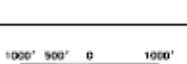
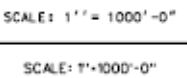
As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

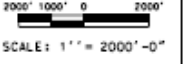
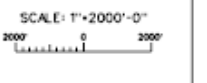
GENERAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	BREAK	BREAKLINE SYMBOL
	CNTLIN	CENTERLINE SYMBOL
	COLLIN *	COLUMN LINE GRID INDICATOR
	DBLARR	DOUBLE ARROW TERMINATOR
	DTLIND *	DETAIL INDICATOR
	KEYIND *	KEYNOTE INDICATOR
	MAGNOR	MAGNETIC NORTH ARROW
	MATIND	MATCH LINE INDICATOR
	NORIND	NORTH INDICATOR
	NOTIND *	NOTE INDICATOR
	REVIND *	REVISION INDICATOR
	S00005	SCALE 1 EQ 5
	S00010	SCALE 1 EQ 10
	S0001B	SCALE 1" EQ 1'-0"
	S0001G	SCALE 1" EQ 1'-0"

GENERAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	S00020	SCALE 1 EQ 20
	S0003B	SCALE 3" EQ 1'-0"
	S0003G	SCALE 3" EQ 1'-0"
	S00050	SCALE 1 EQ 50
	S000B	SCALE FULL
	S00100	SCALE 1 EQ 100
	S0012B	SCALE 1/2" EQ 1'-0"
	S0012G	SCALE 1/2" EQ 1'-0"
	S0014B	SCALE 1/4" EQ 1'-0"
	S0014G	SCALE 1/4" EQ 1'-0"
	S0015B	SCALE 1-1/2" EQ 1'-0"
	S0015G	SCALE 1-1/2" EQ 1'-0"
	S0016B	SCALE 1/16" EQ 1'-0"
	S0016G	SCALE 1/16" EQ 1'-0"
	S0018B	SCALE 1/8" EQ 1'-0"

GENERAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	S0018G	SCALE 1/8" EQ 1'-0"
	S00200	SCALE 1 EQ 200
	S0020B	SCALE 1" EQ 20'-0"
	S0020G	SCALE 1" EQ 20'-0"
	S0030B	SCALE 1" EQ 30'-0"
	S0030G	SCALE 1" EQ 30'-0"
	S0034B	SCALE 3/4" EQ 1'-0"
	S0034G	SCALE 3/4" EQ 1'-0"
	S0040B	SCALE 1" EQ 40'-0"
	S0040G	SCALE 1" EQ 40'-0"
	S00500	SCALE 1 EQ 500
	S0050B	SCALE 1" EQ 50'-0"
	S0050G	SCALE 1" EQ 50'-0"
	S0060B	SCALE 1" EQ 60'-0"
	S0060G	SCALE 1" EQ 60'-0"

GENERAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	S01000	SCALE 1 EQ 1000
	S0100B	SCALE 1" EQ 100'-0"
	S0100G	SCALE 1" EQ 100'-0"
	S0200B	SCALE 1" EQ 200'-0"
	S0200G	SCALE 1" EQ 200'-0"
	S0400B	SCALE 1" EQ 400'-0"
	S0400G	SCALE 1" EQ 400'-0"
	S05000	SCALE 1 EQ 5000
	S0500B	SCALE 1" EQ 500'-0"
	S0500G	SCALE 1" EQ 500'-0"
	S06000	SCALE 1 EQ 6000
	S10000	SCALE 1 EQ 10000
	S1000B	SCALE 1" EQ 1000'-0"
	S1000G	SCALE 1" EQ 1000'-0"
	S20000	SCALE 1 EQ 20000

GENERAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	S2000B	SCALE 1" EQ 2000'-0"
	S2000G	SCALE 1" EQ 2000'-0"
	SECIN1 *	SECTION ELEVATION INDICATOR
	SECIN2 *	SECTION ELEVATION INDICATOR
	SECIN3 *	SECTION ELEVATION INDICATOR

Standards for Surveying

The following data has been created and embedded within each discipline specific file.

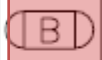
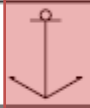
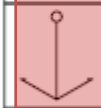
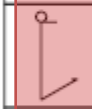
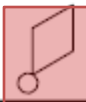
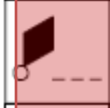
Symbols – The following symbols are embedded within the **Survey** drawings. These have been expanded to include a large assortment of Survey symbols.

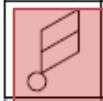
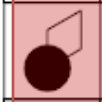
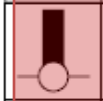
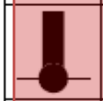
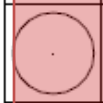
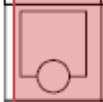
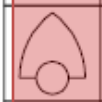
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

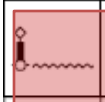
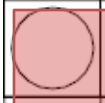
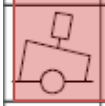
All Civil 3D Point Styles have been established along with Description keys for use in Civil 3D.

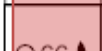
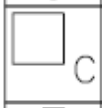
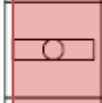
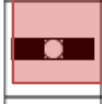
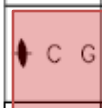
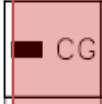
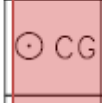
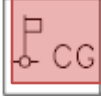
Note: The WMATA CAD Standards were previously delivered with the entire National CAD Standards (NCS) library of symbols for the Surveying and Mapping Discipline. Revised editions are now reduced in scope to only those symbols most often used for typical WMATA projects (removed aviation and maritime symbology). Previous blocks now obsolete are indicated with shading in the charts that follow:

SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	ACLLEL	APPROACH LIGHT BAR (ELEVATED)
	ACLLSF	APPROACH LIGHT BAR (SEMIFLUSH)
	AERO	SEAPLANE ANCHORAGE BUOY
	AFBCN	AIRFIELD BEACON
	AIRFLD	AIRFIELD SYMBOL
	ANCHR1	ANCHORAGE LARGE VESSEL
	ANCHR2	ANCHORAGE LARGE VESSEL
	ANCHR3	ANCHORAGE SMALL VESSEL
	ANCHR4	ANCHORAGE SMALL VESSEL
	ANCHR5	ANCHORAGE SMALL VESSEL
	ANCHRB	ANCHOR BERTH
	ARROW	ARROW TERMINATOR
	BAR1	BARREL BUOY
	BAR1C *	BARREL BUOY (INDICATE COLOR)
	BAR2	BARREL BUOY

SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	BARD	DIAGONIAL STRIPE BARREL BUOY
	BARLT1	LIGHTED BARREL BUOY
	BARLT2	LIGHTED BARREL BUOY
	BARMKR	BARRIER MARKER
	BARV	VERTICAL STRIPE BARREL BUOY
	BARVT	VERTICAL STIRPE BARREL BUOY WITH ER
	BCN1	GENERAL BEACON
	BCN2	GENERAL BEACON
	BCN3	GENERAL BEACON
	BCN4	GENERAL BEACON
	BCN5	GENERAL BEACON
	BCNBY1	BUOYANT BEACON
	BCNBY2	BUOYANT BEACON
	BCNLT1	LIGHTED BEACON
	BCNLT2	LIGHTED BEACON

SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	BYCHEC	CHECKERED BUOY
	BYCOMP	COMPASS ADJUSTMENT BUOY
	BYEXPL	EXPLOSIVE ANCHORAGE BUOY
	BYFISH	FISH TRAP BUOY
	BYGONB	GONG BARREL BUOY
	BYGONP	GONG PILLAR BUOY
	BYJUNC	JUNCTION BUOY
	BYPOS	POSITION OF BUOY
	BYQUAR	QUARANTINE BUOY
	BYWAV1	WAVE ACTUATED BELL BUOY
	BYWAV2	WAVE ACTUATED BELL BUOY
	BYWHIB	WHISTLE BARREL BUOY
	BYWHIP	WHISTLE PILLAR BUOY
	CABCNZ	CABLE CROSSING ZONE
	CABDIS	DISUSED SUBMARINE CABLE

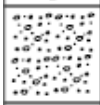
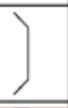
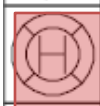
SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CABLAN	CABLE LANDING BEACON
	CABLE	SUBMARINE CABLE
	CABLE1	SUBMARINE CABLE AREA
	CABLE2	SUBMARINE CABLE AREA
	CABPWR	SUBMARINE POWER CABLE
	CAIRN1	CAIRN
	CAIRN2	CAIRN
	CAIRN3	CAIRN
	CAIRN4	CAIRN
	CAN1	CAN BUOY
	CAN2	CAN BUOY
	CANWT	WHITE CAN BUOY WITH (TOPMARK)
	CATBSN	CATCH BASIN
	CATBSR	ROUND CATCH BASIN
	CDHDR	CORE DRILL HOLE DRILLED

SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CDHUDR	CORE DRILL HOLE UNDRILLED
	CGRES1	COAST GUARD RESCUE STATION
	CGRES2	COAST GUARD RESCUE STATION
	CGRES3	COAST GUARD RESCUE STATION
	CKTID	CIRCUIT IDENTIFICATION SYMBOL
	CLNOUT	CLEANOUT
	CMHLX	COMMUNICATION MANHOLE (EXISTING)
	CNR90	CORNER SOLID 90 TURNED DEGREES
	CNRNF	CORNER NOT FOUND
	CNRSF	CORNER SOLID FLAT
	CNTLIN	CENTERLINE SYMBOL
	COAST1	COAST GUARD STATION
	COAST2	COAST GUARD STATION
	COAST3	COAST GUARD STATION
	COAST4	COAST GUARD STATION

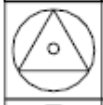
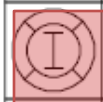
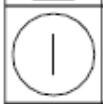
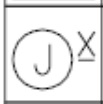
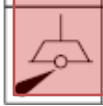
SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CONC	CONCRETE
	CONCST	CONCRETE STONE PATTERN
	CULVEE	CULVERT END SYMBOL
	DBID *	DUCTBANK IDENTIFICATION SYMBOL
	DBLARR	DOUBLE ARROW TERMINATOR
	DGUYX	DOWN GUY WIRE (EXISTING)
	DISPLT	DISUSED PLATFORM
	DNGPB	LIGHTED DANGER BUOY PILLAR
	DNGRK	DANGER U W ROCK DEPTH UNKNW
	DNGRK1	DANGER U W ROCK DEPTH UNKWN
	DNGSB	LIGHTED DANGER BUOY SPAR
	DOLPHN	DOLPHIN
DM	DSTMKR	RUNWAY DISTANCE MARKER
	DSWTCH	DISCONNECT SWITCH SWITCHING STATION
R W	DTHL	DISPLACE THRESHOLD LIGHT

SURVEY/MAPPING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	EEARTH	EXISTING EARTH
H	EHHLX	ELECTRICAL HANDHOLE (EXISTING)
E	EMHLX	ELECTRICAL MANHOLE (EXISTING)
	EROCK	EXISTING ROCK PATTERN
	FILLSC	FILL SECTION PATTERN
	FIXPNT	FIXED POINT LOCATION
FLOW	FLARRL	FLOW ARROW LEFT IN ZERO POINT
FLOW	FLARRR	FLOW ARROW RIGHT IN ZERO POINT
	FLDGAT	FLOOD GATE
	FOG	FOG SIGNAL
	FOGBCN	FOG SIGNAL BEACON
	FOGBY	FOG SIGNAL BUOY
	FOGLS	FOG SIGNAL LIGHT SHIP
	FOGLSM	FOG SIGNAL LIGHT SHIP MANNED
F	FOMETR	FUEL OIL METER

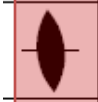
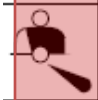
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	FOMHOL	FUEL OIL MANHOLE
	FOVALT	FUEL OIL VAULT
	GRAVEL	GRAVEL PATTERN
	GREASE	GREASE TRAP
	GRITCH	GRIT CHAMBER
	GROUT	GROUT PATTERN
	GSMETR	GAS METER
	GSMHOL	GAS MANHOLE
	GSPLNT	GAS PLANT
	GSRECR	GAS RECEIVER
	GSTRAP	GAS TRAP
	GSVALT	GAS VALVE VAULT
	HEADWL	HEADWALL
	HLL	HOVERLANE LIGHT
	HLLL	HOVERLANE LIMIT LIGHT

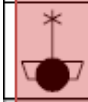
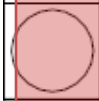
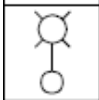
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	HORCPT	HORIZONTAL CONTROL POINT
	HOVCPT	HORIZONTAL VERTICAL CONTROL POINT
	HPIL	HELIPAD INSET LIGHT
	HPPLEL	HELIPAD PER LIGHT (ELEVATED)
	HPPLSF	HELIPAD PERLIGHT (SEMIFLUSH)
	HUREYE	HURRICANE EYE
	HYDRNT *	HYDRANT (FOR CIVIL SITE USAGE)
	INSHWY *	INTERSTATE HIGHWAY SYMBOL
	INSTBY	OIL GAS INSTALL BUOY
	IWMETR	INDUSTRIAL WASTE WATER METER
	IWMHOL	INDUSTRIAL WASTE WATER MANHOLE
	JETTY	JETTY
	JNBX *	JUNCTION BOX
	KELP	KELP OR SEAWEED
	LANBY1	LANBY SUPERBUOY NAVAL AID

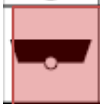
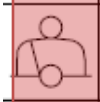
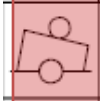
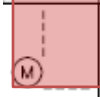
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	LANBY2	LANBY SUPERBUOY NAVAL AID
	LATBCN	LATTICE BEACON
	LIFEBT	LIFEBOAT STATION
	LIFEM1	LIFEBOAT AT MOORING
	LIFEM2	LIFEBOAT AT MOORING
	LIMIT	LIMIT OF SAFETY ZONE
	LITSV1	FLOATING LIGHT
	LITSV2	FLOATING LIGHT
	LOOKTR	LOOKOUT STATION WATCH
	LSWAMP	LARGE SWAMP
	LTART	ARTICULATED LIGHT
	LTBEAC	LIGHTED BEACON
	LTBY	LIGHTED BUOY
	LTBYBB	LIGHTED BARREL BUOY BLACK
	LTFLD	FLOODLIGHT (USED IN HYDROGRAPHIC SURVEY)

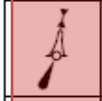
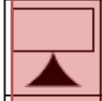
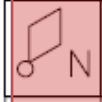
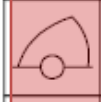
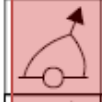
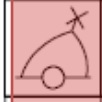
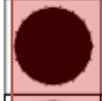
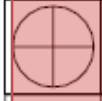
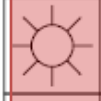
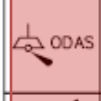
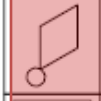
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	LTFLT	LIGHT FLOAT
	LTFLT1	LIGHT FLOAT (INTL. ASSOC. OF LIGHTHOUSE AUTH.)
	LTFLT2	LIGHT FLOAT (INTL. ASSOC. OF LIGHTHOUSE AUTH.)
	LTHOU1	LIGHTHOUSE
	LTHOU2	LIGHTHOUSE
	LTMAJ1	MAJOR FLOATING LIGHT
	LTMAJ2	MAJOR FLOATING LIGHT
	LTMARK	LIGHTED MARKER
	LTMIN2	MINOR FLOATING LIGHT
	LTPLT1	LIGHTED PLATFORM
	LTPLT2	LIGHTED PLATFORM
	LTPLX	LIGHT POLE (EXISTING)
	LTSHP1	LIGHTED VESSEL LIGHTSHIP
	LTSHP2	LIGHTED VESSEL LIGHTSHIP
	LTSHP3	LIGHTED VESSEL LIGHTSHIP

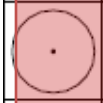
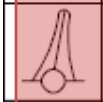
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	LTSTRX (DELETED)	STREET LITE BRACKET (EXISTING)
	LTTOW2	LIGHTED BEACON TOWER
	LTVES2	UNMANNED LIGHT VESSEL
	MARINA	BOAT HARBOR MARINA
	MARKGD	GREEN DAY MARKER
	MARKRD	RED DAY MARKER
	MEAST	LIGHTED EAST MARKER BUOY
	MNORTH	NORTH ARROW
	MONWEL	MONITORING WELL
	MORB	MOORING BUOY
	MORBBB	MOORING BARREL BUOY BLACK
	MORBBW	MOORING BARREL BUOY WHITE
	MORBCW	MOORING CAN BUOY WHITE
	MORTWR	MOORING TOWER
	MOTRHP *	MOTOR (INDICATE HORSE POWER)

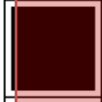
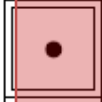
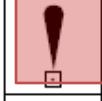
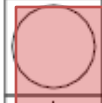
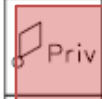
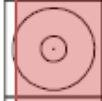
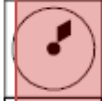
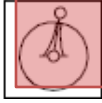
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	MSOUTH	LIGHTED SOUTH MARKER BUOY
	MWEST	LIGHTED WEST MARKER BUOY
	NOTICE	NOTICE BOARD
	NUN1	NUN BUOY
	NUN2	NUNBUOY
	NUNBT	BLACK NUN BUOY WITH ER
	NUNWT	WHITE NUN BUOY WITH ER
	OBS	OBSTRUCTION
	OBSSPT	OBSERVATION SPOT
	OBSTRL	OBSTRUCTION LIGHT
	ODAS	ODAS BUOY DATA COLLECT
	OUTB	BUOY MARKING OUTFALL
	PAPI	PRECISION APPROACH PATH INDICATOR LIGHT UNIT
	PHOCPT	PHOTO CONTROL POINT
	PIINFO *	PI INFORMATION

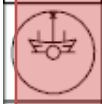
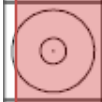
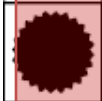
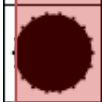
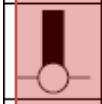
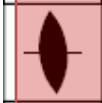
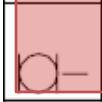
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	PIL1	PILLAR BUOY
	PIL2	PILLAR BUOY
	PILLT	LIGHTED PILLAR BUOY
	PILM	MULTI-COLOR PILLAR BUOY
	PILOT	BOARDING PLACE
	PILOT1	PILOT OFFICE
	PILOT2	PILOT OFFICE
	PILV	VERTICAL STRIPED PILLAR BUOY
	PILVT	VERTICAL STIRPED PILLAR BUOY WITH ER
	PIPDIS	DISUSED PIPELINE PIPE
	PIPE	WATER SEWER OUTFALL INTAKE
	PIPE1	OIL GAS PIPELINE
	PIPE2	OIL GAS PIPELINE
	PIPES1	OIL GAS PIPELINE AREA
	PIPES2	OIL GAS PIPELINE AREA

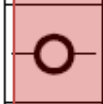
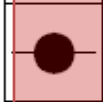
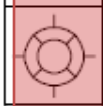
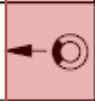
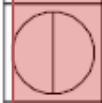
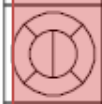
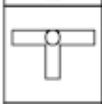
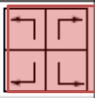
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	PIVALV *	POST INDICATOR VALVE
	PLAT1	PRODUCTION PLATFORM OIL DERRICK
	PLAT2	PRODUCTION PLATFORM OIL DERRICK
	PLAT3	PRODUCTION PLATFORM OIL DERRICK
	PMPSTA *	PUMP STATION
	POLE1	POLE, STAKE, PERCH
	POLE3	POLE, STAKE, PERCH
	POLEID *	POLE IDENTIFICATION SYMBOL
	POLEP	PORT HAND STAKE, POLE
	POLES	STARBOARD HAND POLE, STAKE
	POROUS	POROUS PATTERN
	PRIVB	PRIVATE BARREL BUOY
	RADAR	RADAR STATION OR BEACON
	RADAR1	FLOATING RADAR BEACON
	RADAR2	FLOATING RADAR BEACON

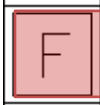
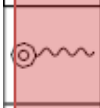
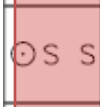
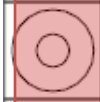
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	RADAR3	FLOATING RADAR BEACON
	RADAR4	FLOATING RADAR BEACON
	RADIO	RADIO BEACON GENERAL
	RADRF1	RADAR REFLECTOR OR FEATURE
	RADRF2	RADAR REFLECTOR OR FEATURE
	RANGEX	RANGE EXTENSION
	REEF	CORAL REEF LARGE ICON
	REEF1	CORAL REEF SMALL ICON
	REFUG1	REFUGE BEACON
	REFUG2	REFUGE BEACON
	REIL	REIL LIGHT UNIT
	RESCUE	RESCUE STATION
	RESPLT	OBSERVATION RESEARCH PLATFORM
	RGVALV	REGULATOR VALVE
	RIPRAP	RIPRAP PATTERN

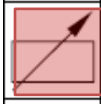
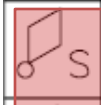
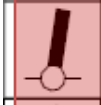
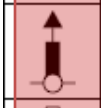
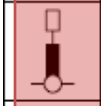
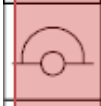
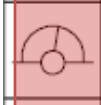
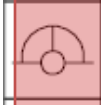
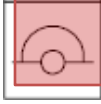
SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	RSTAR	RANGE STAR
	RVMMOP	OPEN RIVER MILE MARKER
	RVMMSO	SOLID RIVER MILE MARKER
	RWCLL	RUNWAY CENTERLINE LIGHT
	RWEL	RUNWAY END LIGHT
	RWLEL	RUNWAY EDGE LIGHT (ELEVATED)
	RWLSF	RUNWAY EDGE LIGHT (SEMIFLUSH)
	SAFE1	LIGHTED SAFE WATER MARK
	SAFE2	LIGHTED SAFE WATER MARK
	SAFE3	LIGHTED SAFE WATER MARK
	SCNRH	SECTION CORNER HATCHED
	SCNRO	SECTION CORNER OPEN
	SCNRTO	SECTION CORNER T OPEN
	SDMHOL	STORM DRAINAGE MANHOLE
	SECCUT	TYPICAL SECTION CUT

SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	SFL	SEQUENCED FLASHER LIGHT
	SHRUBC	CONIFEROUS SHRUB
	SIGBRG	BRIDGE LIGHT INC TRAFFIC
	SIGN	SIGN
	SIGNWS	NATIONAL WEATHER SERVICE STATION
	SIGSHO	SUB SIGNAL CONNECT SHORE
	SIGST1	SIGNAL STATION GENERAL
	SIGST2	SIGNAL STATION GENERAL
	SIGSTP	PORT CONTROL SIGNAL STATION
	SIGSUB	SUBMARINE SIGNAL
	SIRLH1	SIREN AT LIGHTHOUSE
	SIRLH2	SIREN AT LIGHTHOUSE
	SLARRL *	SLOPE ARROW (INDICATE SLOPE)
	SLARRR *	SLOPE ARROW (INDICATE SLOPE)
	SLLX	STREETLIGHT LUMINAIRE (EXISTING)

SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	SLREG	CONSTNT CURRENT TRANSFORMER
	SNMETR	SANITARY METER
	SNMHOL	SANITARY MANHOLE
	SNPVSL	SANITARY PRESSURE VESSEL
	SNVALT	SANITARY VALVE VAULT
	SPAR1	SPAR BUOY SPINDLE BUOY
	SPAR2	SPAR BUOY SPINDLE BUOY
	SPARB	BLACK SPAR BUOY
	SPARBT	BLACK SPAR BUOY WITH ER
	SPARWT	WHITE SPAR BUOY WITH ER
	SPH1	SPHERICAL BUOY
	SPH2	SPHERICAL BUOY
	SPHD	DIAGONAL STRIPE SPHERE BUOY
	SPHV	VERTICAL STRIPE SPHERE BUOY
	SPHW	WHITE SHERICAL BUOY

SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	SPILE	SUBMERGED PILING
	SPILE1	SUBMERGED PILES
	SPILES	SUBMERGED PILES
	SPILEX	SUBMERGED PILE W POSITION
	SPOST	SUBMERGED POST
	SPOSTX	SUBMERGED POST WITH POSITION
ST	SPTANK	SEPTIC TANK
L	SSLSTA	SANITARY SEWER LIFT STATION
	STAKE	STAKE PERCH
	STAKEX	STAKE WITH POSITION
	STHWY *	STATE HIGHWAY SYMBOL
	STMPIT	STEAM PIT
	STUMPS	SUBMERGED STUMPS
SS	SUBSTA	SUBSTATION
	SUPER	SUPER BUOY

SURVEY/MAPPING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	TNKHAG	TANK (HORIZONTAL ABOVE GROUND)
	TNKVAG *	TANK (VERTICAL ABOVE GROUND)
	TOW1	BEACON TOWER
	TOW2	BEACON TOWER
	TOW3	BEACON TOWER
	TOWB	BLACK BEACON TOWER
	TOWBT1	BLACK BEACON TOWER WITH TOP
	TOWBT2	BLACK BEACON TOWER WITH TOP
	TOWER	TRANSMISSION TOWER
	TOWW	WHITE BEACON TOWER
	TOWWT1	WHITE BEACON TOWER WITH TOP
	TOWWT2	WHITE BEACON TOWER WITH T
	TREEC	CONIFEROUS TREE
	TREED	DECIDUOUS TREE
	TREEG	GENERIC TREE

Civil 3D Symbols, Point Styles

Block Name	Feature	Symbol	Block Name	Feature	Symbol
i01420-c_Monument Indicator	MONUMENT		i02580-i_Nat Gas MH	GAS MANHOLE	
i02080-b_Hydrant-Fire	FIRE HYDRANT		i02580-k_Sanitary Cleanout	SAN CLEANOUT	
i02510-k_Water Manhole	WATER MANHOLE		i15730_HVAC	HVAC	
i02510-l_Water Meter	WATER METER		i16070-a_Elec Guy Wire	GUY	
i02510-s_Water Valve Vault	WATER VAULT		i16290_Elec Meter	ELEC METER	
i02550-d_Nat Gas Trap	ELEC MANHOLE		C3D CIRCLE	MISCELLANEOUS	
i02550-d_Nat Gas Trap	GAS VALVE		C3D TICK	MISCELLANEOUS	
i02550-c_Nat Gas Meter	GAS METER		CNTRL BM	CONTROL BENCHMARK	
C3D_SQUARE_BLOCK	CATCH BASIN		CNTRL BACKSIGHT	CONTROL BACKSIGHT	
C3D_SLOPE	EMBANKMENT		BORING	SOIL BORING	
SODDING	SODDING		MULCHING	MULCHING	
TEMP SED TRAP	TEMP. SEDIMENT TRAP		SEDIMENT BASIN	SED BASIN	
CHANNEL RIGHT	CHANNEL RIGHT TURN		CHANNEL RS	CHANNEL RIGHT-STRAIGHT	
CHANNEL LRS	CHANNEL LEFT-RIGHT-STRAIGHT		CHANNEL LR	CHANNEL LEFT-RIGHT	
TVMH	TV MH		YIG	YARD INLET	

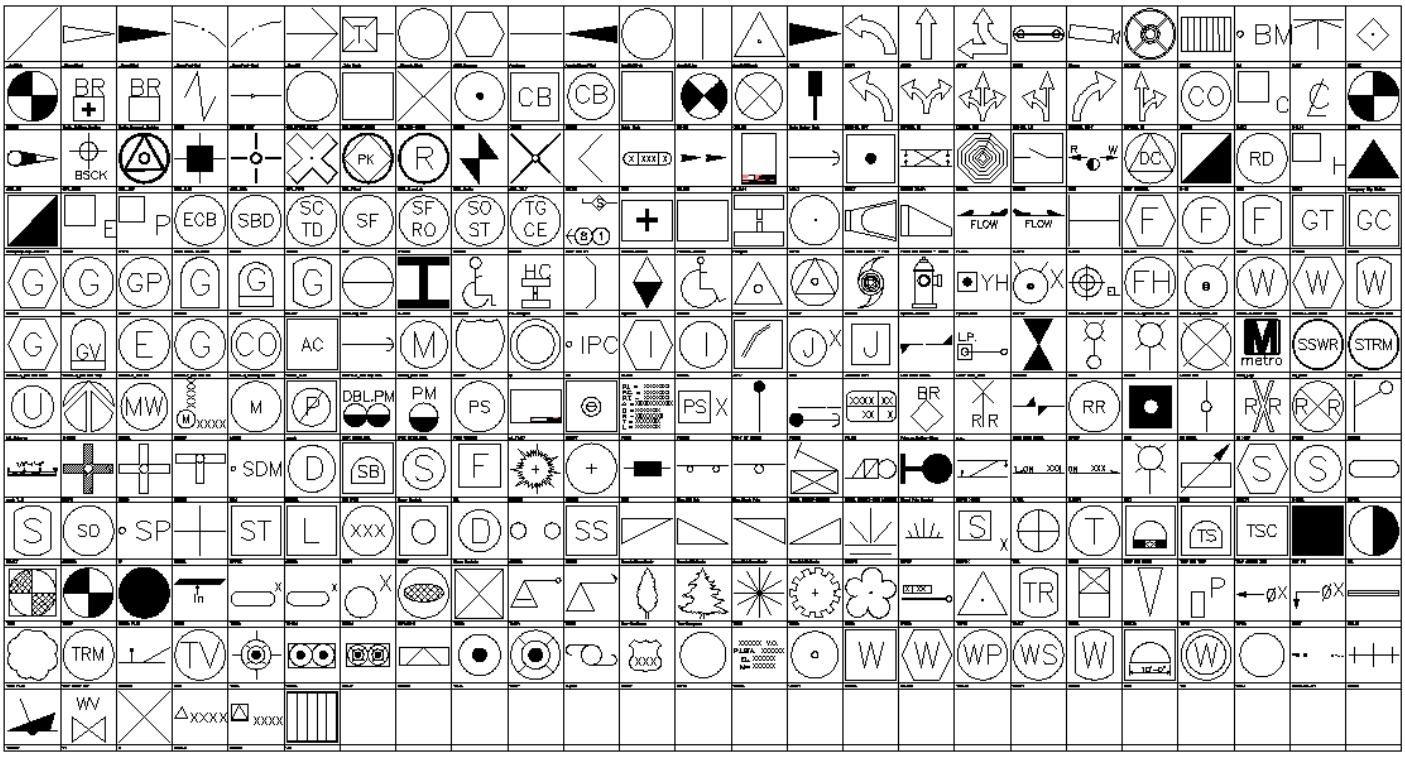
Block Name	Feature	Symbol
CTRL_HNV	CONTROL HOR/VERT	
CTRL_HUTA	CONTROL HUB/TACK	
CTRL_LETA	CONTROL LEAD/TACK	
CTRL_PAPO	CONTROL PANEL POINT	
CTRL_PKnail	CONTROL PKNAIL	
CTRL_R&C	CONTROL REBAR/CAP	
CTRL_Scribe	CONTROL SCRIBE	
CTRL_XCUT	CONTROL CROSSCUT	
C3D_SQUARE_BLOCK	MISCELLANEOUS	
TOPSOILING	TOPSOILING	
DUST CONTROL	DUST CONTROL	
TEMP SED BASIN	TEMP. SEDIMENT BASIN	
RR XING	RAILROAD CROSSING	
TEST PIT	TEST PIT	
SWAMAR	SWAMP	

Block Name	Feature	Symbol
SHRUBD	SHRUB DECIDUOUS	
SHRUBC	SHRUB CONIFEROUS	
TREEG	TREE GENERAL	
CHAIN POST MARKER	CHAIN POST MARKER	
IP	IRON PIPE	
EMHLX	ELEC TRANSFORMER	
GUPO_GUY POST	GUY POST	
LIGHT POST_SNGL	LIGHT POST SINGLE	
PARK METER_DBL	PARK METER DOUBLE	
TEMP SEEDING	TEMP. SEEDING	
EROS CNTRL BLANKET	EROSION CONTROL BLANKET	
TEMP STREAM XING	TEMP STREAM CROSSING	
CHANNEL LEFT	CHANNEL LEFT TURN	
POINT OF SWITCH	POINT OF SWITCH	

Block Name	Feature	Symbol
WELL	WELL	
U_POLE	UTILITY POLE	
ROW	ROW MARKER	
STORM MH	STORM MANHOLE	
SAN MH	SANITARY MANHOLE	
Sign_Single	SIGN SINGLE POST	
TEL MH	TELEPHONE MANHOLE	
TRAFFIC VAULT	TRAFFIC VAULT	
C3D_SQUARE_BLOCK	ELECTRICAL PEDESTAL	
PERM SEEDING	PERMANENT SEEDING	
TURF REINF MAT	TURF REINFORCEMENT MAT	
RIPRAP	RIPRAP	
CHANNEL LS	CHANNEL LEFT-STRAIGHT	
TURNOUT	TURNOUT	

Block Name	Feature	Symbol
TUBE PILES	TUBE PILES	
H-PILES	H-PILES	
TIMBER PILES	TIMBER PILES	
SIGNAL CABINET-GROUND	SIGNAL CABINET-GROUND	
SIGNAL CABINET-POLE MOUNTED	SIGNAL CABINET-POLE MOUNTED	
JUNCTION BOX	JUNCTION BOX	
RR SIGNAL	RR SIGNAL	
GRATE	GRATE	
HANDICAP	HANDICAP	
RIGHT HAND DERAIL	RIGHT HAND DERAIL	
LEFT HAND DERAIL	LEFT HAND DERAIL	
BUMPING POST	BUMPING POST	
DOUBLE XOVER	DOUBLE CROSSOVER	
SIMPLE XOVER	SIMPLE CROSSOVER	

All Symbols are shown in a Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center <Ctrl 2> or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability.



All Survey Symbol names are listed below.

- _ArchTick
- _ClosedBlank
- _ClosedFilled
- _CrowsFoot-End
- _CrowsFoot-Start
- _Open90
- _Wipeout_Circle
- 10750_Tele Booth
- A$C784B08EF
- ACLLEL
- ACLLSF
- ADCADD_ZZ
- AECC_Hexagon
- AeccArrow
- AeccArwClosedFilled
- AeccTickCircle
- AeccTickLine
- AeccTickTriangle
- AERO
- AFBCN
- AIRFLD
- ANCHR1
- ANCHR2
- ANCHR3
- ANCHR4
- ANCHR5
- ANCHRB
- ANNOTATION
- ARROW
- ARRPT
- ARRSD
- ARRST
- BAR1
- BAR1C
- BAR2
- BARD
- BARLT1
- BARLT2
- BARMKR
- BARV
- BARVT
- BCN1
- BCN2
- BCN3
- BCN4
- BCN5
- BCNBY1
- BCNBY2
- BCNLT1
- BCNLT2
- BCNLT3
- BCNRES
- BCNTG1
- BCNTG2
- BCNTP1
- BCNTP2
- BCNTR1
- BCNTR2
- BENCH
- Blkcam
- BLKGRATE
- BLOCK
- BM
- BMALT
- BNDMRK
- BORING
- Braille_Exitfare_Machine
- Braille_Farecard_Machine
- BREAK
- BUMPING POST
- BUOY
- BYANCH
- BYBELB
- BYBELP
- BYCHEC
- BYCOMP
- BYEXPL
- BYFISH
- BYGONB
- BYGONP
- BYJUNC
- BYPOS
- BYQUAR
- BYWAV1
- BYWAV2
- BYWHIB
- BYWHIP
- C3D_CIRCLE_BLOCK
- C3D_SQUARE_BLOCK
- C3D_TICK-BLOCK
- CABCNZ
- CABDIS
- CABLAN
- CABLE
- CABLE1
- CABLE2
- CABPWR
- CAIRN1
- CAIRN2
- CAIRN3
- CAIRN4
- CAN1
- CAN2
- CANWT
- CATBSN
- CATBSR
- Catch Basin
- CDHDR
- CDHUDR
- CGRES1
- CGRES2
- CGRES3
- Chain Marker Post
- CHANNEL LEFT
- CHANNEL LR
- CHANNEL LRS
- CHANNEL LS
- CHANNEL RIGHT
- CHANNEL RS
- CKTID
- CLNOUT
- CMHLX
- CNR90
- CNRNF
- CNRSF
- CNTLIN
- COAST1
- COAST2
- COAST3
- COAST4
- COGRAV
- CTRL_BM
- CTRL_BSCK
- CTRL_HNV
- CTRL_HUTA
- CTRL_LETA
- CTRL_PAPO
- CTRL_PKnail
- CTRL_R&C
- CTRL_Scribe
- CTRL_XCUT
- CULVEE
- DBID
- DBLARR
- df_8x11
- DGUYX
- DIMSTYLE
- DISPLT
- DNGPB
- DNGRK
- DNGRK1
- DNGSB
- DOLPHN
- DOUBLE XOVER
- DRLHOL
- DSTMKR
- DSWTCH
- DTHL
- DUST CONTROL
- E-M1
- ECRD
- EHHLX
- Emergency Trip Station
- Emergency_Trip_Station-B
- EMHLX
- EPBXX
- EROS CNTRL BLANKET
- ERSBD
- ERSCTD
- ERSF
- ERSFRO
- ERSOST
- ERTGCE
- EXIST CAB TR
- Exitfare_Machine
- Farecard_Machine
- Faregate
- FIXPNT
- Flared End Section - Plan
- Flared End Section - Profile
- FLARRL
- FLARRR
- FLDGAT
- FOG
- FOGBCN
- FOGBY
- FOGLS
- FOGLSM
- FOMETR
- FOMHOL
- FOVALT
- GREASE
- GRITCH
- GSMETR
- GSMHOL
- GSPLNT
- GSRECR
- GSTRAP
- GSVALT
- GUPO_Guy Post
- H-Piles
- HANDICAP
- HC_Faregate
- HEADWL
- HighPoint
- HLL
- HLLL
- HNDCAP
- HORCPT
- HOVCPT
- HPIL
- HPPLEL
- HPPLSF
- HUREYE
- Hydrant-Elevation
- Hydrant_Yard
- HYDRNT
- i01420-c_Monument Indicator
- i02080-a_Hydrant Pan-Fire
- i02080-b_Hydrant-Fire
- i02510-k_Water Manhole
- i02510-l_Water Meter
- i02510-s_Water Valve Vault
- i02550-c_Nat Gas Meter
- i02550-d_Nat Gas Trap
- i02580-h_Elec MH
- i02580-i_Nat Gas MH
- i02580-k_Sanitary Cleanout
- i15730_HVAC
- i16070-a_Elec Guy Wire
- i16290_Elec Meter
- INSHWY
- INSTBY
- ip

- IPC
- IWMETR
- IWMHOL
- JETTY
- JNBX
- JUNCTION BOX
- KELP
- LANBY1
- LANBY2
- LATBCN
- LEFT HAND DERAIL
- LIFEBT
- LIFEM1
- LIFEM2
- LIGHT POST_SNGL
- LIMIT
- LITSV1
- LITSV2
- LOOKTR
- LowPoint
- LTART
- LTBEAC
- LTBY
- LTBYBB
- LTFLD
- LTFLT
- LTFLT1
- LTFLT2
- LTHOU1
- LTHOU2
- LTMAJ1
- LTMAJ2
- LTMARK
- LTMIN2
- LTPLT1
- LTPLT2
- LTPLX
- LTSHP1
- LTSHP2
- LTSHP3
- LTSTRX
- LTTOW2
- LTVES2
- MARINA
- Marker Pnt
- MARKGD
- MARKRD
- MEAST
- Metro_Logo
- MH_SSWR
- MH_STRM
- MH_Unknown
- MNORTH
- MONWEL
- MORB
- MORBBB
- MORBBW
- MORBCW
- MORTWR
- MOTRHP
- MSOUTH
- MULCH
- nopark
- NOTICE
- NUN1
- NUN2
- NUNBT
- NUNWT
- OBS
- OBSSPT
- OBSTRL
- ODAS
- OUTB
- PAPI
- PARK METER_DBL
- PARK METER_SNGL
- PERM SEEDING
- pf_11x17
- PHOCPT
- PIINFO
- PIL1
- PIL2
- PILLT
- PILM
- PILOT
- PILOT1
- PILOT2
- PILV
- PILVT
- PIPDIS
- PIPE
- PIPE1
- PIPE2
- PIPES1
- PIPES2
- PIVALV
- PLAT1
- PLAT2
- PLAT3
- PMPSTA
- POINT OF SWITCH
- POLE1
- POLE2
- POLE3
- POLEAR
- POLEID
- POLEP
- POLES
- PRIVB
- PROJ_NAM
- Pylon_w_Brailles-Signs
- r_r_
- RADAR
- RADAR1
- RADAR2
- RADAR3
- RADAR4
- RADIO
- RADRF1
- RADRF2
- RANGEX
- REEF
- REEF1
- REFUG1
- REFUG2
- REIL
- RESCUE
- RESPLT
- RGVALV
- RIGHT HAND DERAIL
- RIPRAP
- ROW
- RR SIGNAL
- RR XING
- RRSIGN
- RRSWTC
- RSTAR
- RVMMOP
- RVMMSO
- RWCLL
- RWEL
- RWLEL
- RWLSF
- SAFE1
- SAFE2
- SAFE3
- scale 1_8
- SCNRH
- SCNRO
- SCNRTO
- SDM
- SDMHOL
- SECCUT
- SED BASIN
- Sewer Manhole
- SFL
- SHRUBC
- SHRUBD
- SIGBRG
- SIGN
- Sign_DBl Pole
- Sign_Single Pole
- SIGNAL CABINET-GROUND
- SIGNAL CABINET-POLE MOUNTED
- Signal Pole Mounted
- SIGNWS
- SIGSHO
- SIGST1
- SIGST2
- SIGSTP
- SIGSUB
- SIMPLE XOVER
- SIRLH1
- SIRLH2
- SLARRL
- SLARRR
- SLLX
- SLREG
- SNMETR
- SNMHOL
- SNPVSL
- SNVALT
- SODDING
- SP
- SPAR1
- SPAR2
- SPARB
- SPARWT

SPH1
SPH2
SPHD
SPHV
SPHW
SPILE
SPILE1
SPILES
SPILEX
SPOST
SPOSTX
SPOTEL
SPTANK
SSLSTA
STAKE
STAKEX
STHWY
STMPIT
Storm Manhole
STUMPS
SUBSTA
SUPER
SuperLeftDownEmpty
SuperLeftUpEmpty
SuperRightDownEmpty
SuperRightUpEmpty
SUWEL2
SUWEL3
SUWELY
SWAMAR
SWAMP
SWELB1
SWELB2
SWELL5
SWPADX
TDZL
TELBBB
TELMH
TEMP SED BASIN
TEMP SED TRAP
TEMP STREAM XING
TerminatorOpen_0.5
TEST PIT
TEXTSTYLE
THL
TIDEG
TIDSTF
TIMBER PILES
TIRETR
TNKBG
TNKHAG
TNKVAG
TOPSOILING
TOW1
TOW2
TOW3
TOWB
TOWBT1
TOWBT2
TOWER
TOWW
TOWWT1
TOWWT2
TRACR
TRAMS
Tree-Deciduous
Tree-Evergreen
TREEC
TREED
TREEG
TRFSIG
TRIPNT
TRVALT
TSCTRL
TSHEAD
TSPBX
TSPHS
TSPHT
TSVLDT
TUBE PILES
TURF REINF MAT
TURNOUT
tvmh
TWCLL
TWELEL
TWELSF
TWGSGN
TWLEL
TWLSF
u_pole
USHWY
UTPLX
VCDATA
VERCPT
WAHHOL
WAMETR
WAPLNT
WASOFT
WAVALT
WEIR
well
WELL1
WELL3
WINDCN
WITHYP
WITHYS
WMATA-TB-ATT
WRECK
WRKDNG
WRKEXP
wv
X
XFRPLX
XFRPMX
YIG

Layers for **Survey**

An example of the layer descriptions for **Survey** is shown in the table below. Survey uses **V** for Survey computed data, **VF** for Survey Field Collected, **VA** for aerial mapping data. VF-NODE is reserved for placement of point data collected in the field, where V-NODE is for Points computed by Survey.

V-AFLD	
V-AFLD-TEXT	
V-ANNO	survey annotation
V-ANNO-DIMS	survey dimensions
V-ANNO-IDEN	
V-ANNO-KEYN	
V-ANNO-LABL	survey annotation
V-ANNO-LEGN	survey legends
V-ANNO-MARK	
V-ANNO-MATC	
V-ANNO-NOTE	survey notes
V-ANNO-NPLT	survey no plot layer
V-ANNO-PATT	survey patterns
V-ANNO-RDME	
V-ANNO-REDL	survey redlines
V-ANNO-REFR	survey reference
V-ANNO-REVC	survey revisions
V-ANNO-REVS	survey revisions
V-ANNO-SCHD	survey schedules
V-ANNO-SEAL	survey seals
V-ANNO-SUBT	
V-ANNO-SYMB	survey symbols
V-ANNO-TABL	survey tables
V-ANNO-TEXT	
V-ANNO-TITL	survey titles
V-ANNO-TTLB	survey title block
v-anno-ttlb-attr	
v-anno-ttlb-imag	
v-anno-ttlb-line	
v-anno-ttlb-text	
V-ANNO-VPRT	survey vports

V-BLDG	Buildings and primary structures
V-BLDG-COLS	Building: columns
V-BLDG-DECK	Building: deck
V-BLDG-EQPM	Building:equipment
V-BLDG-FTNG	Building: footings
V-BLDG-OTLN	Building: footprints, shelters, ticket bo...
V-BLDG-OVHD	Building: Overhead
V-BLDG-PRCH	Buildings and primary structures: porch
V-BLDG-TEXT	Building: text
V-BLDG-TIES	Building: ties
V-BNDY	Political Boundaries
V-BNDY-BORO	Political Boundaries: borough
V-BNDY-CITY	Municipal boundaries
V-BNDY-CNTY	County boundaries
V-BNDY-CORP	Corporation boundaries
V-BNDY-NATL	National / Census tract
V-BNDY-POLI	Political Boundaries: all
V-BNDY-PROV	Political Boundaries: province
V-BNDY-STAT	Political Boundaries: state
V-BNDY-TEXT	Boundary: text
V-BNDY-TSHP	Township boundaries
V-BNDY-ZONE	Political Boundaries: zoning
V-BRDG	Bridges
V-BRDG-BENT	Bridge: top of bent
V-BRDG-CNTJ	Bridge: control joint
V-BRDG-CNTR	Bridge: centerline
V-BRDG-CTLJ	
V-BRDG-DECK	Bridge: deck
V-BRDG-EXPJ	Bridge: expansion joint
V-BRDG-HIDD	Bridge: Hidden
V-BRDG-RAIL	Bridge: railing

V-COMM-MHOL	Communications: Manholes
V-COMM-OVHD	Communication: lines, overhead
V-COMM-POLE	Communications: poles / boxes / towers
V-COMM-TELE	Communications: telephone
V-COMM-TELE-INST	instrumentation
V-COMM-TELE-MHOL	Communications: manholes
V-COMM-TELE-OVHD	Communication: lines, overhead
V-COMM-TELE-POLE	Communications: poles / boxes / towers
V-COMM-TELE-TEXT	Communications: text
V-COMM-TELE-UNDR	Communication: lines, underground
V-COMM-TEXT	Communication: text
V-COMM-UNDR	Communication: other, underground
V-CORR	
V-CTRL	control:
V-CTRL-BMRK	control: benchmarks
V-CTRL-FLYS	control: flys
V-CTRL-GRID	control: grid
V-CTRL-HCPT	control: horizontal
V-CTRL-HVPT	control: horiz/vert
V-CTRL-NODE-KNOW	Survey Control points: known points
V-CTRL-NODE-SHOT	Survey Control points: sideshots
V-CTRL-NODE-UNKN	Survey Control points: unknown points
V-CTRL-PNPT	panel points
V-CTRL-TEXT	text
V-CTRL-TRAV	traverse
V-CTRL-VCPT	control: vertical
V-DRIV	Driveways:
V-DRIV-ASPH	Driveways: asphalt
V-DRIV-BRIK	Driveways: brick
V-DRIV-CNTR	Driveways: center
V-DRIV-CONC	Driveways: concrete
V-DRIV-CURB	Driveways: curb
V-DRIV-FLNE	Driveways:firelane
V-DRIV-GRVL	Driveways: gravel
V-DRIV-MRKG	Driveways: pavement markings
V-BRDG-TEXT	Bridge: text
V-BRKL	Break / fault lines
V-BRKL-3DBL	Break / 3D fault lines
V-BRKL-BOTB	Break / fault lines: bottom of bank
V-BRKL-FLOW	Break / fault lines: flowlines
V-BRKL-TEXT	Break / fault lines: text
V-BRKL-TOPB	Break / fault lines: top of bank
V-BRLN	Building restriction line
V-BRLN-TEXT	Building restriction line text
V-BZNA	Buffer zone area
V-BZNA-TEXT	Buffer zone area text
V-CATV	Communications: CATV
V-CATV-INST	Communications: instrumentation
V-CATV-OVHD	Communications: overhead CATV
V-CATV-POLE	Communications: CATV Pole
V-CATV-TEXT	Communications: CATV text
V-CATV-UNDR	Communications: CATV underground
V-CEME	cemetary
V-CEME-TEXT	cemetary text
V-CHAN	channel
V-CHAN-BWTR	
V-CHAN-CNTR	channel center
V-CHAN-DACL	
V-CHAN-DOCK	channel dock
V-CHAN-NAID	
V-CHAN-TEXT	channel text
V-COMM	Communications:
V-COMM-FIBR	Communications: fiber
V-COMM-FIBR-TEXT	Communications: text
V-COMM-FIBR-UNDR	Communications: fiber underground
V-COMM-INST	Communications: instrumentation

V-ESMT-ROAD-PERM	Easements: roadway, permanent	DRIV-TEXT	Driveways: text
V-ESMT-ROAD-PERM-TEXT	Easements: roadway, permanent text	DRIV-UPVD	Driveways: unpaved surface
V-ESMT-ROAD-TEMP	Easements: roadway, temporary	DTCH	Ditches or washes:
V-ESMT-ROAD-TEMP-TEXT	Easements: roadway, temporary text	DTCH-BOTD	Ditches or washes: bottom
V-ESMT-ROAD-TEXT	Easements: roadway text	DTCH-CNTR	Ditches or washes: center
V-ESMT-RWAY	Easements: right-of-way (public access)	DTCH-EWAT	Ditches or washes: edge of water
V-ESMT-RWAY-TEXT	Easements: right-of-way (public access...	DTCH-PVMT	Ditches or washes: paved
V-ESMT-SGHT	Easements: sight distance	DTCH-TEXT	Ditches or washes: text
V-ESMT-SGHT-TEXT	Easements: sight distance text	DTCH-TOPD	Ditches or washes: top
V-ESMT-SSWR	Easements: sanitary sewer	ESMT	Easements:
V-ESMT-SSWR-TEXT	Easements: sanitary sewer text	ESMT-ACCS	Easements: access (pedestrian only; p...
V-ESMT-STRM	Easements: storm sewer	ESMT-ACCS-TEXT	Easements: access (pedestrian only; p...
V-ESMT-STRM-TEXT	Easements: storm sewer text	ESMT-AIRL	
V-ESMT-SWLK	Easements: sidewalk	ESMT-CATV	Easements: CATV
V-ESMT-SWLK-TEXT	Easements: sidewalk text	ESMT-CATV-TEXT	Easements: CATV text
V-ESMT-SWMT	Easements: storm water management	ESMT-CNTR	Easements: center
V-ESMT-SWMT-TEXT	Easements: storm water management t...	ESMT-CNTR-TEXT	Easements: center text
V-ESMT-TEMP	Easements: temp	ESMT-CONS	Easements: conservation
V-ESMT-TEMP-TEXT	Easements: temp text	ESMT-CONS-TEMP	
V-ESMT-TEXT	Easements:text	ESMT-CONS-TEXT	Easements: conservation text
V-ESMT-TRAL	Easements: trail	ESMT-CSTG	Easements: construction / grading
V-ESMT-TRAL-TEXT	Easements: trail text	ESMT-CSTG-TEXT	Easements: construction / grading text
V-ESMT-UGRD		ESMT-ELEC	Easements: elec
V-ESMT-UTIL	Easements: utility	ESMT-ELEC-TEXT	Easements: elec text
V-ESMT-UTIL-TEXT	Easements:utility text	ESMT-FDPL	Easements: flood plain
V-ESMT-WATR	Easements: water	ESMT-FDPL-TEXT	Easements: flood plain text
V-ESMT-WATR-TEXT	Easements: water text	ESMT-INEG	Easements: ingress / egress (vehicles; ...
V-FENC	Fence:	ESMT-INEG-TEXT	Easements: ingress / egress text
V-FENC-BARB	Fence: barbwire	ESMT-LSCP	Easements: landscape
V-FENC-CLNK	Fence: chain	ESMT-LSCP-TEXT	Easements: landscape text
V-FENC-GRAL	Fence: gral	ESMT-NGAS	Easements: nat gas
V-FENC-JBAR	Fence: jbar	ESMT-NGAS-TEXT	Easements: nat gas text
V-FENC-POST	Fence: post	ESMT-PHON	Easements: telephone line
V-FENC-SRAL	Fence: splitrail	ESMT-PHON-TEXT	Easements: telephone line text
V-FENC-TEXT	Fence: text	ESMT-ROAD	Easements:road
V-FENC-WOOD	Fence: wood		

V-FENC-WOVN	Fence: woven
V-FLHA	Flood hazard area
V-FLHA-002Y	Flood hazard area: 2 yr
V-FLHA-010Y	Flood hazard area: 10 yr
V-FLHA-025Y	Flood hazard area: 25 yr
V-FLHA-050Y	Flood hazard area: 50 yr
V-FLHA-100Y	Flood hazard area: 100 yr
V-FLHA-200Y	Flood hazard area: 200 yr
V-FLHA-TEXT	Flood hazard area: text
V-FUEL	Fuel gas:
V-FUEL-INST	Fuel gas: instrumentation
V-FUEL-MHOL	Fuel gas: manhole
V-FUEL-PIPE	Fuel gas: pipes
V-FUEL-TANK	Fuel gas: tanks
V-FUEL-TEXT	Fuel gas: text
V-FUEL-UNDR	Fuel gas: underground
V-NGAS	Nat gas:
V-NGAS-ABOV	Nat gas: above
V-NGAS-INST	Nat gas: instrumentation
V-NGAS-MHOL	Nat gas: manhole
V-NGAS-TANK	Nat gas: tanks
V-NGAS-TEXT	Nat gas: text
V-NGAS-UNDR	Nat gas: underground
V-NODE	points
V-NODE-ABUT	Node: abutment
V-NODE-ACCS	Node: access
V-NODE-ACTL	Node: aerial horizontal and vertical co
V-NODE-BLDG	Node: building points
V-NODE-BLDG-COLS	Node: building column points
V-NODE-BLDG-DECK	Node: building deck points
V-NODE-BLDG-OTLN	Node: building outline points
V-NODE-BLDG-OVHD	Node: building overhead points
V-NODE-BLIN	Node: baseline
V-NODE-BNDY	Node: boundary
V-NODE-BORE	Node: bore
V-NODE-BRDG	Node: bridge
V-NODE-BRKL	Node: breakline
V-NODE-BRSH	Node: brush points
V-NODE-CATV	Node: underground cable points
V-NODE-CHAN	Node: channel
V-NODE-CNTR	Node: centerline
V-NODE-COMM	Node: communication
V-NODE-COMM-TELE	Node: communication telephone
V-NODE-CONC	Node: concrete
V-NODE-CONS	Node: conservation
V-NODE-CSTG	Node: construction / grading
V-NODE-CTRL	Node: control
V-NODE-CTRL-BMRK	Node: control benchmark
V-NODE-CTRL-CHEK	Node: control check
V-NODE-CTRL-FLYS	Node: controlflys
V-NODE-CTRL-GPSS	Node: control gpss
V-NODE-CTRL-PNPT	Node: control panelpoint
V-NODE-CURB	Node: curb
V-NODE-DECK	Node: deck
V-NODE-DESC	Node: desc
V-NODE-DFLD	Node:
V-NODE-DRIV	Node: drive
V-NODE-DTCH	Node: ditch
V-NODE-ELEV	Node: elev
V-NODE-ESMT	Node: easement
V-NODE-EWAT	Node: edge water
V-NODE-EXPJ	Node: expansion joint
V-NODE-FENC	Node: fence
V-NODE-FENC-GRAL	Node: guardrail
V-NODE-FIBR	Node: fiber
V-NODE-FUEL	Node: fuel
V-NODE-GRND	Node: ground
V-NODE-INEG	Node: ingress/egress
V-NODE-MHOL	Node: manhole
V-NODE-MISC	Node: misc
V-NODE-MRKG	Node: marking
V-NODE-NGAS	Node: nat gas

V-NODE-PIPE	Node: pipe
V-NODE-PNTS	Node: points
V-NODE-POLE	Node: pole
V-NODE-POWR	Node: power
V-NODE-PROP	Node: property
V-NODE-PROP-DEED	Node: property deed
V-NODE-PVMT	Node: pavement
V-NODE-RAIL	Node: rail
V-NODE-RIVR	Node: river
V-NODE-ROAD	Node: road
V-NODE-ROAD-CNTR	Node: road center
V-NODE-ROAD-CTRL	Node: road control
V-NODE-ROAD-SHLD	Node: road shoulder
V-NODE-RRAP	Node: riprap
V-NODE-RWAY	Node: ROW
V-NODE-SIGN	Node: signsl
V-NODE-SSWR	Node: san sewer
V-NODE-STEM	Node: stem
V-NODE-STRM	Node: stream
V-NODE-SWLK	Node: sidewalk
V-NODE-TANK	Node: tank
V-NODE-TEXT	Survey Node: text
V-NODE-TRAL	Node: trail
V-NODE-TREE	Node: tree
V-NODE-UTIL	Node: utility
V-NODE-VEGE	Node: vegetation
V-NODE-WALL	Node: wall
V-NODE-WATR	Node: water
V-NODE-WATR-CHIL	Node: chill water
V-NODE-WETL	Node: wetland
V-PKNG	
V-PKNG-ASPH	
V-PKNG-CNTR	
V-PKNG-CONC	
V-PKNG-CURB	
V-PKNG-DRAN	
V-PKNG-FLNE	
V-PKNG-GRVL	
V-PKNG-MRKG	
V-PKNG-STRP	
V-PKNG-UPVD	
V-POWR	power
V-POWR-CNTR	
V-POWR-FENC	
V-POWR-INST	power: instrumentation
V-POWR-MHOL	power: manhole
V-POWR-OVHD	power: overhead
V-POWR-POLE	power: pole
V-POWR-STRC	Power: structures
V-POWR-TEXT	Power: text
V-POWR-UNDR	Power: underground
V-PRKG	Parking:
V-PRKG-ASPH	Parking: asphalt
V-PRKG-CNTR	Parking: center
V-PRKG-CONC	Parking: concrete
V-PRKG-CURB	Parking: curb
V-PRKG-DRAN	Parking: drain
V-PRKG-FLNE	Parking: flowline
V-PRKG-GRVL	Parking: gravel
V-PRKG-MRKG	Parking: marking
V-PRKG-STRP	Parking: stripe
V-PRKG-TEXT	Parking: text
V-PROP	Property boundary: parcel lines
V-PROP-ADJT	Property boundary: adjacent
V-PROP-ADJT-TEXT	Property boundary: adjacent text
V-PROP-CORS	Property boundary: corners
V-PROP-DEED	Property boundary: deed
V-PROP-DEED-TEXT	Property boundary:deed text
V-PROP-HTCH	
V-PROP-LINE	Property boundary: lines
V-PROP-LINE-EXTR	Property boundary: lines ext.
V-PROP-LINE-INTR	Property boundary: lines int.

V-PROP-LROW	
V-PROP-MRKR	Property boundary: marker
V-PROP-MRKR-TEXT	Property boundary: marker text
V-PROP-QTRS	Property boundary: quarter section
V-PROP-RSRV	Property boundary: reserve
V-PROP-SBCK	Property boundary: setback
V-PROP-SECT	Property quarter section
V-PROP-SUBD	Property boundary: subdivide
V-PROP-SXTS	Property boundary: sixteenth section
V-PROP-TABL	
V-PROP-TEXT	Property boundary: text
V-PVMT	Pavement:
V-PVMT-ASPH	Pavement: asphalt surface
V-PVMT-CONC	Pavement: concrete surface
V-PVMT-GRVL	Pavement: gravel surface
V-PVMT-TEXT	Pavement: text
V-RAIL	Rail:
V-RAIL-ASSM	
V-RAIL-CNTR	Railroad: track centerlines
V-RAIL-EQPM	Railroad: equipment (gates, signals,
V-RAIL-PROF	
V-RAIL-PROF-GRID	
V-RAIL-PROF-GRID-GEOM	
V-RAIL-PROF-GRID-MAJR	
V-RAIL-PROF-GRID-MINR	
V-RAIL-PROF-TEXT	
V-RAIL-PROF-TITL	
V-RAIL-PROF-TTLB	
V-RAIL-STAN	
V-RAIL-STAN-MAJR	
V-RAIL-TEXT	Railroad: text
V-RAIL-TRAK	Railroad: track
V-RIVR	River:
V-RIVR-BOTM	River: bottom
V-RIVR-CNTR	River:center
V-RIVR-EDGE	
V-RIVR-EWAT	River: edge water
V-RIVR-TEXT	River: text
V-RIVR-TOPB	River: top
V-ROAD	Road:
V-ROAD-ASPH	Roadways: asphalt surface
V-ROAD-ASSM	Roadways: assemblies
V-ROAD-CNTR	Roadways: center
V-ROAD-CONC	Roadways: concrete surface
V-ROAD-CTRL	Roadways: control
V-ROAD-CTRL-TEXT	Roadways: control text
V-ROAD-CURB	Roadways: curb
V-ROAD-CURB-ASPH	Roadways: curb asphalt
V-ROAD-FLNE	Roadways: fire lane
V-ROAD-GRVL	Roadways: gravel surface
V-ROAD-HAUL	
V-ROAD-MRKG	Roadways: pavement markings
V-ROAD-MRKG-DASH	Roadways: pavement markings dash
V-ROAD-PROF	
V-ROAD-PROF-TEXT	
V-ROAD-SCTN	
V-ROAD-SCTN-TEXT	
V-ROAD-SHLD	Roadways: shoulder
V-ROAD-SMPL	
V-ROAD-SMPL-TEXT	
V-ROAD-STAN	
V-ROAD-STAN-MAJR	
V-ROAD-TEXT	Roadways: text
V-ROAD-UPVD	Roadways: unpaved surface / unimpro...
V-ROAD-VIEW-FRAM	
V-RRAP	Riprap:
V-RRAP-TEXT	Riprap: text
V-RWAY	Right-of-way:
V-RWAY-CNTR	Right-of-way: centerline
V-RWAY-CTLA	Right-of-way: controlled access
V-RWAY-LINE	Right-of-way: line
V-RWAY-LMTA	Right-of-way: limited access

V-STEM-TEXT	Steam: text
V-STEM-UNDR	Steam: underground
V-STRM	Storm sewer:
V-STRM-CNTR	Storm sewer: center
V-STRM-DTCH	
V-STRM-MHOL	Storm sewer: manhole
V-STRM-PIPE	Storm sewer: piping
V-STRM-POND	Storm sewer: pond
V-STRM-PROF	
V-STRM-PROF-TEXT	
V-STRM-STRC	Storm sewer: structure
V-STRM-TEXT	Storm sewer: text
V-STRM-UNDR	
V-SURV	Survey:
V-SURV-DATA	Survey:data
V-SURV-LINE	Survey: line
V-SURV-TEXT	Survey: text
V-SWLK	Sidewalk:
V-SWLK-ACSS	Sidewalk: access
V-SWLK-ASPH	Sidewalk: asphalt
V-SWLK-CONC	Sidewalk: concrete
V-SWLK-RWAY	Sidewalk: ROW
V-SWLK-TEXT	Sidewalk: text
V-TELE-CNTR	
V-TINN	
V-TINN-BNDY	
V-TINN-VIEW	
V-TOPO	Topography:
V-TOPO-BKLN	
V-TOPO-BNDY	
V-TOPO-BORE	Topography: test borings
V-TOPO-BORE-TEXT	Topography: test borings
V-TOPO-EWAT	
V-TOPO-GRID	
V-TOPO-GRID-TEXT	
V-TOPO-LABL	
V-RWAY-MRKR	Right-of-way: marker
V-RWAY-STAN	Right-of-way: stationing
V-RWAY-TEXT	Right-of-way: text
V-SITE	Site features:
V-SITE-CONC	Site features: concrete
V-SITE-CONC-TEXT	Site features: concrete text
V-SITE-EWAT	Site features: edge of water
V-SITE-EWAT-TEXT	Site features: edge of water text
V-SITE-FENC	
V-SITE-FNCE	Survey Site: fences
V-SITE-MISC	Site features: misc
V-SITE-MISC-TEXT	Site features: misc text
V-SITE-ROCK	Site features: rocks and rock outcroppi...
V-SITE-ROCK-TEXT	Site features: rocks and rock outcroppi...
V-SITE-RTWL	
V-SITE-SIGN	Site features: signs
V-SITE-SIGN-TEXT	Site features: signs text
V-SITE-TEXT	Site features: text
V-SITE-VEGE	Site features: trees, shrubs and other
V-SITE-VEGE-BRSH	Site features: shrubs
V-SITE-VEGE-TEXT	Site features: trees, shrubs and other t...
V-SITE-VEGE-TREE	Site features: trees
V-SSWR	Sanitary sewer:
V-SSWR-CNTR	Sanitary sewer: center
V-SSWR-INST	Sanitary sewer: instrumentation
V-SSWR-MHOL	Sanitary sewer: manhole
V-SSWR-PIPE	Sanitary sewer: pipe
V-SSWR-PIPE-PATT	
V-SSWR-STRC	Sanitary sewer: structure
V-SSWR-TEXT	Sanitary sewer: text
V-SSWR-UNDR	
V-STEM	Steam:
V-STEM-INST	Steam: instrumentation
V-STEM-MHOL	Steam: manhole
V-STEM-PIPE	Steam: pipe
V-STEM-STRC	Steam: structure

V-TOPO-MAJR	Topography: major contours
V-TOPO-MAJR-TEXT	Topography: major contours text
V-TOPO-MINR	Topography: minor contours
V-TOPO-MINR-TEXT	Topography: minor contours text
V-TOPO-SOUN	Topography: soundings
V-TOPO-SOUN-TEXT	Topography: soundings text
V-TOPO-SPOT	Topography: spotshots
V-TOPO-TEXT	
V-TOPO-TINN	Topography: TINN
V-TOPO-TPIT	Topography: testpit
V-TOPO-TPIT-TEXT	Topography: testpit text
V-TOPO-USER	
V-TRAL	Trail:
V-TRAL-PAVD	Trail: paved
V-TRAL-TEXT	Trail: text
V-TRAL-UPVD	Trail: unpaved
V-UNID	Unidentified site objects:
V-UNID-CABL	Unidentified site objects: cable
V-UNID-INST	Unidentified site objects: instrumentati...
V-UNID-MHOL	Unidentified site objects: manhole
V-UNID-OVHD	Unidentified site objects: overhead
V-UNID-PIPE	Unidentified site objects: pipe
V-UNID-TANK	Unidentified site objects: tank
V-UNID-TEXT	Unidentified site objects: text
V-UNID-UNDR	Unidentified site objects: underground
V-UNID-UTIL	Unidentified site objects: utility
V-UNID-UTIL-OVHD	
V-UNID-UTIL-UNDR	
V-WALL	Wall:
V-WALL-TEXT	Wall: text
V-WATR	Water supply systems:
V-WATR-ABOV	Water supply systems: above
V-WATR-CNTR	Water supply systems:center
V-WATR-CPIP	Water supply systems: concrete pipe
V-WATR-INST	Water supply systems: instrumentation
V-WATR-MHOL	Water supply systems: manhole
V-WATR-PIPE	
V-WATR-STRC	Water supply systems: stru
V-WATR-TEXT	Water supply systems: text
V-WATR-UNDR	Water supply systems: unde
V-WETL	Wetland:
V-WETL-TEXT	Wetland text
V-WSHD-TEXT	
VF-BLDG	
VF-BLDG-CLMN	
VF-BLDG-COLU	
VF-BLDG-DECK	
VF-BLDG-FLOR	
VF-BLDG-FNDN	
VF-BLDG-MISC	
VF-BLDG-OVHD	
VF-BLDG-PILE	
VF-BLDG-PILE-TEXT	
VF-BLDG-PILL	
VF-BLDG-PRCH	
VF-BLDG-SHED	
VF-BLDG-STEP	
VF-BLDG-STUP	
VF-BLDG-TEXT	
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VF-BRDG	
VF-BRDG-ABUT	
VF-BRDG-COLU	
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VF-BRDG-DRAIN	
VF-BRDG-FOOT	
VF-BRDG-FOUND	
VF-BRDG-HRAIL	
VF-BRDG-JONT	
VF-BRDG-PIER	
VF-BRDG-TEXT	
VF-BRDG-WALK	

VF-BRDG-WALL
VF-BRKL
VF-CLOS
VF-CLOS-TEXT
VF-COMM
VF-COMM-CATV
VF-COMM-CATV-TEXT
VF-COMM-FOPT
VF-COMM-FOPT-TEXT
VF-COMM-TEXT
VF-CTRL-BEMA
VF-CTRL-BKST-CHEK
VF-CTRL-C002
VF-CTRL-C002-TEXT
VF-CTRL-PANEL
VF-CTRL-PRIM
VF-CTRL-PRIM-TEXT
VF-CTRL-SECD
VF-CTRL-VCPT
VF-CTRL-VCPT-TEXT
VF-DRIV
VF-DRIV-TEXT
VF-DTCH
VF-DTCH-CNTR
VF-DTCH-T002
VF-DTCH-TEXT
VF-ESM-LSCP
VF-ESMT-AERL
VF-ESMT-AERL-TEXT
VF-ESMT-CATV
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VF-ESMT-CONS
VF-ESMT-CONS-TEXT
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VF-FDPL-Y100
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VF-NODE-BNDY
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VF-NODE-BRDG-COLU
VF-NODE-BRDG-DECK
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VF-NODE-BRDG-FOOT
VF-NODE-BRDG-FOUND
VF-NODE-BRDG-HRAIL
VF-NODE-BRDG-JONT
VF-NODE-BRDG-PIER
VF-NODE-BRDG-WALK
VF-NODE-BRDG-WALL
VF-NODE-CTRL-BEMA
VF-NODE-CTRL-BKST-CHEK
VF-NODE-CTRL-PANEL
VF-NODE-CTRL-PRIM
VF-NODE-CTRL-SECD
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VF-NODE-PLAT
VF-NODE-PRKG-EQPM
VF-NODE-PRKG-MRKG
VF-NODE-PVMT
VF-NODE-RAIL
VF-NODE-RAIL-BALLAST
VF-NODE-RAIL-BOLT
VF-NODE-RAIL-CLIP
VF-NODE-RAIL-COMM
VF-NODE-RAIL-FAST-PLATE
VF-NODE-RAIL-FASTENER
VF-NODE-RAIL-GROUT
VF-NODE-RAIL-JOINT
VF-NODE-RAIL-MARKER
VF-NODE-RAIL-MISC
VF-NODE-RAIL-PLAT
VF-NODE-RAIL-POWR
VF-NODE-RAIL-RAIL
VF-NODE-RAIL-RAIL-CEN...
VF-NODE-RAIL-RAIL-RSTN
VF-NODE-RAIL-SIGNAL
VF-NODE-RAIL-SWCH
VF-NODE-RAIL-WTIE
VF-NODE-ROAD
VF-NODE-ROAD-CNTR
VF-NODE-ROAD-CURB
VF-NODE-ROAD-DRIV
VF-NODE-ROAD-GRDS
VF-NODE-ROAD-MRKG
VF-NODE-SITE-BIKE
VF-NODE-SITE-CONC
VF-NODE-SITE-EWAT
VF-NODE-SITE-FENC
VF-NODE-SITE-FENC-GATE
VF-NODE-SITE-FLUM

VF-NODE-SITE-HVAC
VF-NODE-SITE-MISC
VF-NODE-SITE-MONIT
VF-NODE-SITE-PATH
VF-NODE-SITE-RRAP
VF-NODE-SITE-RTWL
VF-NODE-SITE-SIGN
VF-NODE-SITE-STPS
VF-NODE-SITE-TANK
VF-NODE-SITE-VEGE-BRSH
VF-NODE-SITE-VEGE-HEDG
VF-NODE-SITE-VEGE-PLNT-BEDS
VF-NODE-SITE-VEGE-TREE
VF-NODE-SITE-VEGE-TROW
VF-NODE-SITE-WLND
VF-NODE-TOPO-BRKL
VF-NODE-TOPO-CONC
VF-NODE-TOPO-DTCH
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VF-NODE-UTIL-NGAS-INST
VF-NODE-UTIL-NGAS-MHOL
VF-NODE-UTIL-NGAS-VALV
VF-NODE-UTIL-NGAS-VENT
VF-NODE-UTIL-POLE
VF-NODE-UTIL-POWR
VF-NODE-UTIL-POWR-METR
VF-NODE-UTIL-POWR-MHOL
VF-NODE-UTIL-POWR-OVHD
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VF-NODE-UTIL-POWR-TRAFFIC
VF-NODE-UTIL-POWR-UNDR
VF-NODE-UTIL-SSWR-CLEANOUT
VF-NODE-UTIL-SSWR-MHOL
VF-NODE-UTIL-STRM
VF-NODE-UTIL-STRM-INLET
VF-NODE-UTIL-STRM-MHOL
VF-NODE-UTIL-STRM-PIPE
VF-NODE-UTIL-STRM-STRC
VF-NODE-UTIL-TELE
VF-NODE-UTIL-WATR-HYDT
VF-NODE-UTIL-WATR-METR
VF-NODE-UTIL-WATR-MHOL
VF-NODE-UTIL-WATR-SPGT
VF-NODE-UTIL-WATR-SPKL
VF-NODE-UTIL-WATR-TOWR
VF-NODE-UTIL-WATR-VALV
VF-NODE-UTIL-WELL
VF-NODE-WTLD
VF-PLAT-EDGE
VF-POWR
VF-POWR-POLE
VF-POWR-POLE-TEXT
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VF-PRKG-MISC-TEXT
VF-PRKG-MRKG
VF-PRKG-TEXT
VF-PROP
VF-PROP-ADJT
VF-PROP-ADJT-TEXT
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VF-PROP-SWBCK-TEXT
VF-PROP-TEXT
VF-PVMT-EDGE
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VF-RAIL-BOLT
VF-RAIL-CLIP
VF-RAIL-CNTR
VF-RAIL-COMM
VF-RAIL-EQPM-BOXX
VF-RAIL-EQPM-FSTP
VF-RAIL-EQPM-SGNL
VF-RAIL-EQPN-FSTN
VF-RAIL-FAST-PLATE
VF-RAIL-FASTENER
VF-RAIL-GROUT
VF-RAIL-HLIN
VF-RAIL-IGPO
VF-RAIL-IJLN
VF-RAIL-ILIN
VF-RAIL-JOINT
VF-RAIL-LLIN
VF-RAIL-LOOP
VF-RAIL-MARKER
VF-RAIL-MISC
VF-RAIL-PLAT
VF-RAIL-POWR
VF-RAIL-R003
VF-RAIL-RAIL
VF-RAIL-RAIL-CENTER
VF-RAIL-RAIL-RSTN
VF-RAIL-REST
VF-RAIL-RODD
VF-RAIL-SIGNAL
VF-RAIL-SWCH
VF-RAIL-TEXT
VF-RAIL-TIEE
VF-RAIL-WEEZ
VF-RAIL-WTIE
VF-RAMP
VF-RAMP-TEXT
VF-ROAD
VF-ROAD-APRO
VF-ROAD-CNTR
VF-ROAD-CURB
VF-ROAD-CURB-FLOW
VF-ROAD-CURB-GPAN
VF-ROAD-CURB-TEXT
VF-ROAD-DRIV
VF-ROAD-GARD
VF-ROAD-GRDS
VF-ROAD-JONT
VF-ROAD-MISC
VF-ROAD-MISC-TEXT
VF-ROAD-MRKG
VF-ROAD-SHLD
VF-ROAD-TEXT
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VF-RWAY-LINE-TEXT
VF-RWAY-PROP
VF-RWAY-PROP-SYMB
VF-RWAY-PROP-TEXT
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VF-SITE-CONC
VF-SITE-EWAT
VF-SITE-F001
VF-SITE-F001-TEXT
VF-SITE-F002
VF-SITE-F002-TEXT
VF-SITE-FENC
VF-SITE-FENC-GATE
VF-SITE-FENC-POST
VF-SITE-FENC-TEXT
VF-SITE-FLUM
VF-SITE-HVAC
VF-SITE-MISC

VF-SITE-MONIT
VF-SITE-PATH
VF-SITE-RRAP
VF-SITE-RTWL
VF-SITE-SIGN
VF-SITE-SIGN-TEXT
VF-SITE-SPKL
VF-SITE-SPKL-TEXT
VF-SITE-STPS
VF-SITE-TANK
VF-SITE-VEGE-BRSH
VF-SITE-VEGE-HEDG
VF-SITE-VEGE-PLNT-BEDS
VF-SITE-VEGE-TREE
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VF-SITE-WLND
VF-SSWR
VF-SSWR-TEXT
VF-STRM
VF-STRM-TEXT
VF-TOPO-BORE
VF-TOPO-BORE-TEXT
VF-TOPO-BRKL
VF-TOPO-CONC
VF-TOPO-DTCH
VF-TOPO-MAJR
VF-TOPO-MAJR-EXST
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VF-TOPO-MINR-EXST
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VF-UTIL-MISC-TEXT
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VF-UTIL-NGAS-LINE
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VF-UTIL-NGAS-VALV
VF-UTIL-NGAS-VENT
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VF-UTIL-POLE
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VF-UTIL-POWR-METR
VF-UTIL-POWR-MHOL
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VF-UTIL-STRM-STRC
VF-UTIL-TELE
VF-UTIL-TELE-POLE
VF-UTIL-TEXT
VF-UTIL-UNID-MHOL
VF-UTIL-WATR-FIRE-HYDT
VF-UTIL-WATR-METR
VF-UTIL-WATR-MHOL
VF-UTIL-WATR-SPGT
VF-UTIL-WATR-SPKL-HEAD
VF-UTIL-WATR-TOWR
VF-UTIL-WATR-VALV
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VF-UTIL-WELL
VF-VEGE-BEDS
VF-VEGE-BEDS-TEXT
VF-VEGE-BRSH
VF-VEGE-BRSH-TEXT
VF-VEGE-HDGE
VF-VEGE-HDGE-TEXT
VF-VEGE-MISC
VF-VEGE-MISC-TEXT
VF-VEGE-SHRB
VF-VEGE-SHRB-TEXT
VF-VEGE-TREE
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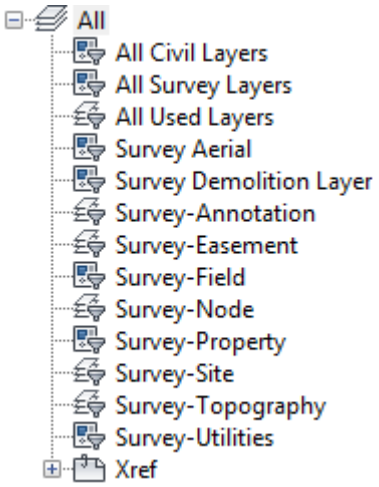
VF-VEGE-TURF
VF-VEGE-TURF-TEXT
VF-VEGE-WETT
VF-VEGE-WETT-TEXT
VF-WALK
VF-WALK-RAIL
VF-WALK-TEXT
VF-WATR
VF-WATR-TEXT
VF-WTLD
VF-WTLD-ARRO
VF-WTLD-NOTE
VF-WTLD-PATT
VF-WTLD-TEXT
VF-WTLD-USOA
VI-TOPO-MAJR
VI-TOPO-MINR

Layer Groupings (Filters) for **Survey**



Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer group filters for many common layer breakouts.

The following groups are embedded within the **Survey** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, Civil shows all Civil layers within the Survey file and Survey Annotation shows all annotation layers within the survey file.

Tool Palettes containing symbols for **Survey (Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Survey Layer Colors

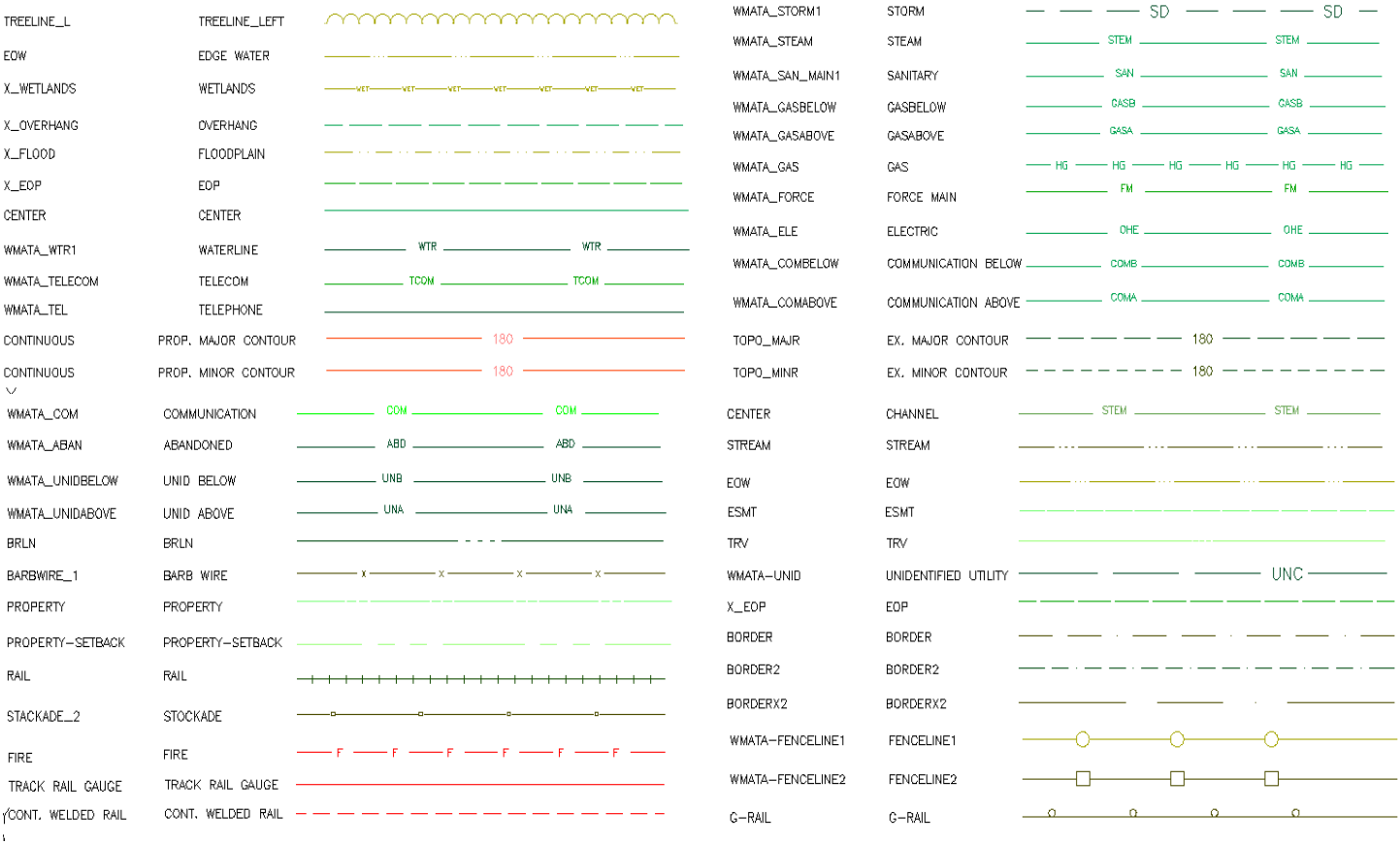
V, VA & VF colors are considered “Existing” and are colored in shades of Green. Color 116: V utilities, 112: VF utilities, 106: V-Topo, 96: V-Road, 92: VF-Road, 91: VF-Esmt and CTRL, 87: VI-Topo, 86: V-Rail, 83: V-General site layers, 82: VF-Rail, 81: Property and V-Esmt, 76: V-Node, 72: VF-Node, 71: V-Fenc, 66: V-Topo, 62: VF-General Site Layers, 56: V-Brdg, 52: VF-Site.

Survey Layer Linetypes – The following linetypes are being used; Demolition generally uses dashed.

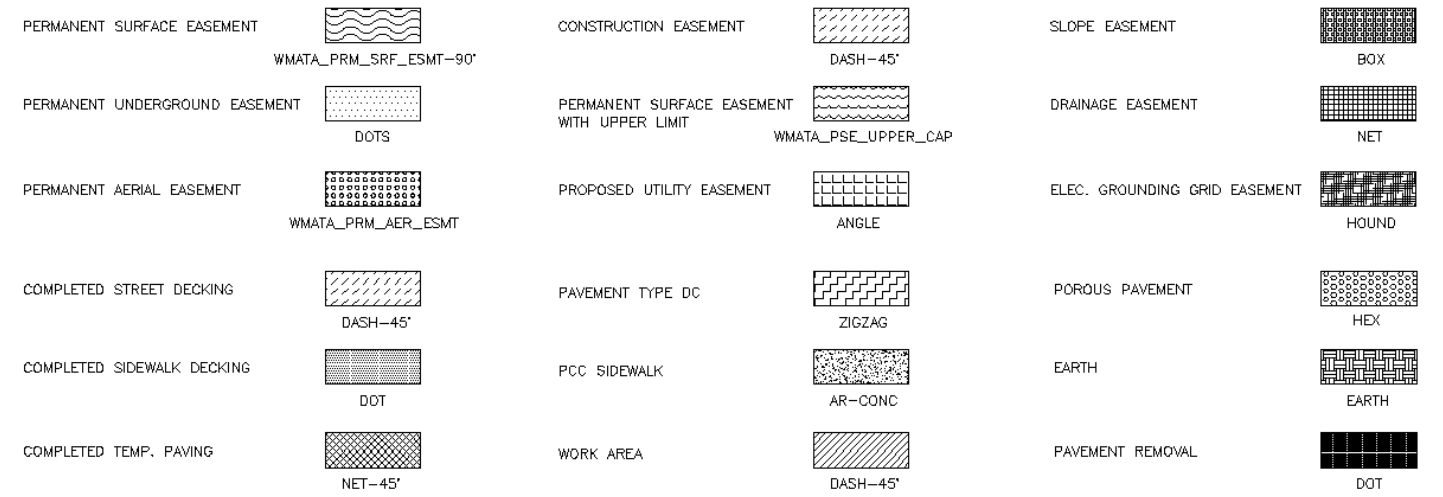
BARBWIRE_1	Barbed Wire Fence with spaces
BORDER	Border
BORDER2	Border (.5x)
BORDERX2	Border (2x)
BRLN	Bldg Restriction
CENTER	Center
CENTER2	Center (.5x)
CHAINLINK_1	Chain Link Fence with spaces
CHAINLINK_2	Chain Link Fence without spaces
COMM	Communications ----COMM----COMM----COMM----COM
CONTINUOUS	Continuous
DASHDOT	Dash dot
DASHED	Dashed
DASHED2	Dashed (.5x)
DASHEDX2	Dashed (2x)
DIVIDE2	Divide (.5x)
EOW	
ESMT	
FENCE	Generic Fence ---X-----X-----X-----X-----X---
FENCELINE1	Fenceline circle ----0-----0-----0-----0-----0---
FIBER	Fiber Optic ----FO--------FO--------FO--------FO--
FIRE	FIRE LINE ----F----F----F----F----F----F--
G-RAIL	Guardrail ___0_____0_____0_____0_____0_____0
GAS-AG	Gas Aboveground - -AGG- - -AGG- - -AGG- - -AGG-
HG	NATURAL GAS ----HG----HG----HG----HG----HG----H
HIDDEN	Hidden
HIDDENX2	Hidden (2x)
PHANTOM	Phantom
PHANTOM2	Phantom (.5x)
PROPERTY	
RAIL	Railroad ----I----I----I----I----I----
STACKADE_2	Stockade Fence without spaces
STOCKADE_1	Stockade Fence with spaces
STREAM	Stream, Creek, Wetlands

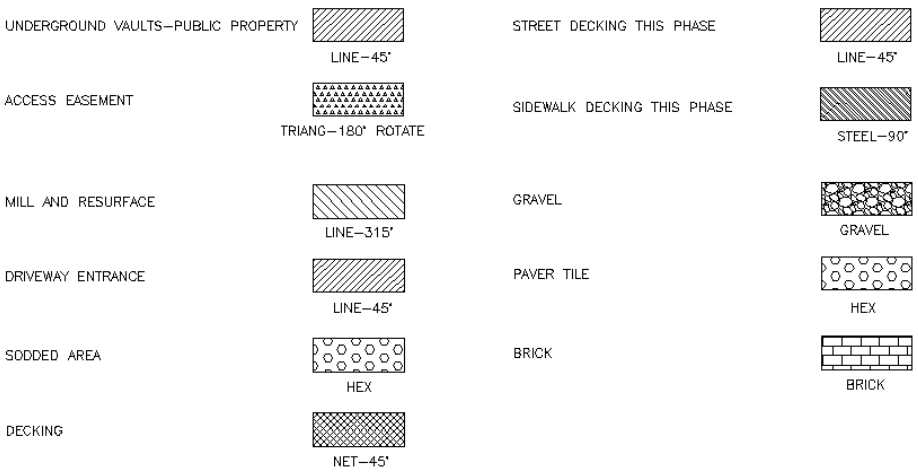
TOPO-MAJR	Major Topo Contours
TOPO-MINR	Minor Topo Contours
TREELINE_L	Tree Line left side
TRV	vika traverse
UNID-CABL	Unidentified Cable - -UNC- - -UNC- - -UNC- - -U
UNID-PIPE	Unidentified Piping - -UNP- - -UNP- - -UNP- - -
UTIL	Utility Line ----U-------U-------U-------U-----
WMATA-...ORDER-DIHI...DEN:	Hidden (.5x)
WMATA_ABAN	Abandoned lines ---- ABD ---- ABD ---- ABD ----
WMATA_CATV	CATV lines ---- CATV ---- CATV ---- CATV ----
WMATA_COM	communications lines ---- COM ---- COM ---- COM ----
WMATA_COMABOVE	communications lines ---- COMA ---- COMA ---- COMA
WMATA_COMBELOW	communications lines ---- COMB ---- COMB ---- COMB
WMATA_ELE	electrical lines ---- OHE ---- OHE ---- OHE ----
WMATA_FENCE1	Fenceline ----X-----X----X-----X----X-----X--
WMATA_FENCE2	Fenceline ----O-----O----O-----O----O-----O--
WMATA_FORCE	forced mains ---- FM ---- FM ---- FM ----
WMATA_GAS	gas ---- GAS ---- GAS ---- GAS ----
WMATA_GASABOVE	gas ---- GASA ---- GASA ---- GASA ----
WMATA_GASBELOW	gas ---- GASB ---- GASB ---- GASB ----
WMATA_SAN_MAIN1	sanitary main ---- SAN ---- SAN ---- SAN ----
WMATA_STEAM	Steam lines ---- STEM ---- STEM ---- STEM ----
WMATA_STORM1	storm mains ---- STM ---- STM ---- STM ----
WMATA_TEL	Telephone lines ---- TEL ---- TEL ---- TEL ----
WMATA_TELECOM	Telecom lines ---- TCOM ---- TCOM ---- TCOM ----
WMATA_UNID	UNID ---- UNID ---- UNID ---- UNID ----
WMATA_UNIDABOVE	UNA ---- UNA ---- UNA ---- UNA ----
WMATA_UNIDBELOW	UNB ---- UNB ---- UNB ---- UNB ----
WMATA_WTR1	Water lines ---- WTR ---- WTR ---- WTR ----
X_CENTER	existing centerline
X_EOP	edge of pavement
X_FLOOD	Flood Plain (.5x)
X_OVERHANG	
X_WETLANDS	Wetlands ---- WET ---- WET ---- WET ----

Custom WMATA Survey Linetypes



WMATA Hatch Patterns

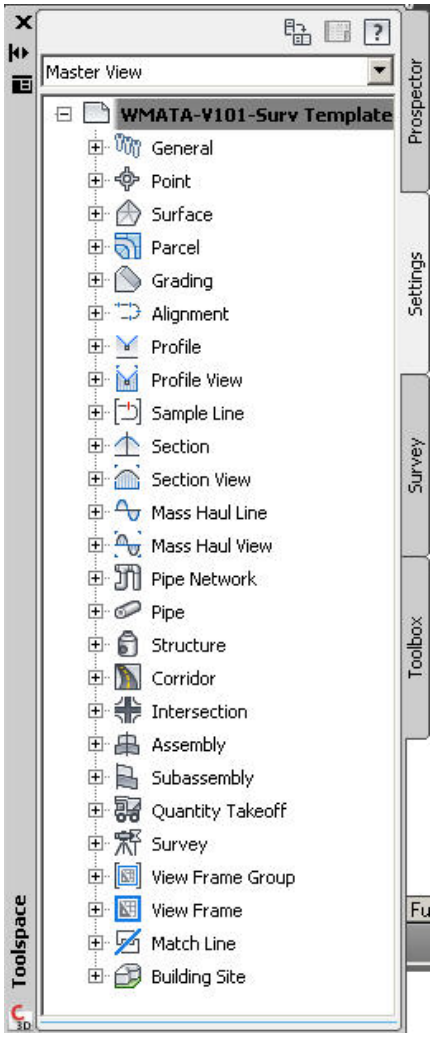




Survey Layer Lineweights – The following weights are is use: 0.35 mm for New (Civil drawings are considered New), 0.15 mm for Existing (Survey layers are considered Existing) and Demolition.

Civil 3D Survey Styles for **Survey**

A major part of the deliverable of the standards includes the Civil 3D Styles. Civil 3D cannot be used effectively without proper customized styles in place. All of the Survey styles can be found under Settings tab in the Civil 3D Toolspace (shown on the right).



The Styles created have a WMATA prefix to let users know which styles are built specifically for WMATA users.

Point Styles have been built for use with survey point collection and usage. Each style is code based to match existing WMATA survey codes and contains layers, existing WMATA symbols and annotations related to the points.

Survey description keys and **Linework Prefix files** have been created to match existing survey workflow and dataflow. Additional symbols have been placed into Civil 3D beyond the symbols for the NCS.

Surface and Grading related styles have been created along with annotation styles to label the surface data.

Alignment related styles have been created along with annotation styles to label the Alignment data.

Profile related styles and Profile Grid styles have been created along with annotation styles to label the Profile data.

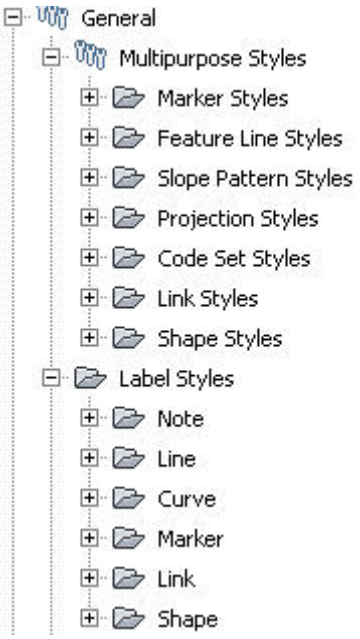
Section related styles and Section Grid styles have been created along with annotation styles to label the Section data.

Corridor and Assembly styles have been created for designing railway tracks.

Piping styles have been created for drainage aspects of the site.

General Styles

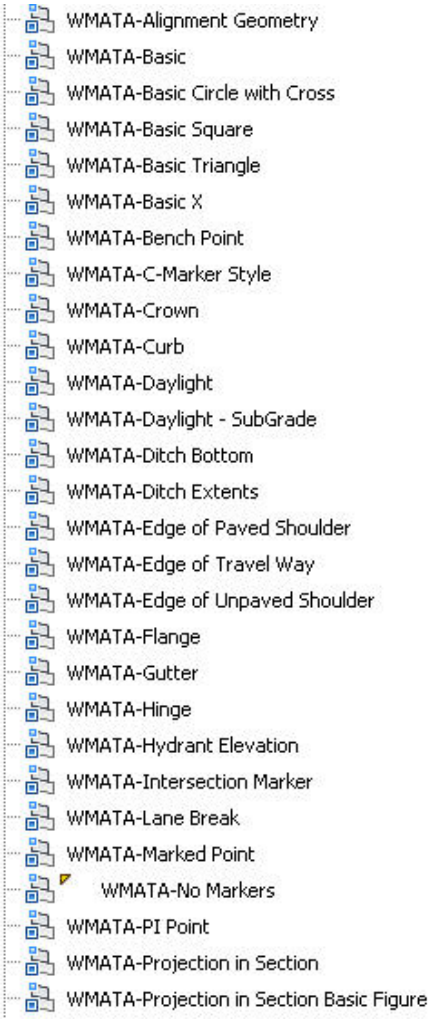
These styles contain the markers, and miscellaneous general labeling styles for drafting in Civil 3D. Note that many Styles have been created, defaults have been declared but the user must check to see if the default styles are appropriate.



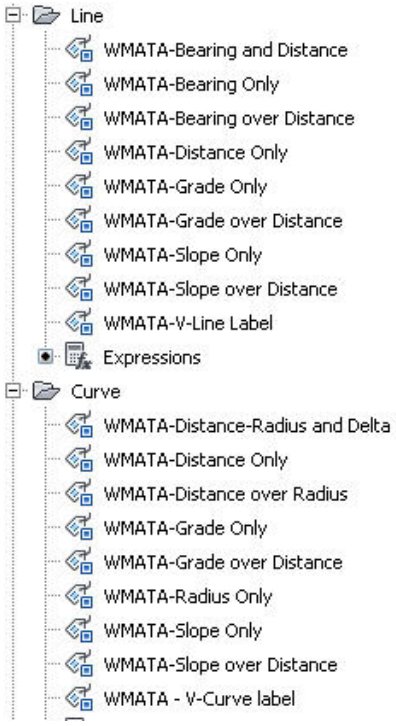
General Styles

The General item is shown on the right. It contains Multipurpose styles which have WMATA prefixes denoting a WMATA style.

A sampling of the **marker** styles is shown below to the left of the **label** styles for lines and curves.

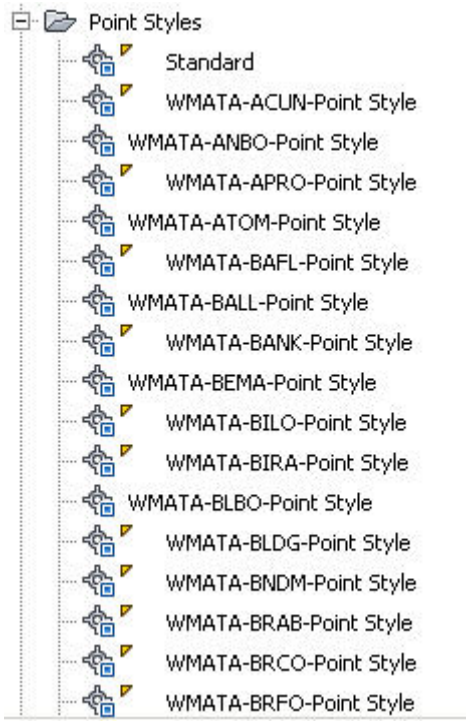


Markers



LIne/Curve Label Styles

Point Styles – an example of the Point Styles are shown on the right. There are over 175 Point Styles created for use at WMATA, so this is a small sampling of the styles created.



Point Label Styles - an example of the Point Label Styles are shown on the right.

Point File Formats - an example of the Point File Formats are shown on the right for use in Civil 3D.

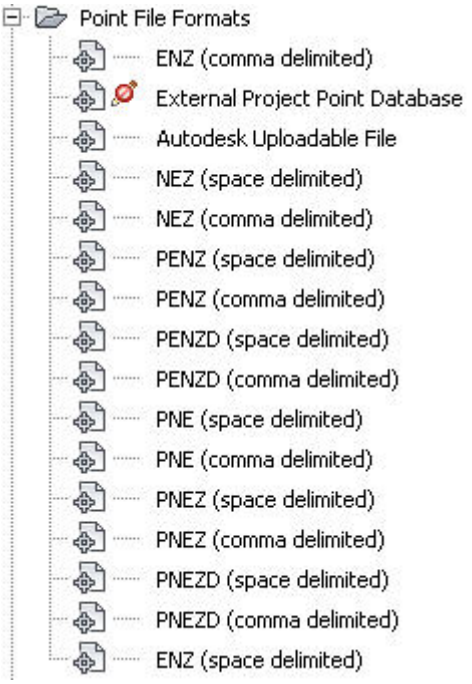
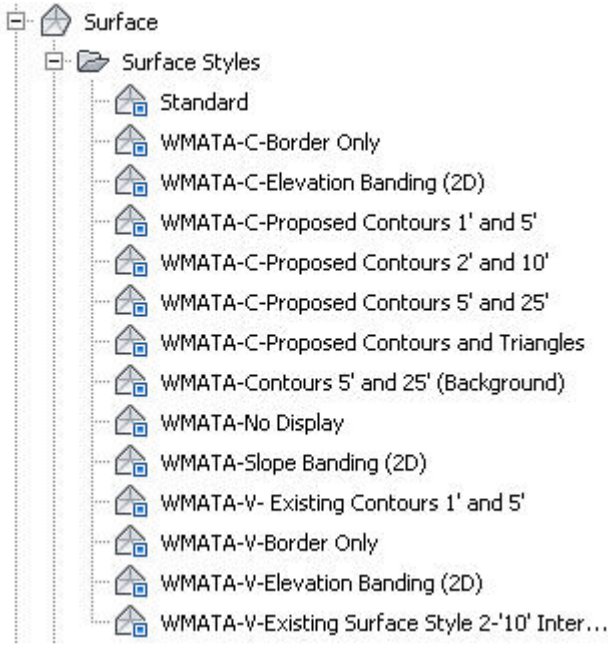


Table Styles - an example of the Table styles are shown on the right for use in Civil 3D.

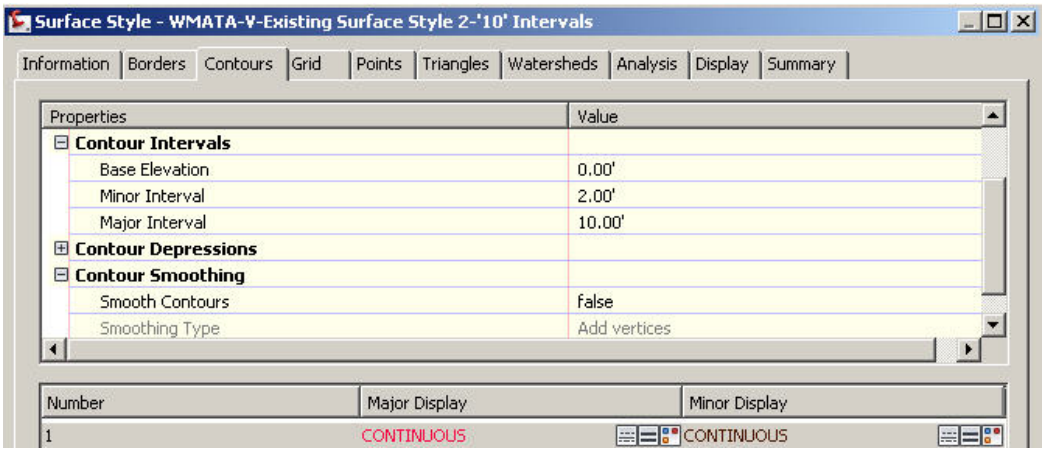
Survey description keys - an example of the description keys are shown on below for use in Civil 3D. Again this is only a small sampling of the keys created since about 200 exist in the library.

Code	Style	Point Label Style	Format	Layer	Scale Parameter	Fixed Scale Factor	Use drawing scale	Apply to X-Y	Apply to Z	Rotate
ACUN	WMATA-ACUN-Point Style	WMATA-V-All	AC Unit	V-NO	Parameter 1	1.00	no	yes	no	Para
APRO	WMATA-APRO-Point Style	WMATA-V-All	Apron	V-NO	Parameter 1	1.00	no	yes	no	Para
BAFL	WMATA-BAFL-Point Style	WMATA-V-All	Basemer	V-NO	Parameter 1	1.00	no	yes	no	Para
BANK	WMATA-BANK-Point Style	WMATA-V-All	Bank Top	V-NO	Parameter 1	1.00	no	yes	no	Para
BARR	<default>	WMATA-V-All	BARRICA	V-NO	Parameter 1	1.00	no	yes	no	Para
BILO	WMATA-BILO-Point Style	WMATA-V-All	Bike Lock	V-NO	Parameter 1	1.00	no	yes	no	Para
BIRA	WMATA-BIRA-Point Style	WMATA-V-All	Bike Rack	V-NO	Parameter 1	1.00	no	yes	no	Para
BLDG	WMATA-BLDG-Point Style	WMATA-V-All	Building	V-NO	Parameter 1	1.00	no	yes	no	Para
BLFO	<default>	WMATA-V-All	Building F	V-NO	Parameter 1	1.00	no	yes	no	Para
BMRK	<default>	WMATA-V-All	Bench M.	V-NO	Parameter 1	1.00	no	yes	no	Para
BNDM	WMATA-BNDM-Point Style	WMATA-V-All	Boundar	V-NO	Parameter 1	1.00	no	yes	no	Para
BOLL	<default>	WMATA-V-All	Bollard	V-NO	Parameter 1	1.00	no	yes	no	Para
BRAB	WMATA-BRAB-Point Style	WMATA-V-All	Bridge Al	V-NO	Parameter 1	1.00	no	yes	no	Para
BRCO	WMATA-BRCO-Point Style	WMATA-V-All	Bridge C	V-NO	Parameter 1	1.00	no	yes	no	Para
BRFO	WMATA-BRFO-Point Style	WMATA-V-All	Bridge Fo	V-NO	Parameter 1	1.00	no	yes	no	Para
BRJO	WMATA-BRJO-Point Style	WMATA-V-All	Bridge Jo	V-NO	Parameter 1	1.00	no	yes	no	Para
BRPI	WMATA-BRPI-Point Style	WMATA-V-All	Bridge Pi	V-NO	Parameter 1	1.00	no	yes	no	Para
BRUS	WMATA-BRUS-Point Style	WMATA-V-All	Brush	V-NO	Parameter 1	1.00	no	yes	no	Para
BSCK	WMATA-BSCK-Point Style	WMATA-V-All	Back Sigl	V-NO	Parameter 1	1.00	no	yes	no	Para
BUEN	WMATA-BUEN-Point Style	WMATA-V-All	Bus Encl	V-NO	Parameter 1	1.00	no	yes	no	Para
BUSH	WMATA-BUSH-Point Style	WMATA-V-All	Bush / He	V-NO	Parameter 1	1.00	no	yes	no	Para
CABA	WMATA-CABA-Point Style	WMATA-V-All	Catch ba	V-NO	Parameter 1	1.00	no	yes	no	Para
CANO	WMATA-CAN0-Point Style	WMATA-V-All	Canopy	V-NO	Parameter 1	1.00	no	yes	no	Para
CAST	<default>	WMATA-V-All	Cast Iror	V-NO	Parameter 1	1.00	no	yes	no	Para
CATV	<default>	WMATA-V-All	CATV	V-NO	Parameter 1	1.00	no	yes	no	Para
CEMT	<default>	WMATA-V-All	Cemetar	V-NO	Parameter 1	1.00	no	yes	no	Para
CGBA	WMATA-CGBA-Point Style	WMATA-V-All	Back of C	V-NO	Parameter 1	1.00	no	yes	no	Para
CGFA	WMATA-CGFA-Point Style	WMATA-V-All	Face of C	V-NO	Parameter 1	1.00	no	yes	no	Para
CGFL	WMATA-CGFL-Point Style	WMATA-V-All	Flow Line	V-NO	Parameter 1	1.00	no	yes	no	Para
CGGP	WMATA-CGGP-Point Style	WMATA-V-All	Gutter P.	V-NO	Parameter 1	1.00	no	yes	no	Para
CLDI	<default>	WMATA-V-All	Center o	V-NO	Parameter 1	1.00	no	yes	no	Para
CLHR	WMATA-CLHR-Point Style	WMATA-V-All	CL HIGH	V-NO	Parameter 1	1.00	no	yes	no	Para
CLLR	WMATA-CLLR-Point Style	WMATA-V-All	CL LOW	V-NO	Parameter 1	1.00	no	yes	no	Para

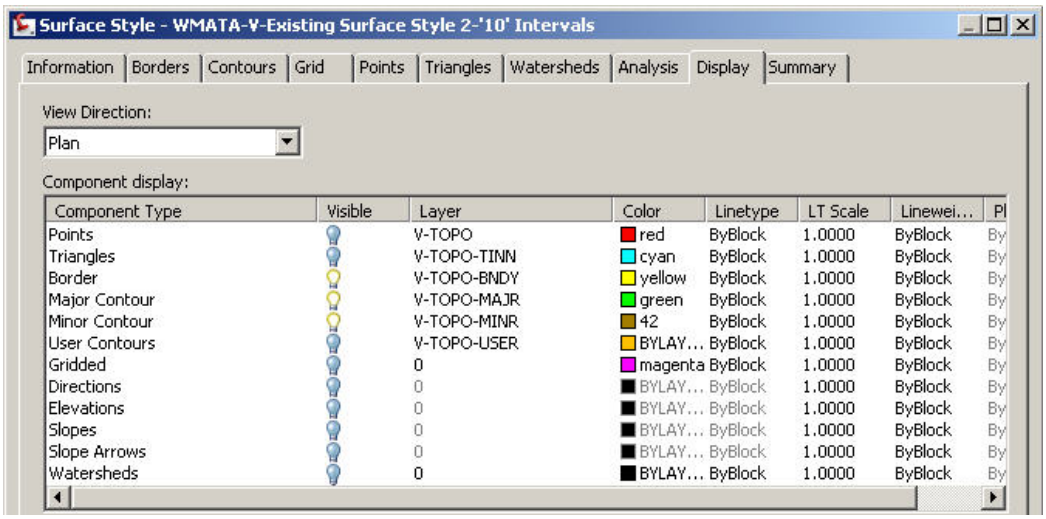
Surface Styles contain surface appearances, labeling and tables related to surfaces. The surface styles shown on the right contain options for surveyors or engineers to develop existing, proposed or other surfaces. Styles for 1'/5' contours are prepared as are 2'/10' contours, slopes, border only, 5'/25' contours, etc.



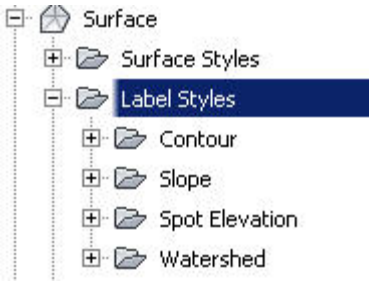
The specifications of the surface styles have been completed and some are shown in the following two figures to the right. The contours tab shows the interval that is set for each style, in this case 2'/10' intervals.



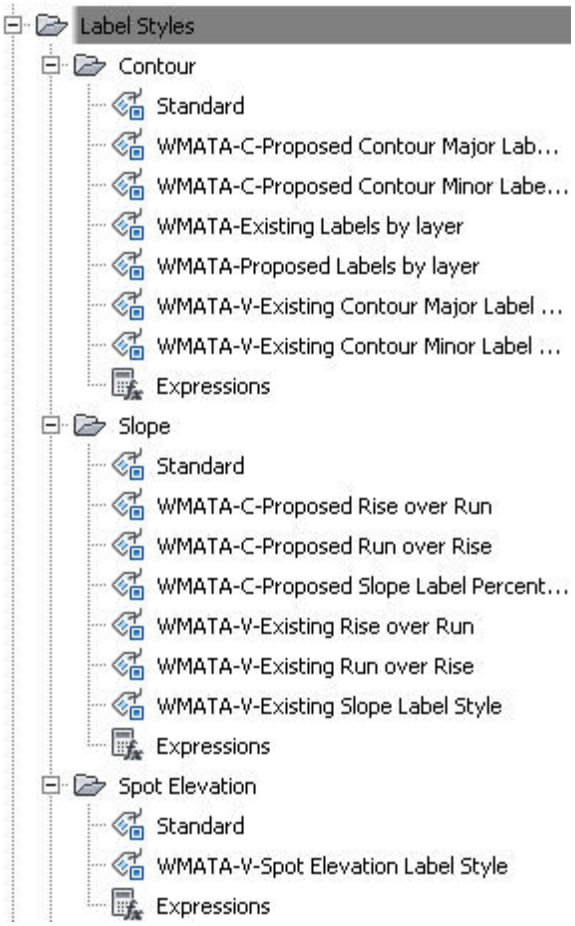
The layers on which the components of the surface will fall are set under the Display tab. All WMATA NCS layers were used and were built to conform to practices already in place at WMATA.



Surface Label Styles contain surface labeling and tables related to surfaces such as contour labels, spot shot labels and slope labels.



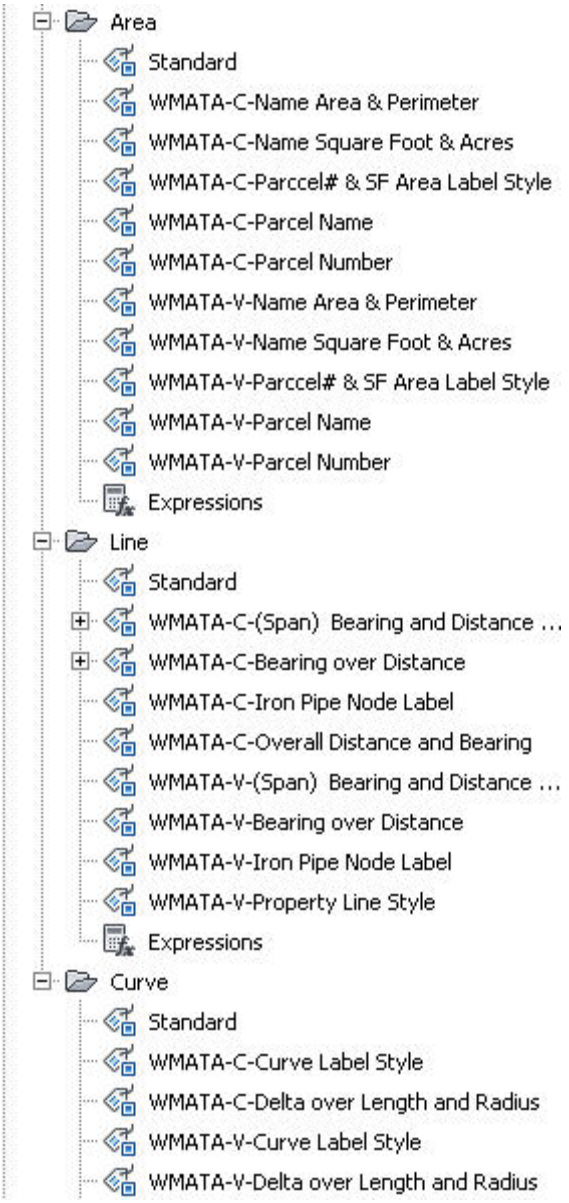
An example of the contour, slope and spot shot labeling styles dedicated to surfaces is shown on the right.

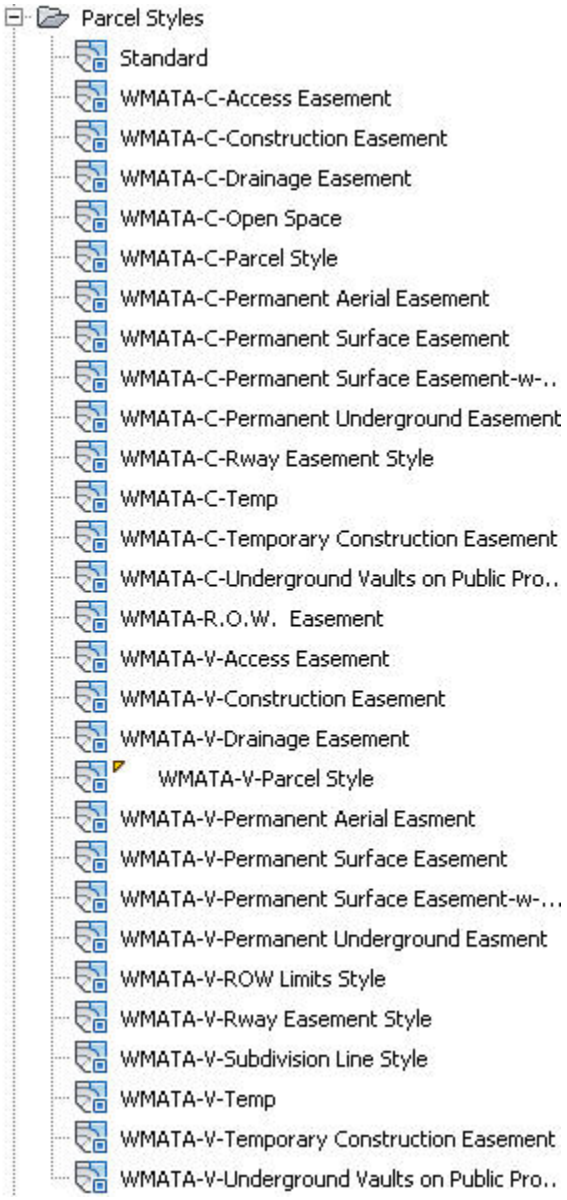


Parcel Styles contain Parcel appearance styles, parcel labeling and related tables for areas and linework annotations.

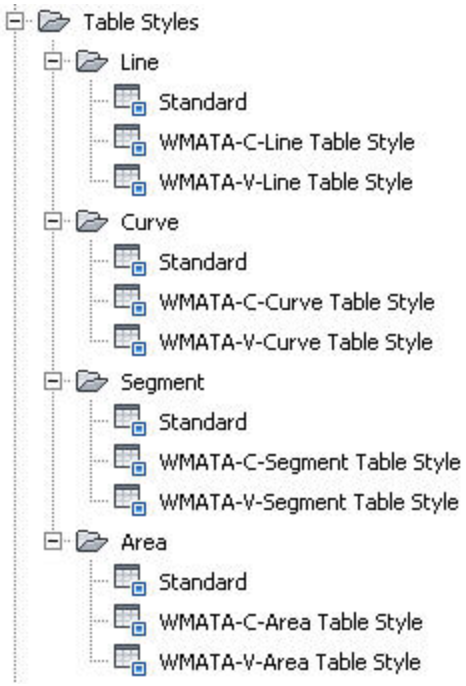
The **parcel styles** created for WMATA are shown on the right.

Parcel Labeling styles are shown below.

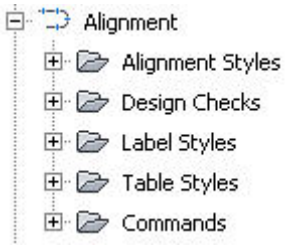




Parcel Tables are shown to the right and will handle creating tables for properties.

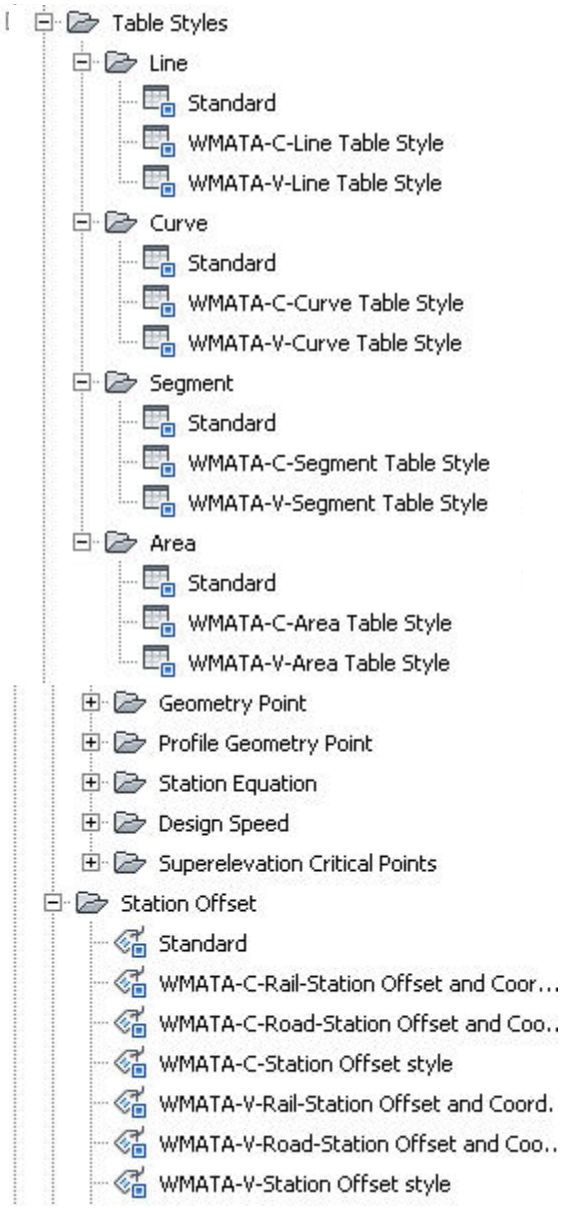


Alignment Styles contain alignment appearance styles, alignment labeling and related tables for areas and linework annotations.

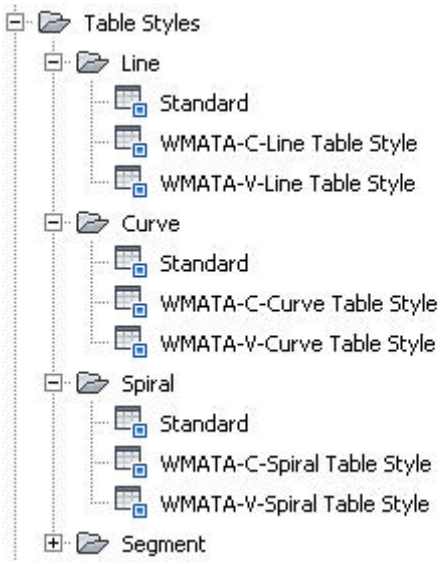


The **Alignment Styles** are shown in the figure on the right. They comprise styles for railway, roadway and utilities for survey (existing) and design (proposed) purposes.

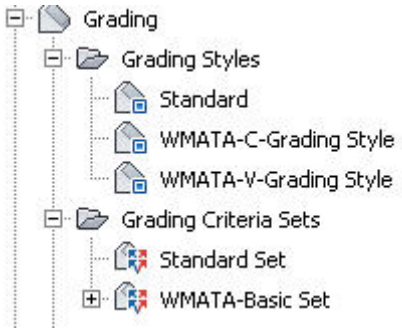
The **Alignment Labeling Styles** are shown in the figure on the right. They comprise styles for railway, roadway and utilities for survey (existing) and design (proposed) purposes. Labels sets are created to pull together like labeling for preset purposes. For alignments that should not be labeled there are styles for No Labeling. Labels and tick marks exist for major labels, minor labels, key geometry points, station equations, profile points, design speed and Superelevations.



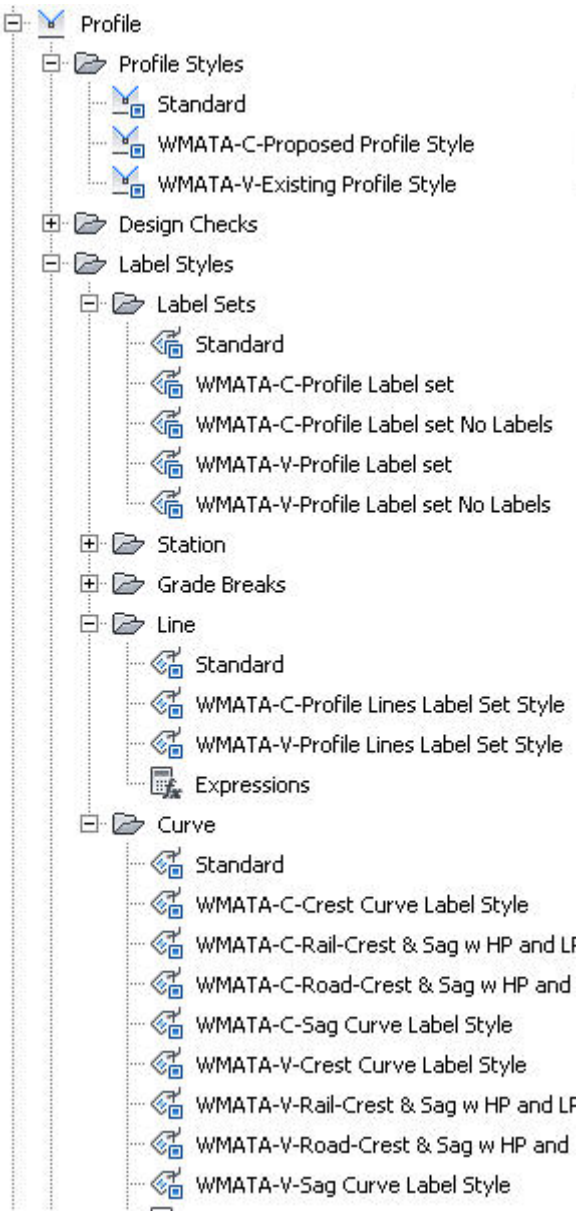
Alignment Tables are shown below and will handle creating tables for alignments.



Grading Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. The Basic Set contains grading styles to perform Grading to a Distance, Grading to an elevation, Grading to a Relative elevation and Grading to a surface.



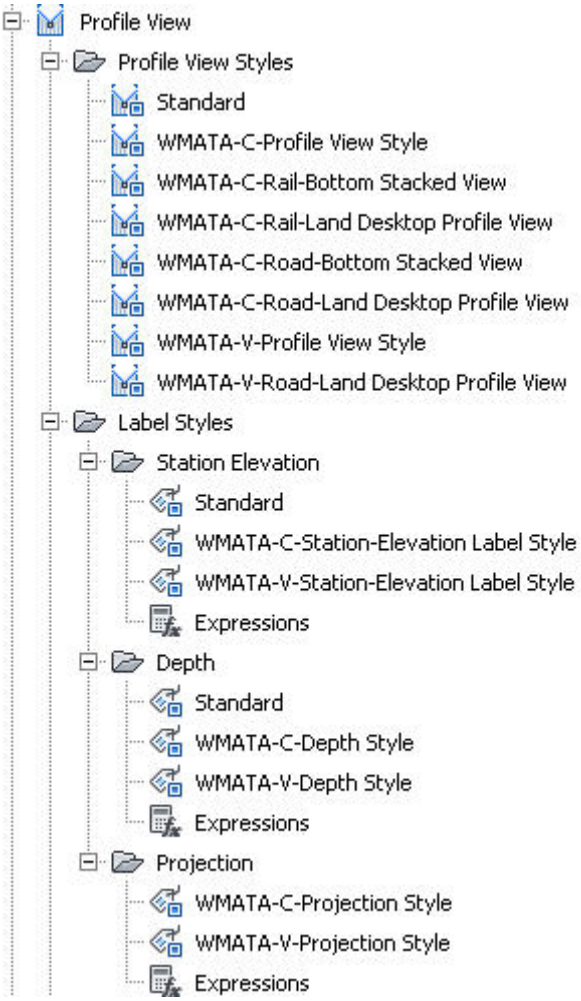
Profile Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. Again there are styles for the actual profile string itself, labeling styles and band styles for data below or above a profile bank.

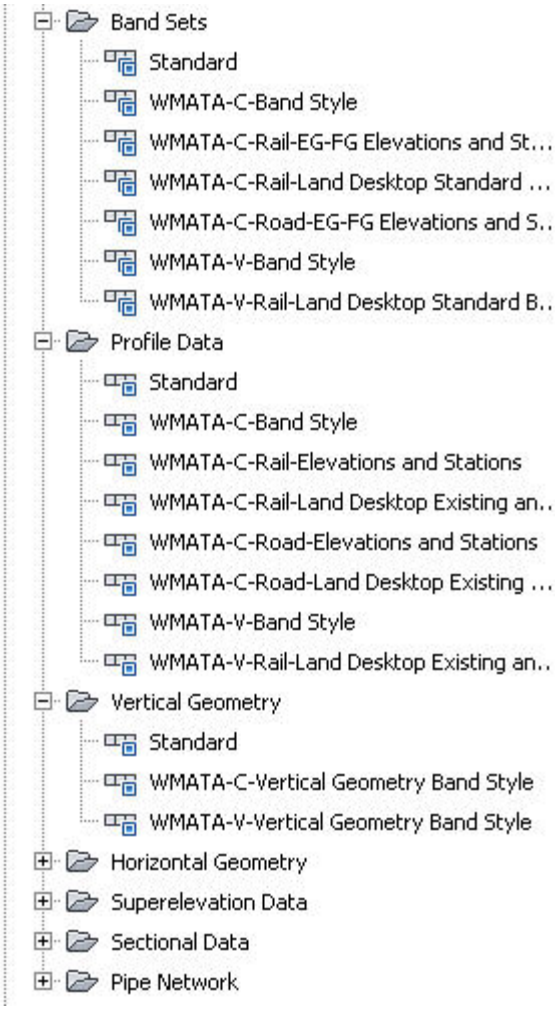


Profile Band Sets Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. These control the data banks that fall below a profile.

The **profile data** contains the style information for what type of data will fall into a profile.

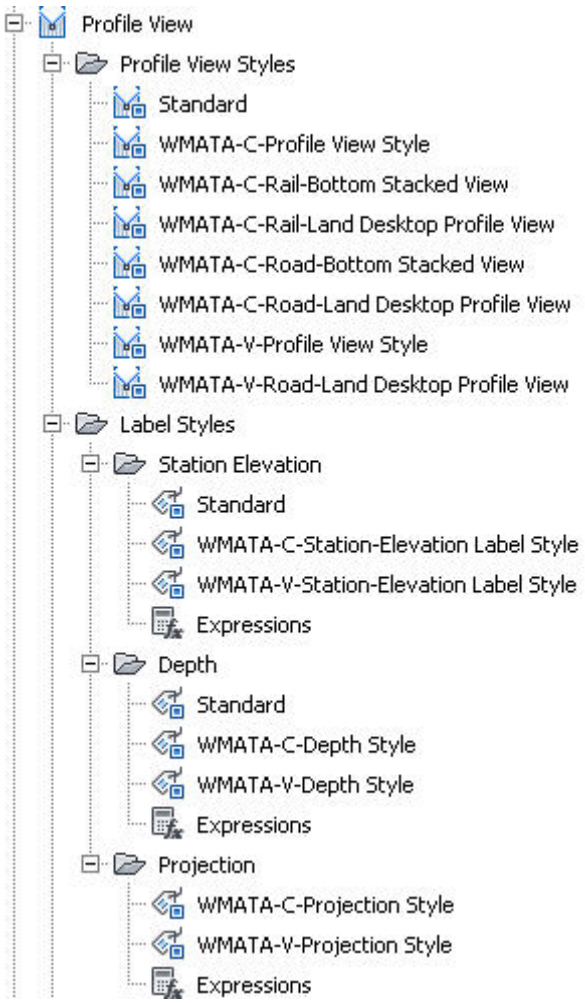
Other styles are found for horizontal/vertical geometry, Superelevational data, Sectional data and piping.



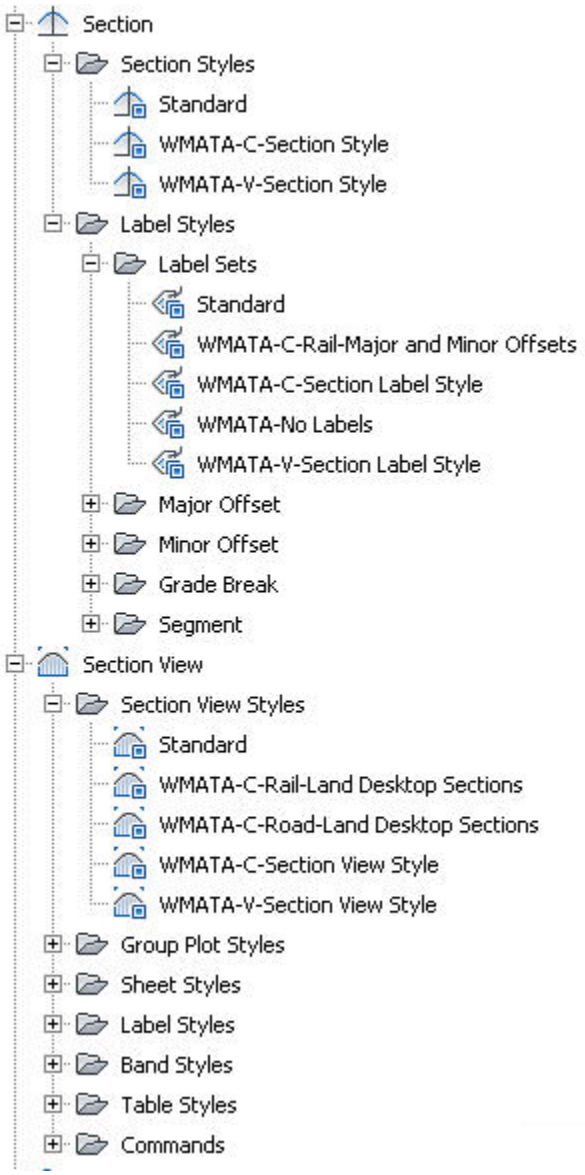


Profile View Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. These styles control how the entire profile, data banks and profile strings are assembled.

Profile Label styles control various types of annotations that might reside in a profile.



Section Styles and Section View Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. These styles control how cross sectional data is prepared and includes appearance styles, labeling styles and data banks.

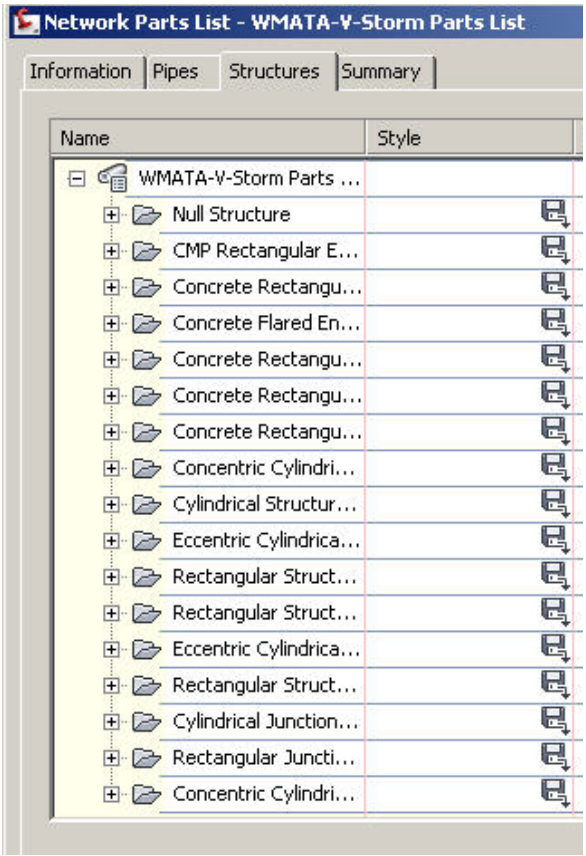


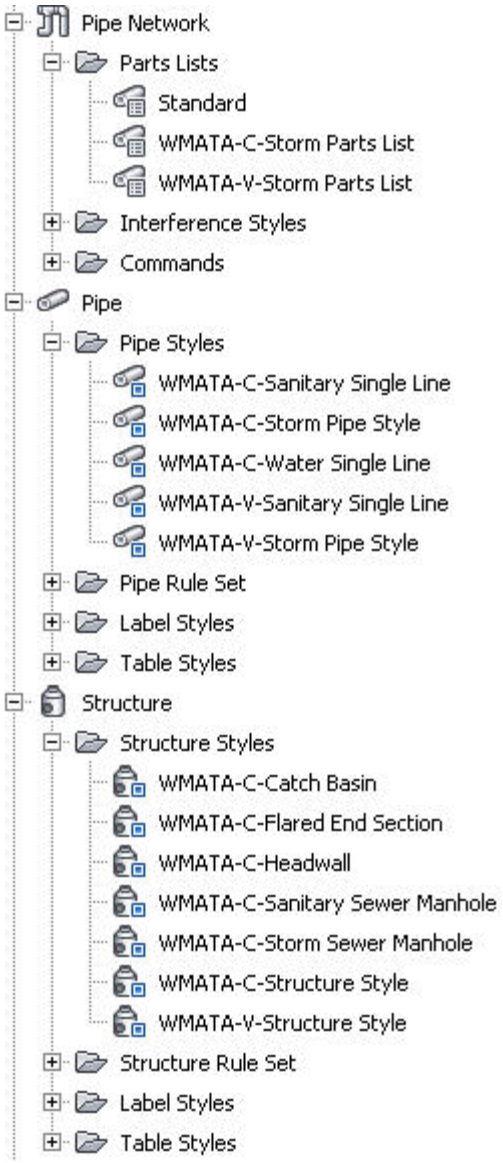
Piping Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. These styles control how piping data is prepared and includes appearance styles and labeling styles.

The Parts List contains the pipe sizes, materials and other data related to pipes. It also contains the information for structures.

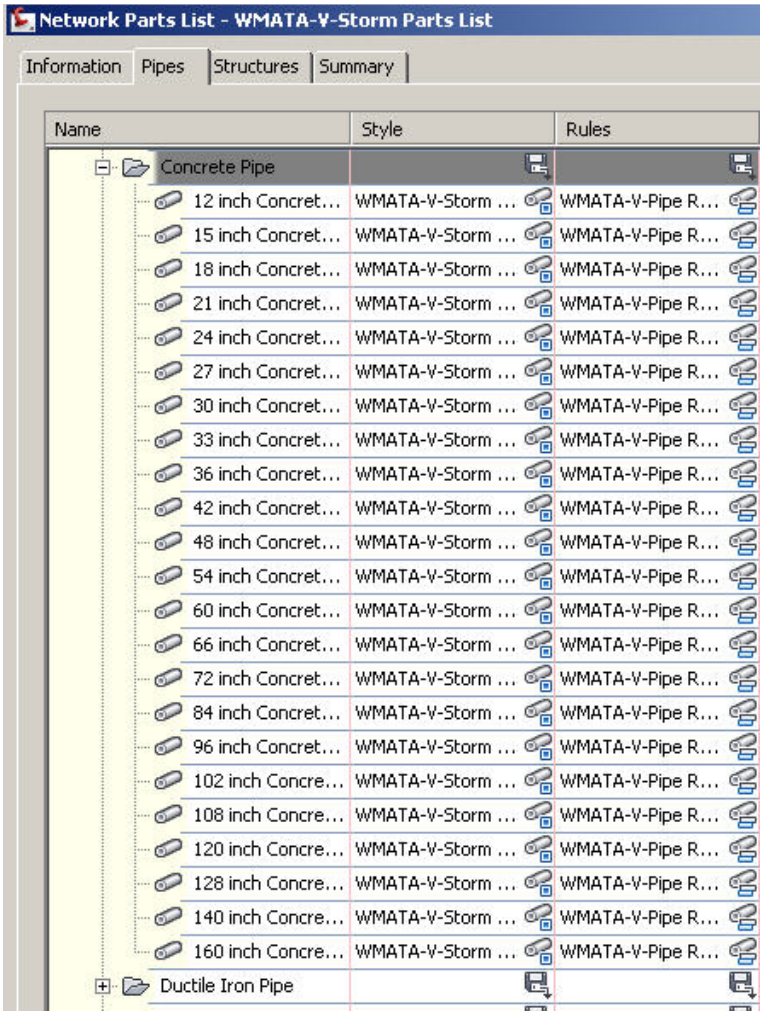
The Network Parts List **Pipes** tab shows the various types of piping used for design. Many different types of pipes are included.

The Network Parts List **Structures** tab shows the various types of Structures used for design. Many different types of structures are included.

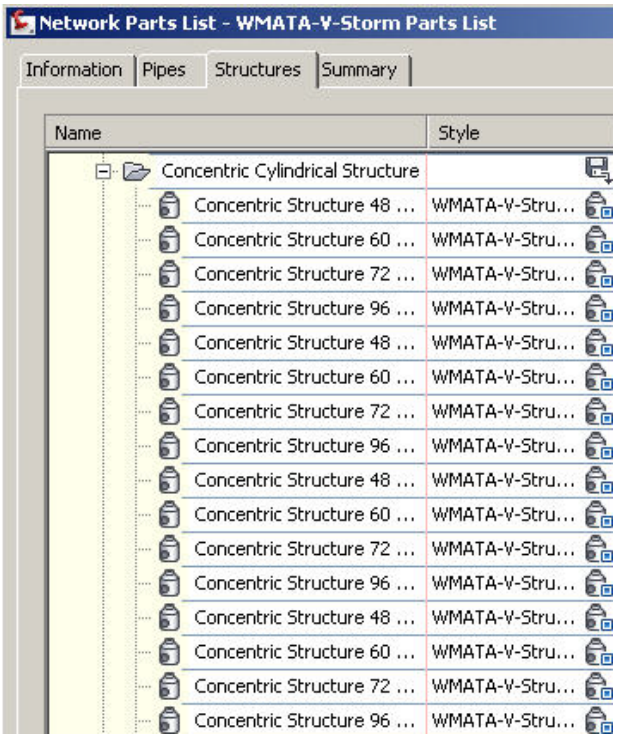




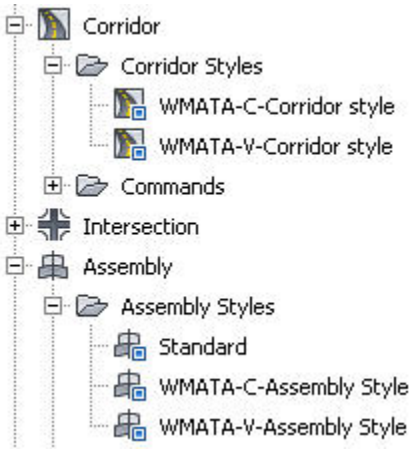
Under each pipe type or structure type a variety of options have been developed. The **Pipes** tab reveals a sampling of the pipes developed for just concrete pipe. By expanding any other category it can be seen that options have been created.



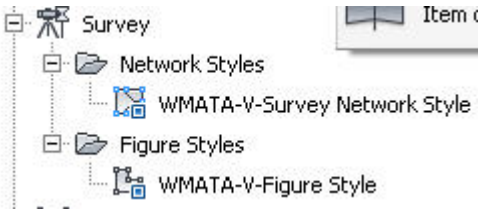
The **Structures** tab reveals a sampling of the Structures developed for just a Concentric Cylindrical Structure. By expanding any other category it can be seen that options have been created



Corridor Styles are shown in the figure on the right. They comprise styles for survey (existing) and design (proposed) purposes. These styles help control how corridors are designed and displayed.

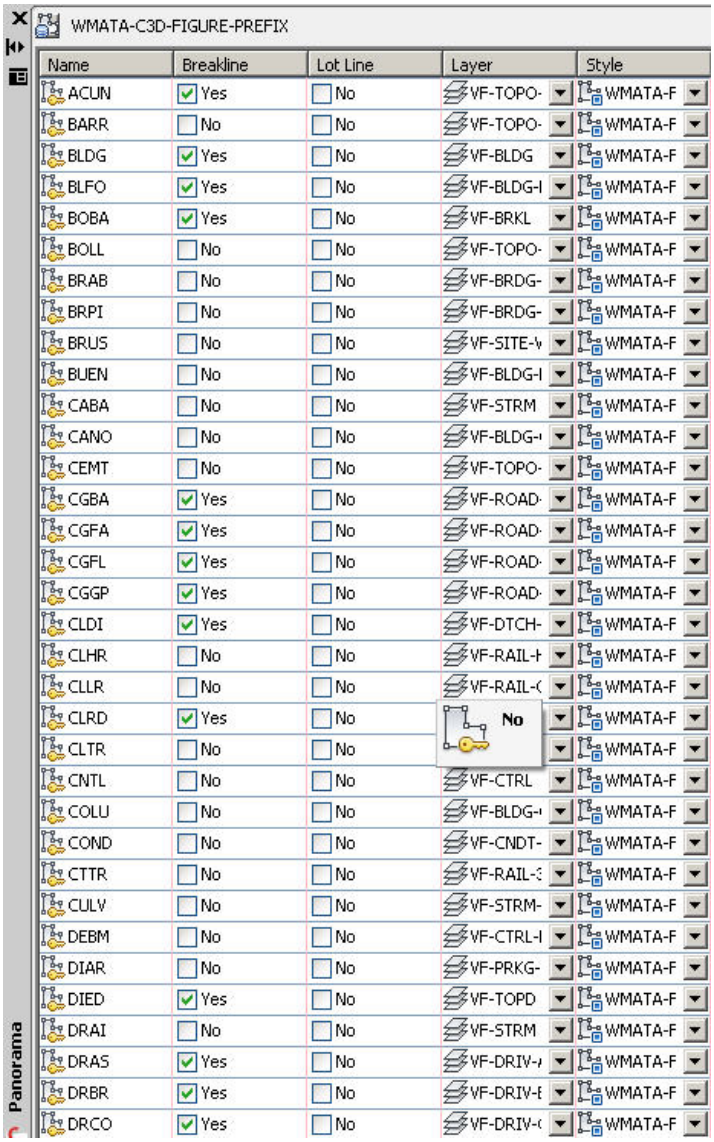


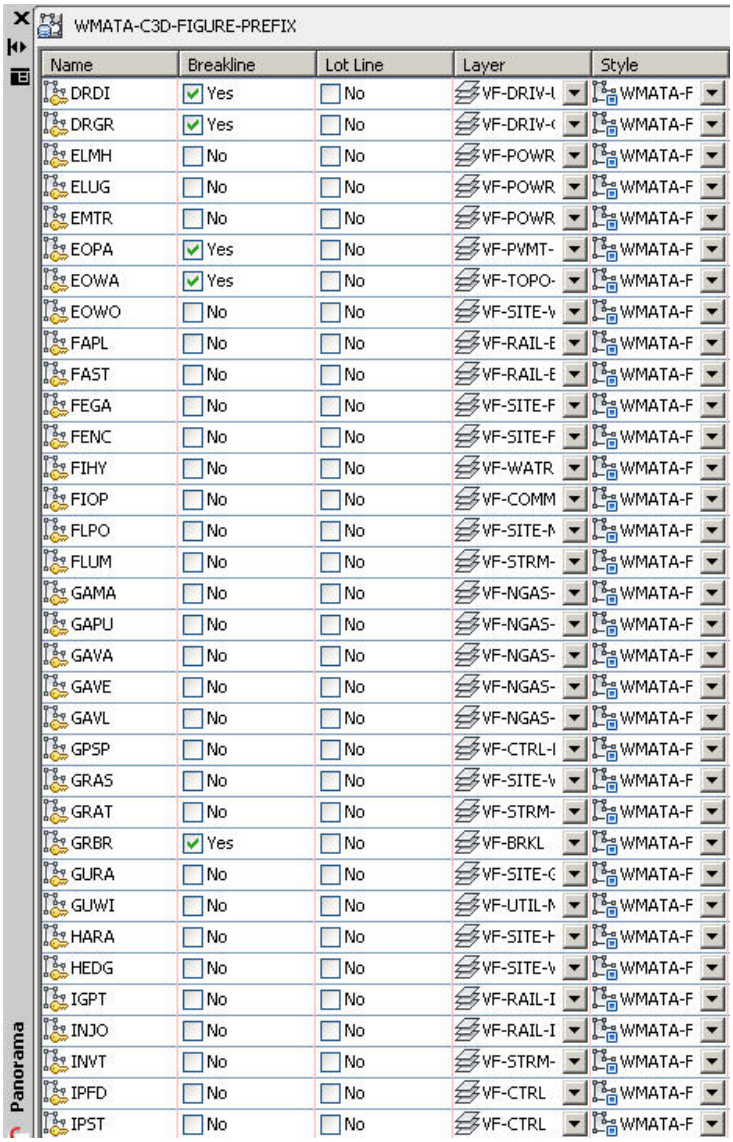
Survey Network Styles are shown in the figure on the right. They comprise styles for survey (existing) purposes.

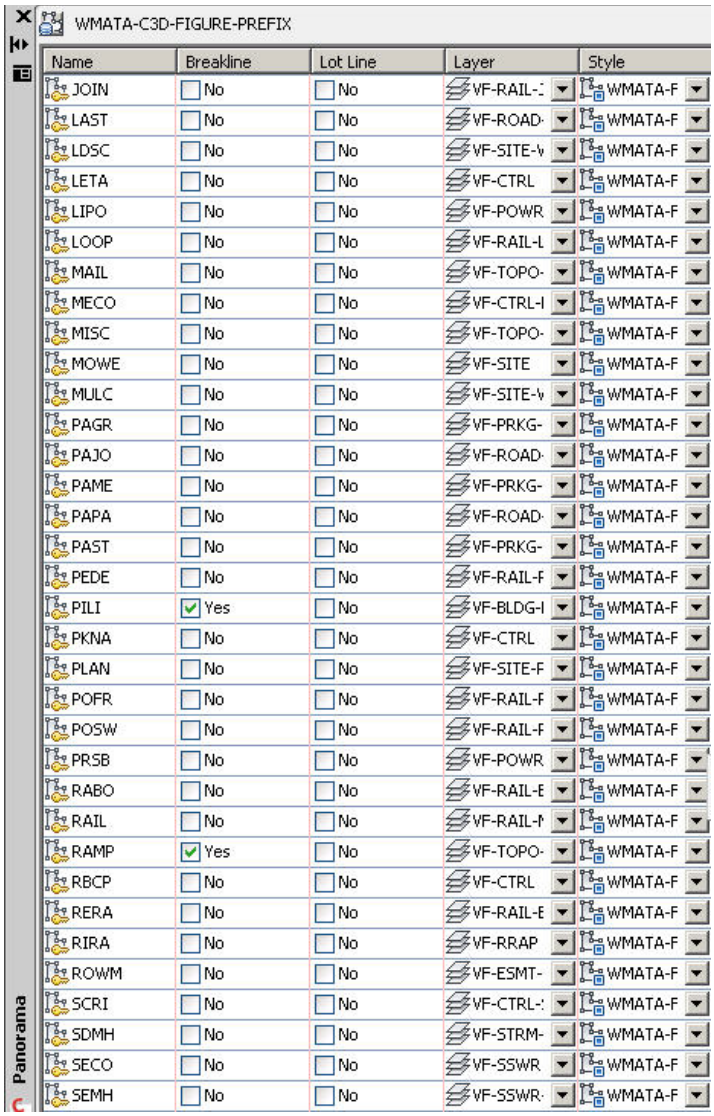


Civil 3D Survey Support File for **Survey**

Support files included is the WMATA figure prefix library. This library controls how linework is imported into Civil 3D. Generally it is from a data collector capturing point data (controlled via description keys) or linework controlled through this library. A listing of the figures are shown below.



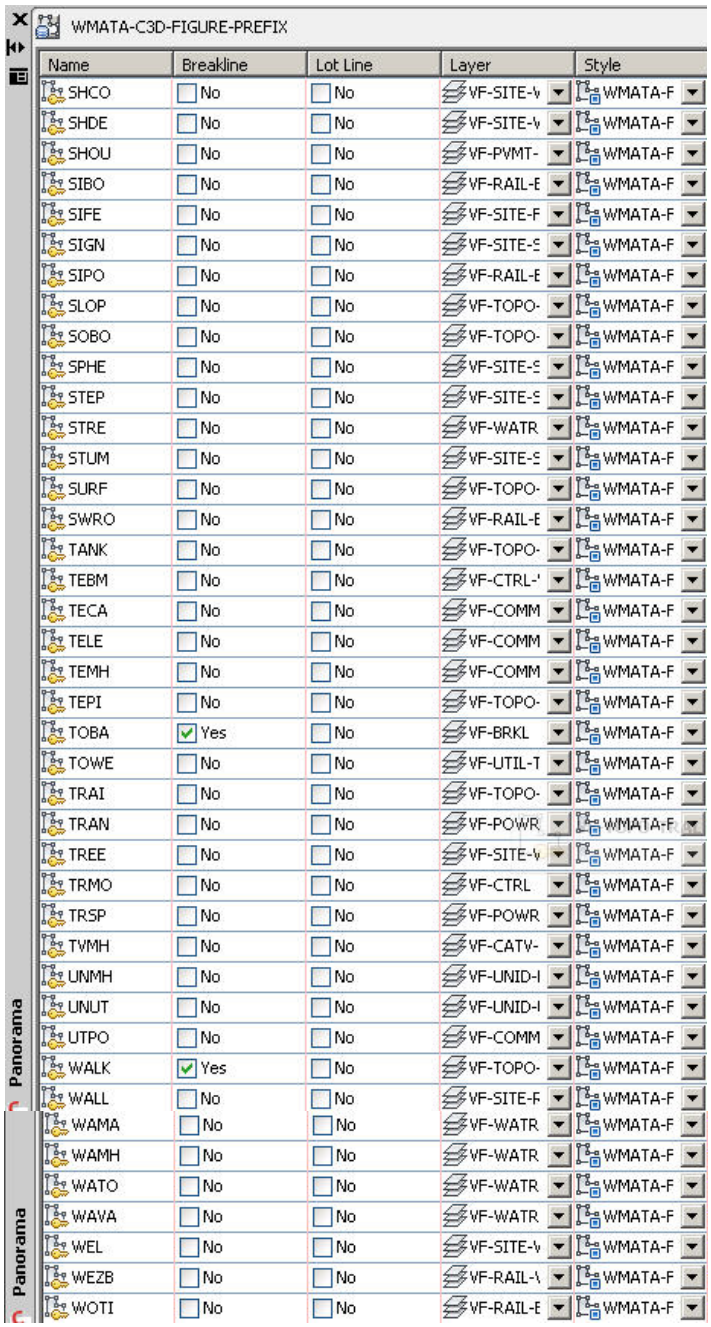




WMATA-C3D-FIGURE-PREFIX

Name	Breakline	Lot Line	Layer	Style
JOIN	No	No	VF-RAIL-[	WMATA-F
LAST	No	No	VF-ROAD-	WMATA-F
LDSC	No	No	VF-SITE-V	WMATA-F
LETA	No	No	VF-CTRL	WMATA-F
LIPO	No	No	VF-POWR	WMATA-F
LOOP	No	No	VF-RAIL-L	WMATA-F
MAIL	No	No	VF-TOPO-	WMATA-F
MECO	No	No	VF-CTRL-I	WMATA-F
MISC	No	No	VF-TOPO-	WMATA-F
MOWE	No	No	VF-SITE	WMATA-F
MULC	No	No	VF-SITE-V	WMATA-F
PAGR	No	No	VF-PRKG-	WMATA-F
PAJO	No	No	VF-ROAD-	WMATA-F
PAME	No	No	VF-PRKG-	WMATA-F
PAPA	No	No	VF-ROAD-	WMATA-F
PAST	No	No	VF-PRKG-	WMATA-F
PEDE	No	No	VF-RAIL-F	WMATA-F
PILI	Yes	No	VF-BLDG-I	WMATA-F
PKNA	No	No	VF-CTRL	WMATA-F
PLAN	No	No	VF-SITE-F	WMATA-F
POFR	No	No	VF-RAIL-F	WMATA-F
POSW	No	No	VF-RAIL-F	WMATA-F
PRSB	No	No	VF-POWR	WMATA-F
RABO	No	No	VF-RAIL-E	WMATA-F
RAIL	No	No	VF-RAIL-P	WMATA-F
RAMP	Yes	No	VF-TOPO-	WMATA-F
RBCP	No	No	VF-CTRL	WMATA-F
RERA	No	No	VF-RAIL-E	WMATA-F
RIRA	No	No	VF-RRAP	WMATA-F
ROWM	No	No	VF-ESMT-	WMATA-F
SCRI	No	No	VF-CTRL-[	WMATA-F
SDMH	No	No	VF-STRM-	WMATA-F
SECO	No	No	VF-SSWR	WMATA-F
SEMH	No	No	VF-SSWR-	WMATA-F

Panorama



WMATA-C3D-FIGURE-PREFIX

Name	Breakline	Lot Line	Layer	Style
SHCO	No	No	VF-SITE-V	WMATA-F
SHDE	No	No	VF-SITE-V	WMATA-F
SHOU	No	No	VF-PVMT-	WMATA-F
SIBO	No	No	VF-RAIL-E	WMATA-F
SIFE	No	No	VF-SITE-F	WMATA-F
SIGN	No	No	VF-SITE-S	WMATA-F
SIPO	No	No	VF-RAIL-E	WMATA-F
SLOP	No	No	VF-TOPO-	WMATA-F
SOBO	No	No	VF-TOPO-	WMATA-F
SPHE	No	No	VF-SITE-S	WMATA-F
STEP	No	No	VF-SITE-S	WMATA-F
STRE	No	No	VF-WATR	WMATA-F
STUM	No	No	VF-SITE-S	WMATA-F
SURF	No	No	VF-TOPO-	WMATA-F
SWRO	No	No	VF-RAIL-E	WMATA-F
TANK	No	No	VF-TOPO-	WMATA-F
TEBM	No	No	VF-CTRL-'	WMATA-F
TECA	No	No	VF-COMM	WMATA-F
TELE	No	No	VF-COMM	WMATA-F
TEMH	No	No	VF-COMM	WMATA-F
TEPI	No	No	VF-TOPO-	WMATA-F
TOBA	Yes	No	VF-BRKL	WMATA-F
TOWE	No	No	VF-UTIL-T	WMATA-F
TRAI	No	No	VF-TOPO-	WMATA-F
TRAN	No	No	VF-POWR	WMATA-F
TREE	No	No	VF-SITE-V	WMATA-F
TRMO	No	No	VF-CTRL	WMATA-F
TRSP	No	No	VF-POWR	WMATA-F
TVMH	No	No	VF-CATV-	WMATA-F
UNMH	No	No	VF-UNID-I	WMATA-F
UNUT	No	No	VF-UNID-I	WMATA-F
UTPO	No	No	VF-COMM	WMATA-F
WALK	Yes	No	VF-TOPO-	WMATA-F
WALL	No	No	VF-SITE-F	WMATA-F
WAMA	No	No	VF-WATR	WMATA-F
WAMH	No	No	VF-WATR	WMATA-F
WATO	No	No	VF-WATR	WMATA-F
WAVA	No	No	VF-WATR	WMATA-F
WEL	No	No	VF-SITE-V	WMATA-F
WEZB	No	No	VF-RAIL-V	WMATA-F
WOTI	No	No	VF-RAIL-E	WMATA-F

Panorama

Standards for Civil Engineering

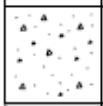
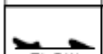
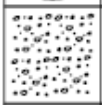
Symbols - The following symbols are embedded within the **Civil Engineering** drawings.

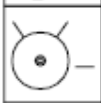
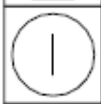
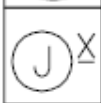
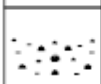
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

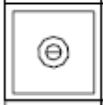
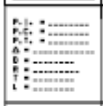
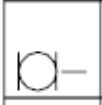
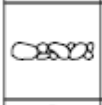
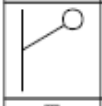
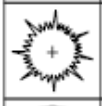
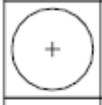
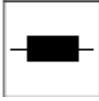
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

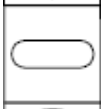
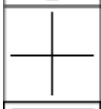
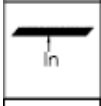
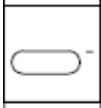
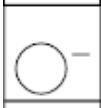
CIVIL SYMBOL LEGEND

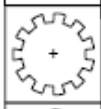
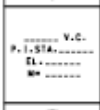
SYMBOL	NAME	DESCRIPTION
	AIRFLD	AIRFIELD SYMBOL
	ARRPT	PARKING TURNING ARROW
	ARRSD	STRAIGHT DIRECTION ARROW
	ARRST	STRAIGHT AND TURN ARROW
	BREAK	BREAKLINE SYMBOL
	BUOY	BUOY
	CATBSN	CATCH BASIN
	CATBSR	ROUND CATCH BASIN
	CDHDR	CORE DRILL HOLE DRILLED
	CDHUDR	CORE DRILL HOLE UNDRILLED
	CLNOUT	CLEANOUT
	CNR90	CORNER SOLID 90 TURNED DEGREES
	CNRSF	CORNER SOLID FLAT
	CNTLIN	CENTERLINE SYMBOL
	COGRAV	CENTER OF GRAVITY SYMBOL

CIVIL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CONCST	CONCRETE STONE PATTERN
	CULVEE	CULVERT END SYMBOL
	DBLARR	DOUBLE ARROW TERMINATOR
	DRLHOL	DRILL HOLE
	FILTBD	FILTRATION BED PATTERN
	FLARRL	FLOW ARROW LEFT IN ZERO POINT
	FLARRR	FLOW ARROW RIGHT IN ZERO POINT
	FOMETR	FUEL OIL METER
	FOMHOL	FUEL OIL MANHOLE
	FOVALT	FUEL OIL VAULT
	GRAVEL	GRAVEL PATTERN
	GREASE	GREASE TRAP
	GRITCH	GRIT CHAMBER
	GSMETR	GAS METER
	GSPLNT	GAS PLANT

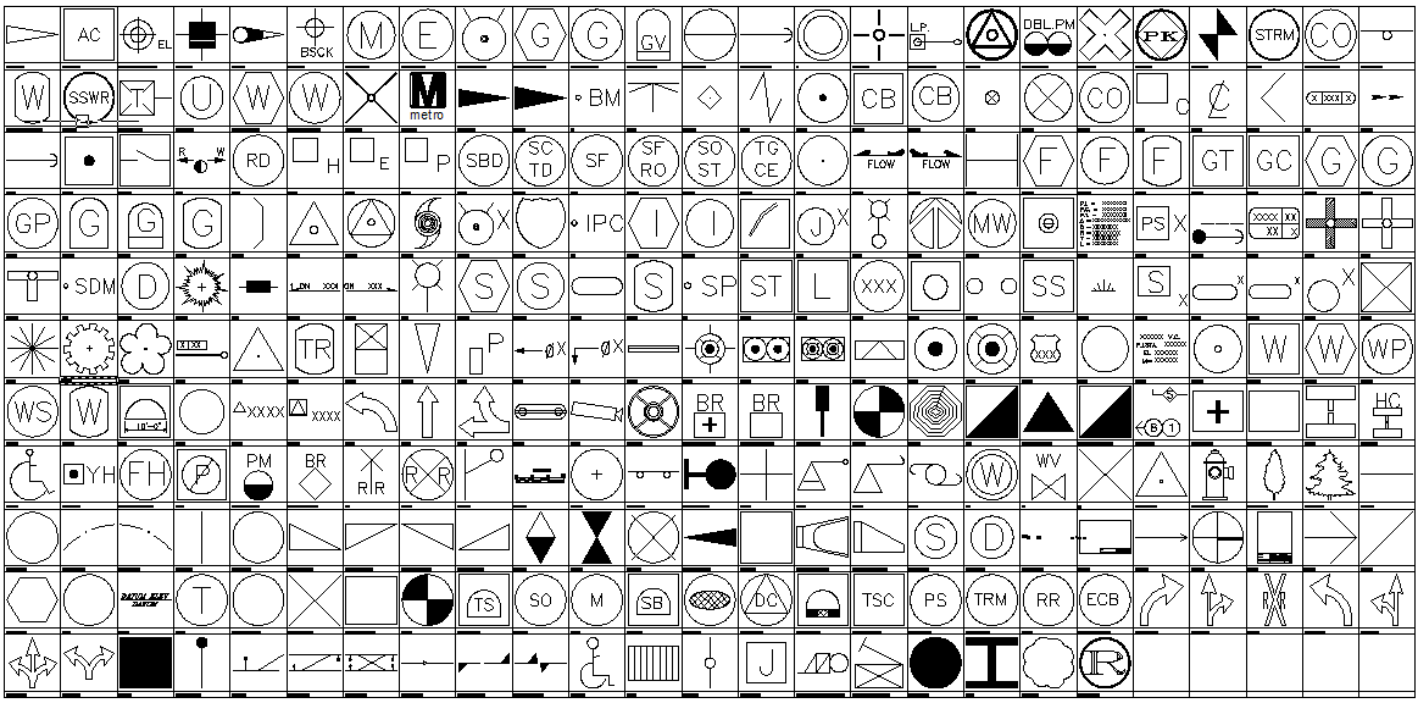
CIVIL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GSRECR	GAS RECEIVER
	GSTRAP	GAS TRAP
	GSVALT	GAS VALVE VAULT
	HEADWL	HEADWALL
	HNDCAP	HANDICAP CHAIR SYMBOL
	HORCPT	HORIZONTAL CONTROL POINT
	HOVCPT	HORIZONTAL VERTICAL CONTROL POINT
	HUREYE	HURRICANE EYE
	HYDRNT *	HYDRANT (FOR CIVIL SITE USAGE)
	INSHWY *	INTERSTATE HIGHWAY SYMBOL
	IWMETR	INDUSTRIAL WASTE WATER METER
	IWMHOL	INDUSTRIAL WASTE WATER MANHOLE
	JNBX *	JUNCTION BOX
	LSWAMP	LARGE SWAMP
	MONWEL	MONITORING WELL

CIVIL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	PHOCPT	PHOTO CONTROL POINT
	PIINFO *	PI INFORMATION
	PIVALV *	POST INDICATOR VALVE
	PMPSTA *	PUMP STATION
	POROUS	POROUS PATTERN
	RGVALV *	REGULATOR VALVE
	RIPRAP	RIPRAP PATTERN
	RRSIGN	RAIL SIGNAL
	RRSWTC	RAIL SWITCH
	SCNRH	SECTION CORNER HATCHED
	SCNRO	SECTION CORNER OPEN
	SDMHOL	STORM DRAINAGE MANHOLE
	SHRUBC	CONIFEROUS SHRUB
	SHRUBD	DECIDUOUS SHRUB
	SIGN	SIGN

CIVIL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SNMHOL	SANITARY MANHOLE
	SNPVSL	SANITARY PRESSURE VESSEL
	SNVALT	SANITARY VALVE VAULT
	SPOTEL	GROUND SPOT ELEVATION
	SPTANK	SEPTIC TANK
	STHWY *	STATE HIGHWAY SYMBOL
	STMPIT	STEAM PIT
	SWAMP	SWAMP
	TIDEG	TIDE GAGE
	TIRETR	TIRE TREDDLE
	TNKBG *	TANK (BELOW GROUND)
	TNKHAG *	TANK (HORIZONTAL ABOVE GROUND)
	TNKVAG *	TANK (VERTICAL ABOVE GROUND)
	TRACR	TRAFFIC ARM WTH CARD READER
	TRAMS	TRAFFIC ARM MECHANCL SWING

CIVIL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	TREEC	CONIFEROUS TREE
	TREED	DECIDUOUS TREE
	TREEG	GENERIC TREE
	USHWY *	US HIGHWAY SYMBOL
	VCDATA *	VERTICAL CURVE DATA
	VERCPT	VERTICAL CONTROL POINT
	WAHHOL	WATER HANDHOLE
	WAMETR	WATER METER
	WAPLNT	WATER PLANT
	WASOFT	WATER SOFTENER
	WAVALT	WATER VALVE VAULT

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability.



All Civil Symbol names are listed below.

- _ClosedBlank
- _ClosedFilled
- _CrowsFoot-End
- _CrowsFoot-Start
- _Open90
- _Wipeout_Circle
- 10750_Tele Booth
- 2D civil_cells_432
- 2D civil_cells_59
- A$C784B08EF
- ACLLEL
- ACLLSF
- ADCADD_ZZ
- AECC_Hexagon
- AeccArrow
- AeccArwClosedFilled
- AeccTickCircle
- AeccTickLine
- AeccTickTriangle
- AERO
- AFBCN
- AIRFLD
- ANCHR1
- ANCHR2
- ANCHR3
- ANCHR4
- ANCHR5
- ANCHRB
- ANNOTATION
- ARROW
- ARRPT
- ARRSD
- ARRST
- BAR1
- BAR1C
- BAR2
- BARD
- BARLT1
- BARLT2
- BARMKR
- BARV
- BARVT
- BCN1
- BCN2
- BCN3
- BCN4
- BCN5
- BCNBY1
- BCNBY2
- BCNLT1
- BCNLT2
- BCNLT3
- BCNRES
- BCNTG1
- BCNTG2
- BCNTP1
- BCNTP2
- BCNTR1
- BCNTR2
- BENCH
- Blkcam
- BLKGRATE
- BLOCK
- BM
- BMALT
- BNDMRK
- BORING
- Braille_Exitfare_Machine
- Braille_Farecard_Machine
- BREAK
- BUMPING POST
- BUOY
- BYANCH
- BYBELB
- BYBELP
- BYCHEC
- BYCOMP
- BYEXPL
- BYFISH
- BYGONB
- BYGONP
- BYJUNC
- BYPOS
- BYQUAR
- BYWAV1
- BYWAV2
- BYWHIB
- BYWHIP
- C3D_CIRCLE_BLOCK
- C3D_SQUARE_BLOCK
- C3D_TICK-BLOCK
- CABCNZ
- CABDIS
- CABLAN
- CABLE
- CABLE1
- CABLE2
- CABPWR
- CAIRN1
- CAIRN2
- CAIRN3
- CAIRN4
- CAN1
- CAN2
- CANWT
- CATBSN
- CATBSR
- Catch Basin
- CDHDR
- CDHUDR
- CGRES1
- CGRES2
- CGRES3
- Chain Marker Post
- CHANNEL LEFT
- CHANNEL LR
- CHANNEL LRS
- CHANNEL LS
- CHANNEL RIGHT
- CHANNEL RS
- civil_cells
- CKTID
- CLNOUT
- CMHLX
- CNR90
- CNRNF
- CNRSF
- CNTLIN
- COAST1
- COAST2
- COAST3
- COAST4
- COGRAV
- CTRL_BM
- CTRL_BSCK
- CTRL_HNV
- CTRL_HUTA
- CTRL_LETA
- CTRL_PAPO
- CTRL_PKnail
- CTRL_R&C
- CTRL_Scribe
- CTRL_XCUT
- CULVEE
- DATUM
- DBID
- DBLARR
- df_&x11
- DGUYX
- DIMSTYLE
- DISPLT
- DNGPB
- DNGRK
- DNGRK1
- DNGSB
- DOLPHN
- DOUBLE XOVER
- DRLHOL
- DSTMKR
- DSWTCH
- DTHL
- DUST CONTROL
- E-M1
- ECRD
- EHHLX
- Emergency Trip Station
- Emergency_Trip_Station-B
- EMHLX
- EPBXX
- EROS CNTRL BLANKET
- ERSBD
- ERSCTD
- ERSF
- ERSFRO
- ERSOST
- ERTGCE
- EXIST CAB TR
- Exitfare_Machine
- Farecard_Machine
- Faregate
- FIXPNT
- Flared End Section - Plan
- Flared End Section - Profile
- FLARRL
- FLARRR
- FLDGAT
- FOG

FOGBCN
FOGBY
FOGLS
FOGLSM
FOMETR
FOMHOL
FOVALT
GREASE
GRITCH
GSMETR
GSMHOL
GSPLNT
GSRECR
GSTRAP
GSVALT
GUPO_Guy Post
H-Piles
HANDICAP
HC_Faregate
HEADWL
HighPoint
HLL
HLLL
HNDCAP
HORCPT
HOVCPT
HPIL
HPPLEL
HPPLSF
HUREYE
Hydrant-Elevation
Hydrant_Yard
HYDRNT
i01420-c_Monument Indicator
i02080-a_Hydrant Pan-Fire
i02080-b_Hydrant-Fire
i02510-k_Water Manhole
i02510-l_Water Meter
i02510-s_Water Valve Vault
i02550-c_Nat Gas Meter
i02550-d_Nat Gas Trap
i02580-h_Elec MH
i02580-i_Nat Gas MH
i02580-k_Sanitary Cleanout
i15730_HVAC
i16070-a_Elec Guy Wire
i16290_Elec Meter
INSHWY
INSTBY
ip
IPC
IWMETR
IWMHOL
JETTY
JNBX
JUNCTION BOX
KELP
LANBY1
LANBY2
LATBCN
LEFT HAND DERAIL
LIFEBT
LIFEM1
LIFEM2
LIGHT POST_SNGL
LIMIT
LITSV1
LITSV2
LOOKTR
LowPoint
LTART
LTBEAC
LTBY
LTBYBB
LTFLD
LTFLT
LTFLT1
LTFLT2
LTHOU1
LTHOU2
LTMAJ1
LTMAJ2
LTMARK
LTMIN2
LTPLT1
LTPLT2
LTPLX
LTSHP1
LTSHP2
LTSHP3
LTSTRX
LTTOW2
LTVES2
MARINA
Marker Pnt
MARKGD
MARKRD
MEAST
Metro_Logo
MH_SSWR
MH_STRM
MH_Unknown
MNORTH
MONWEL
MORB
MORBBB
MORBBW
MORBCW
MORTWR
MOTRHP
MSOUTH
MULCH
NODE
nopark
NOTICE
NUN1
NUN2
NUNBT
NUNWT
OBS
OBSSPT
OBSTRL
ODAS
OUTB
PAPI
PARK METER_DBL
PARK METER_SNGL
PERM SEEDING
pf_11x17
PHOCPT
PIINFO
PIL1
PIL2
PILLT
PILM
PILOT
PILOT1
PILOT2
PILV
PILVT
PIPDIS
PIPE
PIPE1
PIPE2
PIPES1
PIPES2
PIVALV
plan_north
PLAT1
PLAT2
PLAT3
PMPSTA
POINT OF SWITCH
POLE1
POLE2
POLE3
POLEAR
POLEID
POLEP
POLES
PRIVB
PRO_DEF2
PROJ_NAM
Pylon_w_Brailles-Signs
r_r_
RADAR
RADAR1
RADAR2
RADAR3
RADAR4
RADIO
RADRF1
RADRF2
RANGEX
REEF
REEF1
REFUG1
REFUG2
REIL
RESCUE
RESPLT
RGVALV
RIGHT HAND DERAIL
RIPRAP
ROW
RR SIGNAL
RR XING
RRSIGN

RRSWTC
RSTAR
RVMMOP
RVMMSO
RWCLL
RWEL
RWLEL
RWLSF
SAFE1
SAFE2
SAFE3
scale 1_8
SCNRH
SCNRO
SCNRTO
SDM
SDMHOL
SECCUT
SED BASIN
Sewer Manhole
SFL
SHRUBC
SHRUBD
SIGBRG
SIGN
Sign_DBI Pole
Sign_Single Pole
SIGNAL CABINET-GROUND
SIGNAL CABINET-POLE MOUNTED
Signal Pole Mounted
SIGNWS
SIGSHO
SIGST1
SIGST2
SIGSTP
SIGSUB
SIMPLE XOVER
SIRLH1
SIRLH2
SLARRL
SLARRR
SLLX
SLREG
SNMETR
SNMHOL
SNPVSL
SNVALT
SODDING
SP
SPAR1
SPAR2
SPARB
SPARWT
SPH1
SPH2
SPHD
SPHV
SPHW
SPILE
SPILE1
SPILES
SPILEX
SPOST
SPOSTX
SPOTEL
SPTANK
SSLSTA
STAKE
STAKEX
STHWY
STMPIT
Storm Manhole
STUMPS
SUBSTA
SUPER
SuperLeftDownEmpty
SuperLeftUpEmpty
SuperRightDownEmpty
SuperRightUpEmpty
SUWEL2
SUWEL3
SUWELY
SWAMP
SWELB1
SWELB2
SWELL5
SWPADX
TDZL
TELBBB
TELMH
TEMP SED BASIN
TEMP SED TRAP
TEMP STREAM XING
TerminatorOpen_0.5
TEST PIT
TEXTSTYLE
THL
TIDEG
TIDSTF
TIMBER PILES
TIRETR
TNKBG
TNKHAG
TNKVAG
TOPSOILING
TOW1
TOW2
TOW3
TOWB
TOWBT1
TOWBT2
TOWER
TOWW
TOWWT1
TOWWT2
TRACR
TRAMS
Tree-Deciduous
Tree-Evergreen
TREEC
TREED
TREEG
TRFSIG
TRIPNT
true_north
TRVALT
TSCTRL
TSHEAD
TSPBX
TSPHS
TSPHT
TSVLDT
TUBE PILES
TURF REINF MAT
TURNOUT
tvmh
TWCLL
TWELEL
TWELSF
TWGSGN
TWLEL
TWELSF
TWGSGN
TWLEL
TWLSF
u_pole
USHWY
UTPLX
VCDATA
VERCPT
WAHHOL
WAMETR
WAPLNT
WASOFT
WAVALT
WEIR
well
WELL1
WELL3
WINDCN
WITHYP
WITHYS
WMATA-TB-ATT
WRECK
WRKDNG
WRKEXP
wv
X
XFRPLX
XFRPMX

Tool Palettes containing symbols for **Civil (Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Civil Layer Colors

Civil (C) colors are considered "New" and are colored in shades of Red. Color 24: C-Util, 14: C-Road, 13: C-Esmt, Property and CTRL, 20: C-Topo, RED: C-Rail, 10: C-General site layers, 11: C-Anno, 22: C-Corr. Survey is considered to be Existing unless it is a layer such as: V-*-D, demolition layers; they are Blue.

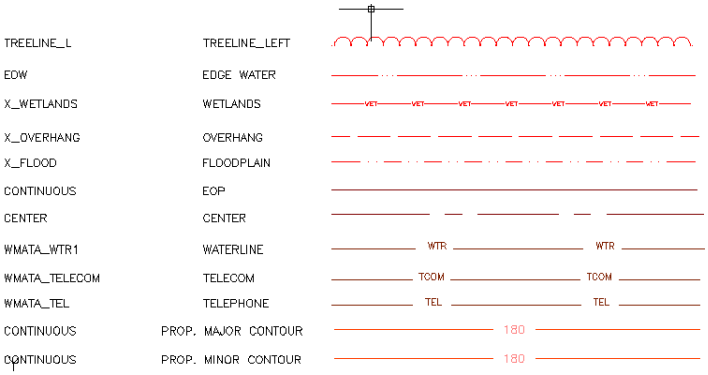
Civil Layer Linetypes – The following linetypes are being used; Demolition generally uses dashed.

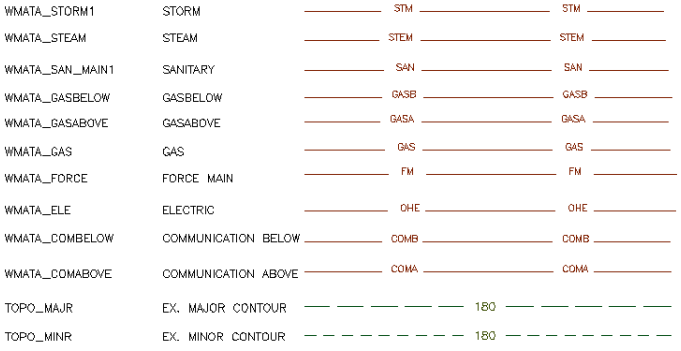
BARBWIRE_1 Barbed Wire Fence with spaces
BORDER Border
BORDER2 Border (.5x)
BORDERX2 Border (2x)
BRLN Bldg Restriction
CENTER Center
CENTER2 Center (.5x)
CHAINLINK_1 Chain Link Fence with spaces
CHAINLINK_2 Chain Link Fence without spaces
COMM Communications ----COMM----COMM----COMM----COM
CONTINUOUS Continuous
DASHDOT Dash dot
DASHED Dashed
DASHED2 Dashed (.5x)
DASHEDX2 Dashed (2x)
DIVIDE2 Divide (.5x)
EOW
ESMT
FENCE Generic Fence ---X-----X-----X-----X-----X---
FENCELINE1 Fenceline circle ----0-----0----0-----0----0---
FIBER Fiber Optic ----FO-------FO-------FO-------FO--
FIRE FIRE LINE ----F----F----F----F----F----F--
G-RAIL Guardrail ___0_____0_____0_____0_____0_____0
GAS-AG Gas Aboveground - -AGG- - -AGG- - -AGG- - -AGG-
HG NATURAL GAS ----HG----HG----HG----HG----HG----H
HIDDEN Hidden
HIDDENX2 Hidden (2x)
PHANTOM Phantom
PHANTOM2 Phantom (.5x)
PROPERTY
RAIL Railroad ----|----|----|----|----|----
STACKADE_2 Stockade Fence without spaces
STOCKADE_1 Stockade Fence with spaces
STREAM Stream, Creek, Wetlands

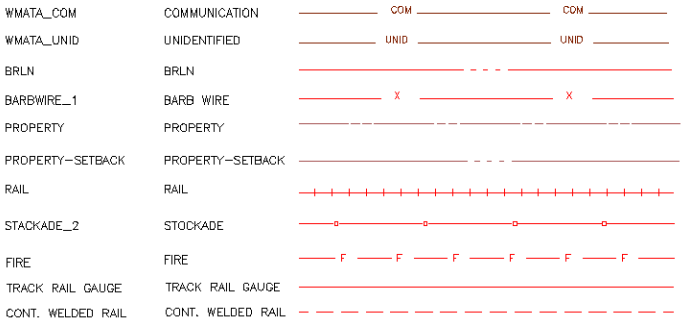
TOPO-MAJR Major Topo Contours
TOPO-MINR Minor Topo Contours
TREELINE_L Tree Line left side
TRV vika traverse
UNID-CABL Unidentified Cable - -UNC- - -UNC- - -UNC- - -U
UNID-PIPE Unidentified Piping - -UNP- - -UNP- - -UNP- - -
UTIL Utility Line ----U-------U-------U-------U-----
WMATA-...ORDER-D|HI...DEN: Hidden (.5x)
WMATA_ABAN Abandoned lines ---- ABD ---- ABD ---- ABD ----
WMATA_CATV CATV lines ---- CATV ---- CATV ---- CATV ----
WMATA_COM communications lines ---- COM ---- COM ---- COM ----
WMATA_COMABOVE communications lines ---- COMA ---- COMA ---- COMA
WMATA_COMBELOW communications lines ---- COMB ---- COMB ---- COMB
WMATA_ELE electrical lines ---- OHE ---- OHE ---- OHE ----
WMATA_FENCE1 Fenceline ----X-----X-----X-----X-----X-----X--
WMATA_FENCE2 Fenceline ----O-----O-----O-----O-----O-----O--
WMATA_FORCE forced mains ---- FM ---- FM ---- FM ----
WMATA_GAS gas ---- GAS ---- GAS ---- GAS ----
WMATA_GASABOVE gas ---- GASA ---- GASA ---- GASA ----
WMATA_GASBELOW gas ---- GASB ---- GASB ---- GASB ----
WMATA_SAN_MAIN1 sanitary main ---- SAN ---- SAN ---- SAN ----
WMATA_STEAM Steam lines ---- STEM ---- STEM ---- STEM ----
WMATA_STORM1 storm mains ---- STM ---- STM ---- STM ----
WMATA_TEL Telephone lines ---- TEL ---- TEL ---- TEL ----
WMATA_TELECOM Telecom lines ---- TCOM ---- TCOM ---- TCOM ----
WMATA_UNID UNID ---- UNID ---- UNID ---- UNID ----
WMATA_UNIDABOVE UNA ---- UNA ---- UNA ---- UNA ----
WMATA_UNIDBELOW UNB ---- UNB ---- UNB ---- UNB ----
WMATA_WTR1 Water lines ---- WTR ---- WTR ---- WTR ----
X_CENTER existing centerline
X_EOP edge of pavement
X_FLOOD Flood Plain (.5x)
X_OVERHANG
X_WETLANDS Wetlands ---- WET ---- WET ---- WET ----

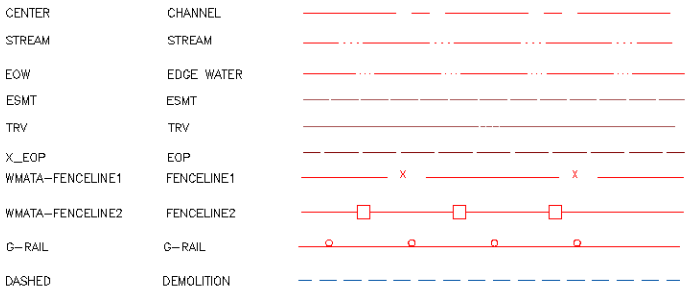
Civil Layer Lineweights – The following weights are in use: 0.35 mm for New (Civil drawings are considered New), 0.15 mm for Existing (Survey layers are considered Existing) and Demolition.

Custom WMATA Linetypes

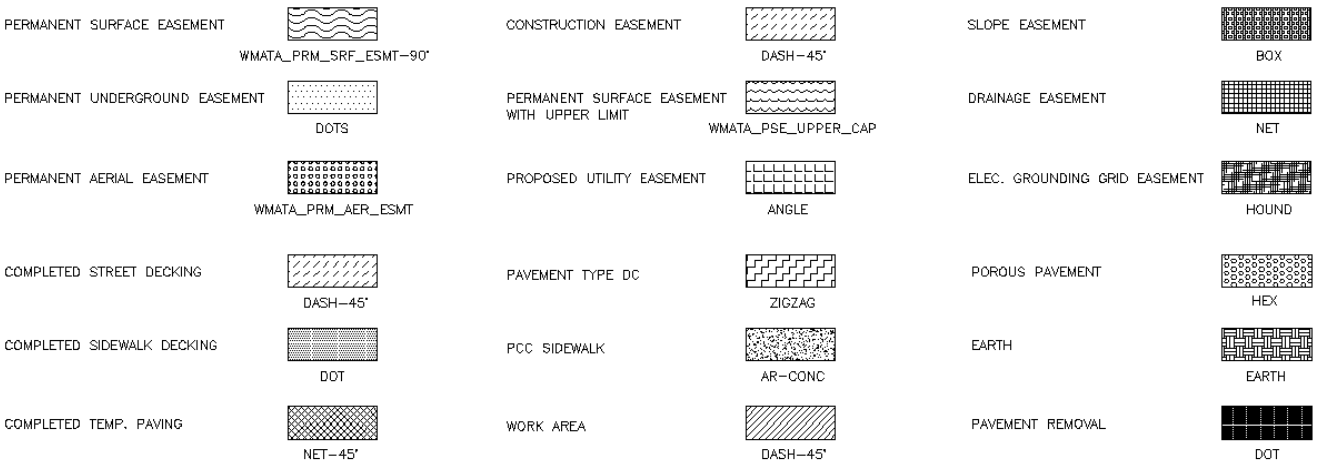


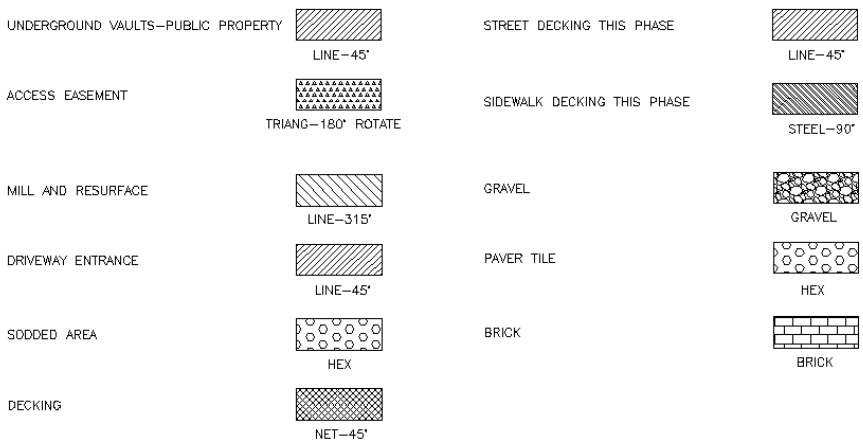






WMATA Hatch Patterns





Civil Abbreviations and Notes

A.D.	ALGEBRAIC DIFFERENCE
ABND	ABANDONED
AHD	AHEAD
ALIGN.	ALIGNMENT
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTANCE OF WAY ASSOCIATION
AVE	AVENUE
BK	BACK
BLDG	BUILDING
BLVD	BOULEVARD
B	BASELINE
BMP	BEST MANAGEMENT PRACTICES
BOT,BOTT	BOTTOM
BR	BRICK
BRT	BUS RAPID TRANSIT
BSMT	BASEMENT
CATV	CABLE TV
CNTR	CENTER
C /CL	CENTERLINE
CI	CAST IRON
CLF	CHAIN LINK FENCE
CLR.	CLEAR, CLEARANCE
COMM.	COMMUNICATIONS
CONC	CONCRETE
CONN	CONNECTION
CS	POINT OF CURVE TO SPIRAL
CSC	POINT OF COMBINING SPIRAL TO CURVE
CWR	CONTINUOUS WELDED RAIL
DIAAH	DULLES INTERNATIONAL AIRPORT ACCESS HIGHWAY
Dc	DEGREE OF CURVATURE
DCR	DULLES CONNECTOR ROAD
DF	DIRECT FIXATION
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
DO	DESIGN OPTION
DR	DRIVE
DRWY	DRIVEWAY
DTR	DULLES TOLL ROAD
DXO	DOUBLE CROSSOVER
DWG.	DRAWING
ETS	EMERGENCY TRIP STATION
EX., EXIST.	EXISTING
EXP.	EXPANSION
H	HORIZONTAL
HL	HEEL LENGTH
FT.	FEET, FOOT
IB, I.B.	INBOUND
KV	KILOVOLTS
L	LENGTH
LCSA	LOUDOUN COUNTY SANITATION AUTHORITY
LS, Ls	LENGTH OF SPIRAL
LT	LEFT
MAC	MACADAM
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MPH	MILES PER HOUR
MSE	MECHANICALLY STABILIZED EARTH
M/W	MAINTENANCE OF WAY
N	NORTH
NB, N.B.	NORTH BOUND
NBL	NORTH BOUND LANE
NIC	NOT IN CONTRACT
NO.	NUMBER
OB, O.B.	OUTBOUND
OH	OVERHEAD
POB	POINT OF BEGINNING
PC	POINT OF CURVATURE
POE	POINT OF END
PF	POINT OF FROG
PGL, P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PITO	POINT OF INTERSECTION OF TURNOUT
PKWY	PARKWAY
PS	POINT OF SWITCH
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
SAN	SANITARY SEWER
SB, S.B.	SOUTHBOUND
S.B.L.	SOUTHBOUND LANE
SC	POINT OF SPIRAL TO CURVE
SD	STORM DRAIN
SE	SUPER ELEVATION
SHLDR.	SHOULDER
SS	POINT OF SPIRAL TO SPIRAL
ST	POINT OF SPIRAL TO TANGENT
STA	STATION, STATIONING
STRUCT	STRUCTURAL
STY	STORY
T	TANGENT LENGTH
SWM	STORM WATER MANAGEMENT
TBD	TO BE DETERMINED
TBS	TIE BREAKER STATION
TEL.	TELEPHONE
TL	TOE LENGTH
T/TG, T/TG	EXISTING TELEPHONE/TELEGRAPH
T/LR	TOP OF LOW RAIL
T/R	TOP OF RAIL
T/S	TRACK & STRUCTURE
TPSS	TRACTION POWER SUBSTATION
TRMNP	TRANSMISSION
TS	POINT OF TANGENT TO SPIRAL
TYP	TYPICAL
UG	UNDERGROUND
V	DESIGN VELOCITY
VC	VERTICAL CURVE
Vmax	DESIGN VELOCITY, V, MAX
V, VERT.	VERTICAL
W	WATER
W/	WITH
WB, W.B.	WESTBOUND
W.B.L.	WESTBOUND LANE
WRPD	WRAPPED STEEL
W.P.	WORK POINT
X-OVER	CROSSOVER
YC	YARD CONNECTOR
YL	YARD LEAD
Ea	ACTUAL SUPERELEVATION
Eu	UNBALANCED SUPERELEVATION
E	EAST, EXTERNAL DISTANCE
EA	EMERGENCY ACCESS
EB, E.B.	EASTBOUND
E.B.L.	EASTBOUND LANE
ELEC	ELECTRIC
EL, ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
R	RADIUS, RADIUS OF CIRCULAR CURVE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
RTC	REMOTE TRAIN CONTROL ROOM
RT	RIGHT
RTE	ROUTE

TRACK ABBREVIATIONS

BAL	BALLASTED
CWR	CONTINUOUS WELDED RAIL
X-ING	CROSSING
X-OVER	CROSSOVER
DF	DIRECT FIXATION
HF	HEEL OF FROG
HL	HEEL LENGTH OF FROG
HS	HIGH STRENGTH
TL	TOE LENGTH OF FROG
JT	JOINT
OTM	OTHER TRACK MATERIAL
PF	1/2 INCH POINT OF FROG
PS	POINT OF SWITCH
RBM	RAILBOUND MANGANESE
TRK	TRACK
TC	TRACK CENTER
TO	TURNOUT
EIBT	ELECTRICALLY INSULATED BALLASTED TRACK
PROT.	PROTECTION COVER ASSEMBLY

CIVIL ABBREVIATIONS AND SYMBOLS

HORIZONTAL

R	RADIUS OF CIRCULAR CURVE
Dc	DEGREE OF CURVE (ARC DEFINITION)
P	POINT OF INTERSECTION
T Δ	TANGENT LENGTH OF CIRCULAR CURVE CENTRAL ANGLE OF CIRCULAR CURVE
Lc	LENGTH OF CIRCULAR CURVE
Ls	LENGTH OF SPIRAL
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
TS	TANGENT TO SPIRAL
A	SPIRAL DESIGNATION AHEAD BY STATIONING
SC	SPIRAL TO CURVE
CS	CURVE TO SPIRAL
B	SPIRAL DESIGNATION BACK BY STATIONING
ST	SPIRAL TO TANGENT
I	TOTAL INTERSECTION ANGLE
Ea,SE	ACTUAL SUPERELEVATION
Eu	UNBALANCED SUPERELEVATION
MPH	MILES PER HOUR
◪	EQUATION IN STATIONING
POT	POINT ON TANGENT
POC	POINT ON CURVE
PTO	POINT OF INTERSECTION OF TURNOUT

VERTICAL

T/R	TOP OF RAIL
VC	LENGTH OF VERTICAL CURVE
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
EL	ELEVATION
PGL	PROFILE GRADE LINE
⟋O⟍	P.V.I.
MO	MID-ORDINATE

GENERAL ABBREVIATIONS

ACST	ACOUSTICAL
AHD	AHEAD
APPROX	APPROXIMATE
AR	AS REQUIRED
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION
BEG	BEGIN
BK	BACK
BRKR	BREAKER
BTC	BALLASTED TRACK CONSTRUCTION
CLR	CLEAR
CONN	CONNECTION
CTR	CENTER
DIA	DIAMETER
DIAG	DIAGRAM
DBL	DOUBLE
DWG	DRAWING
EA	EACH
EBL	EASTBOUND LANES
EQN	EQUATION
FT	FOOT
HD	HEAD
HEX	HEXAGONAL
IB	INBOUND
ID	INSIDE DIAMETER
IJ	INSULATED JOINT
IN	INCH
KCMIL	THOUSAND CIRCULAR MILS
LF	LINEAR FOOT
LG	LONG
LH	LEFT HAND
MAX	MAXIMUM
MAR	MEASURED ALONG RAIL
MFG	MANUFACTURE
MIN	MINIMUM
NBL	NORTHBOUND LANES
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OB	OUTBOUND
OC	ON CENTERS
OD	OUTSIDE DIAMETER
PL	PLACE
PLT	PLATE
PLTD	PLATED
PLTF	PLATFORM
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QTY	QUANTITY
REF	REFERENCE
REQD	REQUIRED
RET	RETAINING
RD	ROAD
RH	RIGHT HAND
ROW	RIGHT-OF-WAY
RR	RAILROAD
RTE	ROUTE
SBL	SOUTHBOUND LANES
SF	SQUARE FEET
SGLE	SINGLE
SPL	SPECIAL
SQ	SQUARE
ST	STREET
STA	STATION
STD	STANDARD
STIR	STIRRUP
SW	SWITCH
SYM	SYMMETRICAL
TEMP	TEMPERATURE
TYP	TYPICAL
UNC	UNITED NATIONAL COURSE
VAR	VARIES/VARIABLE
VOL	VOLUME
WBL	WESTBOUND LANES
DFTC	DIRECT FIXATION TRACK CONSTRUCTION
WP	WORKING POINT

GENERAL NOTES

GENERAL

1. HORIZONTAL CONTROL IS BASED ON WMATA COORDINATE GRID SYSTEM USING US SURVEY FOOT CONVERSION. VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), SEE SURVEY CONTROL POINT DRAWINGS, N00-C-221 THRU N00-C-226, FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHIC INFORMATION SHOWN ON THE DRAWINGS IS BASED ON ORTHOPHOTOGRAPHY GENERATED BY AERO-METRIC DATED IN 2006 AND UPDATED BY AERO METRIC IN 2010. THE SURVEY WAS ALSO SUPPLEMENTED BY GROUND RUN SURVEY BY PATTON HARRIS RUST & ASSOCIATED IN 2010 WITHIN THE MEDIAN OF THE DIAAH AND DULLES GREENWAY, WITHIN THE STATION SITES AND WITHIN THE MAINTENANCE YARD AREA.
3. TRACK STATIONING SHOWN ON THE CIVIL DRAWINGS ARE OUTBOUND TRACK STATIONS UNLESS NOTED OTHERWISE.
4. THESE DRAWINGS REFLECT A PRELIMINARY ENGINEERING EFFORT IN ACCORDANCE WITH THE EDITIONS OF THE MANUALS, STANDARDS AND SPECIFICATIONS NOTED HEREIN, AND ARE NOT TO BE USED FOR CONSTRUCTION.

UTILITIES

1. FACILITIES SHOWN ON THESE DRAWINGS HAVE BEEN COMPILED FROM INFORMATION FURNISHED BY WMATA AND VARIOUS UTILITY OWNERS, WHICH VARIED IN ITS NATURE, ITS ACCURACY, ITS CURRENCY AND ITS COMPLETENESS. IN CERTAIN AREAS, THIS INFORMATION WAS SUPPLEMENTED BY A LIMITED NUMBER OF FIELD WALKDOWNS AND SURFACE GEOPHYSICAL DESIGNATION CONDUCTED IN 2004-2006. THE LIMITS OF THE GEOPHYSICAL DESIGNATION ARE SHOWN ON THE UTILITY PLANS. THE ACCURACY AND COMPLETENESS OF THE UTILITY INFORMATION IS NOT GUARANTEED.
2. BUILDING SERVICE CONNECTIONS TO ABUTTING PROPERTIES GENERALLY ARE NOT SHOWN, BUT MUST BE MAINTAINED.
3. AT LEAST 48 HOURS BEFORE BEGINNING ANY EXCAVATION, CONTRACTOR SHALL CALL MISS UTILITY OF VIRGINIA (1-800-552-7001) FOR DELINEATION OF ALL UTILITIES IN THE AREA OF THE PROPOSED EXCAVATION.
4. REFER TO THE PROJECT SPECIFICATIONS FOR WATER AUTHORITY NOTIFICATION REQUIREMENTS PRIOR TO BEGINNING CONSTRUCTION WORK.
5. REFER TO THE PROJECT SPECIFICATIONS FOR REQUIREMENTS ON MATERIALS, INSTALLATION, TESTING AND CORROSION CONTROL OF NEW, METALLIC, UNDERGROUND LINES.
6. PUBLIC TELEPHONE SERVICE WILL BE NEEDED AT EACH TRANSIT STATION. LOCAL TELEPHONE COMPANY IS TO ROUTE THE LINES.
7. INSTALL UTILITY MARKERS TO INDICATE UNDERGROUND UTILITY LINES WHICH CROSS AT-GRADE AND EMBANKMENT SECTIONS OF THE METRO RIGHT-OF-WAY, IN ACCORDANCE WITH STANDARD DRAWING NO. ST-U-066. THE LIST OF UTILITY OWNERS AND SYMBOLS SHOWN ON DWG. NO. ST-U-066 IS EXPANDED TO INCLUDE:

OWNERS	SYMBOL
LOUDOUN COUNTY	LN CO.
LOUDOUN WATER (FORMERLY LCSA)	LW
CITY OF FAIRFAX	FX
DC WASA	
DOMINION VIRGINIA POWER	DVP
NORTHERN VIRGINIA ELECTRIC COOPERATIVE	NOVEC
COLONIAL PIPELINE	CP
COLUMBIA GAS	COL
ADELPHIA COMMUNICATIONS	ALPH
COMCAST COMMUNICATIONS	CCST
COX COMMUNICATIONS	COX
ABOVENET	ANET
ATLANTIC TELEPHONE & TELEGRAPH	AT&T
LEVEL 3 COMMUNICATIONS	LVL3
MCI	MCI
METROPOLITAN WASHINGTON AIRPORTS AUTHORITY	MWAA
QWEST/LIGHTWAVE SPECTRUM	QWEST
VERIZON	VZN
XO COMMUNICATIONS	XO
XSPEDIUS	XSP

8. UTILITY RELOCATIONS AND UNDERGROUND DVP DUCTBANK (UG DVP DB) LOCATIONS ARE CONCEPTUAL IN NATURE AND ARE YET TO BE VALIDATED IN COOPERATION WITH THE UTILITY COMPANIES. UG DVP DB SHALL BE CONCRETE DUCTBANKS WITH MANHOLES PROVIDED AT A MAXIMUM SPACING TO BE DETERMINED.
9. IDENTIFY WMATA UTILITIES IN ACCORDANCE WITH STANDARD DRAWING NO. ST-U-064.

DRAINAGE

1. THE LOCATIONS OF ALL DRAINAGE STRUCTURES SHOWN ON THESE PLANS ARE APPROXIMATE, WITH THE EXCEPTION OF STRUCTURES SHOWING COORDINATES OR SPECIFIC STATIONS. THE DIMENSIONS SHOWN ON THE PLANS FOR DROP INLETS, JUNCTION BOXES AND MANHOLES ARE APPROXIMATE.
2. EXISTING DRAINAGE FACILITIES LABELED "TO BE ABANDONED" SHALL BE LEFT IN PLACE, BACKFILLED AND PLUGGED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS PP-1 (VOL. 1, P. 107.22), EXCEPT ON DULLES AIRPORT PROPERTY WHERE ABANDONED FACILITIES ARE TO BE REMOVED.
3. IF, DURING CONSTRUCTION, THE CULVERT INVERT ELEVATIONS SHOWN ON THE PLANS ARE FOUND TO DIFFER SIGNIFICANTLY FROM THE ELEVATIONS OF THE STREAM OR SWALE IN WHICH THE CULVERT IS TO BE PLACED, THE ENGINEER WILL MAKE THE NECESSARY ADJUSTMENTS BEFORE THE CULVERT IS INSTALLED.
4. THE DESIGN/BUILD CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION.
5. EXISTING DRAINAGE FACILITIES BEING UTILIZED AS A PART OF THE DRAINAGE SYSTEM, AND DESIGNATED ON THE PLANS "TO BE CLEANED OUT", SHALL BE CLEANED AS DIRECTED BY THE ENGINEER.
6. WHERE NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, CONCRETE PIPE WITH LESS THAN STANDARD MINIMUM COVER SHALL HAVE BEDDING MATERIAL PLACED UP TO HALF THE PIPE DIAMETER AND SHALL BE MINIMUM OF CLASS III.
7. OTHER THAN ON PUBLIC ROADS, WHEN CURB AND GUTTER TYPE VDOT STANDARD CG-6 OR CG-7 IS SPECIFIED ON A CURVE (SUCH AS AT AN INTERSECTION), THE ENGINEER MAY APPROVE A DECREASE IN THE CROSS SLOPE OF THE GUTTER TO FACILITATE DRAINAGE.
8. THE PROPOSED RIPRAP MAY BE OMITTED AS APPROVED BY THE ENGINEER IF THE SLOPE IS FOUND TO MEET THE FOLLOWING CRITERIA: THE SLOPE DESIGNATED FOR PLACEMENT OF RIPRAP IS COMPRISED OF SOLID ROCK OR CLOSELY CONSOLIDATED BOULDERS WITH SOUNDNESS, SIZE AND WEIGHT EQUAL TO OR EXCEEDING THE SPECIFICATIONS FOR THE RIPRAP. IF THE SLOPE IS FOUND TO BE COMPRISED OF MATERIAL WHICH IS COARSER THAN THE BEDDING AGGREGATE FILTER BLANKET SPECIFIED ON THE PLANS, THE AGGREGATE FILTER BLANKET MAY BE OMITTED AS APPROVED BY THE ENGINEER.
9. PROVIDE CLEANOUTS AT THE BEGINNING OF EACH UNDERDRAIN BRANCH AND WHERE DISTANCES BETWEEN ACCESS POINTS (BSI) EXCEED 300 FEET.

GRADING

1. THE GRADE LINE DENOTES TOP OF FINISHED PAVEMENT/GRADE UNLESS SHOWN OTHERWISE ON TYPICAL SECTIONS OR PLANS. THE GRADE LINE BENEATH THE TRACK SECTION DENOTES TOP OF SUBGRADE.
2. UNLESS NOTED OTHERWISE, REMOVE ALL EXISTING CONCRETE ITEMS LOCATED IN THE AREA TO BE GRADED, INCLUDING, BUT NOT LIMITED TO SIDEWALK, CURB, CURB AND GUTTER, RAISED CONCRETE MEDIANS, PAVED DITCHES, STORM SEWER PIPE REMOVAL, ENDWALLS, HEADWALLS AND END-SECTIONS.
3. THE EXCAVATION OF UNSUITABLE MATERIAL AS SPECIFIED IS BASED ON PRELIMINARY SUBSURFACE SOIL INVESTIGATIONS. IF, DURING CONSTRUCTION, IT IS DEEMED NECESSARY TO CHANGE THE DEPTH OR THE LIMITS OF SUCH EXCAVATION, SUCH CHANGE IS TO BE MADE WITH THE PRIOR APPROVAL OF THE ENGINEER.
4. THE BORROW MATERIAL USED WITHIN ROADWAY RIGHTS OF WAYS SHALL BE A MINIMUM CBR 6 OR AS APPROVED BY THE ENGINEER.
5. MATERIAL FROM REGULAR EXCAVATION WHICH IS SUITABLE FOR STABILIZATION WITH HYDRAULIC CEMENT (LIME) SHALL BE PLACED IN THE TOP PORTION OF THE SUBGRADE.
6. LIMIT OF DISTURBANCE (LOD) LINES SHOWN ON THE DRAWINGS DEFINE THE LIMITS OF EXPECTED FINISHED GRADING WORK (NOT INCLUDED WITH THIS SUBMITTAL). TEMPORARY DISTURBANCES OR DISTURBANCES TO BE RESTORED TO EXISTING CONDITIONS (E.G. UTILITY WORK) ARE NOT IDENTIFIED WITHIN THE LOD.
7. WHERE GRADING IS NOT SHOWN WITHIN AREAS OF ANTICIPATED DISTURBANCE, THE INTENT IS TO RESTORE EXISTING GRADE AND/OR MAINTAIN EXISTING DRAINAGE PATTERNS.
8. FINISH GRADING NOT SHOWN AT PIERS. FINISH GRADE SHALL SLOPE AWAY FROM PIERS WHERE POSSIBLE.

WETLANDS

1. WETLANDS INFORMATION SHOWN ON THE DRAWINGS WAS PROVIDED BY DRPT, WITH SUPPLEMENTAL INFORMATION FOR DULLES AIRPORT PROVIDED BY MWAA. WETLANDS INFORMATION TO BE VALIDATED DURING FINAL DESIGN.

ROADWAY

1. ALL TREES LOCATED WITHIN THE CLEAR ZONE, WITHIN THE LIMITS OF THE MWAA OR VDOT RIGHT OF WAY OR WITHIN THE CONSTRUCTION EASEMENT, UNLESS OTHERWISE NOTED ON PLANS OR DIRECTED BY THE ENGINEER, SHALL BE REMOVED, AS PROVIDED FOR IN SECTION 301 OF THE APPLICABLE VDOT ROAD AND BRIDGE SPECIFICATIONS.
2. WHEN NO CENTERLINE ALIGNMENT IS SHOWN FOR RECONSTRUCTION OF AN EXISTING ENTRANCE, THE ENTRANCE SHALL BE CONSTRUCTED IN THE SAME LOCATION AS THE EXISTING ENTRANCE.
3. ALL PAVEMENT MARKINGS AND TRAFFIC FLOW ARROWS SHOWN ON THE ROADWAY PLANS ARE SCHEMATIC ONLY AND NOT INTENDED TO BE COMPLETE. THE ACTUAL LOCATION AND APPLICATION OF PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH SECTION 704 OF THE APPLICABLE VDOT ROAD AND BRIDGE SPECIFICATIONS, MUTCD, SEQUENCE OF CONSTRUCTION/TRAFFIC CONTROL PLANS, PAVEMENT MARKING PLAN SHEETS AND AS DIRECTED BY THE ENGINEER.
4. ALL ASPECTS OF ROADWAY CONSTRUCTION WITHIN MWAA AND VDOT RIGHT OF WAY SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST VIRGINIA ROAD AND BRIDGE SPECIFICATIONS, THE VIRGINIA ROAD AND BRIDGE STANDARDS (2001 EDITION), THE LATEST VIRGINIA ROAD DESIGN MANUAL AND THE VDOT MINIMUM STANDARDS OF ENTRANCES TO STATE HIGHWAYS. ALL ROADWAY CONSTRUCTION NOT WITHIN MWAA OR VDOT RIGHT OF WAY SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST FAIRFAX COUNTY, LOUDOUN COUNTY AND WMATA CRITERIA AND SPECIFICATIONS.
5. RESTORATION OF EXISTING FEATURES (CURBS, GUTTERS, PAVEMENT, SIDEWALK, ETC.) IMPACTED BY THE CONSTRUCTION IS INCLUDED IN THE WORK EVEN IF NOT SHOWN ON THE PLANS.
6. VDOT STANDARD PROTECTION SHALL BE PLACED AROUND PIERS WITHIN THE CLEAR ZONE.

MAINTENANCE OF TRAFFIC

1. THE TRAFFIC CONTROL DEVICES AND SAFETY MEASURES SHALL BE IN CONFORMANCE WITH THE FOLLOWING DOCUMENTS, AND THE MOST RECENT EDITIONS AND REVISIONS THERETO:
   - A. THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
   - B. THE VIRGINIA WORK AREA PROTECTION MANUAL, (2005 EDITION)
   - C. THE VIRGINIA ROAD AND BRIDGE STANDARDS, (2001 EDITION)
   - D. THE VIRGINIA ROAD AND BRIDGE SPECIFICATIONS, (2002 EDITION)
2. LANE CLOSURES WILL NOT BE PERMITTED UNLESS OTHERWISE APPROVED IN WRITING BY THE VDOT ENGINEER AND AIRPORT OPERATIONS (ON MWAA ROADWAYS).
3. CONCRETE TRAFFIC BARRIER SERVICE SHALL BE INSTALLED AND REMOVED SO AS NOT TO PRESENT ANY BLUNT END OR HAZARD TO THE MOTORING PUBLIC. THE PLACEMENT AND REMOVAL OF THE TRAFFIC BARRIER SERVICE AND BARRICADES ARE TO BE COORDINATED BY THE ENGINEER.
4. BARRIER END TREATMENT SHALL COMPLY WITH THE VDOT WORK AREA PROTECTION MANUAL TTC-5.0 IF NOT SPECIFICALLY ADDRESSED BY THE PLAN.
5. ALL AREAS WITHIN THE CLEAR ZONE THAT ARE EXCAVATED BELOW THE EXISTING PAVEMENT SURFACE SHALL BE BACK-FILLED AT THE CONCLUSION OF EACH WORKDAY TO FORM AN APPROXIMATE 6:1 WEDGE AGAINST THE EXISTING PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC (UNLESS OTHERWISE PROTECTED BY BARRIER PLACEMENT).
6. ADVANCED SIGNING, TRAFFIC BARRIER SERVICE CONCRETE, AND ANY OTHER TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE BEGINNING OF EACH STAGE OF CONSTRUCTION AND SHALL BE REMOVED AS NECESSARY BEFORE PROCEEDING TO THE NEXT STEP.
7. WHERE AFFECTED, THE REMOVAL AND REPLACEMENT OF TRAFFIC SIGNALS AND SIGNS IS PART OF THE CONTRACT, EXCEPT WHERE NOTED AS BY OTHERS.

RIGHT OF WAY

1. SEE DRAWING NO. N00-R-008 FOR RIGHT OF WAY GENERAL NOTES.

Layers for **Civil**

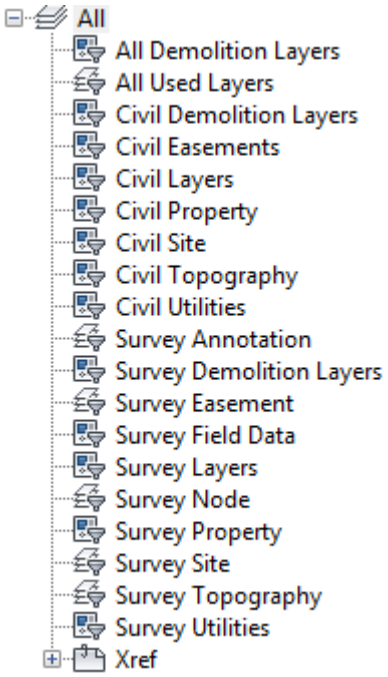
An example of the layer descriptions for **Civil** is shown in the table below.

C-ANNO-DIMS	Dimensions
C-ANNO-LEGN	Legends and schedules
C-ANNO-NOTE	Notes
C-ANNO-SYMB	Symbols
C-ANNO-TEXT	General Text
C-ANNO-TTLB	Border and Title Block
C-BLDG	Proposed building footprints
C-COMM	Site communication/telephone poles, boxes, towers
C-FIRE	Fire protection-hydrants, connections
C-NGAS	Natural gas-manholes, meters, storage tanks
C-NGAS-UNDR	Natural gas-underground lines
C-PKNG	Parking lots
C-PKNG-ISLD	Parking islands
C-PKNG-STRP	Parking lot striping, handicapped symbol
C-PROP	Property lines, survey benchmarks
C-PROP-BRNG	Bearings and distance labels
C-PROP-CONS	Construction controls
C-PROP-ESMT	Easements, rights-of-way, setback lines
C-ROAD	Roadways
C-ROAD-CNTR	Center lines
C-ROAD-CURB	Curbs
C-SSWR	Sanitary sewer-manholes, pumping stations
C-SSWR-UNDR	Sanitary sewer-underground lines
C-STRM	Storm drainage catch basins, manholes
C-STRM-UNDR	Storm drainage pipe-underground
C-TOPO	Proposed contour lines and elevations
C-TOPO-RTWL	Retaining wall
C-TOPO-SPOT	Spot elevations
C-WATR	Domestic water- manholes, pumping, storage
C-WATR-UNDR	Domestic water-underground lines

Layer Groupings for **Civil**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Civil** drawings.

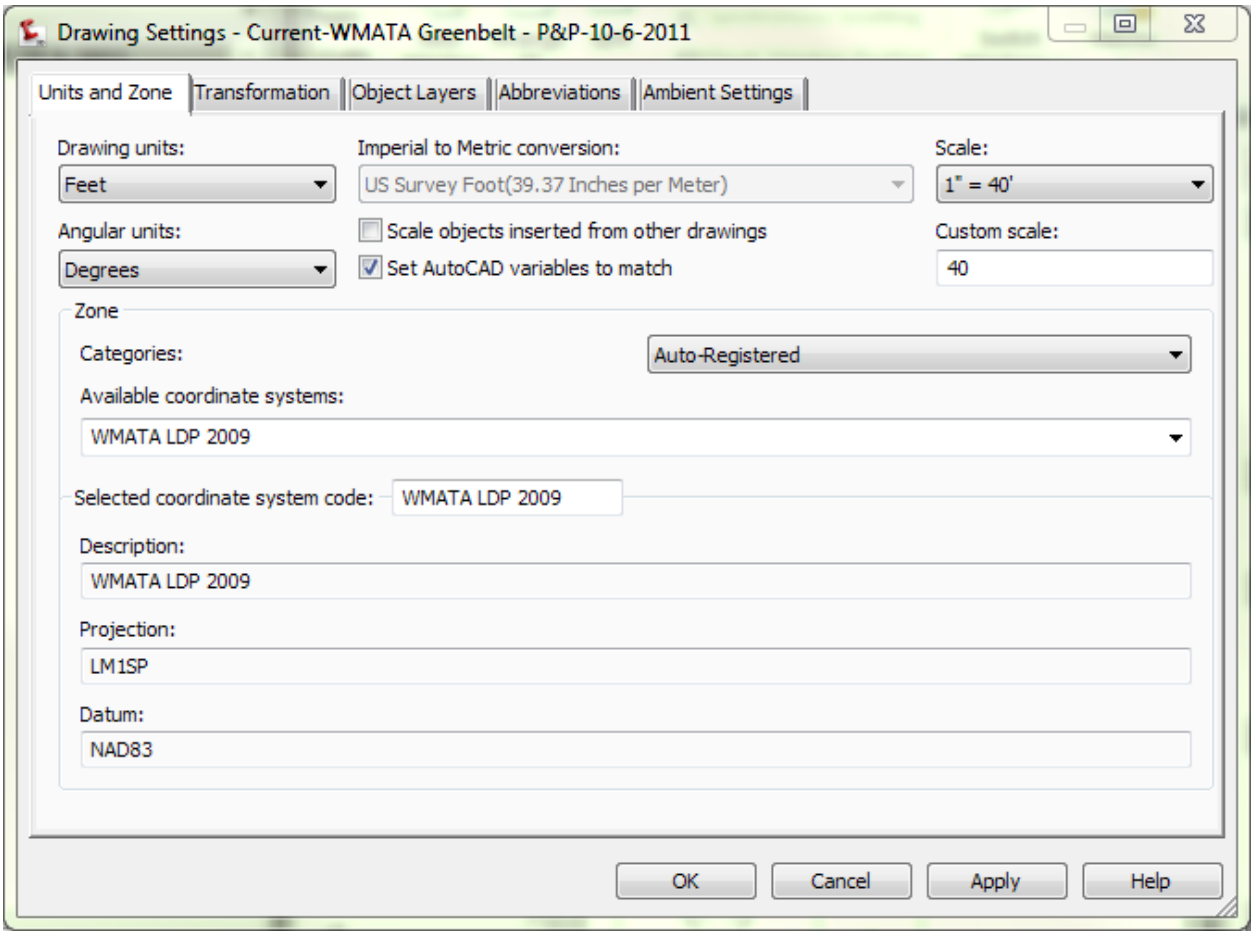
Each Layer Grouping refines the layer display to the category shown in the title. For example, Civil shows all Civil layers, Easement layers for civil and survey, topography layers for civil, and survey within the Civil file and Civil Annotation shows all annotation layers within the civil file.



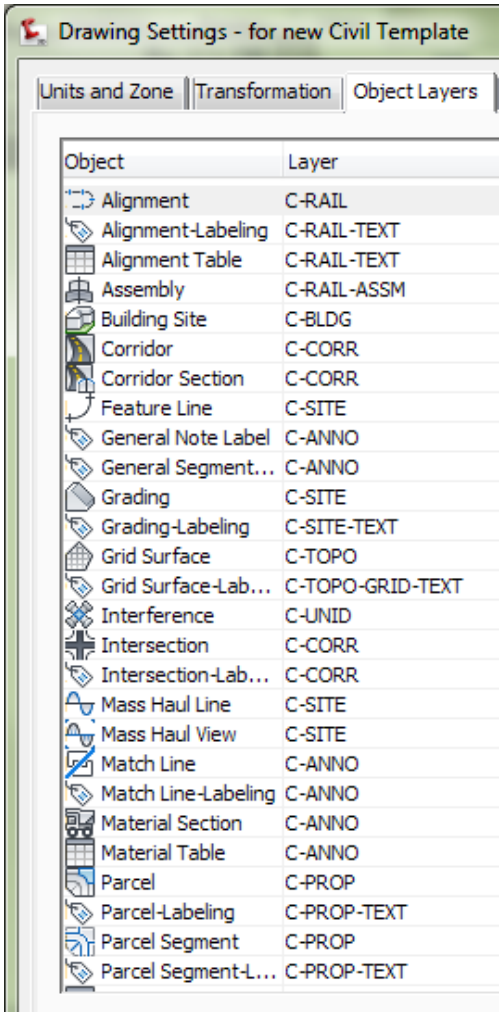
Civil 3D Design Styles

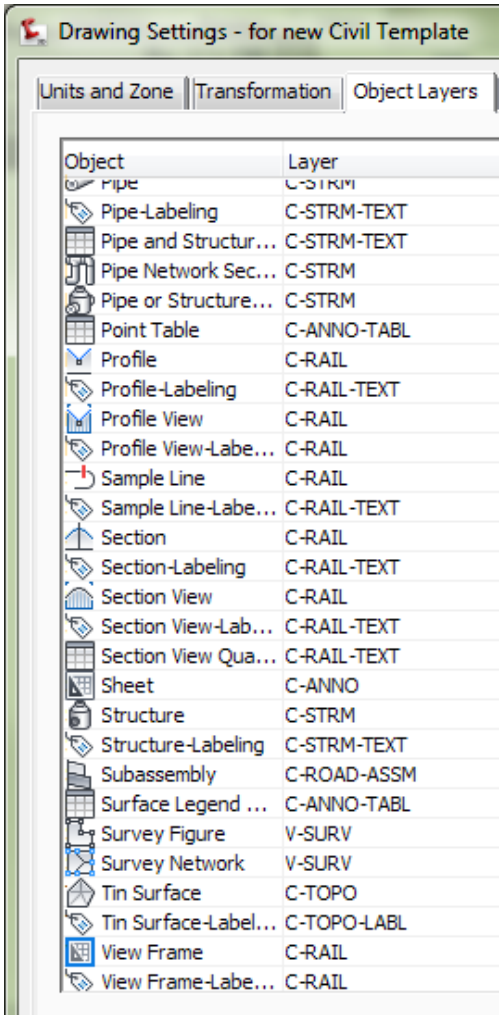
The Civil 3D Styles are duplicated from the Survey drawing Styles. The layers and components are essentially the same except that Survey has Survey Styles used pre-dominantly whereas the Civil would have Civil Styles used pre-dominantly.

The Styles have a master settings area that has been populated for Civil design preferences in the Civil file and for Survey preferences in the Survey file. Please refer to the Civil 3D Survey Styles section above for details on the Styles for Civil 3D. The Civil and Survey settings are established as follows for Units and Zone with the WMATA LDP (Low Distortion Projection) 2009 geodetic zone applied for transformation:

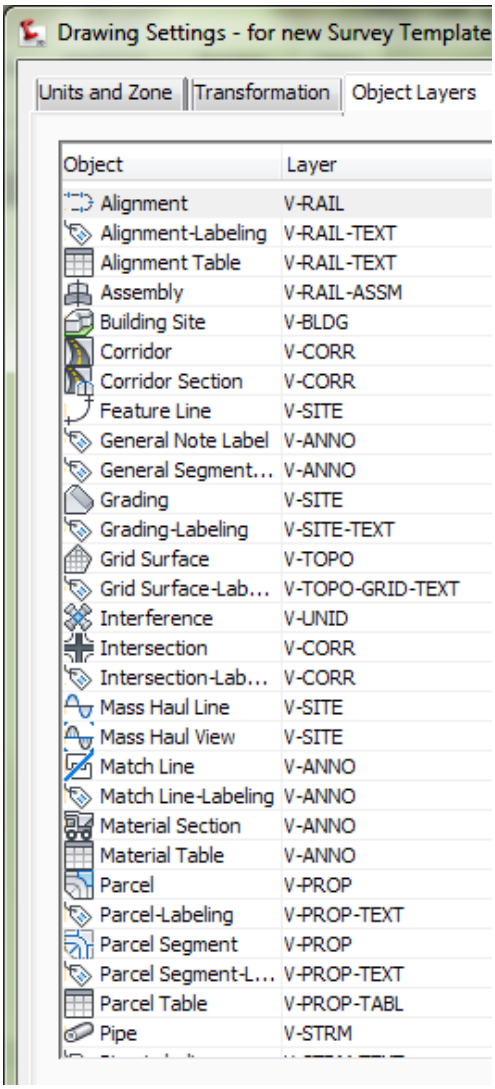


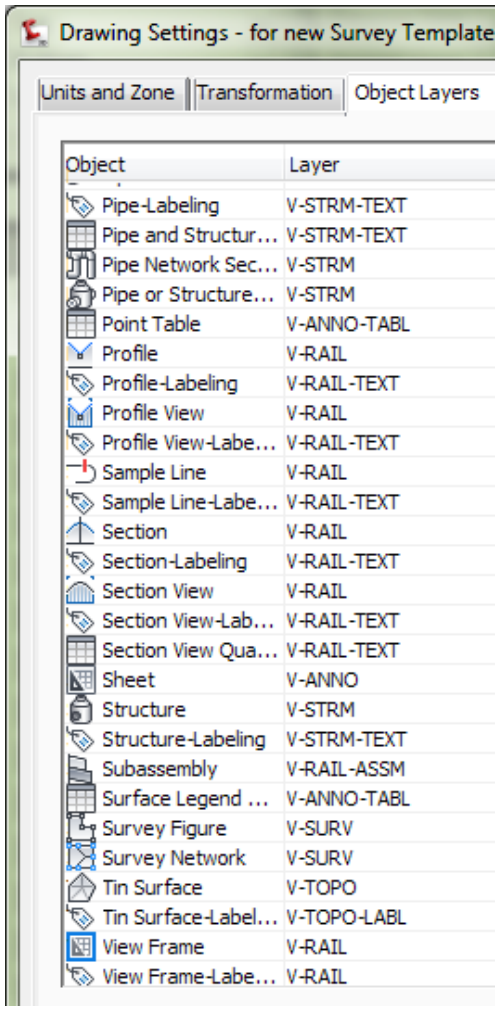
The object layers for Civil are set to automatically use Civil Design Styles as shown below.



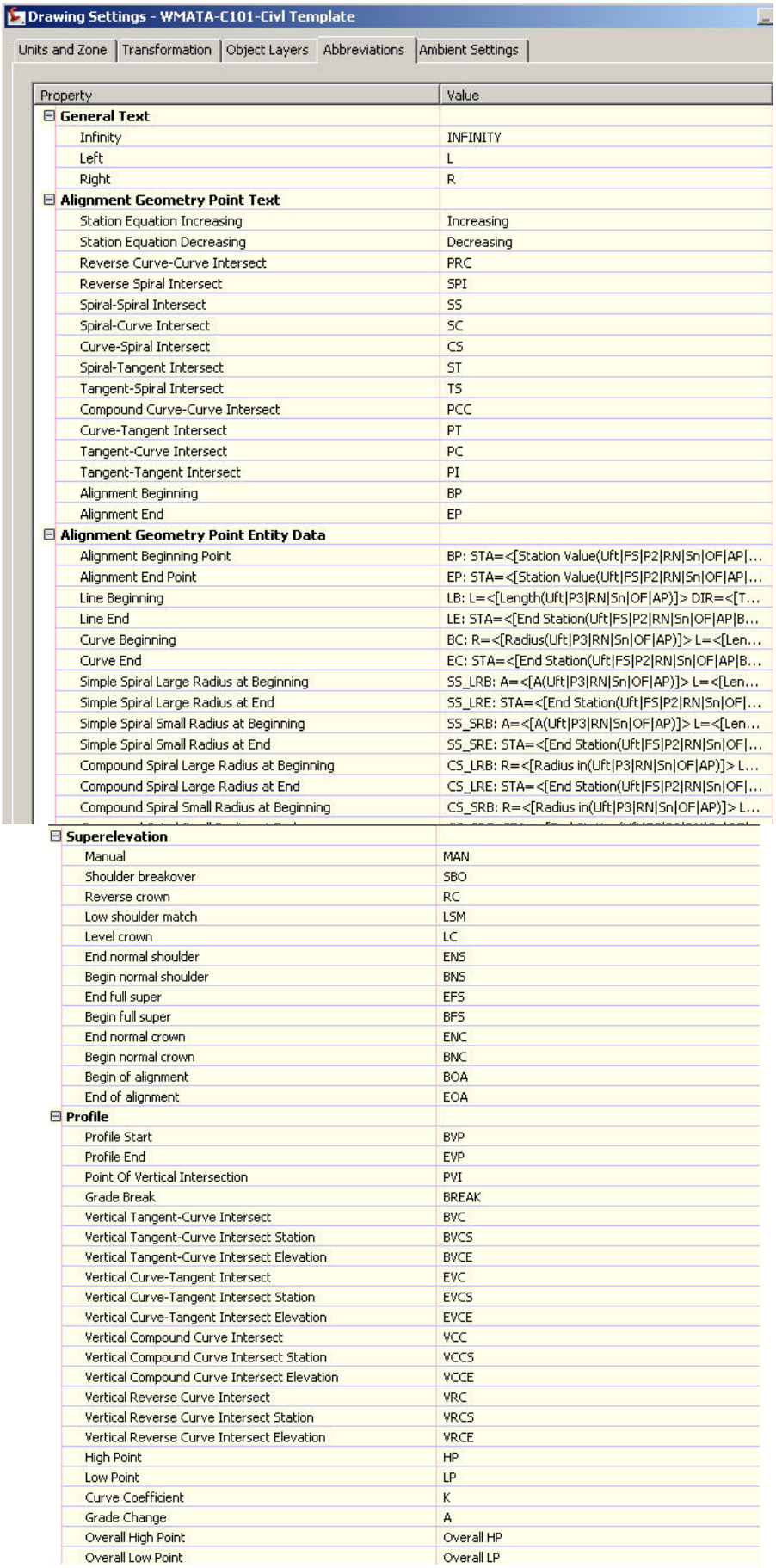


The object layers for Survey are set to automatically use Survey Styles as shown below.





The annotation **Abbreviations** are kept constant between Civil and Survey.



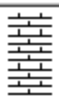
Property	Value
General Text	
Infinity	INFINITY
Left	L
Right	R
Alignment Geometry Point Text	
Station Equation Increasing	Increasing
Station Equation Decreasing	Decreasing
Reverse Curve-Curve Intersect	PRC
Reverse Spiral Intersect	SPI
Spiral-Spiral Intersect	SS
Spiral-Curve Intersect	SC
Curve-Spiral Intersect	CS
Spiral-Tangent Intersect	ST
Tangent-Spiral Intersect	TS
Compound Curve-Curve Intersect	PCC
Curve-Tangent Intersect	PT
Tangent-Curve Intersect	PC
Tangent-Tangent Intersect	PI
Alignment Beginning	BP
Alignment End	EP
Alignment Geometry Point Entity Data	
Alignment Beginning Point	BP: STA=<[Station Value(Uft|FS|P2|RN|Sn|OF|AP|...
Alignment End Point	EP: STA=<[Station Value(Uft|FS|P2|RN|Sn|OF|AP|...
Line Beginning	LB: L=<[Length(Uft|P3|RN|Sn|OF|AP)]> DIR=<[T...
Line End	LE: STA=<[End Station(Uft|FS|P2|RN|Sn|OF|AP|B...
Curve Beginning	BC: R=<[Radius(Uft|P3|RN|Sn|OF|AP)]> L=<[Len...
Curve End	EC: STA=<[End Station(Uft|FS|P2|RN|Sn|OF|AP|B...
Simple Spiral Large Radius at Beginning	SS_LRB: A=<[A(Uft|P3|RN|Sn|OF|AP)]> L=<[Len...
Simple Spiral Large Radius at End	SS_LRE: STA=<[End Station(Uft|FS|P2|RN|Sn|OF|...
Simple Spiral Small Radius at Beginning	SS_SRB: A=<[A(Uft|P3|RN|Sn|OF|AP)]> L=<[Len...
Simple Spiral Small Radius at End	SS_SRE: STA=<[End Station(Uft|FS|P2|RN|Sn|OF|...
Compound Spiral Large Radius at Beginning	CS_LRB: R=<[Radius in(Uft|P3|RN|Sn|OF|AP)]> L...
Compound Spiral Large Radius at End	CS_LRE: STA=<[End Station(Uft|FS|P2|RN|Sn|OF|...
Compound Spiral Small Radius at Beginning	CS_SRB: R=<[Radius in(Uft|P3|RN|Sn|OF|AP)]> L...
Superelevation	
Manual	MAN
Shoulder breakover	SBO
Reverse crown	RC
Low shoulder match	LSM
Level crown	LC
End normal shoulder	ENS
Begin normal shoulder	BNS
End full super	EFS
Begin full super	BFS
End normal crown	ENC
Begin normal crown	BNC
Begin of alignment	BOA
End of alignment	EOA
Profile	
Profile Start	BVP
Profile End	EVP
Point Of Vertical Intersection	PVI
Grade Break	BREAK
Vertical Tangent-Curve Intersect	BVC
Vertical Tangent-Curve Intersect Station	BVCS
Vertical Tangent-Curve Intersect Elevation	BVCE
Vertical Curve-Tangent Intersect	EVC
Vertical Curve-Tangent Intersect Station	EVCS
Vertical Curve-Tangent Intersect Elevation	EVCE
Vertical Compound Curve Intersect	VCC
Vertical Compound Curve Intersect Station	VCCS
Vertical Compound Curve Intersect Elevation	VCCE
Vertical Reverse Curve Intersect	VRC
Vertical Reverse Curve Intersect Station	VRCS
Vertical Reverse Curve Intersect Elevation	VRCE
High Point	HP
Low Point	LP
Curve Coefficient	K
Grade Change	A
Overall High Point	Overall HP
Overall Low Point	Overall LP

Standards for Geotechnical

Symbols - The following symbols are embedded within the **Geotechnical** drawings.

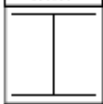
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

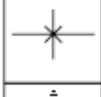
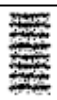
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

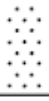
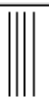
GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	AGGLOM	AGGLOMERATE FLOW BRECCIA
	ANCHOL	ANG CORED HOLE AR EQ D
	ANDES	ANDESITE PATTERN
	ANTICL	ANTICLINE
	BASALT	BASALT
	BHHNUM	BACKHOE HOLE NUMBER
	BOLOGR	BORING LOG REFUSAL
	BRECCA	BRECCIA
	CCHNUM	CONCRETE CORE HOLE NO.#
	CDRDSH	CONSOL DRAINED DIR SHEAR
	CHALK	CHALK OR MARL
	CHERT	CHERT
	CLAYST	CLAYSTONE OR SILTSTONE
	CMPSHL	COMPACTION SHALE
	COAL	COAL

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CONDRA	CONSOLIDATED DRAINED
	CONGLM	CONGLOMERATE PATTERN
	CONSOL	CONSOLIDATION DRAIN
	CONTST	CONSOLIDATION TEST
	CONUDR	CONSOLIDATED UNDRAINED
	CPNHOL *	CONE PENETROMETER HOLE
	CSHALE	CEMENTED SHALE PATTERN
	CSJNT	CLOSELY SPACED JOINTS PATTERN
	CUDRTT	CONSOLIDATION UNDERGROUND TRIAXIAL TEST
	DIORIT	DIORITE PATTERN
	DOLOM	DOLOMITE PATTERN
	DSCHOL *	DRIVE SAMPLED SPOT AND CORE
	DSHOL *	DRIVE SAMPLE SPOT HOLE
	FBLCK1	FAULT BLOCK MOVEMENT 1
	FBLCK2	FAULT BLOCK MOVEMENT 2

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GABBRO	GABBRO PATTERN
	GNEISS	GNEISS PATTERN
	GRANIT	GRANITE PATTERN
	GRAYWC	GRAYWACKE PATTERN
89-HA-EL	HAHNUM	HAND AUGER HOLE NUMBER
U / D	HANGF1	HIGH ANGLE FAULT 1
D / U	HANGF2	HIGH ANGLE FAULT 2
89-HD-EL	HDHNUM	HAND DUG HOLE NUMBER
	HEXAGN	HEXAGON SYMBOL
	HFRACT	HIGHLY FRACTURED PATTERN
X X X	HOLNUM	HOLE NUMBER ELEVATION
	HRZBED	HORIZONTAL BEDS
	LIMEST	LIMESTONE PATTERN
	MARBL1	MARBLE ELEVATION VIEW
MC=	MOISTC	MOISTURE CONTENT

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	MSJNT	MODERATELY SPACED JOINTS PATTERN
	NSAHOL	NONSAMPLED AREA OF HOLE
	OBSHOL *	PIEZOMETER OR OBSERVATION HOLE
	OPBLOG	OPEN BORING LOG
	PAHNUM	POWER AUGER HOLE NUMBER
	PIEZOM	PIEZOMETER
	PROPEX *	PROPOSED EXPLORATION
	PTHNUM	PERC TEST HOLE NUMBER
	QUARTZ	QUARTZITE PATTERN
	RDHNUM	ROTARY DRILL HOLE NUMBER
	RHYOLT	RHYOLITE PATTERN
	RSLASH	REFUSAL SLASHES
	SAMPLE	SAMPLE
	SANDST	SANDSTONE PATTERN
	SCHIST	SCHIST PATTERN

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SDIJNT	STRIKE DIP OF INCLINED
	SHELL	SHELLS PATTERN
	SLATE	SLATE PATTERN
	SOAPST	SOAPSTONE OR SERPENTINE PATTERN
	SQUARE	SQUARE SYMBOL
	STRKDP	STRIKE DIP
	STRKVJ	STRIKE OF VERTICAL JOI
	STRKVP	STRIKE W VERTICAL DIP
	SYNCLN	SYNCLINE
	TRIANG	TRIANGLE SYMBOL
	TSTHOL	TEST HOLE SYMBOL
	TUFF	TUFF OR TUFF BRECCIA PATTERN
	UCONUD	UNCONSOLIDATED UNDRAINED
	UCONUT	UNCONSOLIDATED UNDRAIND TAXIAL TEST
	UDENIS *	UNDISTURBED DENISON OR PUSH

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
U	ULIMIT	UNSATISFACTORY LIMIT
	USCS1	USCS SOIL PATTERN
	USCS10	OL ORGANIC CLAY OR SILT LOW PATTERN
	USCS11	PT PEAT PATTERN
	USCS12	SC CLAYEY SAND PATTERN
	USCS13	SM SILTY SAND PATTERN
	USCS14	SP POORLY GRADED SAND PATTERN
	USCS15	SW WELL GRADED SAND PATTERN
	USCS2	CL LEAN CLAY PATTERN
	USCS3	GC CLAYEY GRAVEL PATTERN
	USCS4	GM SILTY GRAVEL PATTERN
	USCS5	GP POORLY GRADED GRAVEL PATTERN
	USCS6	GW WELL GRADED GRAVEL PATTERN
	USCS7	MH INORGANIC SILT HIGH LIQUID PATTERN
	USCS8	ML INORGANIC SILT LOW LIQUID PATTERN

GEOTECHNICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	USCS9	OH ORGANIC CLAY OR SILT HIG PATTERN
	VCHOL *	VERTICAL CORE HOLE
	VHNUM	VIBRACORE HOLE NUMBER
	WASHBR *	WASHBORED
	WBHNUM	WASH BORING HOLE NUMBER
	WLEVDL *	WATER LEVEL DATA LEFT
	WOOD	WOOD SYMBOL
	WSJNT	WIDELY SPACED JOINTS
	WTRLEV *	WATER LEVEL
	ZONECL	ZONES OF CORE LOSS

Tool Palettes containing symbols for **Geotechnical (Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

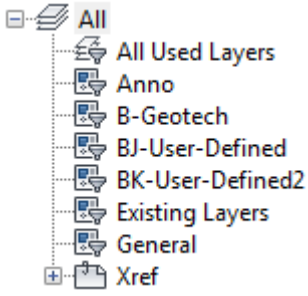
Layers for **Geotechnical**

An example of the layer descriptions for **Geotechnical** is shown in the table. The designation for Geotech is B for Borings. New layers are red, existing layers are green.
New Lineweights are 0.35 mm, existing lineweights are 0.15 mm.

B-BORE
B-BORE-FDTA
B-BORE-HOLE
B-BORE-LDTA
B-DETL-ANNN
B-DETL-ANNN-BORE
B-DETL-ANNN-CONC
B-DETL-ANNN-ERTH
B-DETL-ANNN-FDTA
B-DETL-ANNN-FILL
B-DETL-ANNN-GENF
B-DETL-ANNN-GNDW
B-DETL-ANNN-LDTA
B-DETL-ANNN-PVMT
B-DETL-ANNN-SPCL
B-DETL-ANNN-STRM
B-DETL-ANNN-SUBS
B-DETL-ANNN-SURF

Layer Groupings for **Geotechnical**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Geotechnical** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, BJ-User Defined shows all User defined layers.



Standards for Hazmat

Symbols - The following symbols are embedded within the **Hazmat** drawings.

The symbols have been delivered in a variety of ways and can be used with any of the following methods:

- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

HAZARDOUS MATERIALS SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	AIRQST	AIR QUALITY MONINTORING STATION
	AIRSMP	AIR SAMPLE LOCATION
	BIOSMP	BIOLOGICAL SAMPLE LOC
	EGDECN	EQUIPMENT DECON
	EGONST	ONSITE COMMAND POST
	EGSITE	SITE INFORMATION CENTER
	EGWASH	WASHDOWN WATER TANK
	EHZMSA	HAZARDOUS MATERIAL STORAGE LOCATION
	EHZMSB	HAZARDOUS MATERIAL STORAGE BUILDING
	EHZMSR	HAZARDOUS MATERIAL STORAGE ROOM
	EHZMSV	HAZARDOUS MATERIAL STORAGE VAULT
	EHZWSA	HAZARDOUS WASTE STORAGE LOCATION
	EHZWSB	HAZARDOUS WASTE STORAGE BUILDING
	EHZWSR	HAZARDOUS WASTE STORAGE ROOM
	EHZWSV	HAZARDOUS WASTE STORAGE VAULT

HAZARDOUS MATERIALS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	EMGSHW	EMERGENCY SHOWER
	EPOLLS	POLLUTION SOURCE SITE
	EYEWAS	EMERGENCY EYEWASH
	GWTQST	GROUNDWATER QUALITY MONITORING STATION
	LANGAS	LANDFILL GAS MONITOR PROBE
	MAGLOC	MAGNETOMETER DETECTED LOCATION
	MATSMP	SOLID MATERIAL SAMPLE LOCATION
	PRLLOC	POTENTIAL RELEASE LOCATION
	RESTR	RESTRICTED ACCESS
	SEDSMP	SEDIMENT SAMPLE LOC
	SOLGAS	SOIL GAS MONITORING PROBE
	SOLSMP	SOIL SAMPLE LOCATION
	SPLRES	SPILL RESPONSE
	SPLTNK	SPILL CONTAINMENT TANK
	SURSMP	SURFACE WATER SAMPLE LOCATION

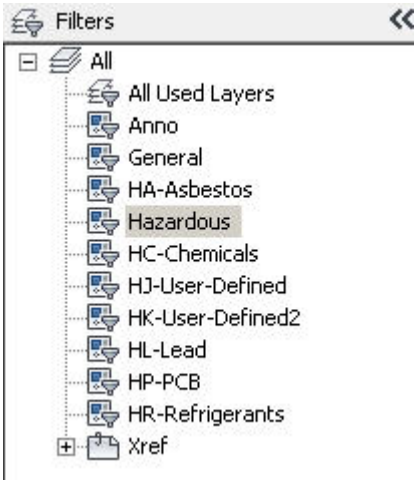
	SWTQST	SURFACE WATER QUALITY MONITORING STATION
	WASSMP	WASTE SAMPLE LOCATION
	WATSMP	GROUNDWATER SAMPLE LOCATION

Tool Palettes containing symbols for **Hazmat (obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Layer Groupings for **Hazmat**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Hazmat** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, Hazardous shows all Hazardous layers.



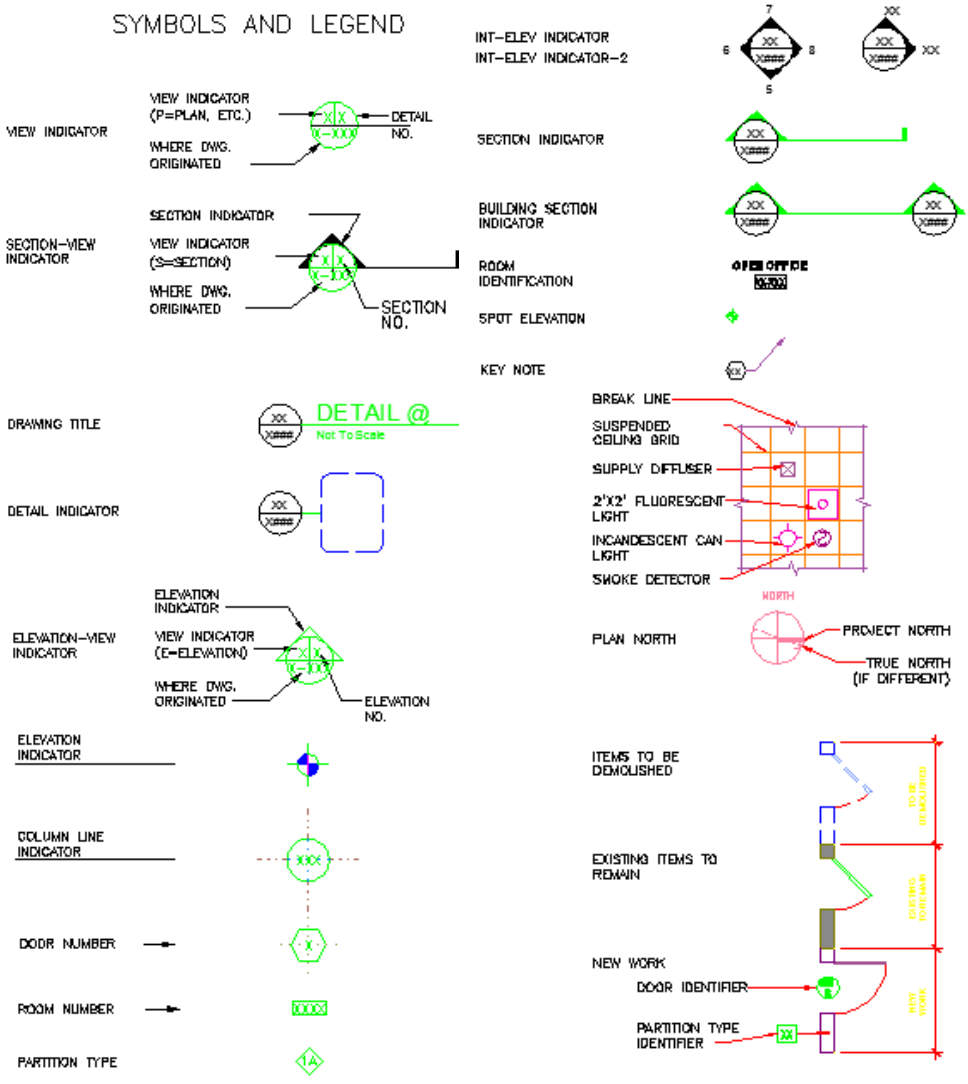
Layers for **Hazmat**

The designation for Hazmat is H. New layers are red, Existing layers are green, demolition is blue. New Lineweights are 0.35 mm, Existing and Demo lineweights are 0.15 mm, Demolition linetypes are generally dashed.

Standards for Architectural

Architectural Symbols -The following symbols are embedded within the **Architectural** drawings.

Several disciplines fall under the Architectural category comprising Interior, Structural, Fire Protection, MEP, Electrical, Telecom. They are described following Architectural.

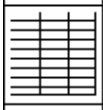
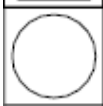
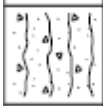
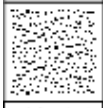
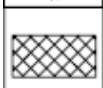
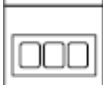
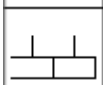
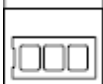
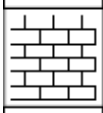
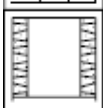


ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	ADOBE	MASONARY ADOBE RAMMED EARTH PATTERN
	ALUMIN	ALUMINUM PATTERN
	ARCPBW	ARCHITECTURAL PARTICLEBOARD
	ASBDLS	LARGE SCALE ASBESTOS BOARD
	ASBDSS	SMALL SCALE ASBESTOS BOARD
	ASHLER	STONE ASHLER PATTERN
	BATHCO	CORNER BATH
	BATHEM	EMERGENCY BATH
FB	BATHFT	FOOT BATH
	BATHHA	HYDROTHERAPY ARM BATH
	BATHHH	HYDROTHERAPY HUBBARD BATH
	BATHHL	HYDROTHERAPY LEG BATH
	BATHIF	INFANT BATH
	BATHIN	INSTITUTIONAL BATH
	BATHRC	RECESSED BATH

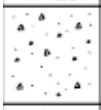
ARCHITECTURAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	BATHRR	ROLL RIM BATH
	BATHSZ	SITZ BATH
	BATHWP	WHIRLPOOL BATH
	BIDET	WATERCLOSET BIDET
	BRASS	BRONZE BRASS PATTERN
	BRBLCO	COURSED BRICK BLK PATTTERN
	BRCOBD	COMMON BOND BRICK PATTERN
	BRENBD	ENGLISH BOND BRICK PATTERN
	BRFACC	COMMON BOND BRICK FACE
	BRFIRE	FIRE BRICK
	BRFLBD	FLEMISH BOND BRICK PATTERN
	BRFLCB	FLEMISH COM BOND PATTERN
	BRKCF	COMMON FACE BRICK PATTERN
	BRKELE	BRICK ELEVATION PATTERN
	BRKGL	GLAZED BRICK

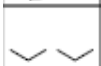
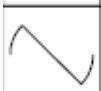
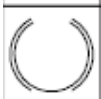
ARCHITECTURAL SYMBOL LEGEND

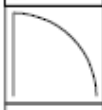
SYMBOL	NAME	DESCRIPTION
	BRRNBD	BRICK RUNNING BOND PATTERN
	BRSTBD	BRICK STACK BOND PATTERN
	BSSFLG	BLUESTN SLT SOAPSTN FLAGING
	CANWCT	CAN WASHER (CABINET TYPE)
	CANWDT	CAN WASHER (DISH TYPE)
	CARPET	CARPET AND PAD
	CCBSS	CAST CONCRETE BLOCK SMALL SCALE PATTERN
	CCELEV	CONCRETE CEMENT ELEVATION PATTERN
	CDTOP	CEMENTITIOUS DECK TOPPING PATTERN
	CMU	MASONRY UNIT
	CMUBLK	CONC BLOCK 8" X 8" X 16'
	CMUBP	CONCRETE MASONARY UNIT (CMU) BLOCK PATTERN
	CMUCOR	CONCRETE BLOCK 8" X 8" X 16" CORRUGATED
	CMUELB	ELEVATION BLOCK PATTERN
	CMUEND	CONCRETE BLOCK 8" X 8" X 16" (ENDPIECE)

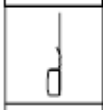
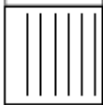
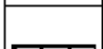
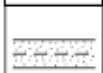
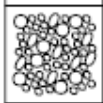
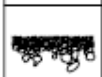
ARCHITECTURAL SYMBOL LEGEND

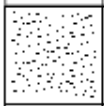
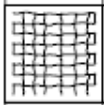
SYMBOL	NAME	DESCRIPTION
	CMUGL	GLAZED CONCRETE BLOCK
	CMUSTR	CONC BLOCK 8" X 8" X 16" STR.
	CONBLK	CONCRETE BLOCK PATTERN
	CONCCN	CONCRETE CINDER PATTERN
	CONCLW	CONCRETE LIGHT WEIGHT PATTERN
	CONCPR	PRECAST CASTIN PLACE CONCRETE PATTERN
	CONCST	CONCRETE STONE PATTERN
	CONPBS	PUMICE BLK CONCRETE SMALL SCALE PATTERN
	CPLANK	CONCRETE PLANK
	CSTIRN	CAST IRON PATTERN
	CSTSTN	CAST STONE PATTERN
	CTILSS	CERAMIC TILE SMALL SCALE PATTERN
	CUTSTN	CUT STONE PATTERN
	DFPROJ	DRINK FOUNTAN PROJECTNG TYPE
	DFRECS	DRINK FOUNTAIN RECESSED TYPE

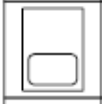
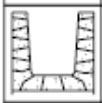
ARCHITECTURAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	DFSREC	DRINK FOUNTN SEMIRECSSD TYPE
	DOORID *	DOOR OPENING IDENTIFIER
	DOR18L	LEFT DOOR 180 DEGREE SWING
	DOR18R	RIGHT DOOR 180 DEGREE SWING
	DORBFL	LEFT BIFOLD DOOR
	DORBFR	RIGHT BIFOLD DOOR
	DORCPV	DOOR CENTER PIVOT
	DORCYL	CYLINDRICAL DOOR
	DORDBL	LEFT DOUBLE DOOR
	DORDBR	RIGHT DOUBLE DOOR
	DORDEL	LEFT DOUBLE EGRESS DOOR
	DORDER	RIGHT DOUBLE EGRESS DOOR
	DORFSL	LEFT SINGLE FULL SWING DOOR
	DORFSR	RIGHT SINGLE FULL SWING DOOR
	DOROVH	OVERHEAD DOOR

ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	DORPOC	DOOR POCKET
	DORRUP	ROLL UP DOOR
	DORSHL	LEFT SINGLE HINGED DOOR
	DORSHR	RIGHT SINGLE HINGED DOOR
	DORSLD	SLIDING DOOR
	DORSLS	SLIDING SURFACE DOOR
	DORSPL	LEFT SINGLE PIVOT DOOR
	DORSPR	RIGHT SINGLE PIVOT DOOR
	DORUDL	LEFT UNEVEN DOUBLE DOOR
	DORUDR	RIGHT UNEVEN DOUBLE DOOR
	DSHWSH	COMMERCIAL DISHWASHER
	EARTH	COMPACTED FILL EARTHWRK PATTERN
	EQPMID *	EQUIPMENT IDENTIFIER
	FASTEN *	FASTENER (INDICATE USE)
	FIBFSF	FIBROUS FIRE SAFING PATTERN

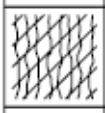
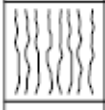
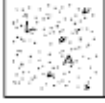
ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	FLRRPL	FLOORING RESILIENT PLASTIC LAMINATE FINISH
	FURCHH	FURRING CHANNEL HAT
	FURCHN	FURRING CHANNEL
	GLASLS	LARGE SCALE GLASS
	GLASS	STRUCTURAL GLASS PATTERN
	GLASSS	SMALL SCALE GLASS
	GLBLLS	GLASS BLOCK LARGE SCALE
	GLBLSS	GLASS BLOCK SMALL SCALE
	GLELEV	GLASS PATTERN ELEVATION VIEW
	GPLANK	GYPSUM PLANK
	GROUT	GROUT PATTERN
	GRVCRE	CRUSHED ROCK EARTH GRAVEL PATTERN
	GRVPFE	POROUS FILL GRAVEL EARTH WORK PATTERN
	GRVSCL	SAND CLAY GRAVEL PATTERN
	GYPBLK	GYPSUM BLOCK TILE

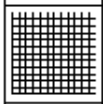
ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GYPPOM	GYPSUM PLASTER ON MASONRY
	GYPPPB	GYPSUM PLASTER PARTICLE BROARD
	GYPPPE	GYPSUM PLASTERPLAN ELEVATION PATTERN
	GYPSPP	GYPSUM SOLID PLASTER PARTITION
	GYPWBD	GYPSUM WALLBOARD FINISHES
	INFBSS	SMALL SCALE FLEXIBLE BLANKET INSULATION
	INLFLS	LARGE SCALE LOOSE FILL INSULATION
	INS1RM	INSULATION REFLECTIVE METAL ON ONE SIDE ONLY
	INS2RM	INSULATION REFLECTIVE CURTAN ON TWO SIDES
	INSFOM	SPRAY FOAM INSULATION
	INSQLT	INSULATION (LARGE SCALE) QUILT PATTERN
	INSRIG	RIGID INSULATION PATTERN
	INSSCM	SOLID CORK MAGNESIA INSULATION PATTERN
	INSTND	INSULATION (TYPE NOT DETERMINED) LARGE SCALE
	LAVBCK	BACK LAVATORY

ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	LAVCOR	CORNER LAVATORY
	LAVCOU	LAVATORY IN COUNTER
	LAVDNT	DENTAL LAVATORY
	LAVHND	HANDICAPPED LAVATORY
	LAVMDM	MEDICAL MANICURE LAVATORY
	LAVSLB	SLAB TYPE LAVATORY
	LINTEL	CONCRETE BEAM BOND LINTEL
	MARBL2	MARBLE STONE PLAN VIEW
	MTLLPL	METAL LATH AND PLASTER
	MTLSHT	METAL SHEET (ALL METALS SMALL SCALE)
	ORISTB	ORIENTED STRAND BOARD
	PARTBD	PARTICLEBOARD
	PLASTC	PLASTIC FINISHES
	PLPLLS	LARGE SCALE PLASTIC ON PLYWOOD
	PLPLSS	SMALL SCALE PLASTIC ON PLYWOOD

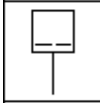
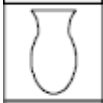
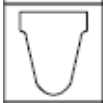
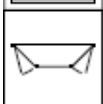
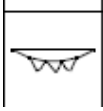
ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	PLYWLS	LARGE SCALE PLYWOOD
	PLYWSS	SMALL SCALE PLYWOOD
	RBILS	RIGID BOARD INTERIOR INSULATED LARGE SCALE
	RBISLS	INSULATED RIGID BOARD AS SHEATHING LARGE SCALE
	RIPRAP	RIPRAP PATTERN
	ROCK	ROCK EARTHWORK PATTERN
	ROOMID	ROOM IDENTIFIER
	RUBBLE	STONE RUBBLE PATTERN
	SAND	SAND PATTERN
DN	SDIRLD	STAIR DIRECTION LINE DOWN
UP	SDIRLU	STAIR DIRECTION LINE UP
	SHWRCO	CORNER SHOWER
	SHWRHD	SHOWER HEAD
	SHWROG	SHOWER OVERHEAD GANG
	SHWRPG	SHOWER PEDESTAL GANG

ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SHWRST	SHOWER STALL
SL	SLOPE	DIRECTION OF LINE SLOPE
	SNK2BD	DOUBLE SINK WITH DRAIN BOARDS
	SNK2CT	SINK TWO COMPARTMENT TYPE
	SNKCWT	CIRCULAR WASH TYPE SINK
	SNKDSP	SINK DISPOSER
	SNKFRC	FLUSHING RIM CLINICAL SINK
	SNKGEN	GENERAL SINK
	SNKKLR	KITCHEN SINK WITH LEFT AND RIGHT DRAIN BOARD
	SNKLDB	SINK WITH LEFT DRAIN BOARD
	SNKLTR	SINK LAUNDRY TRAY
	SNKSCW	SEMICIRULAR WASH SINK
	SNKSLP	SLOPE TYPE SINK
SS	SNKSRV	SERVICE SINK
	SNKSSC	SURGEON SCRUB SINK

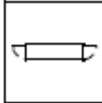
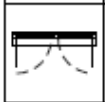
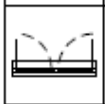
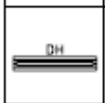
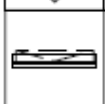
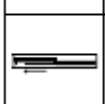
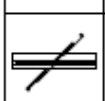
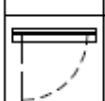
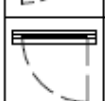
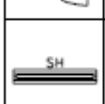
ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	STEEL	STEEL OTHER METALS PATTERN
	STLCSS	STRUCTURAL CLAY TILE SMALL SCALE
	STNSQR	SQUARED STONE PATTERN
	SUSPNT	SUSPENSION TEE
	TC1FLS	TERACOTA GLAZED ONE FACE LARGE SCALE
	TC2FSS	TERACOTA GLAZED TWO FACES SMALL SCALE
	TCBCSS	TERACOTA SMALL SCALE BRICKCOTA
	TCELEV	TERRA COTTA ELEVATION PATTERN
	TCHOLW	HOLLOW TERRA COTTA
	TCLS	LARGE SCALE TERRA COTTA
	TCQLS	TERA COTA QUARRY LARGE SCALE
	TCUGLS	TERACOTA UNGLAZED LARGE SCALE
	TCUSS	TERACOTA SMALL SCALE UNGLAZED PATTERN
	TCVENR	VENEER TERRA COTTA
	TERRZO	TERRAZZO PATTERN

ARCHITECTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	THRSHD	THRESHOLD
	TILCER	CERAMIC TILE ELEVATION PATTERN
	TILESF	STRUCTURAL FACING TILE PATTERN
	TILFSS	SMALL SCALE TILE FACING
	TILGSC	GLAZE STRUCTURAL CLAYTILE MASONARY
	TILSFU	TILE STRUCTURAL FLOOR UNITS
	TLACOU	ACOUSTICAL TILE FINISH
	TLCRLS	CERAMICTILE FINISH LRGSCALE
	TRAY1L	SINGLE LAUNDRY TRAY
	TRAY2L	DOUBLE LAUNDRY TRAYS
	URNLCO	CORNER TYPE URINAL
	URNLPD	PEDESTAL TYPE URINAL
	URNLST	URINAL STALL
	URNLTR	TROUGH TYPE URINAL
	URNLWH	WALL HUNG URINAL

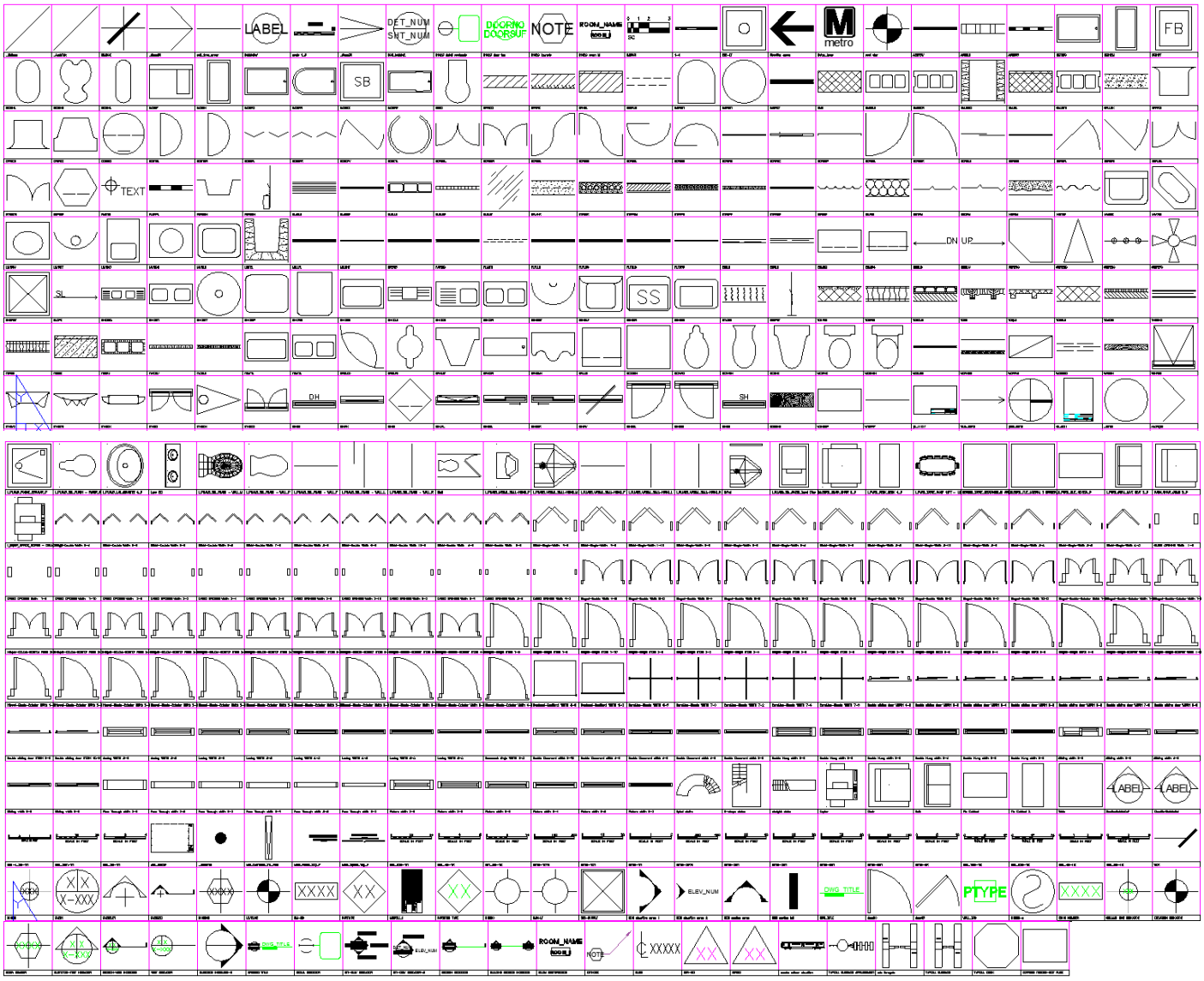
ARCHITECTURAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	WALLID *	WALL TYPE IDENTIFIER
	WCELWH	ELECTRIC WALL HUNG WATER COOLER
	WCFVFO	F.V. FLOOR OUTLET WATERCLOSET
	WCFVWH	F.V. WALL HUNG WATERCLOSET
	WCITNK	INTEGRAL TANK WATERCLOSET
	WCTANK	TANK TYPE WATERCLOSET
	WCWHTN	WALL HUNG TANK WATERCLOSET
	WDFLBD	WOOD FLOOR BOARD
	WDFNOS	WOOD FINISH ON STUDS
	WDFRAM	CONTINUOUS WOOD FRAMING
	WDSHSD	WOOD SHINGLES SIDING
	WFINSH	WOOD FINISH
	WINAWN	WINDOW AWNING
	WINBAY	PROJECTED BAY WINDOW
	WINBOW	PROJECTED BOW WINDOW

ARCHITECTURAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	WINBOX	PROJECTED BOX WINDOW
	WINDCI	DOUBLE CASEMENT WINDOW (INWARD OPENING)
	WINDCO	DOUBLE CASEMENT WINDOW (OUTWARD OPENING)
	WINDH	DOUBLE HUNG WINDOW
	WINFIX	FIXED 1'-0" WINDOW
	WINID *	WINDOW IDENTIFIER
	WINJAL	JALOUSIE WINDOW
	WINOSL	SLIDING WINDOW LEFT OPERATING SASH
	WINOSR	SLIDING WINDOW RIGHT OPERATING SASH
	WINPIV	PIVOT WINDOW
	WINSCL	WINDOW SINGLE CASEMENT LEFT JAMB HINGED
	WINSCR	WINDOW SINGLE CASEMENT RIGHT JAMB HINGED
	WINSH	SINGLE HUNG WINDOW
	WOODHB	HARDBOARD WOOD
	WSHRBP	BEDPAN WASHER

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability.



The symbols have been delivered in a variety of ways and can be used with any of the following methods: 1) INSERT can be used to pull the symbol from the internal memory of each drawing. 2) INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well. 3) Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

All Architectural Symbol names are listed below.

- _ArchTick
- _DotSmall
- _Oblique
- _Open30
- _Open90
- _Small
- 01420 detail rectangle
- 01420 door tag
- 01420 keynote
- 01420 room id
- 1-4
- 2D arch_cells
- 2D arch_cells_210
- 2D arch_cells_369
- 2D arch_cells_371
- 2D arch_cells_373
- 2D arch_cells_375
- 2D arch_cells_417
- 2D arch_cells_436
- 2D arch_cells_437
- 2D arch_cells_438
- 2D arch_cells_444
- 2D arch_cells_445
- 2D arch_cells_447
- 2D arch_cells_9
- 2X2-LT
- 2X2-SUPPLY
- ABBREV_1
- ada faregate
- ADCADD_ZZ
- AEC_Border
- Aec_Overhead_7ft_Plan
- Aec3_Room_Tag_P
- Aec3_Space_Tag_P
- AecDbLayoutCurve
- AecDbMvBlockRef
- AecDbMvBlockRef_1
- AecDbMvBlockRef_2
- AecDbWall
- AecDbWall_1
- AecRight
- arch_cells
- arch_cells_1
- arch_cells_10
- arch_cells_11
- arch_cells_2
- arch_cells_3
- arch_cells_4
- arch_cells_5
- arch_cells_6
- arch_cells_7
- arch_cells_8
- arch_cells_9
- ARCPBW
- ASBDLS
- ASBDSS
- Awning WIDTH 2-0
- Awning WIDTH 2-5
- Awning WIDTH 3-0
- Awning WIDTH 3-5
- Awning WIDTH 4-0
- Awning WIDTH 4-5
- Awning WIDTH 5-0
- Awning WIDTH 6-0
- BARSCI
- BATHCO
- BATHEM
- BATHFT
- BATHHA
- BATHHH
- BATHHL
- BATHIF
- BATHIN
- BATHRC
- BATHRR
- BATHSZ
- BATHWP
- BIDET
- Bifold-Double Width 4-6
- Bifold-Double Width 5-0
- Bifold-Double Width 10-0
- Bifold-Double Width 5-4
- Bifold-Double Width 5-8
- Bifold-Double Width 6-0
- Bifold-Double Width 6-8
- Bifold-Double Width 7-0
- Bifold-Double Width 8-0
- Bifold-Double Width 9-0
- Bifold-Single-Width 1-6
- Bifold-Single-Width 1-8
- Bifold-Single-Width 1-10
- Bifold-Single-Width 2-0
- Bifold-Single-Width 2-10
- Bifold-Single-Width 2-2
- Bifold-Single-Width 2-4
- Bifold-Single-Width 2-6
- Bifold-Single-Width 2-8
- Bifold-Single-Width 3-0
- Bifold-Single-Width 3-4
- Bifold-Single-Width 3-6
- Bifold-Single-Width 4-0
- BRFACC
- BRFIRE
- BRKGL
- BS1-1_2in-1ft
- BS1_16in-1ft
- BS1_2in-1ft
- BS1_32in-1ft
- BS1_4in-1ft
- BS1_8in-1ft
- BS1in-100ft
- BS1in-10ft
- BS1in-1ft
- BS1in-200ft
- BS1in-20ft
- BS1in-25ft
- BS1in-30ft
- BS1in-50ft
- BS1in-5ft
- BS3_16in-1ft
- BS3_32in-1ft
- BS3_4in-1ft
- BS3_8in-1ft
- BSSFLG
- BubbleDef
- BUILDING SECTION INDICATOR
- CAN-LT
- CANWCT
- CANWDT
- CARPET
- CASED OPENING Width 1-10
- CASED OPENING Width 1-6
- CASED OPENING Width 1-8
- CASED OPENING Width 2-0
- CASED OPENING Width 2-10
- CASED OPENING Width 2-2
- CASED OPENING Width 2-4
- CASED OPENING Width 2-6
- CASED OPENING Width 2-8
- CASED OPENING Width 3-0
- CASED OPENING Width 3-4
- CASED OPENING Width 3-6
- CASED OPENING Width 4-0
- Casement single WIDTH 6-0
- Chair
- CLINE
- CMU
- CMUBLK
- CMUCOR
- CMUEND
- CMUGL
- CMUSTR
- COLNO
- COLUMN LINE INDICATOR
- Copier
- CPLANK
- DETAIL INDICATOR
- df_8x11
- DFPROJ
- DFRECS
- DFSREC
- DIMTICK
- Direction arrow
- DOOR NUMBER
- door45
- door90
- DOORID
- DOORNO
- DOR18L
- DOR18R
- DORBFL
- DORBFR
- DORCPV
- DORCYL
- DORDBL
- DORDBR
- DORDEL
- DORDER
- DORFSL
- DORFSR
- DOROVH
- DORPOC
- DORRUP
- DORSHL
- DORSHR
- DORSLD
- DORSLS
- DORSPL

- DORSPR
- DORUDL
- DORUDR
- Double Casement width 2-10
- Double Casement width 4-0
- Double Casement width 4-5
- Double Casement width 4-9
- Double Casement width 6-0
- Double Hung width 2-0
- Double Hung width 2-8
- Double Hung width 3-0
- Double Hung width 3-4
- Double Hung width 3-8
- Double Hung width 6-0
- Double sliding door WIDTH 10-0
- Double sliding door WIDTH 4-6
- Double sliding door WIDTH 5-0
- Double sliding door WIDTH 5-4
- Double sliding door WIDTH 6-0
- Double sliding door WIDTH 6-8
- Double sliding door WIDTH 7-0
- Double sliding door WIDTH 8-0
- Double sliding door WIDTH 9-0
- DRAWING TITLE
- DWG_TITLE
- ELEVATION-VIEW INDICATOR
- ELEVATION INDICATOR
- ELEVATION INDICATOR-2
- ElevationBubbleDef
- EQPMID
- EXPRESS VENDOR-EXIT FARE
- FASTEN
- File Cabinet
- File Cabinet 2
- FLRRPL
- FURCHH
- FURCHN
- FURN_CHAIR_CHAIR 2_P
- GLASLS
- GLASSS
- GLBLLS
- GLBLSS
- GLELEV
- Gliding width 2-0
- Gliding width 3-0
- Gliding width 4-0
- Gliding width 5-0
- Gliding width 6-0
- GPLANK
- GYPBLK
- GYPPOM
- GYPPPB
- GYPSPP
- GYPWBD
- Hinged-Double-Exterior Width 1-10
- Hinged-Double-Exterior Width 1-6
- Hinged-Double-Exterior Width 1-8
- Hinged-Double-Exterior Width 2-0
- Hinged-Double-Exterior Width 2-10
- Hinged-Double-Exterior Width 2-2
- Hinged-Double-Exterior Width 2-4
- Hinged-Double-Exterior Width 2-6
- Hinged-Double-Exterior Width 2-8
- Hinged-Double-Exterior Width 3-0
- Hinged-Double-Exterior Width 3-4
- Hinged-Double-Exterior Width 3-6
- Hinged-Double-Exterior Width 4-0
- Hinged-Double Width 10-0
- Hinged-Double Width 4-6
- Hinged-Double Width 5-0
- Hinged-Double Width 5-4
- Hinged-Double Width 5-8
- Hinged-Double Width 6-0
- Hinged-Double Width 6-8
- Hinged-Double Width 7-0
- Hinged-Double Width 8-0
- Hinged-Double Width 9-0
- Hinged-Single-Exterior Width 1-10
- Hinged-Single-Exterior Width 1-6
- Hinged-Single-Exterior Width 1-8
- Hinged-Single-Exterior Width 2-0
- Hinged-Single-Exterior Width 2-10
- Hinged-Single-Exterior Width 2-2
- Hinged-Single-Exterior Width 2-4
- Hinged-Single-Exterior Width 2-6
- Hinged-Single-Exterior Width 2-8
- Hinged-Single-Exterior Width 3-0
- Hinged-Single-Exterior Width 3-4
- Hinged-Single-Exterior Width 3-6
- Hinged-Single-Exterior Width 4-0
- Hinged-Single Width 1-10
- Hinged-Single Width 1-6
- Hinged-Single Width 1-8
- Hinged-Single Width 2-0
- Hinged-Single Width 2-10
- Hinged-Single Width 2-2
- Hinged-Single Width 2-4
- Hinged-Single Width 2-6
- Hinged-Single Width 2-8
- Hinged-Single Width 3-0
- Hinged-Single Width 3-4
- Hinged-Single Width 3-6
- Hinged-Single Width 4-0
- I_EQUIP_OFFICE_COPIER - COLL...
- I_FURN_CHAIR_CHAIR 8_P
- I_FURN_DESK_DESK 4_P
- I_FURN_FILE_15X27A_P
- I_FURN_FILE_LATERAL 2 DRAW...
- I_FURN_SOFA_LOVE SEAT 2_P
- I_FURN_TABLE_CONF 12FT - 12 ...
- I_FURN_TABLE_RECTANGULAR...
- I_PLUMB_2D_ACCES_Towel Disp...
- I_PLUMB_FOUNT_REGULAR_P
- I_PLUMB_LAV_COUNTER 4_P
- I_PLUMB_URINAL_WALL-HUNG_F
- I_PLUMB_URINAL_WALL-HUNG_L
- I_PLUMB_URINAL_WALL-HUNG...
- I_PLUMB_URINAL_WALL-HUNG_P
- I_PLUMB_URINAL_WALL-HUNG_R
- I_PLUMB_WC_FLUSH - FLOOR_P
- I_PLUMB_WC_FLUSH - WALL_F
- I_PLUMB_WC_FLUSH - WALL_L
- I_PLUMB_WC_FLUSH - WALL_M
- I_PLUMB_WC_FLUSH - WALL_P
- I_PLUMB_WC_FLUSH - WALL_R
- i13850-o
- i16500
- INFBSS
- INLFLS
- INS1RM
- INS2RM
- INSFOM
- INSTND
- INT-ELEV INDICATOR
- INT-ELEV INDICATOR-2
- KEYNOTE
- LAVBCK
- LAVCOR
- LAVCOU
- LAVDNT
- LAVHND

- LAVMDM
- Lavs (2)
- LAVSLB
- LEVELINE
- LINTEL
- Metro_Logo
- MTLLPL
- MTLSHT
- NCS elevation arrow 1
- NCS elevation arrow 2
- NCS section arrow
- NCS section tail
- NCS_bubble2
- ORISTB
- Overhead-Sectional WIDTH 8-0
- Overhead-Sectional WIDTH 9-0
- PARTBD
- PARTITION TYPE
- PARTTYPE
- Pass Through width 2-0
- Pass Through width 2-8
- Pass Through width 3-0
- Pass Through width 3-4
- Pass Through width 3-8
- Pass Through width 6-0
- pf_11x17
- Picture width 2-0
- Picture width 2-8
- Picture width 3-0
- Picture width 3-4
- Picture width 3-8
- Picture width 6-0
- plan_north
- PLASTC
- PLPLLS
- PLPLSS
- PLYWLS
- PLYWSS
- RBIILS
- RBISLS
- REV-NO
- REVNO
- Revolving-Simple WIDTH 6-6
- Revolving-Simple WIDTH 7-0
- Revolving-Simple WIDTH 7-2
- Revolving-Simple WIDTH 7-4
- Revolving-Simple WIDTH 7-6
- RM-NO
- ROMID3
- ROMID4
- ROOM IDENTIFICATION
- ROOM NUMBER
- scale 1_8
- SDIRLD
- SDIRLU
- SECTION-VIEW INDICATOR
- SECTION INDICATOR
- SectionBubbleDef
- SHWRCO
- SHWRHD
- SHWROG
- SHWRPG
- SHWRST
- SLOPE
- SNK2BD
- SNK2CT
- SNKCWT
- SNKDSP
- SNKFRC
- SNKGEN
- SNKKLR
- SNKLDB
- SNKLTR
- SNKSCW
- SNKSLP
- SNKSRV
- SNKSSC
- Sofa
- Spiral stairs
- spot elev
- Stall
- STLCSS
- straight stairs
- SUSPNT
- Table
- TARG1
- TARGELEV
- TARGSEC
- TC1FLS
- TC2FSS
- TCHOLW
- TCLS
- TCQLS
- TCUGLS
- TCVENR
- THRSHD
- TICK
- TILFSS
- TILGSC
- TILSFU
- TLACOU
- TLCRLS
- TRAY1L
- TRAY2L
- true_north
- TYPICAL FAREGATE
- TYPICAL FAREGATE ARRANGE..
- TYPICAL KIOSK
- U-shape stairs
- Urinal
- URNLCO
- URNLPD
- URNLST
- URNLTR
- URNLWH
- VIEW INDICATOR
- WALL_TAG
- wall_type_arrow
- WALLID
- WCELWH
- WCFVFO
- WCFVWH
- WCITNK
- WCTANK
- WCWHTN
- WDFLBD
- WDFNOS
- WDFRAM
- WDSHSD
- WFINSH
- WINAWN
- WINBAY
- WINBOW
- WINBOX
- WINDCI
- WINDCN
- WINDCO
- WINDH
- WINFIX
- WINID
- WINJAL
- WINOSL
- WINOSR
- WINPIV
- WINSCL
- WINSCR
- WINSH
- wmata railcar elevation
- WOODHB
- WSHRBP
- WTRPFF

Abbreviations, Hatches

A.C.	AIR CONDITIONER
A.DR.	ACCESS DOOR
A.F.F.	ABOVE FINISHED FLOOR
A.P.	ACCESS PANEL
ABV.	ABOVE
AC.T.	ACOUSTIC TILE
ADJ.	ADJUSTABLE OR ADJACENT
ALUM.	ALUMINUM
ANG.	ANGLE
ANOD.	ANODIZED
APPD.	APPROVED
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B.	BASE
B.L.	BUILDING LINE
BD.	BOARD
BKT.	BRACKET
BLDG.	BUILDING
BM.	BEAM
BOT.	BOTTOM
BRK.	BRICK
C.	COURSES
C.H.	CEILING HEIGHT
C.JT.	CONSTRUCTION JOINT
C.L.	CENTERLINE
C.M.U.	CONCRETE MASONRY UNIT
C.R.	CEILING REGISTER
C.S.	CONCRETE SLAB
CAB.	CABINET
CEM.	CEMENT
CER.T.	CERAMIC TILE
CHAN.	CHANNEL
CLG.	CEILING
CLOS.	CLOSET
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDITIONS
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONV.	CONVECTOR
CORR.	CORRIGATED
CSK.	COUNTERSINK:SUNK
CT	CERAMIC TILE
D.	DIAMETER
D.O.	DITTO
DBL.	DOUBLE
DEMO.	DEMOLITION
DEPT.	DEPARTMENT
DET.	DETAIL
DIA.	DIAMETER
DIFF.	DIFFUSER
DIM.	DIMENSION
DN.	DOWN
DPL.	DUPLEX
DR.	DOOR
DRN.	DRAIN
DWG.	DRAWING
E.F.	EACH FACE
EA.	EACH
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
EMERG.	EMERGENCY
ENCL.	ENCLOSURE
EQ.	EQUAL
EQ.SP.	EQUAL SPACES
EQUIP.	EQUIPMENT
ETC.	ETCETRA
EXT.	EXTERIOR
EXIST.	EXISTING
EXP.JT.	EXPANSION JOINT
EXPN.	EXPANSION
EXTN.	EXTENSION
E.W.C.	ELECTRIC WATER COOLER
F.A.	FRESH AIR
F.D.	FLOOR DRAIN
F.FLR	FINISH FLOOR
F.F.	FAR FACE
F.H.C.	FIRE HOSE CABINET
F.H.R.	FIRE HOSE RACK
F.O.	FACE OF
F.P.	FIRE PROOFING
F.S.	FAR SIDE
FDN.	FOUNDATION
FIN.	FINISHED
FIXT.	FIXTURE
FL.	FLUSH
FLR.	FLOOR
FLT.HD.	FLAT HEAD
FR.	FRAME
FT.	FEET:FOOT
FTG.	FOOTING
FURN.	FURNACE
FUT.	FUTURE
G.R.	GUARD RAIL
GA.	GAUGE
GALV.	GALVANIZED
GL.	GLASS
GR.	GRILL
GRTG.	GRATING
GYP.	GYPSUM
GYP.BD.	GYPSUM BOARD
H.	HIGH
H.C.	HUNG CEILING
H.M.	HOLLOW METAL
H.P.	HIGH POINT
H.R.	HANDRAIL
H.S.	HIGH STRENGTH
H.V.A.C.	HEATING,VENTILATION & AIR CONDITIONING
HD.	HEAD
HDR.	HEADER
HEX.	HEXAGONAL
HGT.	HEIGHT
HORIZ.	HORIZONTAL
HR.	HOUR
HTR.	HEATER
I.D.	INSIDE DIAMETER
INCL.	INCLUDING
INFO.	INFORMATION
INSUL.	INSULATION
INT.	INTERIOR
JT.	JOINT
K.	KIPS
L.	ANGLE
L.L.	LIVE LOAD
L.P.	LOW POINT
L.W.	LIGHT WEIGHT
LAM.	LAMINATED
LAV.	LAVATORY
LG.	LONG
LT.	LIGHT
LTG.	LIGHTING
M.	MEN
M.D.	METAL DECK
M.H.	MANHOLE
M.O.	MASONRY OPENING
M.S.	MARBLE SADDLE
MAS.	MASONRY
MAT'L.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MFG.	MANUFACTURER
MIN.	MINIMUM
MIRR.	MIRROR
MISC.	MISCELLANEOUS
MTL.	METAL
M.W.	MILLWORK
N.	NORTH
N.F.	NEAR FACE
N.I.C.	NOT IN CONTRACT
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
NO.	NUMBER
O.A.	OVER ALL
O.C.	ON CENTER
O.H.	OVER HEAD
OPN'G.	OPENING
OPP.	OPPOSITE
O.D.	OUTSIDE DIAMETER
PART.	PARTITION
PENETR.	PENETRATION
P.I.P.	POURED IN PLACE
PL.	PLATE
PLAS.	PLASTER
PLUMB.	PLUMBING
P.M.	PREMOLDED
PNL.	PANEL
POL.	POLISHED
PREFAB.	PREFABRICATED
P.S.F.	POUNDS PER SQUARE FOOT
P.S.I.	POUNDS PER SQUARE INCH
PT.	PART
PTD.	PAINTED
P.T.D.D.	PAPER TOWEL DISPENSER & DISPOSAL
Q.T.	QUARRY TILE
R.	RISER
R.A.	RETURN AIR
R.D.	ROOF DRAIN
RAD.	RADIUS
REF.	REFERENCE
REFRIG.	REFRIGERATOR
REINF.	REINFORCED:ING:MENT
REQ.	REQUIRED
RM.	ROOM
RW	RAIN WATER
S.	SINK
S.C.	SELF CLOSING
S.D.	SOAP DISPENSER
S.F.	SQUARE FEET
S.P.	SEE PLAN
S.PT.	STARTING POINT
S.S.	STAINLESS STEEL
SDL.	SADDLE
SECT.	SECTION
SHT.	SHEET
SIM.	SIMILAR
S.J.	SEISMIC JOINT
SLD'G.	SLIDING
SPEC.	SPECIFICATION
SQ.	SQUARE
ST.	STAINLESS
STIFF.	STIFFENER
STL.	STEEL
STOR.	STORAGE
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
SW.	SWITCH
SYS.	SYSTEM
SJ	SEISMIC JOINT
T.	TREAD
T.&B.	TOP AND BOTTOM
T.&G.	TONGUE AND GROOVE
T.&S.	TAPE AND SPACKLE
T.O.	TOP OF
T.O.MAS.	TOP OF MASONRY
T.O.SL.	TOP OF SLAB
T.O.S.	TOP OF STEEL
T.P.H.	TISSUE PAPER HOLDER
T.T.D.	TOILET TISSUE DISPENSER
TAN.	TANGENT
TEL.	TELEPHONE
TEMP.	TEMPORARY
TERM.	TERMINAL
THK.	THICK
TRANSF.	TRANSFORMER
TYP.	TYPICAL
U.L.DES.	UNDERWRITERS LABORATORY DESIGN
U.N.	UNLESS NOTED
UNIF.	UNIFORM
UNFIN.	UNFINISHED
U.K.	UNIT KITCHEN
VT	VINYL TILE
V.	VINYL
V.C.T.	VINYL COMPOSITE TILE
V.I.F.	VERIFY IN FIELD
VERT.	VERTICAL
VEST.	VESTIBULE
W/	WITH
W.	WIDE
W.C.	WATER CLOSET
W.P.	WORKING POINT
W.R.	WASTE RECEPTACLE
W.W.F.	WELDED WIRE FABRIC
WD.	WOOD
WPG.	WATER PROOFING


GRAVEL


EARTH


GLASS


CERAMIC TILE


RIGID INSULATION


SEALANT


CONCRETE


BATT INSULATION


METAL LATHE & CEMENTITIOUS FIRE PROOFING

GYPSUM BOARD


STEEL

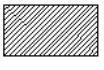

ALUMINUM

ROUGH LUMBER/ BLOCKING

LEASE LINE


CONCRETE MASONRY UNIT (CMU)


WALL/PARTITION TO BE REMOVED


EXISTING CONSTRUCTION OR AREA NOT PART OF THIS CONTRACT

CONTRACT LIMIT LINE

Tool Palettes containing symbols for **Architectural (Obsolete)**

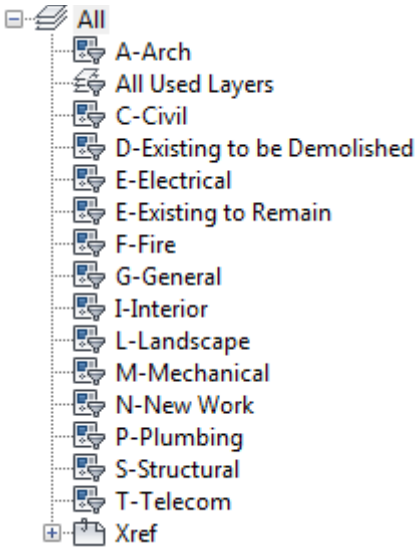
As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Layers for **Architectural**

An example of the layer descriptions for **Architectural** is shown in the table below. **Architectural Layer Colors -** Existing layers are colored in shades of Green. New layers are shades of red and Demolition layers are Blue.

A-AREA-OCCP	Occupant or employee names
A-AREA-PATT	Area cross hatching
A-CLNG	Ceiling information
A-CLNG-GRID	Ceiling grid
A-CLNG-PATT	Ceiling patterns
A-CLNG-SUSP	Suspended elements
A-DOOR	Doors
A-DOOR-IDEN	Door number, hardware group, etc.
A-EQPM	Equipment - built in
A-EQPM-CLNG	Ceiling-mounted or suspended equipment
A-EQPM-FIXD	Fixed equipment
A-EQPM-IDEN	Equipment identification numbers
A-EQPM-MOVE	Moveable equipment
A-FLOR	Floor information
A-FLOR-CASE	Casework (manufactured cabinets)
A-FLOR-EVTR	Elevator cars and equipment
A-FLOR-HRAL	Stair and balcony handrails, guard rails
A-FLOR-IDEN	Room numbers, names, targets, etc.
A-FLOR-LEVL	Level changes, ramps, pits, depressions
A-FLOR-PATT	Paving, tile, carpet patterns
A-FLOR-SIGN	Signage
A-FLOR-SPCL	Architectural specialties (accessories, etc.)
A-FLOR-STRS	Stair treads, escalators, ladders
A-FLOR-TPTN	Toilet partitions
A-FLOR-WDWK	Architectural woodwork (field-built)
A-ROOF	Roof
A-ROOF-LEVL	Level changes
A-ROOF-OTLN	Roof outline
A-ROOF-PATT	Roof surface patterns, hatching
A-WALL Walls	general
A-WALL-INTR	Interior Building Wall
A-WALL-FIRE	Fire wall patterning
A-WALL-FULL	Full-height walls, stairs and shaft walls
A-WALL-EXTR	Exterior Building Wall
A-WALL-HEAD	Door / window headers (on reflected ceiling plans)
A-WALL-JAMB	Door / window jambs (on floor plans only)
A-WALL-MOVE	Moveable partitions
A-WALL-PATT	Wall insulation, hatching and fill
A-WALL-PRHT	Partial-height walls (on floor plans only)

Layer Groupings for **Architectural**



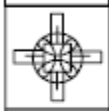
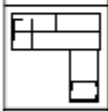
Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Architectural** drawings.

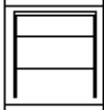
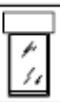
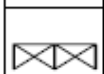
Each Layer Grouping refines the layer display to the category shown in the title. For example, A-Arch shows all of the architectural layers, D-Existing to be Demolished layers. Each sub-set of architecture is broken out as well comprising I-Interior, F-Fire, etc.

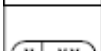
Symbols for **Interior** -The following symbols are embedded within the **Interior** drawings.

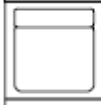
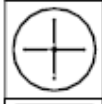
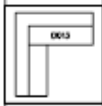
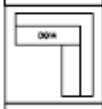
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

INTERIORS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	ABLLBD	BULLETIN BOARD
	ACOSTM	COSTUMER
	ACURTN	WINDOW CURTAIN
	ADDCAB	DOUBLE DOOR CABINET
	AEAS30	EASEL (HIDDEN)
	AMAG15	MAGAZINE RACK
	AMAGLT	MAGNIFYING LIGHT
	APLANT	ARTIFICIAL PLANT
	APRJSC	PROJECTION SCREEN CEILNG MOUNTED
	ASTCAB	STORAGE CABINET
	D65CLR	DESK 65 COMP LR
	D65CRR	DESK 65 COMP RR
	D7230L	LEFTHAND SINGLE PEDESTAL DESK 72W X 30D
	D7230R	RIGHTHAND SINGLE PEDESTAL DESK 72W X 30D
	DPFF	DESK DOUBLE FILE PEDESTAL

INTERIORS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	DPFL	DESK LEFT PEDESTAL
	DPFR	DESK RETURN PEDESTAL FILE
	DSC1	DESK STUDY CARREL SINGLE
	ECGAME	FREESTANDING COMPUTER GAME
	ECOMCN	COMSEC CONTAINER
	EDRYER	DRYER
	EPINBL	PINBALL MACHINE
	EREFRG	REFRIGERATOR
	ETV	TELEVISION
	EVEND	VENDING MACHINE
	EWASHM	WASHING MACHINE
	F4DL	LATERAL FILE CABINET 4 DRAW
	FC3618	STORAGE CABINET 36W X 18D
	FE7422	EQUIPMENT SHELVNG 74W X 22D BARRACKS
	FV1833	VERTICAL FILE 18W X 33D

INTERIORS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GHNDCP	UNIVERSAL HANDICAP SYMBOL
	GIDIR	DIRECTORY
	GIID	IDENTIFICATION SIGN
	GIIS1	IDENTIFICATION SIGN WITH 1 SLOT
	GIIS2	IDENTIFICATION SIGN WITH 2 SLOTS
	GIPIC1	PICTOGRAM (STAIR)
	GIPIC2	PICTOGRAM (WOMAN)
	GMAN	MAN SYMBOL FOR RESTROOM SIGNAGE
	GWOMAN	WOMAN SYMBOL FOR RESTROOM SIGNAGE
	MFMATL	FURNITURE MATERIAL LIST
	MFSCHD	FURNITURE SCHEDULE
	MFSYMB	FURNITURE SYMBOL
	MNORTH	NORTH ARROW
	MRSCHD	ROOM FINISH SCHEDULE
	MSSCHD	SIGNAGE SCHEDULE

INTERIORS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SDMGT	MANAGEMENT CHAIR WITH ARMS 24W X 22D
	SDSEC	SECRETARIAL CHAIR NO ARMS 23W X 22D
	SDTASK	TASK CHAIR
	SGANG	GANG SEATING WITH TABLE
	SSOF37	SOFA CHAIR 37W X 34D
	SSOF63	2 CUSHION SOFA 63W X 34D
	SSOF82	3 CUSHION SOFA 82.5W X 34D
	STAB24	CHAIR TABLET ARM 24W X 24D
	T42SQ	TABLE 42" SQUARE WITH ARMLESS CHAIR
	TMS30	MAILSORT TABLE
	TPOOL	POOL TABLE
	TROUND	ROUND TABLE
	W7230L	WORKSTATION L UNIT (LEFT SIDED)
	W7230R	WORKSTATION L UNIT (RIGHT SIDED)
	WCPDSK	DESK COMPUTER

INTERIORS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	WFLIPR	FLIPPER DOOR UNIT
	WLIGHT	WORKSTATION LIGHT
	WPED	WORKSTATION PEDESTAL

Tool Palettes containing symbols for **Interior (Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Layers for **Interior**

An example of the layer descriptions for **Interior** is shown in the table below.

I-ANNO-TEXT	General Text
I-ANNO-SYMB	Symbols
I-ANNO-LEGN	Legends and schedules
I-ANNO-DIMS	Dimensions
I-ANNO-TTLB	Border and Title Block
I-ANNO-NOTE	Job Notes
I-EQPM	Equipment
I-EQPM-MOVE	Moveable equipment
I-FURN	Furniture
I-FURN-CASE	Cabinetry / casement
I-FURN-CHAR	Chairs and other seating
I-FURN-FILE	File cabinets
I-FURN-FREE	Furniture - freestanding (desks, credenzas, etc.)
I-FURN-IDEN	Furniture numbers
I-FURN-PLNT	Plants
I-FURN-PNLS	Furniture system panels
I-FURN-POWR	Furniture system-power designation
I-FURN-WKSF	Furniture system work surface components

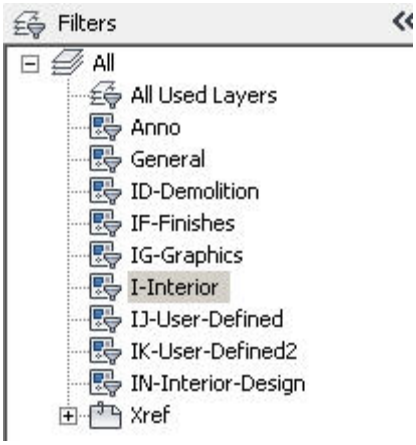
I-Interior shows all of the interior layers, ID-Existing to be Demolished layers and *-E for Existing.

Interior Layer Colors

Existing layers are colored in shades of Green. New layers are shades of red and Demolition layers are Blue. Weights are 0.35 mm for New, 0.15 mm for Existing and Demo.

Layer Groupings for **Interior**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Interior** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, ID-Demolition limits the display to work to be demolished.

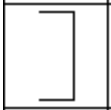
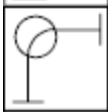
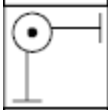
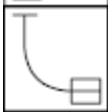
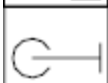
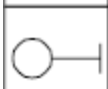
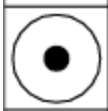
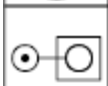
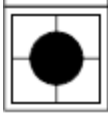


Standards for Structural, MEP, Electrical, Telecom, TP, FC and TC

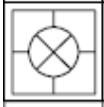
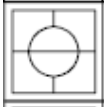
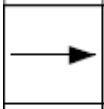
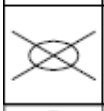
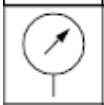
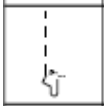
Symbols for **Plumbing** - The following symbols are embedded within the **Plumbing** drawings.

The symbols have been delivered in a variety of ways and can be used with any of the following methods:

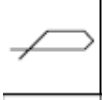
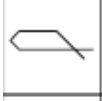
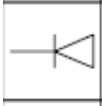
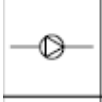
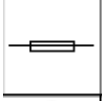
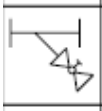
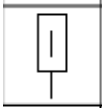
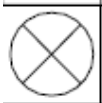
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

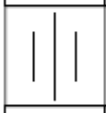
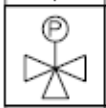
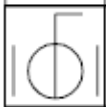
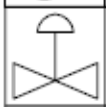
PLUMBING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CAPSC	CAP
	DRNFUN	OPEN DRAIN FUNNEL
	EL45SC	45 DEGREE ELBOW FITTING
	EL90SC	90 DEGREE ELBOW FITTING
	ELBSC	BASE ELBOW FITTING
	ELDBSC	DOUBLE BRANCH ELBOW FITTING
	ELLRSC	LONG RADIUS ELBOW FITTING
	ELODSC	ELBOW SIDE OUTLET DOWN FITTING
	ELOUSC	ELBOW SIDE OUTLET UP FITTING
	ELSTRT	STREET ELBOW FITTING
	ELTDSC	TURNED DOWN ELBOW FITTING
	ELTUSC	TURNED UP ELBOW FITTING
	FCO	FLOOR CLEANOUT DRAIN
	FDCO	FLOOR DRAIN WITH CLEANOUT
	FDDT	FLOOR DRAIN WITH DEEP TRAP

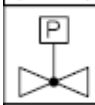
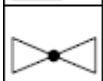
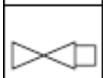
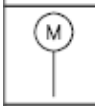
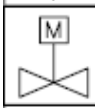
PLUMBING SYMBOL LEGEND

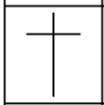
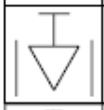
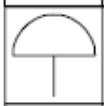
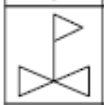
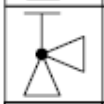
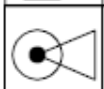
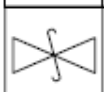
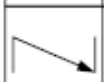
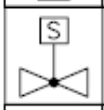
SYMBOL	NAME	DESCRIPTION
	FDNT	FLOOR DRAIN WITH NO TRAP
	FDTP	FLOOR DRAIN WITH TRAP PRIME
	FDWT	FLOOR DRAIN WITH TRAP
	FLBLND	BLIND FLANGE FITTING
	FLOW3	FLOW ARROW
	FLRPEN	FLOOR PENETRATION (ISOMETRIC VIEW)
	GAUGE	PRESSURE GAUGE
	HANGRD	HANGER ROD
	HANGSP	HANGER SPRING
	ISOEWC *	ISOMETRIC EWC
	ISOLAV *	ISOMETRIC LAVATORIES
	ISOMOP *	ISOMETRIC MOP SINK
	ISOUR1 *	ISOMETRIC WALL MOUNTED URINAL
	ISOWC1 *	ISOMETRIC FLOOR MOUNTED WATERCLOSET
	ISOWC2 *	ISOMETRIC WALL MOUNTED WATERCLOSET

PLUMBING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	LOOPL	LEFT DIMENSION LOOP TERMINATOR
	LOOPR	RIGHT DIMENSION LOOP TERMINATOR
	PLGBFL	BULL PLUG FLANGED
	PLGPSC	PIPE PLUG BELL AND SPIGOT
	PRGGCO	PRESSURE GAGE AND COCK
	PUMP	PUMP
	PUMPP	PUMP SCHEMATIC
	PUMPS	INLINE PUMP
	SLEEVE	PIPING SLEEVE
	STGLAS	SIGHT GLASS
	STRAIN	STRAINER
	STRBLO	BLOW OFF STRAINER
	TDSSC	DOUBLE SWEEP TEE
	THERM	THERMOMETER
	TRAPST	STEAM TRAP

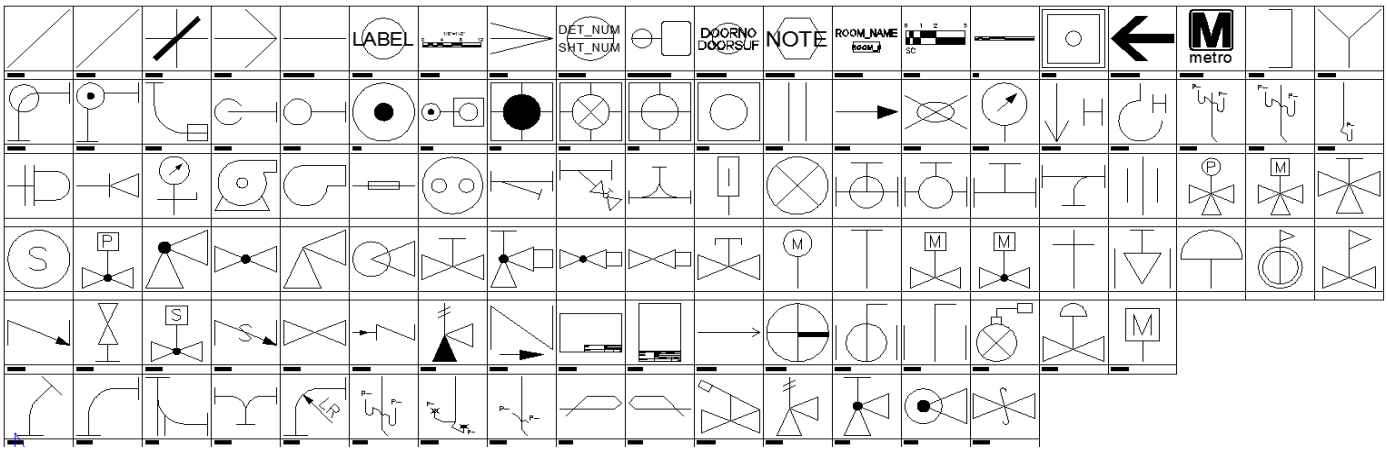
PLUMBING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	TSODSC	TEE FITTING SIDE OUTLET DOWN
	TSOUSC	TEE FITTING SIDE OUTLET UP
	TSSSC	TEE FITTING
	TSSWSC	SINGLE SWEEP TEE FITTING
	UNIOSC	UNION FITTING
	VA3WAM	3WAY AIRMOTOR CONTROLER
	VA3WEM	3WAY ELECMOTOR CONTRLE
	VA3WM	3WAY MANUAL VALVE
	VAAHOS	ANGLE HOSE VALVE
	VABALL	BALL VALVE FITTING (PLAN VIEW)
	VABFLY	BUTTERFLY VALVE FITTING
	VACWR	CONDENSE WATER REGULATOR VALVE
	VADISC	DIAPHRAGM VALVE FITTING
	VAEMTR	PNEUMATIC MOTOR
	VAESOL	SOLENOID VALVE ACTUATOR

PLUMBING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	VAGAMC	PNEUMATIC CONTROLED GATE VALVE
	VAGLAM	PNEUMATIC CONTROLED GLOBE VALVE
	VAGLE	ANGLE GLOBE VALVE
	VAGLSE	GLOBE VALVE
	VAGSE	ANGLE GATE VALVE
	VAGSP	ANGLE GATE VALVE (PLAN VIEW)
	VAGTSE	GATE VALVE
	VAHASC	GATE VALVE PLAN
	VAHGLS	HOSE GLOBE VALVE
	VAHGSC	HOSE GATE VALVE
	VALSSC	LOCK SHIELD VALVE
	VAMAGS	MAGNETIC STOP VALVE
	VAMNNS	VALVE ACTUATED, MANUAL NON-RISING STEM
	VAMOGS	MOTOR OPERATED GATE VALVE
	VAMOLS	MOTOR OPERATED GLOBE VALVE

PLUMBING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	VAMOSY	VALVE ACTUATOR, MANUAL OUTSIDE STEM & YOKE
	VANEED	NEEDLE VALVE
	VAPLUG	PLUG VALVE
	VAPMTD	VALVE ACTUATOR, PNEUMATIC DIAPHRAGM
	VAPRED	PRESSURE REDUCING VALVE
	VAPRRD	PRESSURE REDUCING VALVE
	VAQOSC	QUICK OPENING VALVE
	VARELF	RELIEF OR SAFETY VALVE
	VASCE	ANGLE GLOBE VALVE
	VASCP	ANGLE GLOBE VALVE (PLAN VIEW)
	VASFSC	SAFETY VALVE
	VASGCH	SWING GATE CHECK VALVE
	VASNAP	SNAP ACTION VALVE
	VASOLN	SOLENOID VALVE
	VASPCH	SPRING CHECK VALVE

PLUMBING SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	VASTSC	GATE VALVE
	VASWSC	STRAIGHT WAY CHECK VALVE
	VATPR	TEMP PRESSURE RELIEF VALVE
	VLVCHK	CHECK VALVE

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



- _ArchTick
- _Oblique
- _Open30
- _Open90
- 01420 detail rectangle
- 01420 door tag
- 01420 keynote
- 01420 room id
- 1-4
- 2D plum_cells_9
- 2X2-LT
- ADCADD_ZZ
- BARSCI
- BubbleDef
- CAPSC
- df_8x11
- DIMTICK
- Direction arrow
- DRNFUN
- EL45SC
- EL90SC
- ELBSC
- ELDBSC
- ELLRSC
- ELODSC
- ELOUSC
- ELSTRT
- ELTDSC
- ELTUSC
- FCO
- FDCO
- FDDT
- FDNT
- FDTP
- FDWT
- FLBLND
- FLOW3
- FLRPEN
- GAUGE
- HANGRD
- HANGSP
- ISOEWC
- ISOLAV
- ISOMOP
- ISOUR1
- ISOWC1
- ISOWC2
- LOOPL
- LOOPR
- Metro_Logo
- NCS_bubble2
- pf_11x17
- PLGBFL
- PLGPSC
- plum_cells
- PRGGCO
- PUMP
- PUMPP
- scale 1_8
- SLEEVE
- STGLAS
- STRAIN
- STRBLO
- TDSSC
- THERM
- TRAPST
- TSODSC
- TSOUSC
- TSSSC
- TSSWSC
- UNIOSC
- VA3WAM
- VA3WEM
- VA3WM
- VABALL
- VABFLY
- VACWR
- VADISC
- VAEMTR
- VAESOL
- VAGLAM
- VAGLE
- VAGLSE
- VAGSE
- VAGSP
- VAGTSE
- VAHASC
- VAHGLS
- VAHGSC
- VALSSC
- VAMAGS
- VAMNNS
- VAMOGS
- VAMOLS
- VAMOSY
- VAPLUG
- VAPMTD
- VAPRED
- VAPRRD
- VAQOSC
- VARELF
- VASCE
- VASCP
- VASFSC
- VASGCH
- VASNAP
- VASOLN
- VASPCH
- VASTSC
- VASWSC
- VATPR
- VLVCHK
- wall_type_arrow

Tool Palettes containing symbols for **Plumbing (Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

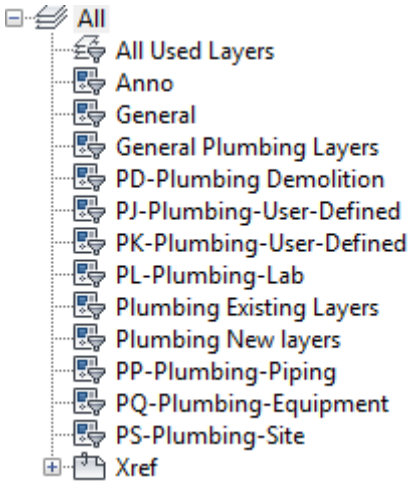
Layers, Colors and Weights for **Plumbing**

An example of the layer descriptions for **Plumbing** is shown in the table below. Red colors are used for New, Green for Existing and Blue for Demolition. Lineweights are 0.35 mm for New, 0.15 mm for Existing and Demolition. Demolition layers are set to dashed generally.

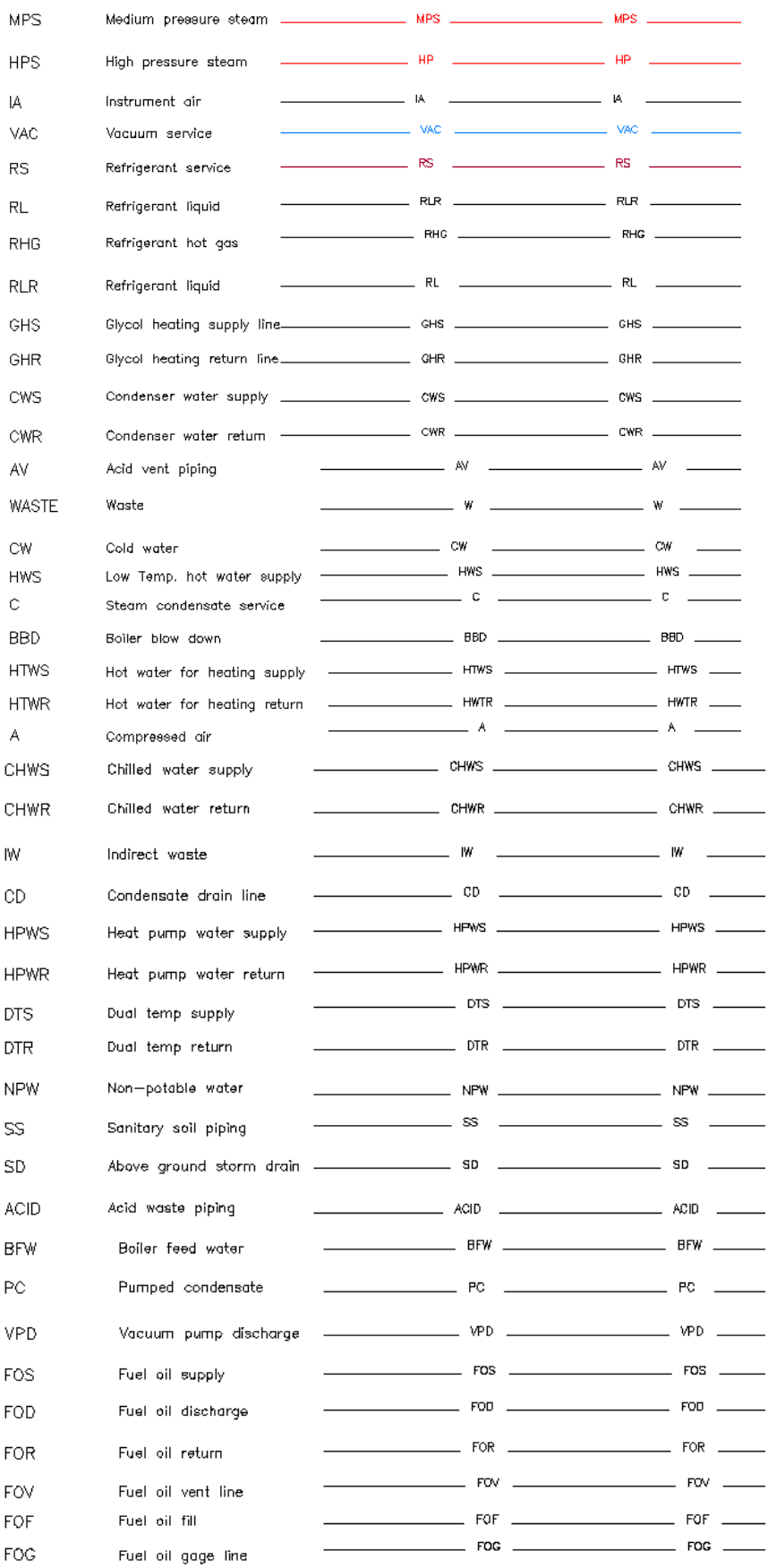
P-ANNO-TEXT	General Text
P-ANNO-SYMB	Symbols
P-ANNO-LEGN	Legends and schedules
P-ANNO-TTLB	Border and Title Block
P-ANNO-NOTE	Job Notes
P-ACID	Acid, alkaline, oil waste systems
P-ACID-PIPE	Acid, alkaline, oil waste piping
P-DOMW	Domestic hot and cold water systems
P-DOMW-CPIP	Domestic cold water piping
P-DOMW-EQPM	Domestic hot and cold water equipment
P-DOMW-HPIP	Domestic hot water piping
P-DOMW-RISR	Domestic hot and cold water risers
P-EQPM	Plumbing - miscellaneous equipment
P-FIXT	Plumbing fixtures, toilets, sinks
P-SANR	Sanitary drainage
P-SANR-EQPM	Sanitary equipment
P-SANR-FIXT	Plumbing fixtures
P-SANR-FLDR	Floor drains
P-SANR-PIPE	Sanitary piping
P-SANR-RISR	Sanitary risers
P-STRM	Storm drainage system
P-STRM-PIPE	Storm drain piping
P-STRM-RFDR	Roof drains
P-STRM-RISR	Storm drain risers

Layer Groupings for **Plumbing**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Plumbing** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, PD-Demolition limits the display to work to be demolished.



Plumbing Linestyles



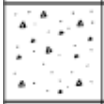
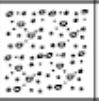
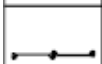
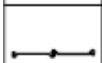
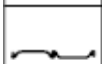
Symbols for **Structural** -The following symbols are embedded within the **Structural** drawings.

The symbols have been delivered in a variety of ways and can be used with any of the following methods:

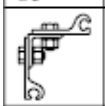
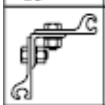
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

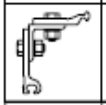
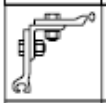
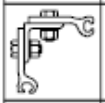
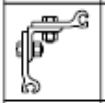
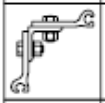
STURCTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	4FRB	4" FLAT RIBBED
	6FRBHD	6" FLAT RIBBED HEAVY DUTY
	6FRBLW	6" FLAT RIBBED LIGHT WEIGHT
	6RCBHD	6" RIB WITH CENTER BULB HEAVY DUTY
	6RCBLW	6" RIB WITH CENTER BULB LIGHT WEIGHT
	9FLBHD	9" FLAT RIBBED HEAVY DUTY
	9FRBLW	9" FLAT RIBBED LIGHT WEIGHT
	9RCBHD	9" RIB WITH CENTER BULB HEAVY DUTY
	9RCBLW	9" RIB WITH CENTER BULB LIGHT WEIGHT
	ANBOLT	ANCHOR BOLT
	BOX	BOX PILE
	CMUFL	FLUTED CONC BLK 8" X 8" X 16"
	CMURIB	RIBBED CONCRETE BLOCK 8" X 8" X 16"
	CMUSF	SPLIT FACE CONCRETE BLOCK 8" X 8" X 16"
	CMUSTR	CONC BLOCK 8" X 8" X 16" STR.

STURCTURAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	CNTLIN	CENTERLINE SYMBOL
	COLLIN	COLUMN LINE GRID INDICATOR
	CONCST	CONCRETE STONE PATTERN
	EEARTH	EXISTING EARTH
	GRAVEL	GRAVEL PATTERN
	JSTBR1	JOIST BAR SINGLE LINE
	JSTBR2	JOIST BAR DOUBLE LINE
	PLATE	PLATE SYMBOL
	PLZ23	PLZ23 SHEET PILE SECTION
	PLZ25	PLZ25 SHEET PILE SECTION
	PS27.5	PS27.5 SHEET PILE SECTION
	PS31	PS31 SHEET PILE SECTION
	PSA23	PSA23 SHEET PILE SECTION
	PZ22	PZ22 SHEET PILE SECTION
	PZ27	PZ27 SHEET PILE SECTION

STURCTURAL SYMBOL LEGEND

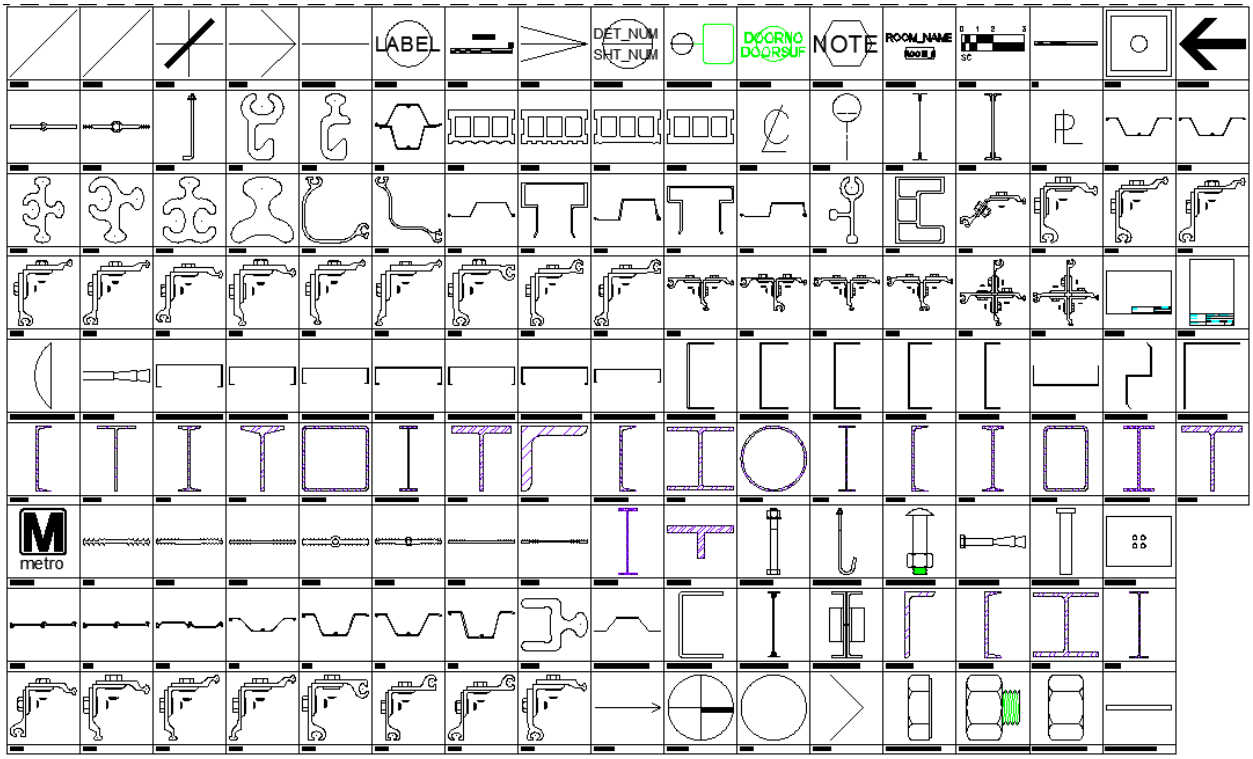
SYMBOL	NAME	DESCRIPTION
	PZ35	PZ35 SHEET PILE SECTION
	PZ40	PZ40 SHEET PILE SECTION
	RC230	RC230 SHEET PILE CONNECTION
	RC231	RC231 SHEET PILE CONNECTION
	ZC270	PZ22 PZ27 L CONNECTION
	ZC271	PZ22 PZ27 L CONNECTION
	ZC272	PZ22 PZ27 L CONNECTION
	ZC273	PZ22 PZ27 L CONNECTION
	ZC274	PZ22 PZ27 L CONNECTION
	ZC275	PZ22 PZ27 L CONNECTION
	ZC276	PZ22 PZ27 L CONNECTION
	ZC277	PZ22 PZ27 L CONNECTION
	ZC278	PZ22 PZ27 L CONNECTION
	ZC279	PZ22 PZ27 L CONNECTION
	ZC350	PZ35 PZ40 L CONNECTION

STURCTURAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	ZC351	PZ35 PZ40 L CONNECTION
	ZC352	PZ35 PZ40 L CONNECTION
	ZC353	PZ35 PZ40 L CONNECTION
	ZC354	PZ35 PZ40 L CONNECTION
	ZC355	PZ35 PZ40 L CONNECTION
	ZC356	PZ35 PZ40 L CONNECTION
	ZC357	PZ35 PZ40 L CONNECTION
	ZC358	PZ35 PZ40 L CONNECTION
	ZC359	PZ35 PZ40 L CONNECTION
	ZT270	PZ22 PZ27 T CONNECTION
	ZT271	PZ22 PZ27 T CONNECTION
	ZT350	PZ35 PZ40 T CONNECTION
	ZT351	PZ35 PZ40 T CONNECTION
	ZX270	PZ22 PZ27 CROSS CONNECTION
	ZX350	PZ35 PZ40 CROSS CONNECTION

Tool Palettes - **Structural** symbols **(Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



- _ArchTick
- _Oblique
- _Open30
- _Open90
- _Small
- 01420 detail rectangle
- 01420 door tag
- 01420 keynote
- 01420 room id
- 1-4
- 2-1-2 CHANNEL STUD
- 2D strl_cells_148
- 2D strl_cells_149
- 2D strl_cells_9
- 2X2-LT
- 3-1-4 CHANNEL STUD
- 3-5-8 CHANNEL STUD
- 4 CHANNEL STUD
- 4FRB
- 6 CHANNEL STUD
- 6FRBHD
- 6FRBLW
- 6RCBHD
- 6RCBLW
- 9FLBHD
- 9FRBLW
- 9RCBHD
- 9RCBLW
- ADCADD_ZZ
- AecDtl_BoltExp
- AecDtl_BoltHeadSide_Carriage
- AecDtl_BoltHeadSide_Hex
- AecDtl_BoltNutSide_CHex
- AecDtl_BoltNutSideThreads_...
- AecDtl_WasherSide_Std
- AecRight
- AISC ANGLE
- AISC CHANNEL
- AISC HP
- AISC M
- AISC MC
- AISC MT
- AISC S
- AISC ST
- AISC TUBE
- AISC WIDE FLANGE
- AISC WT
- ANBOLT
- ANCHOR BOLT
- ANCHOR BOLT HOOK
- AZLBF
- AZLBM
- BARSCI
- BOX
- BubbleDef
- C JOIST 10 CHANNEL STUD
- C JOIST 12 CHANNEL STUD
- C JOIST 5-1-2 CHANNEL ST...
- C JOIST 6 CHANNEL STUD
- C JOIST 7-1-4 CHANNEL ST...
- C JOIST 8 CHANNEL STUD
- C JOIST 9-1-4 CHANNEL ST...
- CISC ANGLE
- CISC CHANNEL
- CISC HP
- CISC M
- CISC MC
- CISC PIPE
- CISC S
- CISC TUBE
- CISC WIDE FLANGE
- CISC WT
- CISC WWF
- CISC WWT
- CMUFL
- CMURIB
- CMUSF
- CMUSTR
- CNTLIN
- COLLIN
- df_8x11
- DIMTICK
- Direction arrow
- EXPANSION BOLT
- FURRING CHANNEL
- FURRING HAT CHANNEL
- H SERIES OPEN WEB
- JSTBR1
- JSTBR2
- K SERIES OPEN WEB
- LIGHT GAUGE ANGLE
- LIGHT GAUGE ZEE
- Metro_Logo
- NCS_bubble2
- pf_11x17
- PIPE CARRIAGE BOLT
- PLATE
- PLZ23
- PLZ25
- PS27.5
- PS31
- PSA23
- PZ22
- PZ27
- PZ35
- PZ40
- PZBBSM
- PZBULL
- PZCBM
- PZJOKR
- PZWOM
- RC230
- RC231
- RUNNER CHANNEL
- scale 1_8
- SHEAR CONNECTOR
- SS803
- SS805
- SS806
- SS807
- SS808
- SS809
- SS810
- STEEL PLATE
- strl_cells
- strl_cells_1
- strl_cells_2
- strl_cells_3
- strl_cells_4
- strl_cells_5
- strl_cells_6
- strl_cells_7
- wall_type_arrow
- WMATA-BORDER-D0plan.
- WMATA-BORDER-D0true_
- ZB_27
- ZC270
- ZC271
- ZC272
- ZC273
- ZC274
- ZC275
- ZC276
- ZC277
- ZC278
- ZC279
- ZC350
- ZC351
- ZC352
- ZC353
- ZC354
- ZC355
- ZC356
- ZC357
- ZC358
- ZC359
- ZT270
- ZT271
- ZT350
- ZT351
- ZX270
- ZX350

Layers for **Structural**

An example of the layer descriptions for **Structural** is shown in the table below.

Colors for Existing are: 92: Walls, 91: Brac, 90: Deck, 82: Trus, 81: Ablt, 80: Fndn, 74: Grids, Jnts, Jois, Metl, 70: Rbar, Green: Beams, Cols. Lineweights are 0.15 mm.

Colors for Demolition are: 146: Walls, 144: Brac, 154: Deck, 174: Fndn, 150: Grids, Jnts, Jois, Metl, 176: Rbar, Blue: Beams, Cols, 166: Slab. Lineweights are 0.35 and linestyle is dashed.

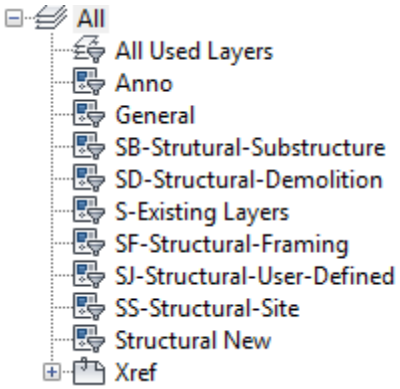
Colors for New are: 12: Walls, 230: Brac, 10: Deck, 30: Fndn, 244: Rbar, Red: Beams, Cols, 242: Slab. Lineweight is 0.35 mm.

S-ANNO-TEXT	General Text
S-ANNO-SYMB	Symbols
S-ANNO-LEGN	Legends and schedules
S-ANNO-DIMS	Dimensions
S-ANNO-TTLB	Border and Title Block
S-ANNO-NOTE	Job Notes
S-BEAM	Beams
S-COLS	Columns
S-FNDN	Foundation
S-FNDN-PILE	Piles, drilled piers
S-FNDN-RBAR	Foundation reinforcing
S-GRID	Column grid
S-GRID-DIMS	Column grid dimensions
S-GRID-EXTR	Column grid outside building
S-GRID-IDEN	Column grid tags
S-GRID-INTR	Column grid inside building
S-WALL	Structural bearing or shear walls

Layer Groupings for **Structural**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts.

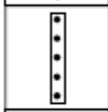
The following groups are embedded within the **Structural** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, SD-Demolition limits the display to work to be demolished.



Symbols for **Electrical** -The following symbols are embedded within the **Electrical** drawings.

The symbols have been delivered in a variety of ways and can be used with any of the following methods:

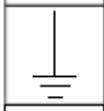
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

ELECTRICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	1DIR	DIRECTION ARROW
	2DIR	DOUBLE DIRECTION ARROW
	ACCBIO	BIOMETRIC ACCESS CONTROL
	ACLLEL	APPROACH LIGHT BAR (ELEVATED)
	ACLLSF	APPROACH LIGHT BAR (SEMIFLUSH)
	AERROD	AERIAL ROD
	AFBCN	AIRFIELD BEACON
	ANNUN	ANNUNCIATOR
	ANNUNT	LOCAL CONTROL ANNUNCIATON UNIT
	ARREST	LIGHTNING ARRESTOR
	BARMKR	BARRIER MARKER
	BATTRY	BATTERY
	BELL	BELL
	BUZZER	BUZZER
	CAPCTR	CAPACITOR

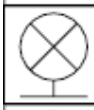
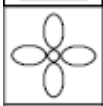
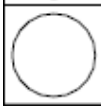
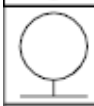
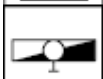
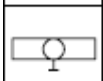
ELECTRICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
CR	CARDRD	CARD READER
	CBDOUT *	DRAWOUT CIRCUIT BREAKER
	CBMCAS *	MOLDED CASE CIRCUIT BREAKER
CH	CHIME	CHIME
	CKTID *	CIRCUIT IDENTIFICATION SYMBOL
C	CLOCKW	CLOCK OUTLET WALL MOUNTED
C	CMHLN	COMMUNICATION MANHOLE (NEW)
C	CMHLX	COMMUNICATION MANHOLE (EXISTING)
COM	CMPANL	COMMUNICATION PANEL
	CPLTM	CIRCUIT LINE TERMINATOR
R	CPREC2	CATHODIC PROTECTION RECTIFIER
A	CPSAN	CATHODIC PROTECTION SACRIFICIAL ANODE
T	CPTEST	CATHODIC PROTECT TEST STATION
	DBID *	DUCTBANK IDENTIFICATION SYMBOL
	DGUYN	DOWN GUY WIRE (NEW)

ELECTRICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	DGUYR	DOWN GUY WIRE (REMOVE)
D	DOROPN	ELECTRIC DOOR OPENER
DM	DSTMKR	RUNWAY DISTANCE MARKER
R W	DTHL	DISPLACE THRESHOLD LIGHT
T	DXFMR	TRANSFORMER (DRY TYPE)
H	EHHLN	ELECTRICAL HANDHOLE (NEW)
H	EHHLX	ELECTRICAL HANDHOLE (EXISTING)
	ELBP1L	1LAMP EMERGENCY LIGHT (BATTERY POWERED)
	ELBP2L	2LAMP EMERGENCY LIGHT (BATTERY POWERED)
	ELBP3L	3LAMP EMERGENCY LIGHT (BATTERY POWERED)
E	EMHLN	ELECTRICAL MANHOLE (NEW)
E	EMHLX	ELECTRICAL MANHOLE (EXISTING)
P	EPBXN	ELECTRICAL PULLBOX (NEW)
P	EPBXX	ELECTRICAL PULLBOX (EXISTING)
	ERECPT	EMERGENCY RECEPTACLE

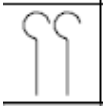
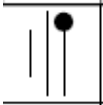
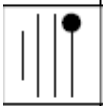
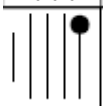
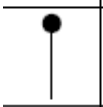
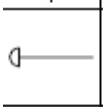
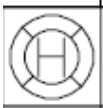
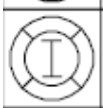
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	FL2X2B	2X2 LIGHT FIXTURE W/ BATTERY
	FL2X2C	2X2 LIGHT CONTINUOUS
	FL2X4	2X4 LIGHT FIXTURE
	FL2X4B	2X4 LIGHT FIXTURE W/ BATTERY
	FL2X4C	2X4 LIGHT CONTINUOUS
	FLTN *	FLOODLIGHT (NEW)
	FLTR	FLOODLIGHT (REMOVE)
	FLTX	FLOODLIGHT (EXISTING)
	FUSRAT	FUSE WITH RATING
	GENRTR	GENERATOR
	GRDROD	GROUNDING ROD
	GROUND	EARTH GROUND
	HAS1H	1 HOT LEG
	HAS1N	1 NEUTRAL LEG
	HAS1S	1 SWITCH LEG

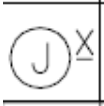
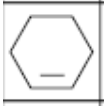
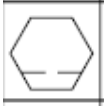
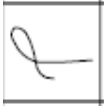
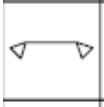
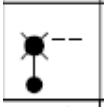
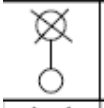
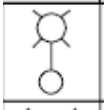
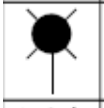
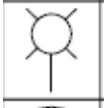
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	EXITCM	CEILING MOUNTED EXIT SIGN LIGHT FIXTURE
	EXITLF	EXIT SIGN LIGHT FACE (USE W/ EXIT LIGHT SYMBS)
	EXITWM	WALL MOUNTED EXIT SIGN LIGHT
	FAN	CEILING FAN
	FIXSPB	PENDANT BATTERY LIGHT FIXTURE
	FIXSPQ	PENDANT QUARTZ RESTRIKE LIGHT FIXTURE
	FIXSPR	PENDANT LIGHT FIXTURE
	FIXWM	WALL MOUNTED LIGHT FIXTURE
	FIXWMB	WALL MOUNTED LIGHT FIXTURE W/ BATTRERY
	FL14WB	1X4 WALL MOUNTED FIXTURE W/ BATTERY
	FL14WM	1X4 WALL MOUNTED FIXTURE
	FL1X4	1X4 LIGHT FIXTURE
	FL1X4B	1X4 LIGHT FIXTURE W/ BATTERY
	FL1X4C	1X4 LIGHT CONTINUOUS
	FL2X2	2X2 LIGHT FIXTURE

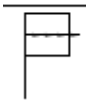
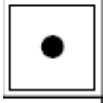
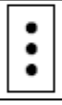
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	HAS2H	2 HOT LEGS
	HAS2S	2 SWITCH LEGS
	HAS3HN	3 HOT LEGS, 1 NEUTRAL LEG
	HAS3MK	1 HOT LEG, 1 NEUTRAL LEG, 1 GROUND LEG
	HAS3S	3 SWITCH LEGS
	HAS4MK	1 NEUTRAL LEG, 2 HOT LEGS, 1 GROUND LEG
	HAS5MK	3 HOT LEGS, 1 NEUTRAL LEG, 1 GROUND LEG
	HASGND	1 GROUND LEG
	HEDASW	AERIAL SERVICE WEATHER HEAD
	HLL	HOVERLANE LIGHT
	HLLL	HOVERLANE LIMIT LIGHT
	HPIL	HELIPAD INSET LIGHT
	HPPLEL	HELIPAD PER LIGHT (ELEVATED)
	HPPLSF	HELIPAD PERLIGHT (SEMIFLUSH)
	HRUN1	HOME RUN TERMINATOR (1 ARROW)

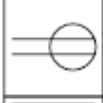
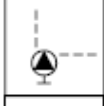
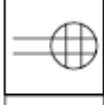
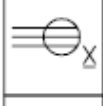
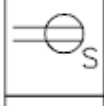
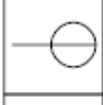
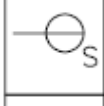
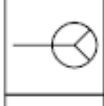
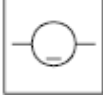
ELECTRICAL SYMBOL LEGEND

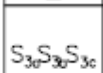
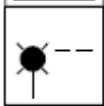
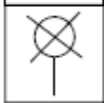
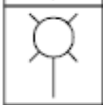
SYMBOL	NAME	DESCRIPTION
	HRUN2	HOME RUN TERMINATOR (2 ARROW)
	HRUN3	HOME RUN TERMINATOR (3 ARROW)
	JNBX *	JUNCTION BOX
	JNBXWM *	JUNCTION BOX WALL MOUNTED
	KNR *	KEYED NOTE REFERENCE
	KNRM *	KEYED NOTE MULTIPLE
	LEADER	LEADER LINE TERMINATOR
	LITEBR	REMOTE EMERGENCY BATTERY POWERED LIGHT
	LTPLN *	LIGHT POLE (NEW)
	LTPLR	LIGHT POLE (REMOVE)
	LTPLX	LIGHT POLE (EXISTING)
	LTSTRN (DELETED)	STREET LITE BRACKET (NEW)
	LTSTRR (DELETED)	STREET LITE BRACKET (REMOVE)
	LTSTRX (DELETED)	STREET LITE BRACKET (EXISTING)
	METREL *	ELECTRICAL METER

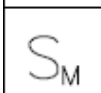
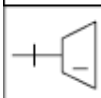
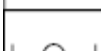
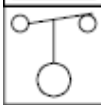
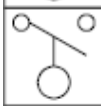
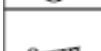
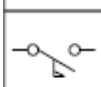
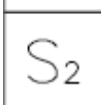
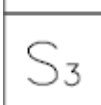
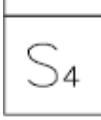
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	MICROW	OUTDOOR MICROWAVE TRANSMIT UNIT
	MOTRHP *	MOTOR (INDICATE HORSE POWER)
	OBSTRL	OBSTRUCTION LIGHT
	PAPI	PRECISION APPROACH PATH INDICATOR LIGHT UNIT
	PBFMC	FLUSH MOUNTED PANELBOARD CABINET
	PBSMC	SURFACE MOUNTED PANELBOARD CABINET
	PHOTO	PHOTOELECTRIC RELAY
	POLEAR *	AERIAL POLE WITH GUYING
	POLEID *	POLE IDENTIFICATION SYMBOL
	PSHST1	ONE PUSHBUTTON STATION
	PSHST2	TWO PUSHBUTTON STATION
	PSHST3	THREE PUSHBUTTON STATION
	PWRDVC *	POWER SYSTEM DEVICE ANSI
	RCNC	NORMALLY CLOSED RELAY CONTACT
	RCNO	NORMALLY OPEN RELAY CONTACT

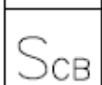
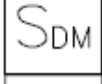
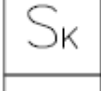
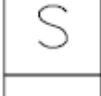
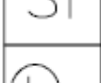
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	RECDFM *	DOUBLE FLUSH MOUNTED FLOOR OUTLET
	RECDSM *	DOUBLE SURFACE MOUNTED FLOOR OUTLET
	RECDUP	DUPLEX RECEPTACLE
	RECLOS	RECLOSER AERIAL AUTOMATIC
	RECPT2 *	SPECIAL RECEPTACLE
	RECQUA	QUADRAPLEX RECEPTACLE
	RECRAN *	RECEPTACLE RANGE
	RECSDP	SWITCHED DUPLEX RECEPTACLE
	RECSFM	SINGLE FLUSH MOUNTED FLOOR OUTLET
	RECSIN	SINGLE RECEPTACLE
	RECSNS	SNGLE RECEPTACLE WITH SWITCH
	RECSPR	SPECIAL PURPOSE RECEPTACLE
	RECSSM	SINGLE SURFACE MOUNTED FLOOR OUTLET
	REIL	REIL LIGHT UNIT
	RELYOP *	RELAY OP COIL

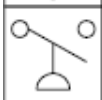
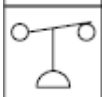
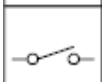
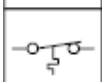
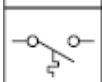
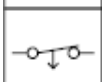
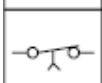
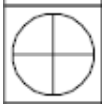
ELECTRICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	RESHTR	ELECTRIC RESISTANCE HEATER
	RWCLL	RUNWAY CENTERLINE LIGHT
	RWEL	RUNWAY END LIGHT
	RWLEL	RUNWAY EDGE LIGHT (ELEVATED)
	RWLSF	RUNWAY EDGE LIGHT (SEMIFLUSH)
	S3ABC	3 THREE WAY SWITCHES
	SABC	THREE SINGLE SWITCHES
	SECTAA	SECTIONALIZER AERIAL AUTO
	SENGV	GENERIC VOLUMETRIC SENSOR
	SENULS	ULTRASONIC SENSOR
	SFL	SEQUENCED FLASHER LIGHT
	SLLN *	STREETLIGHT LUMINAIRE (NEW)
	SLLR	STREETLIGHT LUMINAIRE (REMOVE)
	SLLX	STREETLIGHT LUMINAIRE (EXISTING)
	SLREG	CONSTNT CURRENT TRANSFORMER

ELECTRICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SM	MOTOR SWITCH
	SOUNDS *	SOUND SYSTEM (INDICATE USE)
	STP14	1 X 4 LIGHT STRIP
	STP14B	1 X 4 LIGHT STRIP WITH BATTERY
	STP18	1 X 8 LIGHT STRIP
	STP18B	1 X 8 LIGHT STRIP WITH BATTERY
	SUBSTA	SUBSTATION
	SWFLNC	NORMALLY CLOSED FLOAT SWTCH
	SWFLNO	NORMALLY OPEN FLOAT SWITCH
	SWFNC	NORMALLY CLOSED FLOW SWITCH
	SWFNO	NORMALLY OPEN FLOW SWITCH
	SWFONC	NORM CLSD FOOT OPRTD SWTCH
	SWI2WY	DOUBLE POLE SWITCH
	SWI3WY	THREE WAY SWITCH
	SWI4WY	FOUR WAY SWITCH

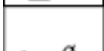
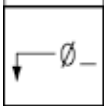
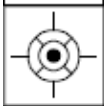
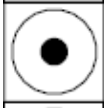
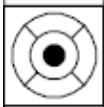
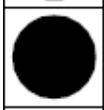
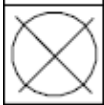
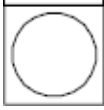
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	SWICB	CIRCUIT BREAKER
	SWIDIS	DISCONNECT SWITCH
	SWIDM1	DIMMER
	SWIDM2	DIMMER SWITCH
	SWIDUR	DURESS SWITCH
	SWIFUS	FUSED SWITCH
	SWIKEY	KEY OPERATED SWITCH
	SWILVM	LOW VOLTAGE MASTER SWITCH
	SWITCH	SINGLE POLE SWITCH
	SWITIM	TIMER OPERATED SWITCH
	SWLAMP	LAMP HOLDER POLE SWITCH
	SWLNC	NORMALLY CLOSED LIMIT SWITCH
	SWLNO	NORMALLY OPEN LIMIT SWITCH
	SWMULT	MULTIPOSITION SWITCH
	SWPADN	SWITCH_PAD (NEW)

ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	SWPADX	SWITCH_PAD (EXISTING)
	SWPCM	CEILING MOUNTED PULL SWITCH
	SWPCOI	PRES SWITCH CLOSE ON INCREASE
	SWPOOI	PRESS SWITCH OPEN ON INCREASE
	SWSBRK	SINGLE BREAK SWITCH
	SWTANC	NORMALLY CLOSED TEMPERATURE ACTIVATED SWITCH
	SWTANO	NORMALLY OPEN TEMPERATURE ACTIVATED SWITCH
	SWTDNC	NORMALLY CLOSED TIME DELAY SWITCH
	SWTDNO	NORMALLY OPEN TIME DELAY SWITCH
	TDZL	TOUCHDOWN ZONE LIGHT
	THL	THRESHOLD LIGHT
	TOWER	TRANSMISSION TOWER
	TRFSIG *	TRAFFIC SIGNAL MASTER ARM
	TSCTRL	TRAFFIC SIGNAL CONTROLLER
	TSHEAD	TRAFFIC SIGNAL HEAD (FOR MASTER ARM)

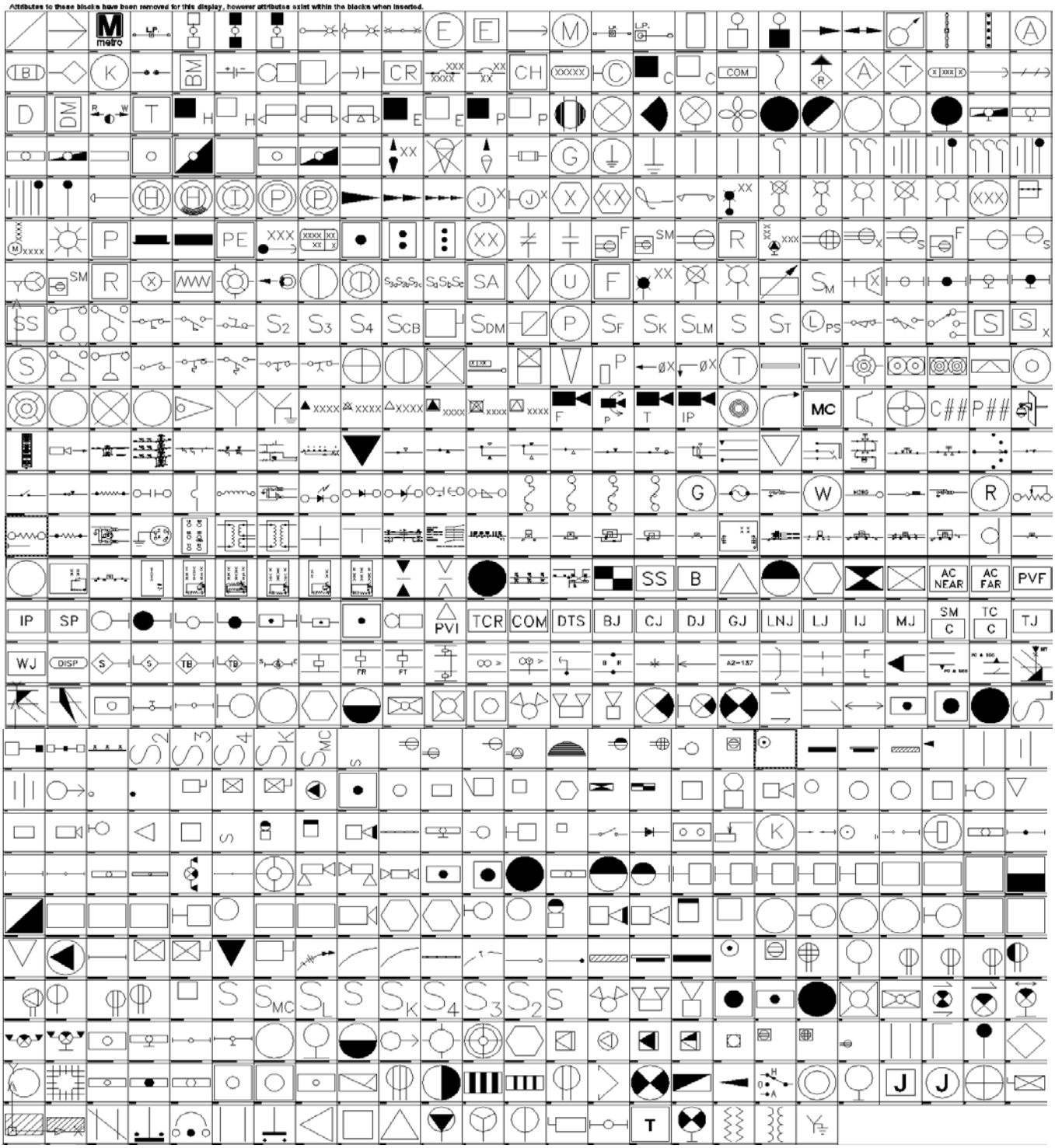
ELECTRICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	TSPBX	TRAFFIC SIGNAL PULLBOX
	TSPHS *	TRAFFIC SIGNAL PH NO_THRU
	TSPHT *	TRAFFIC SIGNAL PH NO_TURN
	TSTAT	THERMOSTAT
	TSVLDT	TRAFFIC SIGNAL VEHICLE LOOP DETECTOR
	TVOUT	TELEVISION OUTLET
	TWCLL	TAXIWAY CENTERLINE LIGHT
	TWELEL	TAXIWAY END LIGHT (ELEVATED)
	TWELSF	TAXIWAY END LIGHT (SEMIFLUSH)
	TWGSGN	TAXIWAY GUIDANCE SIGN
	TWLEL	TAXIWAY EDGE LIGHT (ELEVATED)
	TWLSF	TAXIWAY EDGE LIGHT (SEMIFLUSH)
	UTPLN	POLE (NEW)
	UTPLR	POLE (REMOVE)
	UTPLX	POLE (EXISTING)

ELECTRICAL SYMBOL LEGEND

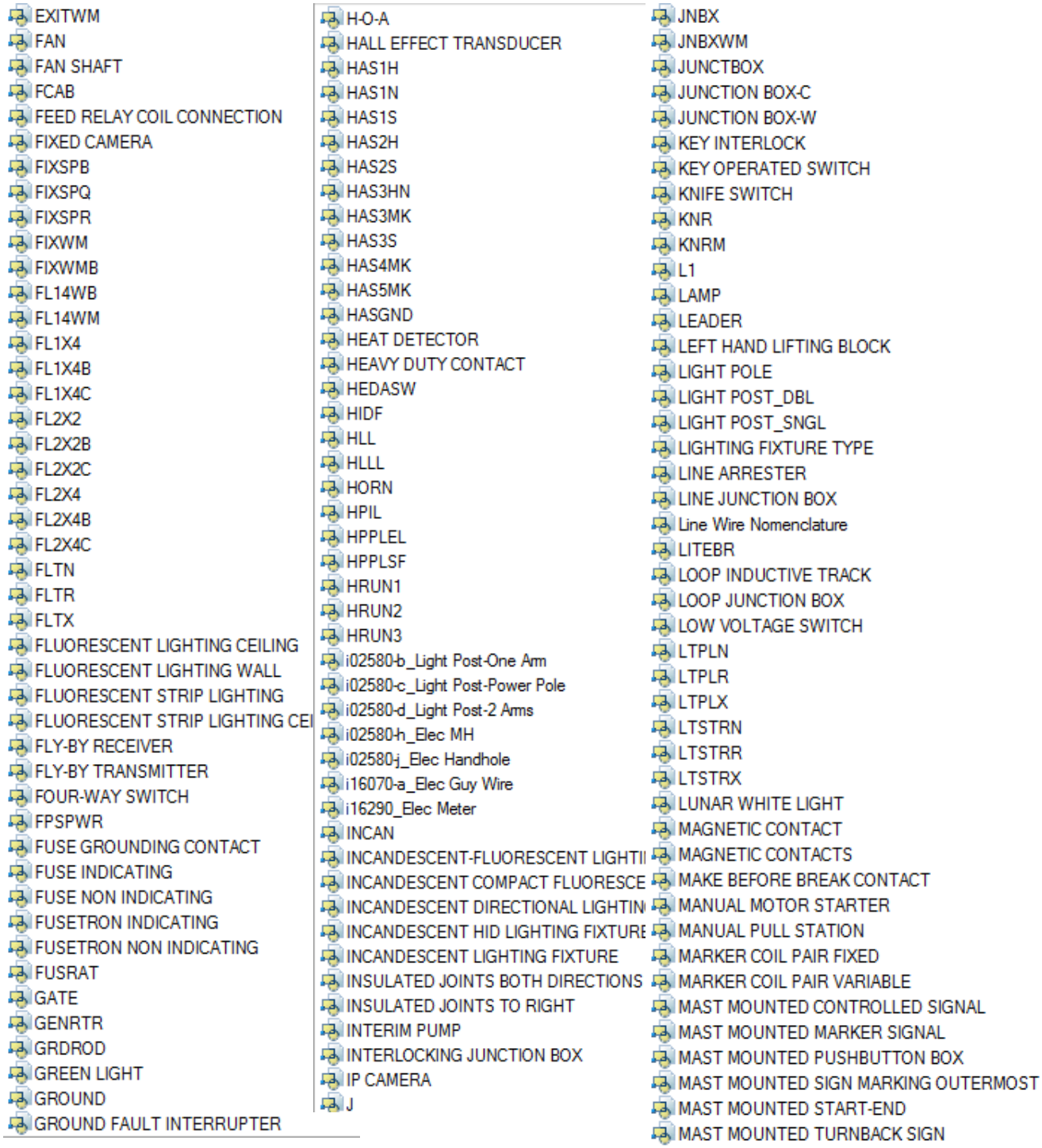
SYMBOL	NAME	DESCRIPTION
	WINDCN	WIND CONE
	WYECON	XFMR WYE CONNECTION
	WYEXGC	XFMR GROUNDED CONNECTION
	XFRPLN *	POLE MOUNTED TRANSFORMER (NEW)
	XFRPLR *	POLE MOUNTED TRANSFORMER (REMOVE)
	XFRPLX *	POLE MOUNTED TRANSFORMER (EXISTING)
	XFRPMN *	PAD MOUNTED TRANSFORMER (NEW)
	XFRPMR *	PAD MOUNTED TRANSFORMER (REMOVE)
	XFRPMX *	PAD MOUNTED TRANSFORMER (EXISTING)

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



'J' RELAY SERIES COIL CONNECTION
'J' RELAY SERIES COIL CONNECTION WITH DIODE SUPPRESSION
'JT' RELAY COIL CONNECTION
_ArchTick
_Open90
1DIR
1X44TH
1X4AOFF
1X4COFF
2D elec_cells_451
2DIR
2X24TH
2X2COFF
2X44TH
36CELL
AC SERVICE ROOM FAR
AC SERVICE ROOM NEAR
AC VANE RELAY COIL CONNECTION
AC VANE RELAY COIL CONNECTION-1
ACCBIO
ACLLEL
ACLLSF
ADCADD_ZZ
AERROD
AFBCN
AMPLIFIER
ANNUN
ANNUNT
ARR
ARREST
BARMKR
BATTRY
BELL
BIASED NEUTRAL 'B' RELAY 2 SECOND SLOW RELEASE
BIASED NEUTRAL 'B1' RELAY PARALLEL COIL CONNECTION
BIASED NEUTRAL 'B1' RELAY SEPARATE COIL CONNECTION
BIASED NEUTRAL 'B1' RELAY SERIES COIL CONNECTION
BRANCH CIRCUIT CONCEALED IN WALLS
BRANCH CIRCUIT WIRING CONCEALED
BRANCH CIRCUIT WIRING DOWN
BRANCH CIRCUIT WIRING EXPOSED
BRANCH CIRCUIT WIRING UP
BRIDGING RECEIVER
BRIDGING RECEIVER JUNCTION BOX
BUMPING POST
BUSSED RESISTOR MTD ON PCB
BUZZER
CAMERA
CAMERA ID
CAMERA WALL MOUNT
CAPACITOR
CAPCTR
CARDRD
CB
CBDOUT
CBMCAS
CEILING MOUNTED-SPEAKER
CHANDELIER
CHIME
CILIL STA-EQU
CIRCUIT BREAKER
CKTID
CLOCK OUTLET
CLOCKW
CLOSED CONTACT
CMHLN
CMHLX
CMPANL
COIL
Combination Repeater-1
Combination Repeater-2
COMBINATION STARTER
COMMUNICATION CIRCUIT ARRESTER SET UP
COMMUNICATIONS ROOM
COMREC
CPLTM
CPREC2
CPSAN
CPTEST
CROSSBOND LOCATION
CURRENT TEST POST
DATA OUTLET
DATA TRANSMISSION JUNCTION BOX
DBID
DBL-LIGHT
DE-ENEDGIZED (FORM A)
DE-ENERGIZED (FORM B)
DE-ENERGIZED DEPENDED FRONT-BACK CONTACTS
DGUYN
DGUYR

- DIMMER SWITCH
- DIODE
- DIODE LED
- DIODE REGULAR
- DIODE ZENER
- DIRDOWN
- DIS
- DIS4
- DISCONNECT SWITCH
- DISTRIBUTION JUNCTION BOX
- DOME LIGHT
- DOME LIGHT CEILING MOUNTED
- DOOR COUPLING UNIT JUNCTION BOX
- DOROPN
- DOUBLE DUPLEX RECEPTACLE
- Double250wFixture_Type30B
- Double400wFixture_Type3-D
- DoubleStandard-250ww+400wFixture_Type30E
- DRAINAGE PS
- DREC
- DRY TYPE TRANSFORMER
- DSTMKR
- DTHL
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE-PEDESTAL
- DUPLEX RECEPTACLE 18IN
- DUPLEX RECEPTACLE 18IN UPPER SWITCHED
- DUPLEX RECEPTACLE ELEC WATER COOLER
- DUPLEX RECEPTACLE FLUSH
- DUPLEX RECEPTACLE WEATHERPROOF
- DUTY STATION
- DXFMR
- E1414092
- E1420523
- EDGE2
- EECA1003
- EECA1007
- EECA1010
- EECD0001
- EECD0011
- EECD0012
- EECD0013
- EECD0014
- EECS0004
- EECT1001
- EEFD0001
- EEFM0003
- EEFS0008
- EEFS0009
- EEFS0010
- EEFS0012
- EEFS0013
- EEFS0014
- EEFT0001
- EEFT0003
- EEFT0005
- EEFW0001
- EEGS1002
- EEGS1008
- EEGS3001
- EELE0002
- EELE0003
- EELE0005
- EELE0008
- EELE0009
- EELE0010
- EELE0011
- EELE0013
- EELE0015
- EELE0016
- EELE0017
- EELE0020
- EELF1000
- EELF1001
- EELF1002
- EELF1003
- EELF1004
- EELF1005
- EELF1006
- EELF1009
- EELF1010
- EELF1011
- EELF1013
- EELF1014
- EELF1015
- EELF2001
- EELF2002
- EELF2004
- EELF2008
- EELF2009
- EELF2010
- EELI0001
- EELI0002
- EELI0003
- EELI0005
- EELI0009
- EELI0013
- EELS0002
- EELX0002
- EELX0003
- EEPD0001
- EEPD0002
- EEPD0004
- EEPD0005
- EEPD0006
- EEPJ0001
- EEPJ0002
- EEPJ0003
- EEPP0003
- EEPP0004
- EEPP0010
- EEPR1001
- EEPR1003
- EEPR1009
- EEPR1010
- EEPR1011
- EEPR1012
- EEPR1013
- EEPR1014
- EEPR1015
- EEPR2001
- EEPR3001
- EEPR3008
- EET1
- EET2
- EET4
- EET7
- EETDN
- EETG
- EETHRUN
- EETIG
- EETUP
- EEWS1002
- EEWS1003
- EEWS1004
- EEWS1005
- EEWS1007
- EEWS1010
- EEWS2001
- EEWS2003
- EEWS2008
- EEWS2009
- EHHLN
- EHHLX
- EL001CH
- ELBP1L
- ELBP2L
- ELBP3L
- elec_cells_41
- elec_cells_42
- elec_cells_57
- ELECTRIC STRIKE
- ELECTROLYTIC CAPACITOR
- ELF1
- ELF2
- EMERGENCY EXIT
- EMERGENCY LBU CEILING
- EMERGENCY LBU REMOTE HEADS
- EMERGENCY LBU WALL
- EMERGENCY STATION
- EMERGENCY STATION-ES
- EMERGIZED DEPENDED FRONT-BACK
- EMHLN
- EMHLX
- ENERGIZED BACK CONTACT
- ENERGIZED FRONT CONTACT
- EPBXN
- EPBXX
- EQUALIZER
- EQUIPMENT CONNECTION
- ERECPT
- ESLF1
- ESLF2
- ESLF3
- EXISTING CONDUIT PATH
- EXIT
- EXIT SIGN1
- EXIT SIGN2
- EXITCM
- EXITLF


EXITWM
FAN
FAN SHAFT
FCAB
FEED RELAY COIL CONNECTION
FIXED CAMERA
FIXSPB
FIXSPQ
FIXSPR
FIXWM
FIXWMB
FL14WB
FL14WM
FL1X4
FL1X4B
FL1X4C
FL2X2
FL2X2B
FL2X2C
FL2X4
FL2X4B
FL2X4C
FLTN
FLTR
FLTX
FLUORESCENT LIGHTING CEILING
FLUORESCENT LIGHTING WALL
FLUORESCENT STRIP LIGHTING
FLUORESCENT STRIP LIGHTING CEI
FLY-BY RECEIVER
FLY-BY TRANSMITTER
FOUR-WAY SWITCH
FPSPWR
FUSE GROUNDING CONTACT
FUSE INDICATING
FUSE NON INDICATING
FUSETRON INDICATING
FUSETRON NON INDICATING
FUSRAT
GATE
GENRTR
GRDROD
GREEN LIGHT
GROUND
GROUND FAULT INTERRUPTER
H-O-A
HALL EFFECT TRANSDUCER
HAS1H
HAS1N
HAS1S
HAS2H
HAS2S
HAS3HN
HAS3MK
HAS3S
HAS4MK
HAS5MK
HASGND
HEAT DETECTOR
HEAVY DUTY CONTACT
HEDASW
HIDF
HLL
HLLL
HORN
HPIL
HPPLEL
HPPLSF
HRUN1
HRUN2
HRUN3
i02580-b_Light Post-One Arm
i02580-c_Light Post-Power Pole
i02580-d_Light Post-2 Arms
i02580-h_Elec MH
i02580-j_Elec Handhole
i16070-a_Elec Guy Wire
i16290_Elec Meter
INCAN
INCANDESCENT-FLUORESCENT LIGHTI
INCANDESCENT COMPACT FLUORESCE
INCANDESCENT DIRECTIONAL LIGHTIN
INCANDESCENT HID LIGHTING FIXTURE
INCANDESCENT LIGHTING FIXTURE
INSULATED JOINTS BOTH DIRECTIONS
INSULATED JOINTS TO RIGHT
INTERIM PUMP
INTERLOCKING JUNCTION BOX
IP CAMERA
J
JNBX
JNBXWM
JUNCTBOX
JUNCTION BOX-C
JUNCTION BOX-W
KEY INTERLOCK
KEY OPERATED SWITCH
KNIFE SWITCH
KNR
KNRM
L1
LAMP
LEADER
LEFT HAND LIFTING BLOCK
LIGHT POLE
LIGHT POST_DBL
LIGHT POST_SNGL
LIGHTING FIXTURE TYPE
LINE ARRESTER
LINE JUNCTION BOX
Line Wire Nomenclature
LITEBR
LOOP INDUCTIVE TRACK
LOOP JUNCTION BOX
LOW VOLTAGE SWITCH
LTPLN
LTPLR
LTPLX
LTSTRN
LTSTRR
LTSTRX
LUNAR WHITE LIGHT
MAGNETIC CONTACT
MAGNETIC CONTACTS
MAKE BEFORE BREAK CONTACT
MANUAL MOTOR STARTER
MANUAL PULL STATION
MARKER COIL PAIR FIXED
MARKER COIL PAIR VARIABLE
MAST MOUNTED CONTROLLED SIGNAL
MAST MOUNTED MARKER SIGNAL
MAST MOUNTED PUSHBUTTON BOX
MAST MOUNTED SIGN MARKING OUTERMOST
MAST MOUNTED START-END
MAST MOUNTED TURNBACK SIGN

- MATERIAL REFERENCE NUMBER
- MCDS
- MDP
- MDP4
- MEDIA CONVERTER
- METREL
- Metro_Logo
- MICROW
- MOMENTARY CONTACT SWITCH
- MOMENTARY ON-OFF-ON
- MOTION DETECTOR
- MOTOR
- MOTOR CONTROLLER
- MOTOR TIMER COIL CONNECTION
- MOTOR TIMER RELAY COIL CONNECTION
- MOTRHP
- NCCONTCT
- NCSWITCH
- NEGATIVE ENERGY TERMINAL
- NEON GLOW TUBE HIGH VOLTAGE INDICATOR
- NETCKT
- NL1
- NL2
- NL3
- NOCONTCT
- NOSWITCH
- NURSE CALL ANNUNCIATOR
- NURSE CALL CONTROL PANEL
- OBSTRL
- OCCUPANCY SENSOR
- OPEN CONTACT
- ORDER OF CONTROL LINE DIAGRAM
- OVERLOAD STICK COIL CONNECTION
- PANELBOARD 208Y
- PANELBOARD 208Y-FLUSH
- PANELBOARD 480Y
- PAPI
- PARALLEL COIL CONNECTION
- PATIENT BEDSIDE STATION-1
- PATIENT BEDSIDE STATION-2
- PBFMC
- PBS
- PBSMC
- PHONE JACK
- PHOTO
- PHOTOELECTRIC CONTROL
- PICK COIL CONNECTION
- PLATFORM ROUTE CANCEL PUSHBUTTOI
- Plug Couplers in Circuit with Proper spacing
- PLUGMOLD
- POINT OF VERTICAL INTERSECTION
- POLE ID
- POLEAR
- POLEID
- POSITIVE ENERGY TERMINAL
- POTHEAD
- POWER ARRESTER
- PROGRAM STOP MARKER JUNCTION BOX
- PSHST1
- PSHST2
- PSHST3
- PTZ CAMERA
- PULL
- PUSH-PULL TURN SWITCH
- PUSHBUTTON SWITCH NORMALLY CLOSI
- PUSHBUTTON SWITCH NORMALLY OPEN
- PVF
- PWRDVC
- RCNC
- RCNO
- RECDFM
- RECDSM
- RECDUP
- RECEIVING 2 RECEIVERS
- RECEIVING ONE DIRECTION
- RECLOS
- RECPT2
- RECQUA
- RECRAN
- RECSDP
- RECSFM
- RECSIN
- RECSNS
- RECSPR
- RECSSM
- RED LIGHT
- REIL
- RELAY CONTACT CONFIG-1
- RELAY CONTACT CONFIG-2
- RELAY CONTACT CONFIG-3
- Relay Nomenclature with Rack Coordinates
- RELYOP
- RESHTR
- RESISTOR
- RESISTOR ADJUSTABLE
- RIGHT HAND DERAIL LAYOUT
- ROTO GATE
- RWCLL
- RWEL
- RWLEL
- RWLSF
- S3ABC
- SABC
- SECTAA
- SECURITY SYSTEM ANNUNCIATOR
- SECURITY SYSTEM DOOR CONTROL PANEL
- SELECTOR SWITCH
- SENGV
- SENULS
- SEPERATE COIL CONNECTION
- SERIES COIL CONNECTION
- SEWAGE EJECTOR
- SFL
- SHUNT
- SIGNAL JUNCTION BOX
- SIGOUT
- SINGLE-POLE SWITCH
- SINGLE RECEPTACLE 18IN
- SINGLE RESISTOR MTD ON PCB
- SINGLE TURNOUT HAND ELECTRIC SWITCH
- SINGLE TURNOUT SWITCH-AND-LOCK
- SINGLE TURNOUT SWITCH AND LOCK MOVEMENT
- Single250wFixture-Wall-Mount_Type20
- Single250wFixture_Type30A
- Single400wFixture_Type30C
- SLLN
- SLLR
- SLLX
- SLREG
- SM
- SMOKE DETECTOR
- SNOWMELTER CASE
- SOUNDS
- SPEAKER
- SPEAKER CEILING

SPEAKER VOLUME CONTROL
SPECIAL PURPOSE OUTLET 18IN
SPST NORMALLY CLOSED
SPST NORMALLY OPEN
SR
SR2
SREC
SS
STICK COIL CONNECTION
STP14
STP14B
STP18
STP18B
STRIP4
STROBE
STROBE-BELL
STROBE-HORN
SUBSTA
SUBSTATION
SUMP PUMP
SURGE ARRESTER
SWFLNC
SWFLNO
SWFNC
SWFNO
SWFONC
SWI2WY
SWI3WY
SWI4WY
SWICB
SWIDIS
SWIDM1
SWIDM2
SWIDUR
SWIFUS
SWIKEY
SWILVM
SWITCH
SWITCH JUNCTION BOX
SWITCH MACHINE
SWITCH OPERATING COIL CONNE
SWITIM
SWLAMP
SWLNC
SWLNO
SWMULT
SWPADN
SWPADX
SWPCM
SWPCOI
SWPOOI
SWSBRK
SWTANC
SWTANO
SWTDNC
SWTDNO
T-RACK CIRCUIT ARRESTER SET UP
TA09B
TA10B
TA18B
TDZL
TELEPHONE BACKBOARD
TELEPHONE OUTLET
TELEPHONE OUTLET FLUSH
TELEPHONE WIRING
TEN DIGIT KEYPAD
TFORMF
THERMAL CAMERA
THL
THREE-WAY SWITCH
TIE BREAKER
TIMER RELAY
TOWER
TRACK ARRESTER
TRACK CIRCUIT NAME
TRACK JUNCTION BOX
TRACK RELAY COIL CONNECTION
TRAFFIC RECTIFIER
TRAIN CONTROL EQUIPMENT CASE
TRAIN CONTROL ROOM
TRAIN DISPATCHING CONTROL MACHIN
TRANSFORMER
TRANSFORMER WITH MULTI SECONDA
TRFSIG
TSCTRL
TSHEAD
TSPBX
TSPHS
TSPHT
TSTAT
TSVLDT
TUNNEL PORTAL TO RT
TV ANTENNA OUTLET
TVOUT
TWCLL
TWELEL
TWELSF
TWGSGN
TWLEL
TWLSF
TWO-POLE SWITCH
TWO WIRED CROSSING
TWO WIRES CROSSING
TYPICAL ENERGY LOOP
TYPICAL RACK
UNASSIGNED CONTACT
UNASSIGNED CONTACT WITH CIRCUIT PAGE NUMBERS
UTPLN
UTPLR
UTPLX
VARIABLE RESISTOR
VENT SHAFT
VIDEO CAMERA
VOLTAGE TEST POINT
WALL MOUNTED MARKER SIGNAL-2
WALL MOUNTED MARKER SIGNAL-3
WALL MOUNTED PUSHBUTTON BOX
WALL MOUNTED SIGN MARKING OUTERMOST
WALL MOUNTED TURNBACK SIGN
WAYSIDE IMPEDANCE BOND
WEXITLO
WINDCN
WIRE CONNECTIONS
WYECON
WYEXGC
XFORM
XFORM2
XFRPLN
XFRPLR
XFRPLX
XFRPMN
XFRPMR
XFRPMX
Y

Tool Palettes - **Electrical** symbols (Obsolete)

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

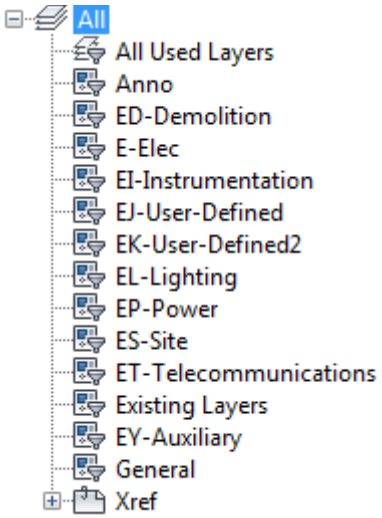
Layers for **Electrical**

An example of the layer descriptions for **Electrical** is shown in the table below. New layers are shades of Red. 12: Lite, 10: Powr, Red: Remaining layers. Existing layers are shades of green. 110: Powr, 102: Lite, 82: CTRL WIRE, 64: Comm, Green for remaining layers. Demolition layers are shades of Blue. 160: LITE, 152: Powr, Blue for remaining layers.

E-ANNO-TEXT	General Text
E-ANNO-SYMB	Symbols
E-ANNO-LEGN	Legends and schedules
E-ANNO-DIMS	Dimensions
E-ANNO-TTLB	Border and Title Block
E-ANNO-NOTE	Job Notes
E-1LIN	One-line diagrams
E-ALRM	Miscellaneous alarm system
E-AUXL	Auxiliary systems
E-CCTV	Closed-circuit TV
E-COMM	Telephone, communications outlets
E-CTRL	Electric control system
E-CTRL-DEVC	Control system devices
E-CTRL-WIRE	Control system wiring
E-INTC	Intercom system
E-LITE	Lighting
E-LITE-CIRC	Lighting circuits
E-LITE-CLNG	Ceiling-mounted lighting
E-LITE-EMER	Emergency lighting
E-LITE-EXIT	Exit lighting
E-LITE-FLOR	Floor-mounted lighting
E-LITE-IDEN	Luminaire identification and text
E-LITE-JBOX	Junction box
E-LITE-NUMB	Lighting circuit numbers
E-LITE-ROOF	Roof lighting
E-LITE-SPCL	Special lighting
E-LITE-SWCH	Lighting-switches
E-LITE-WALL	Wall-mounted lighting
E-POWR	Power
E-POWR-BUSW	Busways
E-POWR-CABL	Cable trays
E-POWR-CIRC	Power circuits
E-POWR-CLNG	Power-ceiling receptacles and devices
E-POWR-EQPM	Power equipment

Layer Groupings for **Electrical**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Electrical** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, ED-Demolition limits the display to work to be demolished.



Symbols for **Telecom** -The following symbols are embedded within the **Telecom** drawings.

The symbols have been delivered in a variety of ways and can be used with any of the following methods:

- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

TELECOMMUNICATIONS SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GRDROD	GROUNDING ROD
	RECDC	DATA/COMMUNCATION WALL RECEPTACLE
	RECDCF	DATA/COMMUNCATION FLOOR RECEPTACLE
	RECTDF	TELEPHONE DATA FLOOR RECEPTACLE
	RECTDW	TELEPHONE DATA WALL RECEPTACLE
	RECTEF	TELEPHONE FLOOR RECEPTACLE
	RECTEL	TELEPHONE WALL RECEPTACLE
	TBOOTH	TELEPHONE BOOTH

Tool Palettes - **Telecom** symbols (Obsolete)

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

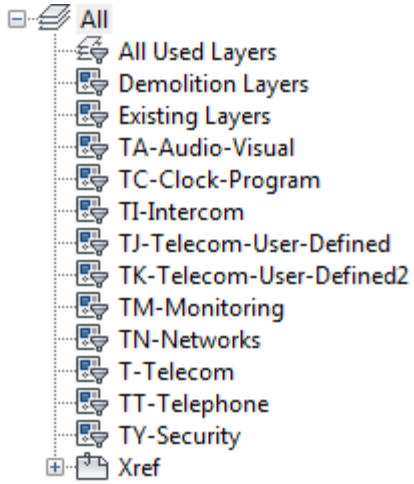
Layers for **Telecom**

An example of the layer descriptions for **Telecom** is shown in the table below. Green is for Existing, Red is for New and Blue is for Demolition layers. Weights are 0.35 mm for New, 0.15 mm for Existing and Demo. Demolition layers are dashed.

T-ANNO-TEXT	General Text
T-ANNO-SYMB	Symbols
T-ANNO-LEGN	Legends and schedules
T-ANNO-TTLB	Border and Title Block
T-ANNO-NOTE	Job Notes
T-CABL	Cable plan
T-DIAG	Diagram
T-EQPM	Equipment plan
T-JACK	Data/telephone jacks

Layer Groupings for **Telecom**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Telecom** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, TI-Intercom limits the display to work to be Intercom related.



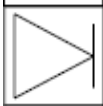
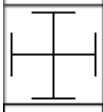
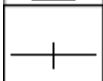
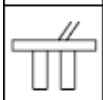
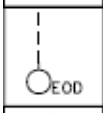
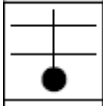
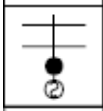
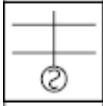
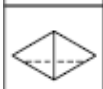
Symbols for **Mechanical** -The following symbols are embedded within the **Mechanical** drawings.

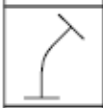
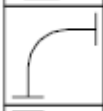
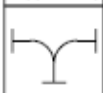
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

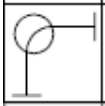
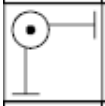
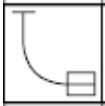
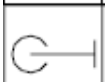
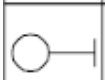
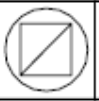
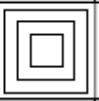
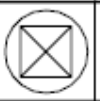
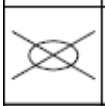
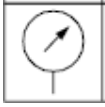
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

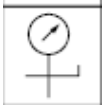
MECHANICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	ACCDOR	DUCT ACCESS DOOR
	AGUIDE	ALIGNMENT GUIDE
	AIRELM	AIR ELIMINATOR
	AIRIN	AIR INTAKE DIRECTIONAL ARROW
	AIRSEP	AIR SEPARATOR
	ANCHRI	ANCHOR
	AVENTA	AUTOMATIC AIR VENT
	AVENTM *	MANUAL AIR VENT
	BALLJT	BALL JOINT
	BUSHSC	BUSHING
	CAPSC	CAP
	CAPTUB	CAPILLARY TUBE
	CDRND	ROUND CEILING DIFFUSER
	CDSQR	SQUARE CEILING DIFFUSER
	CFM2X3 *	AIRFLOW (CUBIC FEET/METER)

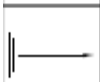
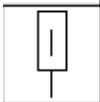
MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	CFM2X4 *	AIRFLOW (CUBIC FEET/METER)
	CFM3X4 *	AIRFLOW (CUBIC FEET/METER)
	COCKSC	SQUARE HEAD COCK VALVE
	CREDSC	REDUCER CONCENTRIC FITTING
	CRSRSC	CROSS FITTING
	CUPJNT	COUPLING JOINT FITTING
	DCTHTR	ELECTRIC DUCT HEATER
	DMPEOC	ELECTRIC OPERATED DAMPER
	DMPFIR	FIRE DAMPER
	DMPFS	FIRE SMOKE DAMPER
	DMPPOD	PNEUMATIC OPERATED DAMPER
	DMPSMK	SMOKE DAMPER
	DPRSD *	DUCT PRESSURE CLASS DOWN IDENTIFIER
	DPRSH *	DUCT PRESSURE HORIZONTAL IDENTIFIER
	DPRSL *	DUCT PRESSURE LEFT IDENTIFIER

MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	DPRSR *	DUCT PRESSURE RIGHT IDENTIFIER
	DPRSU *	DUCT PRESSURE CLASS UP IDENTIFIER
	DPRSV *	DUCT PRESSURE CLASS VERT IDENTIFIER
	DRIER	INLINE REFRIGERANT DRIER
	EEQ2X2 *	ELECTRICAL EQUIPMENT 2X2 MARK IDENTIFIER
	EEQ2X3 *	ELECTRICAL EQUIPMENT 2X3 MARK IDENTIFIER
	EEQ2X4 *	ELECTRICAL EQUIPMENT 2X4 MARK IDENTIFIER
	EEQ3X2 *	ELECTRICAL EQUIPMENT 3X2 MARK IDENTIFIER
	EEQ3X3 *	ELECTRICAL EQUIPMENT 3X3 MARK IDENTIFIER
	EEQ3X4 *	ELECTRICAL EQUIPMENT 3X4 MARK IDENTIFIER
	EL45SC	45 DEGREE ELBOW FITTING
	EL90SC	90 DEGREE ELBOW FITTING
	ELBSC	BASE ELBOW FITTING
	ELDBSC	DOUBLE BRANCH ELBOW FITTING
	ELLRSC	LONG RADIUS ELBOW FITTING

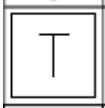
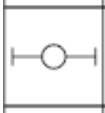
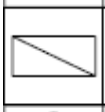
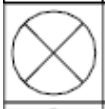
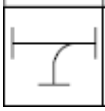
MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	ELODSC	ELBOW SIDE OUTLET DOWN FITTING
	ELOUSC	ELBOW SIDE OUTLET UP FITTING
	ELSTRT	STREET ELBOW FITTING
	ELTDSC	TURNED DOWN ELBOW FITTING
	ELTUSC	TURNED UP ELBOW FITTING
	EREDSC	ECCENTRIC REDUCER FITTING
	EXPJNT	EXPANSION JOINT (PIPING)
	FANERV	EXHAUST ROOF VENTILATOR FAN
	FANLRV	LOUVERED ROOF VENTILATOR FAN
	FANSRV	INTAKE ROOF VENTILATOR FAN
	FLBLND	BLIND FLANGE FITTING
	FLOW1	AIR FLOW DIRECTION ARROW
	FLRPEN	FLOOR PENETRATION (ISOMETRIC VIEW)
	FLXCON	FLEXIBLE CONNECTOR (PIPING)
	GAUGE	PRESSURE GAUGE

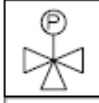
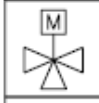
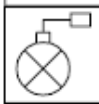
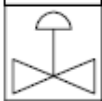
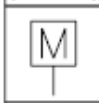
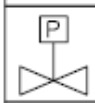
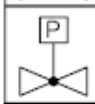
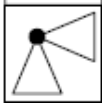
MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	GRILEX	DUCT SECTION EXHAUST GRILLE
	GRILSU	DUCT SECTION SUPPLY GRILLE
	HANGRD	HANGER ROD
	HANGSP	HANGER SPRING
	HSENS	HUMIDITY SENSOR
	HSTAT	HUMIDISTAT
	LNDIFF	LINEAR DIFFUSER
	LOOPL	LEFT DIMENSION LOOP TERMINATOR
	LOOPR	RIGHT DIMENSION LOOP TERMINATOR
	LOUOPN	DOOR OR WALL LOUVER
	PIDROP	PITCH OR PIPE DROP
	PIRISE	PITCH OR PIPE RISE
	PLGBFL	BULL PLUG FLANGED
	PLGPSC	PIPE PLUG BELL AND SPIGOT
	PRGGCO	PRESSURE GAGE AND COCK

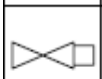
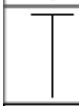
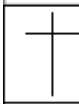
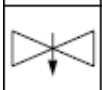
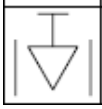
MECHANICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	PSDIFF	PUMP SUCTION DIFFUSER
	PUMP	PUMP
	PUMPP	PUMP SCHEMATIC
	PUMPS	INLINE PUMP
	SCALET	SCALE TRAP
	SLEEVE	PIPING SLEEVE
	STGLAS	SIGHT GLASS
	STRAIN	STRAINER
	STRBLO	BLOW OFF STRAINER
	SUPOUT	SUPPLY OUTLET WALL SUPPLY
	TDSSC	DOUBLE SWEEP TEE
	THERM	THERMOMETER
	THERMW	THERMOMETER WELL
	THHRB	THERMOSTAT REMOTE BULB
	THHSC	THERMOSTAT SELFCONTAINED

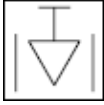
MECHANICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	THLPRS	THERMOSTAT LOW PRESSURE
	THMCP	MICROPROCESSOR THERMOSTAT
	THPELE	THERMOSTAT ELECTRIC
	THPPNE	THERMOSTAT PNEUMATIC PIPE
	TMPSEN	TEMPERATURE SENSOR
	TODSC	TEE FITTING (OUTLET DOWN)
	TOUSC	TEE FITTING (OUTLET UP)
	TRAPFL	FLOAT TRAP
	TRAPFT	FLOAT THERMOSTATIC TRAP
	TRAPST	STEAM TRAP
	TRAPTB	THERMOSTATIC BLAST TRAP
	TSODSC	TEE FITTING SIDE OUTLET DOWN
	TSOUSC	TEE FITTING SIDE OUTLET UP
	TSSSC	TEE FITTING
	TSSWSC	SINGLE SWEEP TEE FITTING

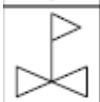
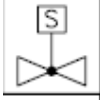
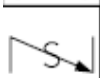
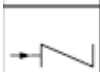
MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	UNIOSC	UNION FITTING
	VA3WAM	3WAY AIRMOTOR CONTROLER
	VA3WEM	3WAY ELECMOTOR CONTRLE
	VA3WM	3WAY MANUAL VALVE
	VAAHOS	ANGLE HOSE VALVE
	VABALL	BALL VALVE FITTING (PLAN VIEW)
	VABFLY	BUTTERFLY VALVE FITTING
	VACWR	CONDENSE WATER REGULATOR VALVE
	VADISC	DIAPHRAGM VALVE FITTING
	VAEMTR	PNEUMATIC MOTOR
	VAESOL	SOLENOID VALVE ACTUATOR
	VAFLSC	FLOAT VALVE
	VAGAMC	PNEUMATIC CONTROLED GATE VALVE
	VAGLAM	PNEUMATIC CONTROLED GLOBE VALVE
	VAGLE	ANGLE GLOBE VALVE

MECHANICAL SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	VAGLSE	GLOBE VALVE
	VAGSE	ANGLE GATE VALVE
	VAGSP	ANGLE GATE VALVE (PLAN VIEW)
	VAGTSE	GATE VALVE
	VAHASC	GATE VALVE PLAN
	VAHGLS	HOSE GLOBE VALVE
	VAHGSC	HOSE GATE VALVE
	VALSSC	LOCK SHIELD VALVE
	VAMAGS	MAGNETIC STOP VALVE
	VAMNNS	VALVE ACTUATED, MANUAL NON-RISING STEM
	VAMOGS	MOTOR OPERATED GATE VALVE
	VAMOLS	MOTOR OPERATED GLOBE VALVE
	VAMOSY	VALVE ACTUATOR, MANUAL OUTSIDE STEM & YOKE
	VANEED	NEEDLE VALVE
	VAPLUG	PLUG VALVE

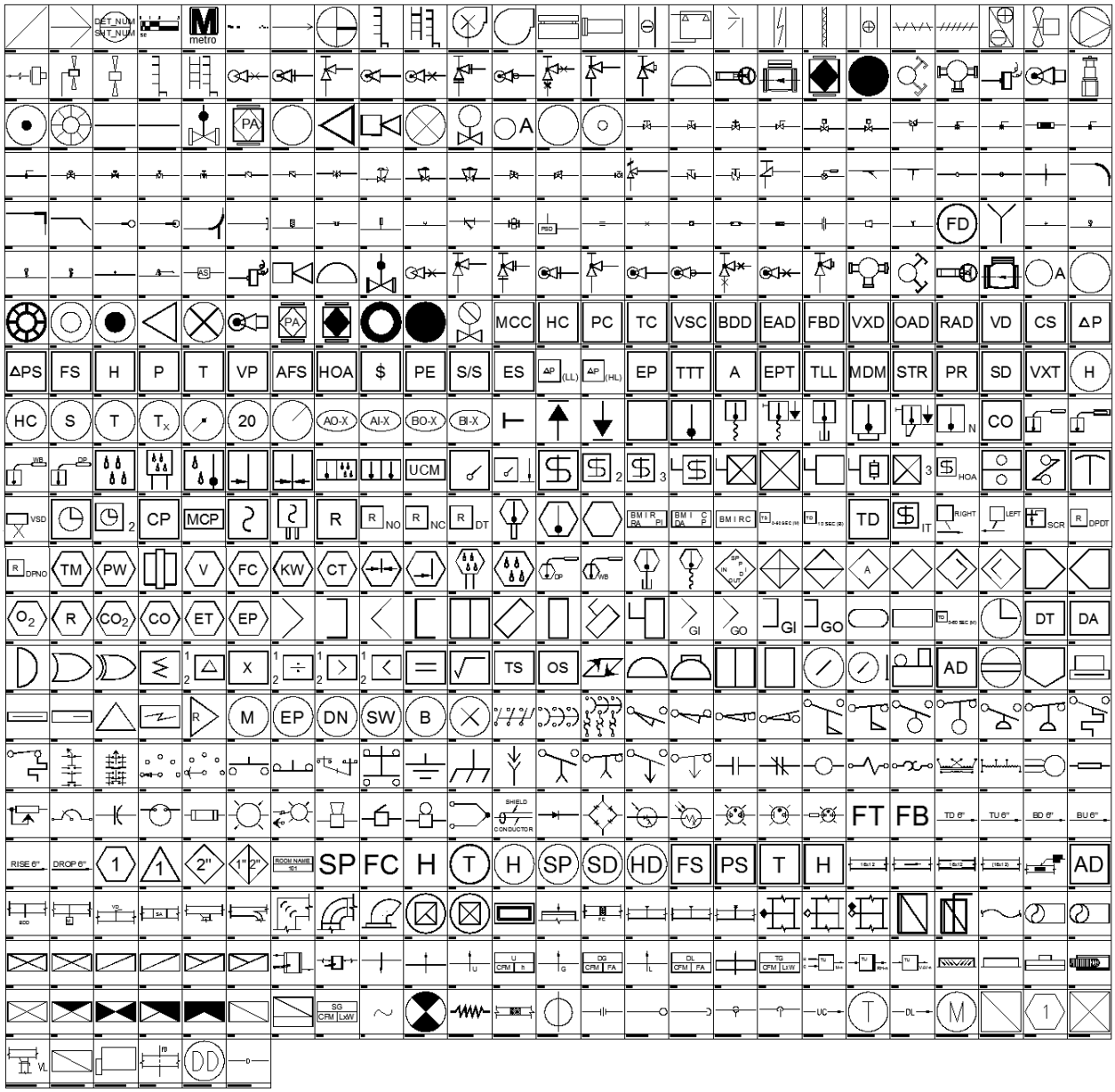
MECHANICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	VAGLSE	GLOBE VALVE
	VAGSE	ANGLE GATE VALVE
	VAGSP	ANGLE GATE VALVE (PLAN VIEW)
	VAGTSE	GATE VALVE
	VAHASC	GATE VALVE PLAN
	VAHGLS	HOSE GLOBE VALVE
	VAHGSC	HOSE GATE VALVE
	VALSSC	LOCK SHIELD VALVE
	VAMAGS	MAGNETIC STOP VALVE
	VAMNNS	VALVE ACTUATED, MANUAL NON-RISING STEM
	VAMOGS	MOTOR OPERATED GATE VALVE
	VAMOLS	MOTOR OPERATED GLOBE VALVE
	VAMOSY	VALVE ACTUATOR, MANUAL OUTSIDE STEM & YOKE
	VANEED	NEEDLE VALVE
	VAPLUG	PLUG VALVE

MECHANICAL SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	VAPMTD	VALVE ACTUATOR, PNEUMATIC DIAPHRAGM
	VAPRED	PRESSURE REDUCING VALVE
	VAPRRD	PRESSURE REDUCING VALVE
	VAQOSC	QUICK OPENING VALVE
	VARELF	RELIEF OR SAFETY VALVE
	VASCE	ANGLE GLOBE VALVE
	VASCP	ANGLE GLOBE VALVE (PLAN VIEW)
	VASFSC	SAFETY VALVE
	VASGCH	SWING GATE CHECK VALVE
	VASNAP	SNAP ACTION VALVE
	VASOLN	SOLENOID VALVE
	VASPCH	SPRING CHECK VALVE
	VASTSC	GATE VALVE
	VASWSC	STRAIGHT WAY CHECK VALVE
	VATPR	TEMP PRESSURE RELIEF VALVE

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



Mechanical LineStyles

MPS	Medium pressure steam	MPS
HPS	High pressure steam	HP
IA	Instrument air	IA
VAC	Vacuum service	VAC
RS	Refrigerant service	RS
RL	Refrigerant liquid	RLR
RHG	Refrigerant hot gas	RHG
RLR	Refrigerant liquid	RL
GHS	Glycol heating supply line	GHS
GHR	Glycol heating return line	GHR
CWS	Condenser water supply	CWS
CWR	Condenser water return	CWR
AV	Acid vent piping	AV
WASTE	Waste	W
CW	Cold water	CW
HWS	Low Temp. hot water supply	HWS
C	Steam condensate service	C
BBD	Boiler blow down	BBD
HTWS	Hot water for heating supply	HTWS
HTWR	Hot water for heating return	HWTR
A	Compressed air	A
CHWS	Chilled water supply	CHWS
CHWR	Chilled water return	CHWR
IW	Indirect waste	IW
CD	Condensate drain line	CD
HPWS	Heat pump water supply	HPWS
HPWR	Heat pump water return	HPWR
DTS	Dual temp supply	DTS
DTR	Dual temp return	DTR
NPW	Non-potable water	NPW
SS	Sanitary soil piping	SS
SD	Above ground storm drain	SD
ACID	Acid waste piping	ACID
BFW	Boiler feed water	BFW
PC	Pumped condensate	PC
VPD	Vacuum pump discharge	VPD
FOS	Fuel oil supply	FOS
FOD	Fuel oil discharge	FOD
FOR	Fuel oil return	FOR
FOV	Fuel oil vent line	FOV
FOF	Fuel oil fill	FOF
FOG	Fuel oil gage line	FOG

General Notes and Abbreviations

MECHANICAL GENERAL NOTES:

1. THE CONTRACTOR SHALL INSPECT THE SITE AND BECOME INFORMED AS TO THE CONDITION OF THE PREMISES AND THE EXTENT AND CHARACTER TO WORK REQUIRED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF PIPING, DUCTWORK AND EQUIPMENT TO BE DEMOLISHED. DRAWINGS ARE FOR GENERAL INFORMATION ONLY.
3. COORDINATE ALL MECHANICAL WORK WITH ALL OTHER TRADES TO AVOID CONFLICTS. PROVIDE NECESSARY FITTINGS FOR OFFSETS, RISES AND DROPS TO AVOID CONFLICTS.
4. ALL NEW PIPING OR DUCTWORK TO BE CONNECTED TO EXISTING SHALL MATCH EXISTING MATERIAL AND PIPE SCHEDULE OR THICKNESS.
5. REMOVE OR RELOCATE ANY EXISTING PIPING, DUCTWORK OR ELECTRICAL CONDUITS THAT INTERFERE WITH THE INSTALLATION OF NEW WORK. INSTALL NEW PIPING DUCTWORK OR ELECTRICAL CONDUITS IN PLACE OF THAT WHICH HAS BEEN REMOVED OR RELOCATED AFTER NEW WORK IS ACCOMPLISHED. TEST ALL NEW PIPING AND DUCTWORK AND REBALANCE TO DESIGN VALUES.
6. COORDINATE NEW WORK WITH ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, CONDUITS AND ELECTRICAL PANELS THAT WILL REMAIN.
7. EXISTING PIPING OR DUCTWORK NOTED TO BE REMOVED INDICATED THAT CONTRACTOR SHALL REMOVE THAT PIPE OR DUCT INCLUDING INSULATION, FITTINGS, VALVES, DAMPERS AND SUPPORTS, UNLESS OTHERWISE NOTED.
8. ALL DEMOLITION AND NEW WORK SHALL BE ACCOMPLISHED IN PHASES AS REQUIRED TO MEET THE OWNER'S OPERATIONAL NEEDS.
9. REPAIR OR CLOSE OFF OPENINGS IN THE WALLS OR FLOORS WHICH ARE LEFT OPENED AFTER THE REMOVAL OF EXISTING DUCTWORK, PIPING, EQUIPMENT AND WHERE NOT COVERED AFTER THE INSTALLATION OF NEW WORK. (OPENINGS SHALL BE FILLED UP WITH NEW MATERIALS). NEW WALL OR FLOOR MATERIALS AND FINISH SHALL MATCH EXISTING, INCLUDING FIRE RATING.
10. ANY EXISTING DUCTWORK, PIPES, UTILITIES, ETC., DAMAGED BY THE CONTRACTOR DURING INSTALLATION IS TO BE REPAIRED AND LEFT IN A CONDITION SATISFACTORY TO THE AUTHORITY'S REPRESENTATIVE.
11. THE CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ALL EXISTING PIPING INSTALLATIONS, EQUIPMENT, ACCESSORIES AND WIRING WHICH HAD BEEN MOVED, RELOCATED OR OTHERWISE MODIFIED IN ORDER TO COMPLETE INSTALLATION OF THE SPECIFIED WORK.
12. ALL DUCT SIZES INDICATE CLEAR INSIDE DIMENSIONS.
13. ALL NEW SUPPLY AIR DUCTWORK SHALL BE MADE OF LOW PRESSURE DUCT CONSTRUCTION AND SHALL COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
14. ALL DUCTWORK SHALL BE SEALED AIR-TIGHT (SMACNA SEAL CLASS "A") USING SPECIFIED SEALANT FOR ALL JOINTS AND SEAMS REGARDLESS OF PRESSURE CLASS.
15. A/C DRAIN PIPING SHALL BE PITCHED FROM COIL DRAIN PANS TO POINT OF DISPOSAL. MINIMUM SLOPE SHALL BE 1/8" PER FOOT.
16. MOUNT ALL THERMOSTATS 60" AFF.
17. PROVIDE FIRE DAMPERS IN ALL DUCTS THAT PENETRATE 2 HOUR OR HIGHER RATED WALLS AND FLOORS.
18. PROVIDE AIR BALANCING VOLUME DAMPERS AT ALL DUCT BRANCHES AND SUB-BRANCHES FOR USE BY BALANCING CONTRACTOR TO PERFORM FINAL BALANCING OF AIR DEVICES AND EQUIPMENT.
19. FLEXIBLE DUCT SHALL BE 10 FT IN LENGTH MAXIMUM. WHERE LONGER LENGTHS ARE INDICATED, PROVIDE INSULATED SHEET METAL DUCT AS REQUIRED TO LIMIT FLEXIBLE DUCT LENGTH TO 10 FT.

Abbreviations

ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AF	AIR FILTER
AFD	ADJUSTMENT FREQUENCY DRIVE
AMP	AMPERAGE
ARCH	ARCHITECT
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BR	BOTTOM REGISTER
BS	BIRD SCREEN
BTUH	BRITISH THERMAL UNITS PER HOUR
CAV	CONSTANT AIR VOLUME
CONN	CONNECTION
CC	COOLING COIL
CCP	CENTRAL CONTROL PANEL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CLG	CEILING
COMB	COMBINATION
CONT	CONTINUATION
CR	CEILING REGISTER
CU	CONDENSING UNIT
D	DRAIN (AIR CONDITIONING)
dB	DECIBEL
DB	DRY BULB
DEPT	DEPARTMENT
DL	DOOR LOUVER
DN	DOWN
DIA/ø	DIAMETER
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH OR EXHAUST AIR
EG	EXHAUST GRILLE
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EWH	ELECTRIC WALL HEATER
EUH	ELECTRIC UNIT HEATER
EL	ELEVATION
ELECT	ELECTRIC
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
FC	FORWARD CURVE
FAP	FIRE ALARM PANEL
FD	FIRE DAMPER
FPM	FEET PER MINUTE
HOA	HAND-OFF-AUTO
IN	INCH
LF	LINEAR FOOT
MBH	THOUSAND BTUH
MOD	MOTOR OPERATED DAMPER
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PD	PRESSURE DROP
PH	PHASE
PPH	POUNDS PER HOUR
PRV	POWER ROOF VENTILATOR
PSIG	POUND PER SQUARE INCH GAGE
REF	REFERENCE
RA	RETURN AIR
RD	RETURN DUCT
RF	RETURN FAN
RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RPM	REVOLUTION PER MINUTE
RTU	ROOF TOP UNIT
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SD	SPLIT DAMPER
SEER	SEASONAL ENERGY EFFICIENCY
SF	SQUARE FOOT
SL	SOUND LINING
SR	SUPPLY REGISTER
T'STAT	THERMOSTAT
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
TG	TRANSFER GRILLE
TD	TRANSFER DUCT
UC	UNDER CUT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
VAV	VARIABLE AIR VOLUME
V	VOLT OR VENT
VD	VOLUME DAMPER
VEL	VELOCITY
W/	WITH
WC	WATER COLUMN
WG	WATER GAGE OR WALL GRILLE
WO	WALL OPENING
@	AT
T	TEMPERATURE
#	NUMBER

Tool Palettes - **Mechanical symbols (Obsolete)**

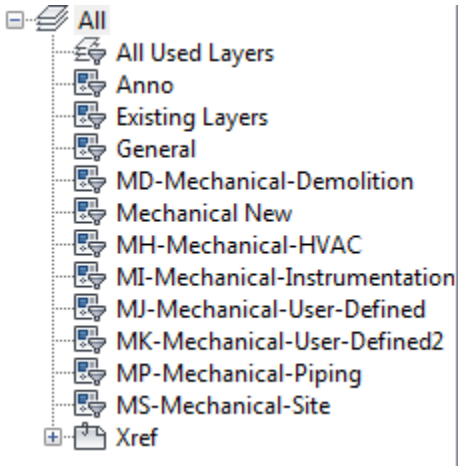
As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Layers and Colors for **Mechanical**

An example of the layer descriptions for **Mechanical** is shown in the table below. Colors are shades of Red. For Mechanical Site, User Defined, Instrumentation, HVAC, Green for Existing and Blue for Demolition. Color 10: Duct, 14: Eqpm, 80: Eqpm existing, 92: Duct Existing, 106: Misc. Mechanical, 142: Pipe Demo, 144: Eqpm Demo, 171: Duct Demo, 150: remaining layers. Weights are 0.35 mm for New, 0.15 mm for Existing and Demolition.

M-ANNO-TEXT	General Text
M-ANNO-SYMB	Symbols
M-ANNO-LEGN	Legends and schedules
M-ANNO-TTLB	Border and Title Block
M-ANNO-NOTE	Job Notes
M-CMPA	Compressed air systems
M-CMPA-CEQP	Compressed air equipment
M-CMPA-CPIP	Compressed air piping
M-CMPA-PEQP	Process air equipment
M-CMPA-PPIP	Process air piping
M-CONT	Controls and instrumentation
M-CONT-THER	Thermostats
M-CONT-WIRE	Low voltage wiring
M-CWTR	Chilled water systems
M-CWTR-EQPM	Chilled water equipment
M-CWTR-PIPE	Chilled water piping
M-EXHS	Exhaust system
M-EXHS-DUCT	Exhaust system ductwork
M-EXHS-EQPM	Exhaust system equipment
M-EXHS-RFEQ	Rooftop exhaust equipment
M-FUME-EQPM	Fume hoods
M-FUME-EXHS	Fume hood exhaust system
M-HOTW	Hot water heating system
M-HOTW-EQPM	Hot water equipment
M-HOTW-PIPE	Hot water piping
M-HVAC	HVAC system
M-HVAC-CDFF	HVAC ceiling diffusers
M-HVAC-DUCT	HVAC ductwork
M-HVAC-EQPM	HVAC equipment
M-HVAC-ODFF	HVAC other diffusers
M-HVAC-RDFF	Return air diffusers
M-HVAC-SDFF	Supply diffusers
M-SPCL-PIPE	Special piping
M-STEM	Steam systems
M-STEM-CONP	Steam systems condensate piping
M-STEM-EQPM	Steam systems equipment
M-STEM-HPIP	High pressure steam piping
M-STEM-LPIP	Low pressure steam piping
M-STEM-MPIP	Medium pressure steam piping

Layer Groupings for **Mechanical**



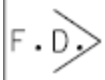
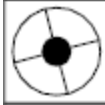
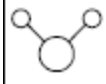
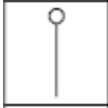
Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts.

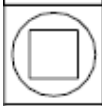
The following groups are embedded within the **Mechanical** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, MD-Demolition limits the display to work to be demolished.

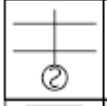
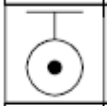
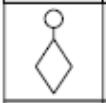
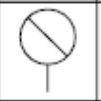
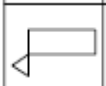
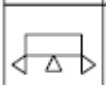
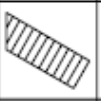
Symbols for **Fire Protection** -The following symbols are embedded within the **Fire Protection** drawings.

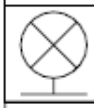
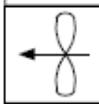
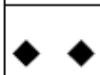
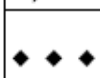
The symbols have been delivered in a variety of ways and can be used with any of the following methods:

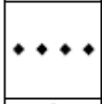
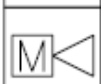
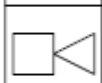
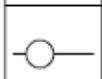
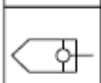
- INSERT can be used to pull the symbol from the internal memory of each drawing.
- INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well.
- Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

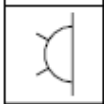
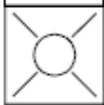
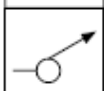
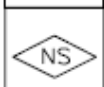
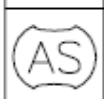
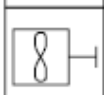
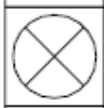
FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	1DIR	DIRECTION ARROW
	ABORT *	ABORT SWITCH
	ACCESS	FIRE DEPARTMENT ACCESS
	AGSTCN *	AGENT STORAGE CONTAINER
	BELLFA	FIRE ALARM BELL
	BOILER	BOILER
	CHIMNY	CHIMNEY
	CO2AA	C02 AUTOMATICALLY ACTUATED EXTINGUISHER
	CO2MA	C02 MANUALLY ACTUATED EXTINGUISHER
	CONSFS	FREESTANDNG SIAMESE FIRE DEPT. CONNECTION
	CONSIA	SIAMESE FIRE DEPT. CONNECTION
	CONSNG	SINGLE FIRE DEPT. CONNECTION
	CPESR	ELEVATOR STATUS RECALL
	CPFAC	FIRE ALARM COMMUNICATOR
	CPFCP	FIRE ALARM CONTROL PANEL

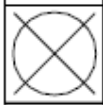
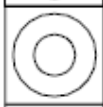
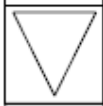
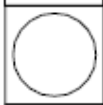
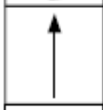
FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
FSA	CPFSA	FIRE ALARM FIRE SYSTEM ANNUNCIATOR
FTR	CPFTR	FIRE ALARM TRANSMITTER
HCP	CPHCP	HALON CONTROL PANEL
HVA	CPHVA	CONTROL PANEL HVAC
	DCATAA	FIRE EXTINGUISHER AUTO. ACTUATED EXCEPT METAL
	DCATMA	FIRE EXTINGUISHER MANUAL ACUTATED EXCEPT METAL
	DCEABC	DRY CHEMICAL EXTINGUISHER (ABC TYPE)
	DCEBC	DRY CHEMICAL EXTINGUISHER (BC TYPE)
	DCECO2	C02 EXTINGUISHER
	DCEHLN	HALON OR CLEAN AGENT EXTINGUISHER
	DCLGAA	DRY CHEMICAL AUTO. ACTUATED EXTINGUISHER
	DCLGMA	DRY CHEMICAL MANUALLY ACTUATED EXTINGUISHER
	DMPBAR	BAROMETRIC DAMPER
	DMPFIR	FIRE DAMPER
	DMPFS	FIRE SMOKE DAMPER

FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	DMPSMK	SMOKE DAMPER
	DRHOLD	DOOR HOLDER
	DTFLAM	FLAME DETECTOR (FIRE SAFETY)
	DTFLOW	FLOW DETECTOR (FIRE SAFETY)
	DTGAS	GAS DETECTOR (FIRE SAFETY)
	DTLEVL	LEVEL DETECTOR (FIRE SAFETY)
	DTPRES	PRESSURE DETECTOR (FIRE SAFETY)
	DTTAMP	TAMPER DETECTOR (FIRE SAFETY)
	ELBP1L	1LAMP EMERGENCY LIGHT (BATTERY POWERED)
	ELBP2L	2LAMP EMERGENCY LIGHT (BATTERY POWERED)
	ELBP3L	3LAMP EMERGENCY LIGHT (BATTERY POWERED)
	EPSTA *	EMERGENCY PHONE STATION
	ESCAPE	FIRE ESCAPE (FIRE SAFETY)
	EXFOAM	FOAM EXTINGUISHER
	EXITCM	CEILING MOUNTED EXIT SIGN LIGHT FIXTURE

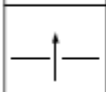
FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	EXITLF	EXIT SIGN LIGHT FACE (USE W/ EXIT LIGHT SYMBS)
	EXITWM	WALL MOUNTED EXIT SIGN LIGHT
	EXWATR	WATER EXTINGUISHER
	FANDCT	DUCT FAN
	FANGEN	GENERAL FAN
	FANWAL	WALL FAN
	FDOR3	3HR RATED FIRE DOOR INSIDE WALL
	FDORL3	WALL W/ 3 HOUR RATED DOOR
	FPDRIV	FIRE PUMP WITH DRIVES
	FPFREE	FREE STANDING TEST HEADER
	FPTEST	WALL MOUNTED TEST HEADER
	FRR1HR	1 HR FIRE RATING (FIRE SAFETY)
	FRR2HR	2 HR FIRE RATING (FIRE SAFETY)
	FRR30M	30 MIN FIRE RATING (FIRE SAFETY)
	FRR3HR	3 HR FIRE RATING (FIRE SAFETY)

FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	FRR45M	45 MIN FIRE RATING (FIRE SAFETY)
	FRR4HR	4 HR FIRE RATING (FIRE SAFETY)
	FULLSS	FULLY SPRINKLERED SPACE
	HD *	HEAT DETECTOR
	HLNAA	AUTOMATICALLY ACTUATED HALON EXTINGUISHER
	HLNMA	MANUALLY ACTUATED HALON EXTINGUISHER
	HOSECS	HOSE STATION, CHARGED STANDPIPE
	HOSEDS	HOSE STATION DRY STANDPIPE
	HRN1A	HORN W/ LIGHT AS ONE ASSEMBLY
	HRNMIN	MINI HORN
	HRNSA	HORN W/ LIGHT AS SEPARATE ASSEMBLY
	HRNSPK	HORN SPEAKER
	HYDPR1	PRIVATE HYDRANT, ONE HOSE OUTLET
	HYDPR2	PRIVATE HOUSED HYDRANT, TWO HOSE OUTLETS
	HYDPU2	PUBLIC HYDRANT, TWO HOSE OUTLET

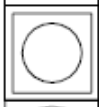
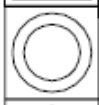
FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	HYDPUP	PUBLIC HYDRANT, TWO HOSE OUTLET PUMPCONNECTIC
	HYDW2H	WALL HYDRANT, TWO HOSE OUTLET
	LITFAS	FIRE ALARM STROBE LIGHT
	MANSTA *	MANUAL STATION
	METRFP	FIRE PROTECTION METER
	MNCHRG	MONITOR NOZZLE CHARGED
	MNDRY	MONITOR NOZZLE DRY
	NONSS	NONSPRINKLERED SPACE
	PARTSS	PARTIALLY SPRINKLERED SPACE
	PURGE	MANUAL PURGE CONTROL
	RISER	PIPING RISER
	RSCO2	C02 REEL STATION
	RSDRYC	DRY CHEMICAL REEL STATION
	RSFOAM	FOAM REEL STATION
	SD *	SMOKE DETECTOR

FIRE PROTECTION SYMBOL LEGEND		
SYMBOL	NAME	DESCRIPTION
	SDUCT	SMOKE DETECTOR FOR DUCT
	SHGARD	SPRINKLER HEAD W GUARD
	SHNUU	NIPPLED UP UPRIGHT SPRINKLER
	SHOUT	OUTSIDE SPRINKLER HEAD
	SHPEND	PENDENT SPRINKLER HEAD
	SHPNDN	PENDENT SPRINKLER DROP NIPPLE
	SHSIDE	SIDEWALL SPRINKLER HEAD
	SHUPRT	UPRIGHT SPRINKLER HEAD
	SMKBR	SMOKE BARRIER
	SSNOZZ	SPECIAL SPRAY NOZZLE
	THRUST	THRUST BLOCK
	TNKBG	TANK (BELOW GROUND)
	TNKHAG	TANK (HORIZONTAL ABOVE GROUND)
	TNKVAG *	TANK (VERTICAL ABOVE GROUND)
	VLVCHA	ALARM CHECK VALVE

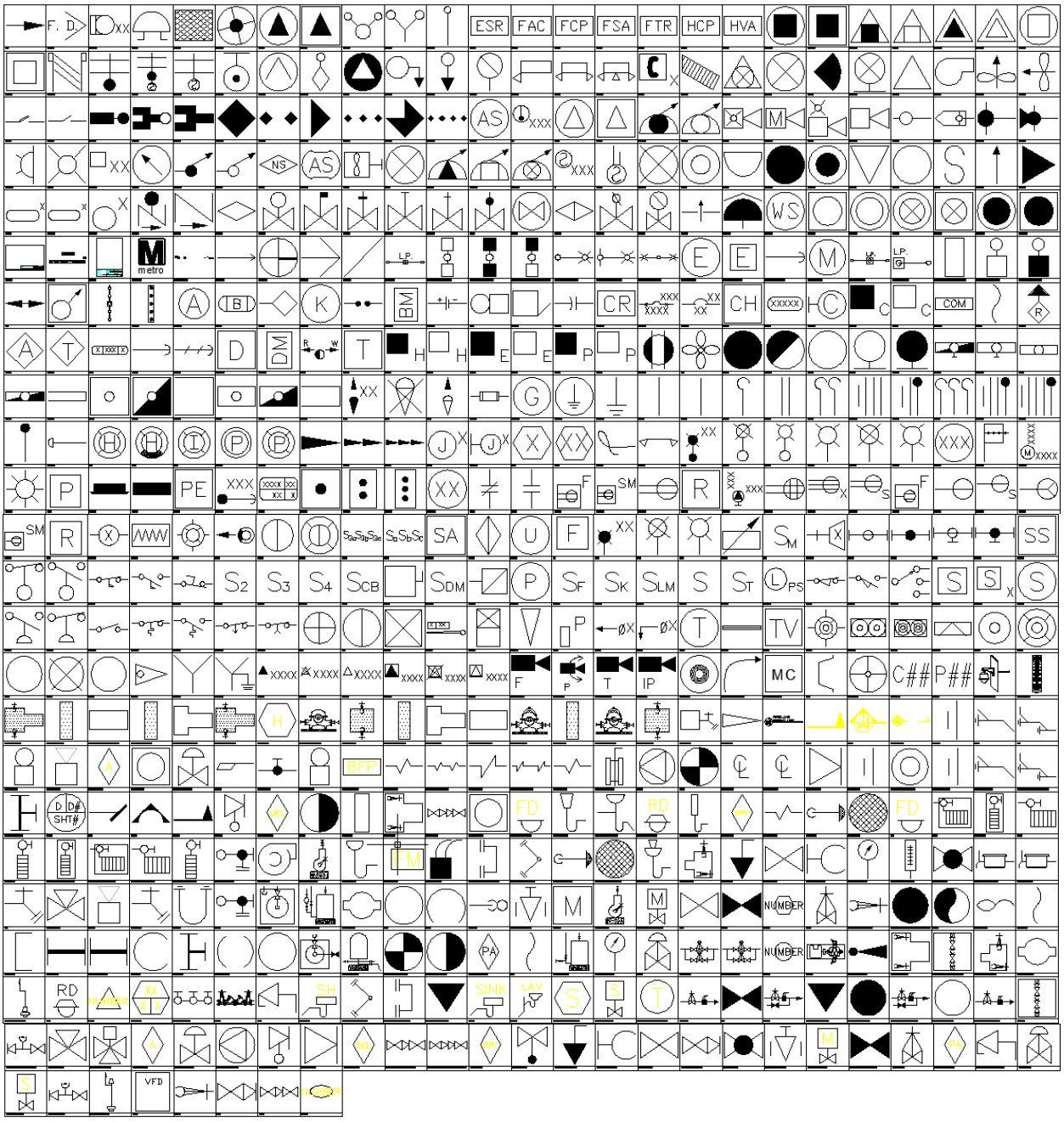
FIRE PROTECTION SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	VLVCHK	CHECK VALVE
	VLVDEL	DELUGE VALVE
	VLVDRY	DRY PIPE VALVE
	VLVIBF	INDICATING BUTTERFLY VALVE
	VLVKEY	KEY OPERATED VALVE
	VLVNON	VALVE NONRISING STEM
	VLVOSY	OUTSIDE SCREW AND YOKE, RISING STEM VALVE
	VLVPI	POST INDICATOR VALVE
	VLVPIT	VALVE IN PIT
	VLVPRE	PREACTION VALVE
	VLVQOD	VALVE WITH QUICK OPENING DEVICE
	VLVTDS	TAMPER DETECTION SWITCH VALVE
	VNTOPN	VENTILATION OPENINGS
	WALARM	WATER MOTOR ALARM
	WATRSS	WATER SPRAY SYSTEM

FIRE PROTECTION SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	WBDSMA	DRY SYSTEM MANUALLY ACTUATED
	WBDSSA	DRY SYSTEM AUTOMATICALLY ACTUATED
	WBFSAA	FOAM SYSTEM AUTOMATICALLY ACTUATED
	WBFSMA	FOAM SYSTEM MANUALLY ACTUATED
	WBWSAA	WATERBASED WET SYSTEM AUTOMATICALLY ACTUATED
	WBWSMA	WATERBASED WET SYSTEM MANUALLY ACTUATED

All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



- _ArchTick
- _ClosedBlank
- _Open90
- 1DIR
- 2DIR
- ACCBIO
- ACCESS
- ACLLEL
- ACLLSF
- ADCADD_ZZ
- AERROD
- AFBCN
- AGSTCN
- ANNUN
- ANNUNT
- ARREST
- BARMKR
- BATTRY
- BELL
- BELLFA
- BOILER
- BUZZER
- CAMERA ID
- CAMERA WALL MOUNT
- CAPCTR
- CARDRD
- CBDOUT
- CBMCAS
- CHIME
- CHIMNY
- CKTID
- CLOCKW
- CMHLN
- CMHLX
- CMPANL
- CO2AA
- CO2MA
- CONSFS
- CONSIA
- CONSNG
- CPESR
- CPFAC
- CPFCP
- CPFSA
- CPFTR
- CPHCP
- CPHVA
- CPLTM
- CPREC2
- CPSAN
- CPTEST
- DBID
- DBL-LIGHT
- DCATAA
- DCATMA
- DCEABC
- DCEBC
- DCECO2
- DCEHLN
- DCLGAA
- DCLGMA
- df_8x11
- DGUYN
- DGUYR
- DIMSTYLE
- DMPBAR
- DMPFIR
- DMPFS
- DMPSMK
- DOROPN
- Double250wFixture_Type30B
- Double400wFixture_Type3-D
- DoubleStandard-250ww+400wF
- DRHOLD
- DSTMKR
- DTFLAM
- DTFLOW
- DTGAS
- DTHL
- DTLEVL
- DTPRES
- DTTAMP
- DXFMR
- EHHLN
- EHHLX
- ELBP1L
- ELBP2L
- ELBP3L
- EMHLN
- EMHLX
- EPBXN
- EPBXX
- EPSTA
- ERECPT
- ESCAPE
- EXFOAM
- EXISTING CONDUIT PATH
- EXITCM
- EXITLF
- EXITWM
- EXWATR
- FAN
- FANDCT
- FANGEN
- FANWAL
- FDOR3
- FDORL3
- fire_cells_13
- fire_cells_15
- FIXED CAMERA
- FIXSPB
- FIXSPQ
- FIXSPR
- FIXWM
- FIXWMB
- FL14WB
- FL14WM
- FL1X4
- FL1X4B
- FL1X4C
- FL2X2
- FL2X2B
- FL2X2C
- FL2X4
- FL2X4B
- FL2X4C
- FLTN
- FLTR
- FLTX
- FP-AUTOFIREPUMP
- FP-AUTOFPMPCTRL
- FP-FIRE_PUMP_CONTROL_PAN...
- FP-FIRE_PUMP_JOCKEY
- FP-FIRE_PUMP_MAIN_ PAD
- FP-FIRE_PUMP_PANEL
- FP-HDETECT
- FP-HORIZSPLTCASEPMP
- FP-JOCKEYPMP
- FP-JOCKEYPMPCTRL-PA
- FP-MANFIREPMP
- FP-MANFIREPMPCONTROL
- FP-MANUALFRPMP
- FP-PUMP_FIRE
- FP-PUMP_HORIZONTAL
- FP-PUMP_JOCKEY
- FP-WALLHYP
- FPDRIV
- FPFREE
- FPTEST
- FRR1HR
- FRR2HR
- FRR30M
- FRR3HR
- FRR45M
- FRR4HR
- FULLSS
- FUSRAT
- GATE
- GENRTR
- GRDROD
- GROUND
- HAS1H
- HAS1N
- HAS1S
- HAS2H
- HAS2S
- HAS3HN
- HAS3MK
- HAS3S
- HAS4MK
- HAS5MK
- HASGND
- HD
- HEDASW
- HLL
- HLLL
- HLNAA
- HLNMA
- HOSECS
- HOSEDS

HPIL
HPPLEL
HPPLSF
HRN1A
HRNMIN
HRNSA
HRNSPK
HRUN1
HRUN2
HRUN3
HYDPR1
HYDPR2
HYDPU2
HYDPUP
HYDW2H
i02580-b_Light Post-One Arm
i02580-c_Light Post-Power Pole
i02580-d_Light Post-2 Arms
i02580-h_Elec MH
i02580-j_Elec Handhole
i16070-a_Elec Guy Wire
i16290_Elec Meter
IP CAMERA
JNBX
JNBXWM
KNR
KNRM
LEADER
LIGHT POLE
LIGHT POST_DBL
LIGHT POST_SNGL
LITEBR
LITFAS
LTPLN
LTPLR
LTPLX
LTSTRN
LTSTRR
LTSTRX
MANSTA
MEC-CALLOUT
mec-SEC-MARK
MEDIA CONVERTER
METREL
METRFP
Metro_Logo
MICROW
MNCHRG
MNDRY
MOTRHP
NCV
new block
NONSS
OBSTRL
P-14A
P-2A
P-ALARM_BELL
P-ALARM_HORN
P-ALARM_VALVE
P-AREA_DRAIN
P-AUTOMATIC_VALVE
P-B-671
P-BALL_VALVE
P-BELL_STROBE
P-BKFLWPREVENT
P-BREAK_DUCT
P-BREAK_DUCT_DOUBLE
P-BREAK_EQUIP
P-BREAK_EQUIP_DOBULE
P-BREAK_LINE1
P-BUTTERFLY_VALVE
P-BWV
P-CEN
P-CENLSYMB
P-CENTER_LINE
P-CHECK_VALVE
P-CLEANOUT
P-CLEANOUT_DECK_ PLATE
P-CLEANOUT_ELEV
P-CLEANOUT_RISER
P-CLEANOUT_RISER_CONNECT
P-CONNECTION_TEE
P-CUT2
P-CUT3
P-CUT4
P-CWBD
P-DELUGE_VALVE
P-DEN
P-DOMCONT
P-DOMPUMP
P-DOUBLECV
P-DRAIN_FLOOR
P-DRAIN_FLOOR_RISER
P-DRAIN_FUNNEL
P-DRAIN_PTRAP_ PRIMER
P-DRAIN_ROOF_RISER
P-DRAIN_STANDPIPE
P-DRY_VALVE
P-DUCT_BREAK
P-FA_INLET
P-FA_INTAKE
P-FD
P-FHC
P-FHC_PLAN
P-FHR
P-FHR_PLAN
P-FIRE_HOSE _CABINET_ PLAN
P-FIRE_HOSE_CABINET_ELEV
P-FIRE_HOSE_RACK_ELEV
P-FIRE_HOSE_RACK_PLAN
P-FIRE_HOSE_VALVE
P-FIRE_PUMP
P-FIRE_PUMP_VERT
P-FLOOR_DRAIN
P-FLOW_METER
P-FLOW_SWITCH
P-FLUSH_WALL_MOUNTED_ SI...
P-FREE_STANDING_ SIAME
P-FRESH_AIR_INTAKE
P-FRESH_AIR_INTAKE_PLATE
P-FUNDRAIN.
P-GASBOOSTER
P-GASVALVE
P-GATE_VALVE
P-GATE_VALVE_VERT
P-GAUGE_PRESSURE
P-GAUGE_THERMOMETER
P-GLOBE_VALVE
P-GREASE_INTERCEPTOR
P-GREASEINTCPT
P-HB
P-HOLBYVALVE
P-HORN
P-HOSE_BIB
P-HTRAP

P-HVC
P-HWATERHEAT
P-HWATERHEATRISER
P-HWCIRCPMP
P-LAVTRP
P-LUBRICATION_VALVE
P-METER
P-MISCPMPRISE
P-MOTOR_OPERATED_VALVE
P-NCV
P-NTAG
P-OSY
P-P-VALVE_OSY_VERTICAL
P-PENDANT_SPRINKLER_ ON_...
P-PIPE
P-PIPE_BREAK
P-PIPE_BRK
P-PIPE_CAP
P-PIPE_CONN
P-PIPE_CONNECTION
P-PIPE_DN
P-PIPE_TEE
P-PIPE_TEE_DN
P-PIPE_UP
P-PNEUTANK
P-PNEUTANKRISER
P-POINT_OF_CONNECTION
P-POINT_OF_REMOVAL
P-PRE-ACTION_VALVE
P-PREHEATRISER
P-PRESSURE_GAUGE
P-PRV
P-PRV_RISER
P-PRVSERIES_PARR
P-PTAG
P-PUMP
P-PUMP_DISCHARGE
P-PUMP_DOMESTIC
P-PUMP_DUPLEX_EJECTOR_SU...
P-PUMP_GAS_BOOSTER
P-PUMP_HW_CIRC
P-PUMP_VERT_TURBINE
P-RD
P-REV
P-RISERBOX
P-ROOF_MANIFOLD
P-RPZ
P-RV
P-SHOWER
P-SIAMESE_FREE_STANDING
P-SIAMESE_WALL_MOUNTED
P-SIDEWALL_ SPRINKLER
P-SINK
P-SLAV
P-SMOKE_DETECTOR_(DUCT)
P-SOLONOID_VALVE
P-SPACE_THERMOSTAT_SENS...
P-SPKARR
P-SPKR
P-SPRINKLER_ SIDEWALL
P-SPRINKLER_PENDANT
P-SPRINKLER_RIG_ASSEMBLY
P-SPRINKLER_UPRIGHT
P-SPRINKLER_VALVE_FLOW
P-SPUMP
P-SQF
P-SQUARE_FEET
P-STANDDRAIN
P-SY
P-SYM42
P-SYM43
P-SYM45
P-TAG
P-TAG-EQUIP
P-TAG_CIRC_2
P-TAG_CIRC1
P-TAG_HEX
P-TAG_SQU
P-TANK_HOTWATER
P-TANK_PNEUMATIC
P-TANKFLOAT
P-TEE_DN
P-THERMOMETER
P-THERMOSTAT
P-THREE_WAY_AUTO_VALVE
P-TR
P-TRPPRM_DRN
P-UNDER
P-UPRIGHT_SPRINKLER
P-VACUUM_BREAKER
P-VACUUM_BREAKER_ASSEMB...
P-VALVE_ MIXING
P-VALVE_3_WAY_AUTO
P-VALVE_ALARM
P-VALVE_AUTOMATIC
P-VALVE_BACK_WATER
P-VALVE_BALL_DRIP
P-VALVE_CHECK
P-VALVE_DELUGE
P-VALVE_DOUBLE_GATE_ CHECK
P-VALVE_DOUBLE_GATE_ DOU...
P-VALVE_DRY
P-VALVE_FLOAT
P-VALVE_GAS_CONTROL
P-VALVE_GATE
P-VALVE_GATE _VERT
P-VALVE_GATE_CHECK
P-VALVE_GLOBE
P-VALVE_LUBRICATION
P-VALVE_MOTORIZED
P-VALVE_NORMALLY_CLOSED
P-VALVE_OSY
P-VALVE_PRE-ACTION
P-VALVE_PRESSURE_RELEASE
P-VALVE_PRV
P-VALVE_SOLENOID
P-VALVE_VACUUM
P-VERTTURBINPUMP
P-VFD
P-VOR
P-VR
P-VRV
P-XTAG
p_brk
P_CODP
P_DN
P_HV
P_UP
PAPI
PARTSS
PBFMC
PBSMC
pf_11x17
PHOTO
POLE ID

POLEAR
POLEID
PSHST1
PSHST2
PSHST3
PTZ CAMERA
PURGE
PWRDVC
RCNC
RCNO
RECDFM
RECDSM
RECDUP
RECLOS
RECPT2
RECQUA
RECRAN
RECSDP
RECSFM
RECSIN
RECSNS
RECSPR
RECSSM
REIL
RELYOP
RESHTR
RISER
ROTO GATE
RSCO2
RSDRYC
RSFOAM
RWCLL
RWEL
RWLEL
RWLSF
S3ABC
SABC
scale 1_8
SD
SDUCT
Sec1a
Sec1b
SECTAA
SENGV
SENULS
SFL
SHGARD
SHNUU
SHOUT
SHPEND
SHPNDN
SHSIDE
SHUPRT
Single250wFixture-Wall-Mount
Single250wFixture_Type30A
Single400wFixture_Type30C
SLLN
SLLR
SLLX
SLREG
SM
SMKBR
SOUNDS
SSNOZZ
STP14
STP14B
STP18
STP18B
SUBSTA
SWFLNC
SWFLNO
SWFNC
SWFNO
SWFONC
SWI2WY
SWI3WY
SWI4WY
SWICB
SWIDIS
SWIDM1
SWIDM2
SWIDUR
SWIFUS
SWIKEY
SWILVM
SWITCH
SWITIM
SWLAMP
SWLNC
SWLNO
SWMULT
SWPADN
SWPADX
SWPCM
SWPCOI
SWPOOI
SWSBRK
SWTANC
SWTANO
SWTDNC
SWTDNO
TDZL
TEXTSTYLE
THERMAL CAMERA
THL
THRUST
TICK
TNKBG
TNKHAG
TNKVAG
TOWER
TRFSIG
TSCTRL
TSHEAD
TSPBX
TSPHS
TSPHT
TSTAT
TSVLDT
TVOUT
TWCLL
TWELEL
TWELSF
TWGSGN
TWLEL
TWLSF
TYPICAL RACK
UTPLN
UTPLR
UTPLX
VLVCHA
VLVCHK
VLVDEL
VLVDRY
VLVIBF
VLVKEY
VLVNON
VLVOSY
VLVPI
VLVPIT
VLVPRE
VLVQOD
VLVTDS
VNTOPN
WALARM
WATRSS
WBDSMA
WBDSSA
WBFSAA
WBFSMA
WBWSAA
WBWSMA
WINDCN
WMATA-BORDER-D0plan_north
WMATA-BORDER-D0true_north
WMATA-TB-ATT
WYECON
WYEXGC
XFRPLN
XFRPLR
XFRPLX
XFRPMN
XFRPMR
XFRPMX

Tool Palettes - **Fire Protection** symbols **(Obsolete)**

As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

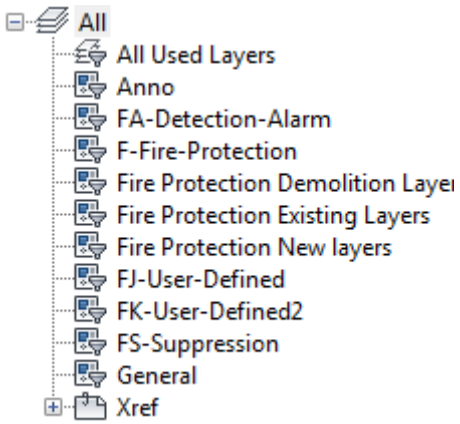
Layers for **Fire Protection**

An example of the layer descriptions for **Fire Protection** is shown in the table below. Red colors are allocated toward New Layers, Green for Existing and Blue for Demolition. Lineweights of 0.35 mm are set for New layers, and 0.15 mm is set for Existing and Demolition layers. Demolition linetypes are generally set for dashed.

F-ANNO-TEXT	General Text
F-ANNO-SYMB	Symbols
F-ANNO-LEGN	Legends and schedules
F-ANNO-DIMS	Dimensions
F-ANNO-TTLB	Border and Title Block
F-ANNO-NOTE	Job Notes
F-CO2S	CO2 system
F-CO2S-EQPM	CO2 equipment
F-CO2S-PIPE	CO2 sprinkler piping
F-HALN	Halon
F-HALN-EQPM	Halon equipment
F-HALN-PIPE	Halon Piping
F-IGAS	Inert gas
F-IGAS-EQPM	Inert gas equipment
F-IGAS-PIPE	Inert gas piping
F-PROT	Fire protection systems
F-PROT-ALRM	Fire alarm
F-PROT-EQPM	Fire system equipment (hose cabinet/extinguishers)
F-PROT-SMOK	Smoke detectors/heat sensors
F-SPRN	Fire protection sprinkler system
F-SPRN-CLHD	Sprinkler head-ceiling
F-SPRN-OTHD	Sprinkler head-other
F-SPRN-PIPE	Sprinkler piping
F-SPRN-STAN	Sprinkler system standpipe
F-STAN	Fire protection standpipe system

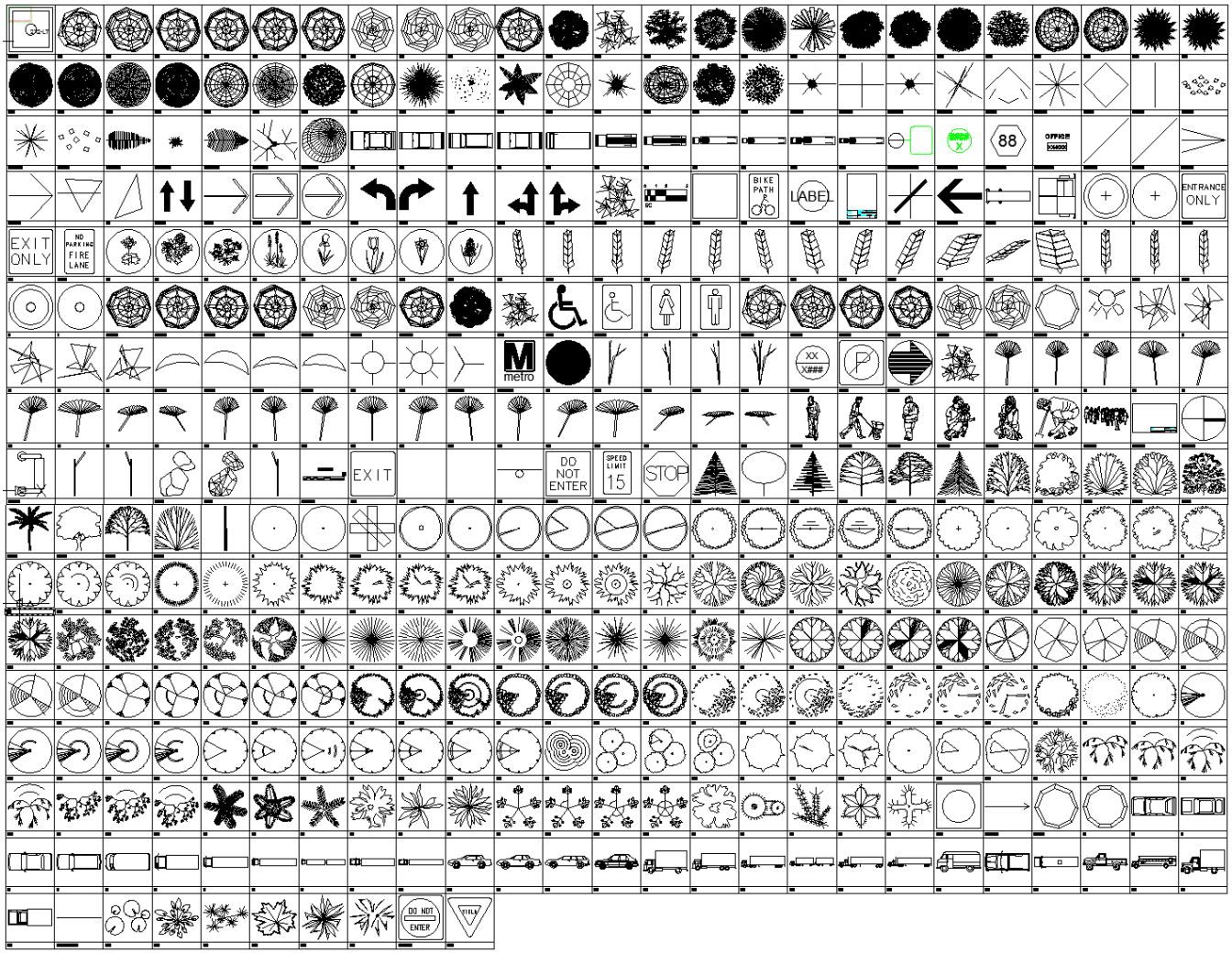
Layer Groupings for **Fire Protection**

Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Fire Protection** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, FS-Suppression limits the display to work fire suppression layers.



Symbols for **Landscaping**

An example of the symbols and descriptions for **Landscaping** are shown in the table below. This table is found in the Landscape Symbols Layout within the drawing. All Symbols are shown in the Layout within each drawing in a symbol matrix as shown here. The symbols can be inserted using INSERT, Design Center or Tool Palettes. The symbol name is shown below each symbol and the shape can be viewed in this matrix for applicability. Symbols names are shown below.



The symbols have been delivered in a variety of ways and can be used with any of the following methods: 1) INSERT can be used to pull the symbol from the internal memory of each drawing. 2) INSERT can be used to pull the symbol from the server as each symbol has been extracted as an individual DWG file as well. 3) Design Center <CTRL 2> can be used to view all of the symbols within the drawing or can be used to view all of the symbols in the Wblock Symbols folder provided.

_ArchTick
_Oblique
_Open30
_Open90
01420 detail rectangle
01420 door tag
01420 keynote
01420 room id
1-4
2X2-LT
3d1
3d10
3d11
3d12
3d13
3d14
3d15
3d16
3d17
3d18
3d19
3d2
3d20
3d21
3d22
3d23
3d24
3d25
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3d27
3d28
3d29
3d3
3d30
3d31
3d32
3d33
3d34
3d35
3d36
3d37
3d38
3d39
3d4
3d40
3d5
3d6
3d7
3d8
3d9
3DBR-PT
3DBR-WT
3DBR2-PT
3DBR2-WT
3DLF-C
3DLF-PT
3DLF-S
3DLF-TT
3DLFS-C
3DLFS-PT
3DLFS-S
3DLFS-TT
3DLFS2-PT
3DLFS2-TT
3DTRNK-C
3DTRNK-PT
3v1
3v10
3v11
3v2
3v3
3v4
3v5
3v6
3v7
3v8
3v9
A
AA
ADCADD_ZZ
arr2way
arrow1
arrow2
arrow3
arrowl
arrowr
arrows
arrstrl
arrstrr
ATREE1
BARSCI
basin
bike
BubbleDef
df_8x11
DIMTICK
Direction arrow
divebrd
dmpster
ds
dt
entrance
exit
firelane
fp1
fp10
fp11
fp12
fp2
fp3
fp6
fp9
FR1
FR1A
FR1B
FR2
FR2A
FR2B
FR3
FR3A
FR3B
FR4
FR4A
FR4B
FR5
FR5A
FR5B
fs
ft
FTREE10
FTREE11
FTREE12
FTREE2
FTREE3
FTREE5
FTREE6
FTREE7
FTREE9
handi
handisin
her
him
HTREE1
HTREE2
HTREE3
HTREE4
HTREE5
HTREE6
HTRUNK
hyd
L
L1
L2
L3
L4
LEAF1A
LEAF2A
LEAF3A
LEAF4A
lite3
lite4
M
Metro_Logo
mh
MST
MST1
MST2
MSTI
NCS_bubble2
nopark
ntharrow
OPS
P
P1
P10
P11
P12
P13
P14
P15
P17
P18
P19
P20
P21
P22
P3
P4
P5
P7
P8
P9
people25
people26
people27
people28
people29
people30
people31
pf_11x17
poolstep
Q
R
rock2d
rock3d
S
scale 1_8
sexit
SHRUBC
SHRUBD
sign
snoenter
speed15
stop
stree1
stree10
stree11
stree12
stree13
stree14
stree15
stree2
stree3
stree4
stree5
stree6
stree7
stree8
stree9
T
t1
t10
t10a
t10b
t11
t12
t13
t14
t14a
t14b
t14c
t15
t15a
t15b
t16
t17
t18
t19
t2
t20
t21
t22
t23
t24
t25
t25a
t25b
t25c
t26
t27
t28
t29
T2LEAF
t3
t30
t31
t32
t33
t34
t34a

t35 t36 t37 t38 t39 t4 t40 t40a t40b t40c t41 t42 t43 t44 t44a t44b t44c t45 t45a t45b t45c t45d t46 t46a t46b t47 t47a t47b t47c t48 t48a t48b t49 t4a t4b t4c t4d t5 t50 t50a t50b t51 t52 t53 t54

t54a t54b t54c t54d t55 t55a t55b t56 t56a t56b t56c t57 t58 t58a t58b t59 t59a t59b t5a t5b t5c t5d t6 t60 t60a t60b t61 t62 t62a t62b t63 t63a t63b t64 t65 t66 t67 t68 t69 t7 t70 t70a t70b t70c t71

t72 t73 t74 t75 t8 t9 t9a t9b trash TREEC TREED TREEG TRUNK TT v1 v10 v11 v12 v13 v14 v15 v16 v17 v18 v19 v2 v20 v21 v22 v23 v24 v25 v26 v27 v28 v3 v4 v5 v6 v7 v8 v9 wall_type_arrow

wp1 wp2 wp3 wp4 wp5 wp6 wrongway yield

Tool Palettes - **Landscaping** symbols **(Obsolete)**

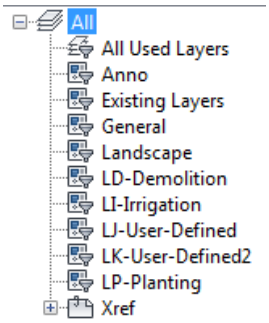
As with all disciplines, the use of Tool Palettes has been dropped due to limitations in distributing tool palettes across the enterprise and maintaining updates to the palette tools.

Layers for **Landscape**

An example of the layer descriptions for **Landscape** is shown in the table below.

L-ANNO-TEXT	General Text
L-ANNO-SYMB	Symbols
L-ANNO-LEGN	Legends and schedules
L-ANNO-TTLB	Border and Title Block
L-ANNO-NOTE	Job Notes
L-PLNT	Plant and landscape materials
L-PLNT-BEDS	Rock, bark, other beds
L-PLNT-GRND	Ground cover and vines
L-PLNT-PLAN	Planting plants
L-PLNT-TREE	Trees
L-PLNT-TURF	Lawn areas
L-SITE	Site improvements
L-SITE-BRDG	Bridges
L-SITE-DECK	Decks
L-SITE-FENC	Fencing
L-SITE-FURN	Site furnishings
L-SITE-PLAY	Play structures
L-SITE-POOL	Pools and spas
L-SITE-SPRT	Sports fields
L-SITE-STEP	Steps
L-SITE-WALL	Walls
L-WALK	Walks and steps
L-WALK-PATT	Walks and steps-cross-hatch patterns

Layer Groupings for **Landscape**



Many layers will appear in the AutoCAD drawings due to the NCS layering standards. In order to assist users when navigating these layers, we have built layer groups for many common layer breakouts. The following groups are embedded within the **Landscape** drawings. Each Layer Grouping refines the layer display to the category shown in the title. For example, LD-Demolition limits the display to work layers to be demolished.

Deliverable Standards for Contractors, Consultants

Deliverable Standards for technical data being delivered by consultants and contractors is discussed in this section.

CAD drawings – All CAD drawings must be delivered in AutoCAD Version 2010. An AUDIT should be run on the file(s) prior to delivery to ensure that any corruption is removed. Data should be contained in the Model space and Layouts are used for plotting. For usage in Civil 3D, the Styles do not migrate backwards therefore, users must be on version 2010 or later.

Cross-referenced files – Cross referenced files may be used as needed and they should be stored in the same folder as the main drawing to avoid pathing issues. The referenced files should be inserted on the A-XREF layer.

Embedded hyperlinks – may be used to connect information related to external data, however any external data must be included in the delivery of the project data.

Related CAD data – must be supplied along with delivery. All work product must be delivered in a format readable by WMATA applications. For instance, in Civil 3D the survey data may be stored outside the DWG file. If so it must be provided when the Civil 3D drawing is shipped.

Reports – must be provided with the delivery. Reports should be generated based on the digital data for the project and must be reproducible using WMATA application software.

Work product and support files – All work product must be delivered to WMATA. Any support files must be delivered with an explanation of how the support file(s) should be used. This could include linetype files for any new linestyles being submitted for review and acceptance.

Scanned images – Images must be delivered according to project specifications. GEO-referenced images may be submitted as well in a format conducive to use by WMATA applications such as Civil 3D or AutoCAD MAP. Geo-referenced images can be the result of 3D laser scanning, ortho-photos or photos taken while accessing GPS information.

Geodetic world files – TFW, JPW and other world referenced image files may be submitted for use with WMATA's application software such as AutoCAD MAP.

LandXML data – should be supplied with delivery of any Civil 3D files. This data contains a universally acceptable digital backup of the graphic data in Civil 3D. All potential data types should be included in the LandXML dataset.

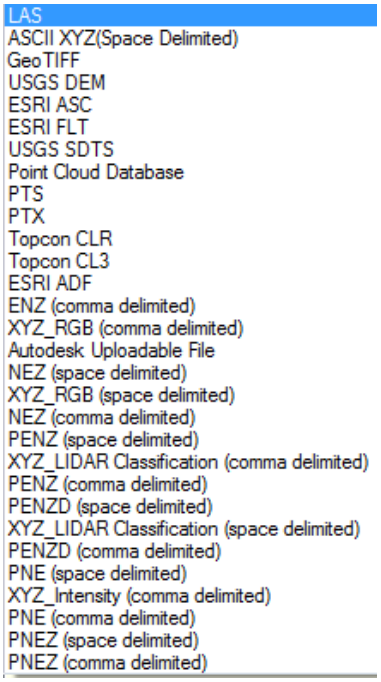
Civil 3D Data Shortcuts - Civil 3D Data Shortcuts contain the digital data behind the graphics and must be supplied for use by WMATA.

Hardcopy deliverables, PDF/DWF – should be included in delivered data indicating the image that the plot should reflect. All drawings to be submitted must be plotted as a PDF, monochrome, high-resolution image.

Other project documents – any and all related documents pursuant to producing the work in question should be delivered and itemized so that another project member can make use of this data for making changes or checking the work.

Contractor suggestions for changes to CAD Standards – may accompany the deliverables. WMATA is aware that not every circumstance can be standardized and that modifications, additions and deletions may occur periodically due to project conditions. This does not necessarily mean that WMATA will update its standards to reflect these changes however, the contractor can submit that changes to the standards may considered.

Point Cloud data from LIDAR, Mobil Units and conventional scanners – this data is increasingly being requested and provided to WMATA. 3D Imaging and Laser scanned data refers to any scanning performed using aerial, stationary or mobile scanners. It includes the point cloud itself, control information and calibrated images taken during the scan. The point cloud data may be shipped within the Civil 3D drawing and/or be shipped using an LAS formatted file. Other formats acceptable to WMATA include those listed in the figure.



In Civil 3D, the LIDAR point cloud must be stylized using the LiDAR classification scheme to filter data on more specific features of the scanned area. The following table lists the default LAS classification values according to the ASPRS LAS specification:

0	Created, never classified
1	Unclassified
2	Ground
3	Low Vegetation
4	Medium Vegetation
5	High Vegetation
6	Building
7	Low Point (noise)
8	Model Key-point (mass point)
9	Water
10	Reserved for ASPRS Definition
11	Reserved for ASPRS Definition
12	Overlap Points
13-31	Reserved for ASPRS Definition

Amberg data – can be exported in the following formats: ASCII, LandXML and DXF.

BIM data – may be provided to WMATA using Industry Foundation Classes (IFC). This data exchange method specifies entities that are used in facility construction using a common language for construction. IFCs provide the foundation for exchanging and sharing information directly between software applications of a shared building project model. The IFC data model is a neutral and open specification that is not controlled by a single vendor or group of vendors. It is an object oriented file format to facilitate interoperability in the building industry, and is a commonly used format for BIM. The format is known as ifcXML and ifcXML2x3 is currently supported by Autodesk and Bentley. Direct delivery of BIM data using an approved WMATA application (such as REVIT or Bentley BIM) is also allowed.

GIS Data – Civil 3D comes with AutoCAD MAP built-in. As a result WMATA can accept ESRI GIS data in SHP files with associated Database files or directly into the ESRI geo-spatial database for dynamic updating.

CONTRACTOR CHECKLIST

The following information is to be used as a guide as to what information should be included in the project delivery. It includes all of the major disciplines.

CIVIL DRAWINGS

DRAWING DESIGN PREPARATION

A. Draw to scale and show north arrow symbol. Show dimensions including elevations in feet and decimals of a foot.

B. Include in the site plan existing planimetric features such as buildings, roads, walks, parking areas, large trees, underground and overhead utilities, valve boxes, water meters, fire hydrants, pressure reducing valves, backflow preventers, thrust blocks, valve pits, and other features pertinent to the specific project.

C. Refer to the mechanical drawings for lift stations, sumps, valves, etc. Include in the civil drawings site utilities outside building perimeters. Electrical/communications site plans may be separated from the utilities plans providing they are carefully coordinated.

D. Prepare the site plan from a current survey tied to known survey markers located in accordance with the WMATA specified coordinate system or the WMATA Low Distortion Projection System as directed by WMATA. Provide appropriate drawing scale to clearly identify the project construction limits, planimetric features, and proposed improvements. Provide additional sheets with match lines if necessary. Include in the plan information necessary for layout of all elements of the new project.

E. Include in the plans, or separate drawing, existing and new features including final contours clearly annotated at appropriate intervals; spot elevations; finish grades for drainage; site improvements; plan and profile of roads, walks, and drainage structures; test hole boring locations; and borehole data (if available).

F. Include in the landscape and/or terrain management plan, a list of plant materials, fences, signs, erosion control measures, irrigation systems, berms, screens, gravel areas, lights, and other landscape features, amenities, and structures.

G. Provide plan and profile drawing sheets for existing and new utility systems in the area surrounding the project. Prepare a plan and profile for new underground utility systems showing invert elevations, pipe slopes, and cover depths over the systems shown. Adjustments to the scale are allowed to improve clarity or to avoid excessive sheets and match lines.

H. Prepare design profiles for: sanitary sewers, storm drains, steam and condensate lines, roadways, drainage channels, and other facilities as required.

I. Prepare earthwork cross sections for: roadways, railways, parking lots and site grading.

J. Prepare profiles or cross-sections for locations where new underground utility runs cross other existing utilities. Show new utility lines as continuous in profile with break lines provided to show changes in direction. Stationing for gravity sewers, storm drains and drainage channels shall progress up gradient where possible. Progress stationing from left

to right on the drawing, preferably with the north arrow pointing up or to the right side of the drawing.

K. Reproduce the soil boring logs and required notes on the drawings. Show borehole locations in plan view with accurate state plane coordinates, surface elevations and stratigraphic depth information.

GRADING AND SITE PLANS - Include the following:

A. Existing utilities including type, size, and locations from field survey information.

B. Existing permanent structures, roadways, fences, walks, retaining walls, and any additional planimetric features to clearly identify the work area.

C. Manhole invert and rim elevations for existing sewers, storm drains, electrical manholes, and all other manhole types.

D. New construction, items to be removed, and limits of work. Provide a site removal plan if appropriate.

E. Clearing and grubbing areas.

F. Existing contours, finished contours, and critical (existing and finish) spot elevations for proposed grading and paving improvements.

G. Stationing, WMATA coordinates or bearings and distances for location of facilities.

H. Boring test holes and logs where applicable.

I. Cross sections where major grading work is involved.

J. Storm Water Pollution Prevention Plan with proposed erosion control measures.

K. Match lines of adjacent drawings.

L. Fencing (standard or security).

M. Pedestrian/vehicle circulation patterns, curb and gutter, parking layout, striping, permanent signing, and sidewalks.

N. Location map.

O. Traffic control plan including temporary construction signing and signals in accordance with the Manual of Uniform Traffic Control Devices.

P. Stockpile and borrow areas.

Q. Temporary laydown areas for the contractor's equipment.

R. Security fence locations for "Bubbled Out" (space left blank for security purposes) areas.

LANDSCAPING PLANS - Include the following:

A. Planting/irrigation.

B. Recreational layouts.

C. Visual screening.

D. Plant species and size.

UTILITY PLANS - Include the following:

A. Location of existing structures and facilities (no contours required).

B. Location of all utilities and describe them as to size, type material, slope and indicate fittings.

C. Proposed points of intersections of all utilities crossings for interference.

D. Depth of cover for utilities.

E. Details.

F. Rim and invert elevations on sanitary sewer and storm drainage.

ROAD PLANS - Include the following:

A. Geometric plan and profile, pavement markings, surfacing, thickness, cross section, and traffic control devices.

B. Operational plan for vehicular circulation is required showing turnaround movements, ingress and egress.

C. Centerline location, coordinates, or bearing and distances.

D. Stationing.

E. Curve data (show delta (D), radius (R), tangent (T), length (L), chord bearing (CH), point of curvature (PC), point of intersections (PI), and point of tangency (PT).

F. PC and PT stationing.

G. PI coordinates.

H. Typical roadway sections with pavement type and thickness, base and sub-grade materials, cross slopes, and taper details.

I. Drainage culverts, size and type, ditches, and hillside interceptor benches and slopes. Include flowline elevations at culverts and slopes.

J. Utility crossings.

K. Horizontal alignment design parameters.

ROAD PROFILES - Include the following:

A. Ground line (existing grade at centerline road).

B. Finished grade (top of finished surface at centerline).

C. Left and right curb profiles (if required).

D. Longitudinal grades in percentages.

E. Elevations at station intervals and vertical curves including: vertical point of curvature (VPC), vertical point of intersection (VPI), and vertical point of tangency (VPT).

F. Elevations along vertical curve and tangents (if required).

G. Vertical alignment design parameters.

H. Drainage culverts & utility crossings.

RAIL PLANS - Include the following:

A. Geometric plan and profile, ballast, sub-ballast data, site markings, surfacing, material volumes and thicknesses, cross sections, and train control devices.

B. Operational plan for vehicular movement, safety and phasing is required showing turnaround movements, ingress and egress, etc.

C. Centerline location, coordinates, or bearing and distances. Show D, R, T, L, PC, PI and PT for curves. Spirals should show ST = Short tangent, LT = Long tangent, *L* = Length of spiral, *R* = Radius of circular curve, *T* = Total tangent length, *D*c = Circular curve delta, *D*s = Spiral delta angle, *D* = Total deflection angle, PI = Point of Intersection, CS = Curve to spiral, SC = Spiral to Curve.

D. Stationing, Point of switch and frogs.

E. Curve data (show delta (D), radius (R), tangent (T), length (L), chord bearing (CH), point of curvature (PC), point of intersections (PI), and point of tangency (PT) and all spiral data.

F. PC, PT, TS, ST, PRC, PCC, SC, CS stationing.

G. PI coordinates.

H. Typical railway sections with ballast and sub-ballast types and thicknesses, base and sub-grade materials, cross slopes, rail gauges, profiles and taper details.

I. Drainage culverts, size and type, ditches, and hillside interceptor benches and slopes. Include flowline elevations at culverts and slopes.

J. Utility crossings.

K. Horizontal and vertical alignment design parameters along with superelevation data.

RAIL PROFILES - Include the following:

A. Ground line (existing grade at centerline rail).

B. Finished grade (top of ballast at centerline).

C. Left and right rail profiles, rail gauges (if required).

D. Longitudinal grades in percentages.

E. Elevations at station intervals and vertical curves including: vertical point of curvature (VPC), vertical point of intersection (VPI), and vertical point of tangency (VPT).

F. Elevations along vertical curve and tangents (if required).

G. Vertical alignment design parameters.

H. Drainage culverts & utility crossings.

ROAD, PARKING LOT, & SITE GRADING CROSS SECTIONS - Include the following:

A. Stationing, scales, and earthwork requirements.

B. Centerline and/or baseline location.

C. Existing ground line (phantom line type).

D. Finished grade surface and bottom of base course (continuous linetype).

E. Annotate cut and fill slopes.

F. Ditch sections and structural features such as drop inlets, culverts, etc.

STORM DRAIN PLANS - Include the following:

A. Existing underground structures including size, type, and location. (To be relocated or removed.)

B. Existing storm drains, culverts, inlets, and outfall structures.

C. Existing utilities.

D. New storm drain location (including coordinates, distances, and bearings), stationing, curve data (show D, R, T, L, PC, PI and PT), manholes, transitions, and junction structures.

E. Catch basin locations. (Tie to curb returns or centerline road stationing/offset), type, size, invert elevations).

F. Pipe length, size, type, pipe slope, and end inverts.

G. Utilities crossings - water, sewer, gas, steam, electric, telephone, etc.

H. Unique trenching, shoring, benching, and/or backfill requirements.

STORM DRAIN (PROFILE) - Include the following:

A. Ground line (existing grade at centerline storm drain).

B. Street names, building designations, and existing structures.

C. Existing underground utilities including sizes, types, interferences, and elevations.

D. Centerline stationing, match lines, manholes, structures, design slopes, flow rates, and grade changes.

E. Storm drain slope (ft/ft), invert elevations, length, size, type of pipe, centerline stationing, direction of connecting pipe inlets, and transition structures.

F. Parallel existing storm drains.

G. Parallel existing utilities.

H. Concrete or other encasement for utility crossings.

I. Details of crossings with existing utilities.

SANITARY SEWER PLANS - Include the following:

A. Existing underground utilities, size, type, and location.

B. Proposed sewer centerline geometry (coordinates, distances, and bearings), stationing, curve data (show D, R, T, L, PL, PI and PT), manholes (type and all callouts from standard drawings), and sizes.

C. Encasement of sewer.

D. Curbs, driveways, and sidewalks to be removed and replaced.

E. Fire hydrants, valves, meters or other utility appurtenances to be relocated.

SANITARY SEWER (PROFILE)

Include the following:

A. Existing ground line and proposed cover along center line of sewer.

B. Substructures and/or utilities (parallel or crossing) including size, type, rim and invert elevations (excavated and checked, if required).

C. Centerline stationing, match lines, manholes, structures, design slopes, flow capacity, and grade changes.

D. Sewer profile slope and elevations, (ft/ft) and (ft), length, type, and diameter of pipe, centerline stationing, and direction of connecting inlets or Y branches.

E. Parallel existing storm drains.

F. Encasement for sewers.

G. Details of crossings with existing utilities.

WATER SUPPLY AND DISTRIBUTION - Include the following:

A. Location of all structures and facilities.

B. Location, size and type of domestic water lines, valves, valve pits, meters, etc.

C. Location, size and type of fire water lines, hydrants, post indicator valves, PRV's, storage tanks, valves, valve boxes, meters, and pits.

D. Coordinates at all angle points of distribution lines.

E. Bearing and distance between PI's.

F. Show existing utilities and structures along alignment.

G. Show section cut including invert elevations at all utility crossings.

H. Horizontal/vertical alignment design parameters.

I. Typical trench sections, bedding, and backfill requirements.

J. Restrained fittings and/or thrust block locations and calculations.

K. Horizontal and vertical geometry including curve data, if required, D, R, T, L, PC, PI and PT.

HAZMAT, RADIOACTIVE LIQUID WASTE, CAUSTIC, ACID AND CHEMICAL PLANS, AND PROFILES - Include the following:

A. Existing ground line and proposed cover over the piping.

B. Substructures and/or utilities (parallel or crossing) including size, type, rim and invert elevations (excavated and checked, if required).

C. Piping profile slope and elevations, (%, ft/ft) and (ft), length and type of pipe, size, station size, and direction of connecting inlets or Y branches.

D. Monitoring system instrument and control

E. Location of control valves, type, model number, and access requirements.

F. Centerline stationing, match lines, manholes, structures, design slopes, flow capacity, and grade changes.

G. Encasement for piping.

H. Details of crossings with existing utilities.

STRUCTURAL and ARCHITECTURAL DRAWINGS - Include the following:

Designation of Column Lines

On the Plot Plan and Foundation Drawings, locate structures by coordinates or orthogonal offsets. The location of the base point coordinate shall be the intersection of the column lines in the northeast corner of the structure, where practical. The column line bearing and offset distance, or coordinate of an alternate column line intersection point shall be designated.

Structural Steel Framing Drawings

Framing Plans and Framing Elevations are schematic drawings. Show the centerlines of steel framing members as solid heavy lines stopping short of the member they frame into. Only show partial outlines of webs, flanges, and legs of members when necessary for clarity.

Structural Steel Shapes

Label structural steel construction, per AISC.

Reinforced Concrete

Symbols commonly used on reinforced concrete drawings are:

- To indicate size of deformed bar (superscript)
Ø - Plain rounds, e.g., spirals (superscript)
@ - Spacing center to center
Direction in which bars extend
Limits of area covered by bars

STRUCTURAL DRAWINGS

Dimensioning

On plan views, dimensions are to be tied into points that can readily be transferred to concrete, steel, and other drawings including plot plans. Clearly indicate match lines and centerlines of columns and equipment. When possible, keep dimensions outside the equipment and details. Dimension drawings in feet and inches.

Elevations

A. Indicate elevations in decimals of a foot, e.g., EL 96.25. Indicate elevations on Superstructure Concrete and Steel Drawings in feet and inches, e.g., EL 115' - 6-1/2"

B. Indicate floor and platform elevations to top of steel. Reference floor plate, top of grating or top of slab as + or **-** elevation to top of steel.

C. Generally, the high point of the ground floor slab is to be the main vertical reference line.

Coordinates

On the Floor Plan and Foundation Drawing, locate structures by 2 sets of coordinates. The location of the coordinates shall be the intersection of the column lines and/or at corners of the structure, where practical.

Loads and Reactions

A. Indicate the design loads for principal equipment supported on the drawings in their respective locations or in table format.

B. Note Foundation Drawings with “Max Foundation Bearing Capacity = _____ lbs/sq. ft.” Piling Drawings shall be noted with "Max Pile End Bearing Pressure = _____ lbs/sq.ft.”

C. Show floor and roof live loadings as well as wind and seismic design basis for future reference and for floor loading postings.

REINFORCED CONCRETE DRAWINGS

General

In general, the drafting practices shown in the ACI 315, “Details and Detailing of Concrete Reinforcement,” published by the American Concrete Institute are acceptable.

Reinforcing

A. Space reinforcing bars to the nearest inch, preferably, but in no case shall they be spaced closer than the nearest quarter-inch. Call-out of bars should be in one view where practical.

B. Note bar spacing in inches, and inch marks are not to be used, e.g., #6 @ 18.

C. Show and identify bars cut in a section.

STRUCTURAL STEEL DRAWINGS

General

A. The drawings prepared by the designer shall convey the information necessary for the preparation of erection and shop drawings by the steel fabricator.

B. Indicate the type of construction, types of beams and columns, and all necessary data on loads, shears, moments, and axial forces to be resisted by all members and their connections on drawings.

Connection Guidance

A. Projects should be shop welded and field bolted where possible.

B. Holes for field connections should be 1/16" larger in diameter than bolt. Holes in structural steel to match equipment hole locations should be made 3/16" larger in diameter than connecting bolts. Holes for anchor bolts in column base plates should be 5/16" larger in diameter than the bolt for 3/4" and 7/8" bolts and 1/2" larger for bolts 1" and over. WMATA tolerances shall dictate and override this information.

Welding

A. Make welding details and notes clear and complete. Provide the size, type, length, and spacing. Draw standard symbols and notations in accordance with the American Welding Society's standards AWS A3.0, Standard Welding Terms and Definitions, and AWS A2.4, Standard Symbols for Welding, Brazing and Nondestructive Examination.

ARCHITECTURAL DRAWINGS - DRAWING DESIGN PREPARATION - Include the following:

A. All building “plan” drawings at a minimum of 1/16” = 1’ - 0” scale with a north arrow shown.

B. All drawing dimensions are to be noted in feet and inches. Tick mark dimension line terminators are for Architectural drawings.

C. All building elevations are to be drawn in the same scale as the building plan drawings.

D. All plans shall be in accordance with all approved applicable codes, IBC, ANSI, NFPA, etc.

E. Where plans involve the addition to, or modification of, an existing structure, the existing structure plans shall be “As-Built” with corresponding building information included.

DEMOLITION PLANS - Including but not limited to the following:

A. Limits of demolition shown on Demolition layers.

B. Show particulate, noise, and visual barriers as well as traffic control barriers.

C. Clearly note all equipment and material being removed or abandoned in place.

D. Show evacuation paths from demolition area.

E. Dimension as required.

FOUNDATION PLANS - Include the following:

A. The foundation/building perimeter profile.

B. Column lines.

C. Location and profile of all slab/finish floor elevation changes.

D. Hidden line indicating inside and outside of footing (as applicable).

E. Hidden line indicating the thickness of monolithic slab turndowns (as applicable).

F. Location of all piping sleeves.

G. Building section cut symbols.

H. Detail or detail section symbols.

I. Plumbing fixturing and dimensions to centerline.

J. Locations of all inserts, duct trays, recessed electrical receptacles or other specialty items to be inserted into floor concrete.

K. Dimensions.

L. Exterior foundation perimeter.

M. Locations of all offsets.

N. Locations of all slab/floor depressions.

O. Expansion joints.

FLOOR PLANS - Include the following:

A. Perimeter walls drawn to scale.

B. Column lines and exterior building columns.

C. Interior walls drawn to scale.

D. Plumbing fixtures and centerlines.

E. Fixed in place partition walls (i.e., restroom partitions).

F. Locations of windows (width) drawn to scale.

G. Locations of doors with handing, size (width) and type of movement drawn to scale.

H. Building section cut symbols.

I. Detail section cut symbols.

J. Enlarged plan or elevation identification symbol.

K. Wall, interior elevation, detail symbols.

L. Room numbers, symbols, and names.

M. Cabinetry locations, length and width drawn to scale.

N. Mechanical, electrical, plumbing and fire protection equipment locations and rooms shown.

O. Detail, elevation and section symbols shown drawn as per the requirements of this manual.

P. Areas of enlarged plan shall be identified and referenced.

Q. Finished floor elevation.

R. Finished ceiling elevations.

S. Overhead soffits and suspended equipment.

T. Dimensions.

U. Overall building with building additions to include existing building.

V. Building offsets.

W. Interior fixtures not dimensioned elsewhere.

X. Sleeves in cast-in-place concrete walls.

Y. Door number symbols.

Z. Window type symbols.

AA. Wall type symbols.

BB. Room number symbols.

CC. Floor drains.

DD. Fire extinguisher cabinets.

EE. Housekeeping pads.

FF. Equipment (stoves, sinks, tables, etc.)

GG. Ramps with arrows to show direction of slope.

HH. Raised or recessed floor areas.

II. Toilet partitions.

JJ. Fire walls and rating.

REFLECTED CEILING PLANS - Including but not limited to the following:

A. Show all ceiling finishes.

B. All exposed structural materials.

C. Layout of light fixtures.

D. Direction and pattern of suspended ceiling.

E. Dimensions as required.

F. Soffits and chases.

G. Sklylights.

H. Section and detail cuts.

FLOOR FINISH PLANS - Including but not limited to the following:

A. Show patterns of floor finishes.

B. Dimensions as required.

C. Ramps, stairs, raised floor, and recessed floor areas.

D. Housekeeping pads.

E. Walls, columns, and toilet partitions.

F. Section and detail cuts.

G. Room names and numbers.

H. Notes as required.

BUILDING ELEVATIONS - Including but not limited to the following:

A. Approximate final grade line.

B. Foundation extents identified by hidden line below grade line.

C. All attributes of building elevations drawn to scale with window and doors having swings identified. Door and window symbols.

D. Building section cut symbols.

E. Detail section cut symbols.

F. Enlarged plan or elevation area symbols.

G. Each floor elevation and roof bearing elevation shall be identified as well as any changes within a floor line with a 0.050 broken line.

H. All associated architectural features shall be shown that are relevant to the structure, i.e., finish changes, architectural finish features like inset stucco bands or tile, parapet coping exterior stairs (below grade shown as hidden lines) or free standing entry canopies.

I. Expansion joints both building and finish. Stucco expansion joints shall be in conformance with the stucco manufacturer requirements.

J. Building elevation dimensions.

K. Floor to floor elevations.

L. Floor to finish ceiling.

M. Floor to roof bearing-primary or lowest point.

N. Overall finished first floor to top of roof or roof parapet or mechanical parapet.

O. Grade to first floor.

P. First floor to bottom of lower level (as applicable).

Q. Grade to bottom of footing or turndown.

R. Independent features-length and width-marked for general notes by numerical symbol.

S. Overall length.

T. Any special features, i.e., overhangs and insets.

U. Notations.

V. Materials and types.

W. Special identifications.

X. Height elevations of window sills.

Y. Horizontal dimensions as required.

BUILDING SECTIONS - Include the following:

A. Drawn to scale minimum of 1/16” = 1’ 0”

B. All sectioned architectural / structural building systems and large components shown.

C. All background architectural elevation features shown (interior elements).

D. Primary systems materials section symbols shown.

E. Vertical dimensions.

F. Foundation to floor dimensions.

G. Floor to floor dimensions.

H. Floor system thickness.

I. Primary bearing heights.

J. Elements not vertically dimensioned elsewhere.

K. Notations & Symbols.

L. System or component call-outs.

M. Circled and referenced to enlarged detail as required.

ENLARGED DETAILS AND PLANS - Include the following:

A. More detailed information that cannot be accommodated on a smaller scaled drawing.

B. Materials or components sectioned to show materials symbolically.

C. Components shown sized and located to scale.

D. Background components or features.

E. All materials and components are to be noted and, where applicable, notations shall include height above grade as in plan view.

ROOF PLANS (CONSTRUCTION) - Including but not limited to the following:

A. Show access areas.

B. Overall dimensions.

C. Roof type (construction type).

D. Show slope direction.

E. Pitch.

F. Roof drains.

G. Overhangs with dimensions.

H. Penetrations and type (plumbing, HVAC, etc.)

I. Penthouses.

J. Parapet walls and heights.

K. Fall protection anchor points.

L. Roofing protected pathways for maintenance access to equipment.

M. Skylights or roof openings.

N. Solar energy equipment.

O. Crickets.

P. Scuppers.

Q. Canales.

R. Downspout locations.

Required Plan Elements

1. Exterior and interior wall construction type, thickness, and room number.
2. Retaining walls and thickness attached to building.
3. Columns and column center lines (Grid lines and numbers).
4. Permanent walls (rooms, hallways, corridors and vestibules) with room numbers.
5. Doors and door swing.
6. Windows – operable configuration addressed per keyed notes.
7. Wall openings that allow passage from one room to another and start at the floor line.
8. Stairways and attached handrails (include stair room number) (show direction – up or down).
9. Utility chases.
10. Exterior wall louvers.
11. Pads at exterior door (concrete and wood).
12. Interior and exterior ramps. Show direction of slope, handrails, curbs as required by code.
13. Attached docks and canopies.
14. Ladders – both interior and exterior.
15. Elevators and elevator numbers.
16. Built-in millwork and attached equipment.
17. Floor pits, trenches, and numbers.
18. Toilet room partitions and fixtures (plumbing etc.).
19. Overall building dimensions, wall thickness, and outside landing/dock dimensions.
20. Mezzanines and room numbers.
21. Fire wall location identified with symbols (Fire Protection symbols).
22. Raised or recessed floor areas.
23. Columns and column center lines (Grid lines and numbers).
24. Systems furniture cubicles.

MECHANICAL DRAWINGS - Including but not limited to the following:

A. Mechanical Drawings are to include plans, elevations, sections, details, and equipment schedules/lists to clearly define the mechanical requirements of the project.

B. For symbols used in Plans, Sections, Elevations, Details, and Isometrics, use the standard mechanical symbols found in this manual, acknowledgement to SMACNA. Suggest to WMATA any that are required but missing.

C. Use double-line piping in highly congested areas as necessary to clarify the construction.

D. Use double-line ductwork, except where not permitted by Project Engineer. Show diffusers, grilles, and registers with sizes, flow rates and directions of flow noted on the drawings or in a schedule. Indicate all thermostats/sensors, duct mounted controls, control panels, etc., on the ductwork drawings.

E. Place fire protection piping drawings on separate sheets and do not include with other piping system drawings, except as may be specifically permitted by Project Engineer.

F. Include control diagrams and sequence of operations in the mechanical drawing set, if requested by the client.

G. Individual large scale mechanical equipment room plan and sections as well as mechanical details shall fully detail the design.

H. Draw mechanical equipment to scale with required maintenance and tube removal spaces outlined. Ensure that the equipment can be installed and/or removed without having to dismantle or remove other equipment or permanent construction.

I. Indicate the outline of electrical equipment, including working space clearance, on the mechanical drawings (equipment room, plans, etc.) to ensure that the mechanical equipment does not interfere with the electrical equipment working space. Do not locate mechanical equipment/piping (i.e., water piping, ductwork, pumps, etc.) above switchboards, panel boards, and motor control centers. Consult with the electrical section designer for the applicable code clearance requirements.

MECHANICAL EQUIPMENT LIST - Including but not limited to the following:

A. Provide a mechanical equipment list for projects required by WMATA.

B. Provide an equipment list for each individual discipline set (HVAC, plumbing, fire protection, etc.) and locate the sheet in the discipline drawing set as outlined in this manual.

C. Indicate mechanical equipment items by an item number in a diamond. The item numbers shall be in sequence for the entire mechanical drawing set.

D. Note in the “FURN. BY” column, if the equipment is furnished by the contractor (CONTR) or Government Furnished Equipment (GFE).

MECHANICAL SYMBOLS - Including but not limited to the following:

A. Use applicable graphics symbols on drawings as shown in this manual.

B. Pipe fitting symbols are depicted without a joint connection symbols. The joint symbol is optional; however, the symbols should be consistent throughout the entire mechanical drawing set. It is also preferred to note the type of joint (welded, soldered, flanged, etc.) in the specification and not by use of a symbol.

C. Where weld symbols are shown, make welding details and notes clear and complete. Draw standard symbols and notations in accordance with the American Welding Society's standards AWS A3.0, Standard Welding Terms and Definitions.

ELECTRICAL DRAWINGS - Including but not limited to the following:

ONE-LINE DIAGRAMS

A. Use symbols and blocks in accordance with this manual.

B. Make text 1/8" high, layer controlled.

C. One-line diagrams may extend beyond the drafting conventions for clarity purposes only.

D. Existing conditions to be layer based *-E layers, new conditions to be layer based, *-N.

E. Avoid crossing circuit runs.

F. Use conventional drafting standards if one-line diagram continues to another sheet.

G. Line type for existing conditions is layer based.

H. Line type for new conditions is layer based.

I. Organize drawing to be read from top to bottom. Text read horizontally or vertically, read from the right side of the sheet.

J. Data input on separate layers (use WMATA CAD layering convention).

K. Equipment shall be associated with the room number in which it is located.

ELECTRICAL EQUIPMENT PLANS - Including but not limited to the following:

A. Show working clearances for all electrical distribution equipment.

B. Show equipment plans on separate drawings as follows:

1. Power Plan
    - Major electrical distribution equipment, motors, and major electrical loads
2. Receptacle Plan
    - Receptacles and circuiting
    - Locations of the branch circuit panels
3. Lighting Plan
    - Lighting fixtures, switches, and circuiting
    - Emergency and exit lighting fixtures and circuiting
    - Location of the branch circuit panels
4. Special Systems Plan
    - Telecommunications outlets
    - Telecommunications rooms
    - Fire Alarm System
    - Security equipment

C. Use standard symbols and blocks in accordance with this manual.

WIRING DIAGRAMS

A. Show the connection of an installation or its component devices, controllers', and equipment.

C. A wiring diagram may cover internal or external connections, or both, and shall contain such detail as is needed to make or trace connections that are involved. It usually shows the general physical arrangement of devices and device elements and also accessory items such as terminal blocks, fuses, power supplies, etc.

ELECTRICAL SCHEMATICS

A. Requirements: Use standard symbols and blocks in accordance with this manual.

B. Guidance:

1. Schematic diagrams show, by means of graphic symbols, the electrical connections and functions of a specific circuit arrangement. The schematic diagram facilitates tracing the circuit and its functions without regard to the actual physical size, shape, or location of the component device or parts.

3. Schematics are intended to show major components and the flow of electrical power and control.

4. Schematics are not intended to show wire sizes or terminations, etc.

ELECTRICAL SCHEDULES

A. Use standard symbols and blocks in accordance with this manual.

LIGHTNING PROTECTION SYSTEM (LPS)

A. Lightning protection drawings are considered "priority drawings".

B. Use the lightning protection symbols furnished in this manual.

C. Use existing roof plans of record or generate new drawings to indicate LPS.

D. Reference other disciplines if coordination is required either in Key Notes or General Notes.

E. Show LPS for: stacks, mechanical equipment, roof drains, ladders, hatches, and access ways, etc.

PLUMBING - Including but not limited to the following:

GENERAL

A. Water distribution and waste/vent disposal systems shall be shown on the same plan as they occur servicing the fixtures on the floor represented.

B. Waste lines shall be drawn according to layer control.

C. Vent lines shall be drawn according to layer control.

D. All line types on plumbing systems shall have breaks indicating the type of systems as shown in this manual (i.e., - CHWS -, - CHWR -, etc.)

PLUMBING SYSTEMS

A. Plumbing systems are comprised of:

1. Water: potable, non-potable, grey, soft, distilled, deionized, chilled drinking fountain, make-up.
2. Compressed Air
3. Natural Gas
4. Waste: sanitary, roof drain, overflow roof drain, septic, indirect drains, acid, industrial
5. Fuel oil
6. Petroleum
7. Vacuum
8. Steam and Condensate
9. Vent

Note: Some systems listed above that are connected to plumbing equipment may require interface coordination with other disciplines. **Basis:** American Society of Plumbing Engineers.

ISOMETRICS AND SCHEMATICS

A. Isometrics and schematics shall depict the following:

1. pipe size
2. pipe material
3. direction of flow
4. system type (V=vent, S=sanitary waste, etc.)
5. equipment/fixture identifier
6. room numbers where equipment/fixture is located
7. location of piping by keyed note
8. access panels
9. slope with pitch arrow including fall expressed in fraction-of-an-inch per foot length of pipe (on main runs)

C. Isometrics/diagrams for new systems shall show the entire system layout. Several systems may appear on the same sheet.

FIRE PROTECTION DRAWINGS - Including but not limited to the following:

DRAWING DESIGN PREPARATION

A. Draw to scale and show north arrow symbol. Show dimensions, including elevations in feet and decimals of a foot.

B. Include on drawings, plans and site plans existing features such as buildings, roads, walks, parking areas, large trees, underground and overhead utilities, valve boxes, water meters, fire hydrants, pressure reducing valves, backflow preventers, thrust blocks, valve pits, and other features pertinent to the specific project.

C. The types of plans required for preparing a fire protection drawing set include floor plans, reflected ceiling plans, elevations, sections, isometrics, schematics and schedules. Reflected ceiling plans should show locations of lights, diffusers and other devices installed at the

ceiling. Related plans should show ductwork layout. Include within each submittal all symbols, legends, and notes needed to understand everything shown on the drawings.

d. Support the information shown on the drawings with a detailed Bills of Materials listing numbers and types of all devices provided. The Bill of Materials can be incorporated on the drawings or can be separate. It should match the manufacturers' literature submitted for the project.

E. Fire protection project drawings include those showing building structural features, emergency lighting, fire alarm systems, special extinguishing systems, sprinkler systems, and fire protection water supplies. For some projects, other types of drawings could be included.

F. Fire protection symbols as shown in this manual.

BUILDING ARCHITECTURAL AND STRUCTURAL FEATURES

A. Show in plans the building architectural and structural features relating to fire and explosion resistance. These features include, but are not limited to:

- Location of fire barriers (walls/floors/ceilings)
- Material, thickness, and rating of fire barriers
- Location and height of parapets
- Roof construction
- Rated fire doors/hatches
- Penetrations of fire barriers and any protection provided for those penetrations
- Fire- or explosion-resistant construction details including fireproofing on structural members
- Location, construction, and size of concealed spaces, attics, closets, bathrooms, and other small enclosures
- Locations and heights of unrated walls and partitions

B. Some of these features will need to be coordinated with Site, Structural, and Architectural drawings. Some of these features will also need to be shown on the drawings for Sprinklers, Egress Routes, and Special Extinguishing Systems.

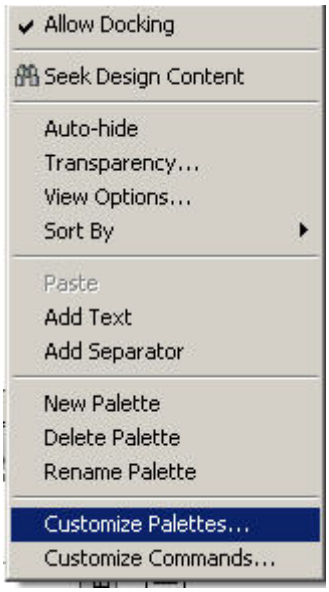
Note: Although the use of Tool Palettes is no longer part of the WMATA CAD Standards, this section is retained for the interested user. The use of palettes is not prohibited, just no longer supported.

PROCEDURES RELATED TO THE STANDARDS – Symbol Tool Palettes

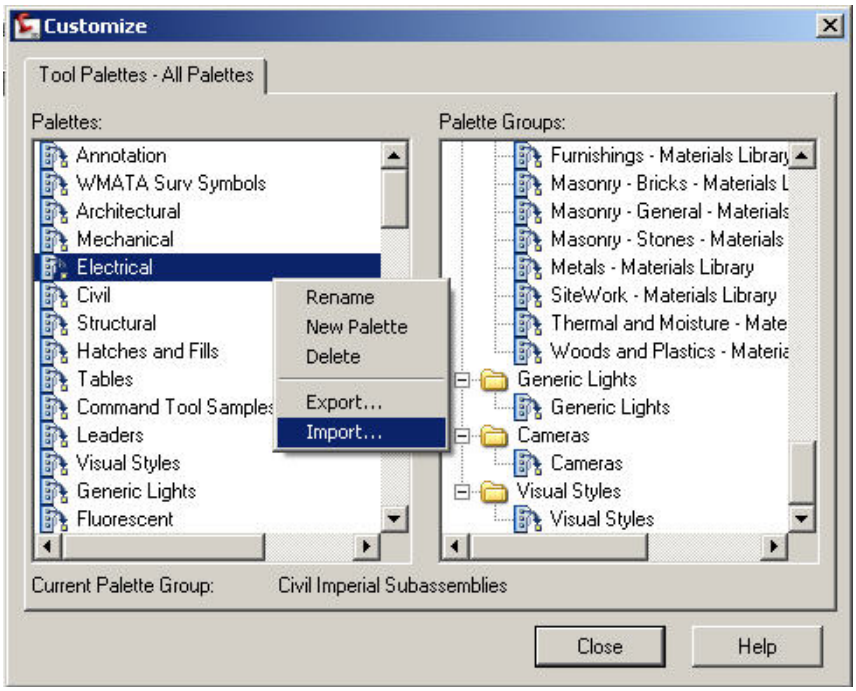
- Procedure for creating custom Tool Palettes in AutoCAD

  Anyone can create tool palettes that have your discipline's symbols within them. This procedure will step you through the process.

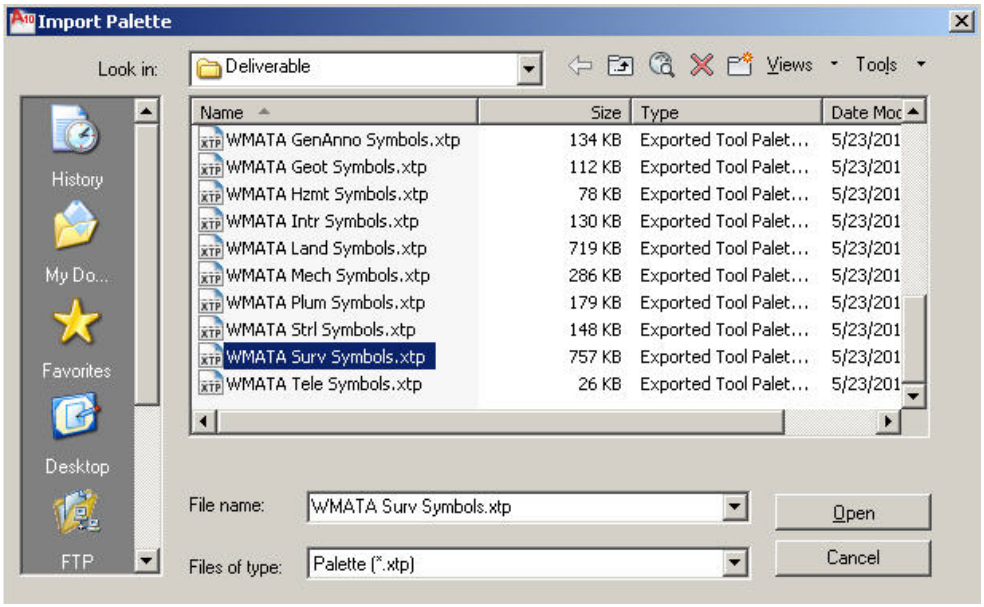
  a) Type <CTRL>3 at the command prompt in AutoCAD. This will bring up the tool palette.
  b) Right click in the tool palette window.
  c) The menu with "Customize Palettes" displays. Select "Customize Palettes".



  d) The Customize dialog appears. Right click anywhere within the left window.
  e) Select Import… from the menu.



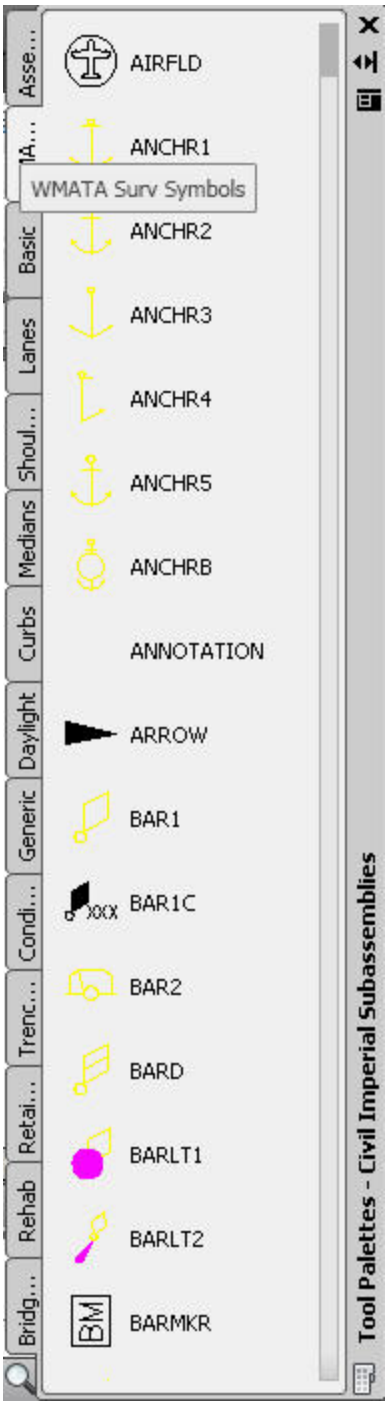
f) The **Import Palette** dialog displays. Navigate to your folder containing the .XTP files delivered with the standards. Select the discipline desired in this case WMATA Surv Symbols.XTP.



g) This will import the Survey symbols into AutoCAD and it will appear like the example to the right. A WMATA Survey Symbol tab will show up on the tool palettes whenever it is displayed.

h) Symbols can simply be dragged and dropped into AutoCAD by using this tool palette.

i) Repeat this procedure for any other (or all) WMATA symbols.



Standards Checking

The procedure which follows walks you through the testing of a submitted drawing for compliance with the WMATA CAD Standards.

1. Open the submitted drawing.

2. Under the Tools menu select CAD Standards > Configure…

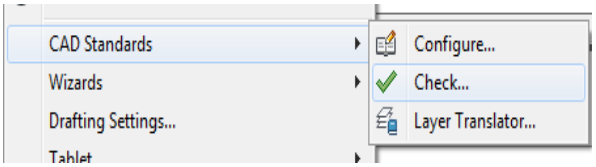


Figure SC-1: Menu command for checking standards

3. Click the **+** button and open the .DWS file provided for the discipline in question.

4. Click the Check Standards button.

5. If all matches WMATA's standards then the following screen will display.

6. If there is a problem the checker will highlight it and request a solution. See figure SC-4. The drawing is in non-compliance and may need to be returned to the submitting party.

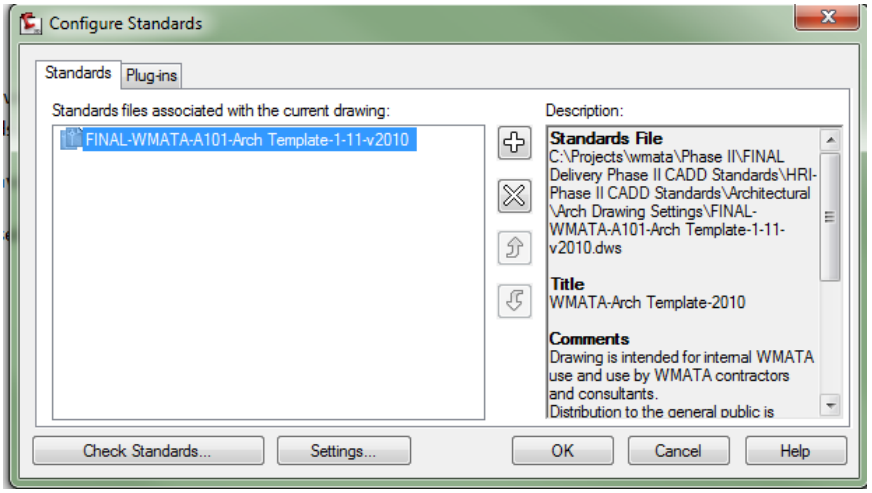


Figure SC-2: Configure Standards checker

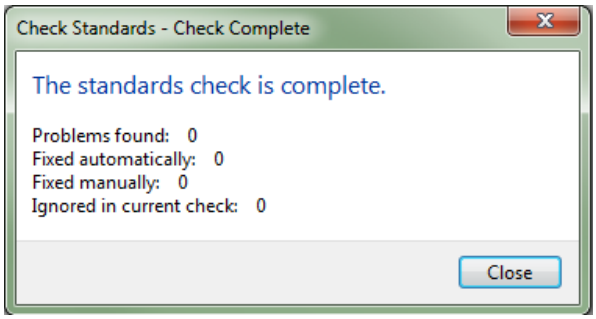


Figure SC-3: Good result – in conformance

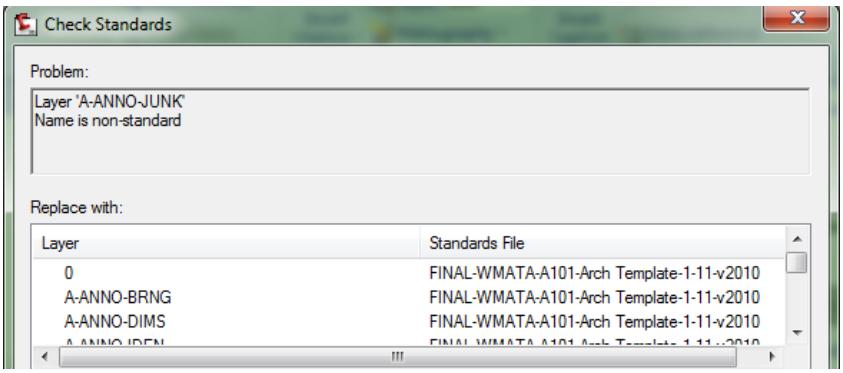


Figure SC-4: Non-compliance

Creating New Drawings Using the WMATA Templates

1. Launch AutoCAD or Civil 3D

2. Upon opening AutoCAD will place you in a blank drawing. Click File > New.

3. When the dialog displays select the discipline oriented template offered in the AutoCAD templates folder as shown in Figure CND-1.

4. Once it opens, click File > Saveas and provide a location and name for your new file.

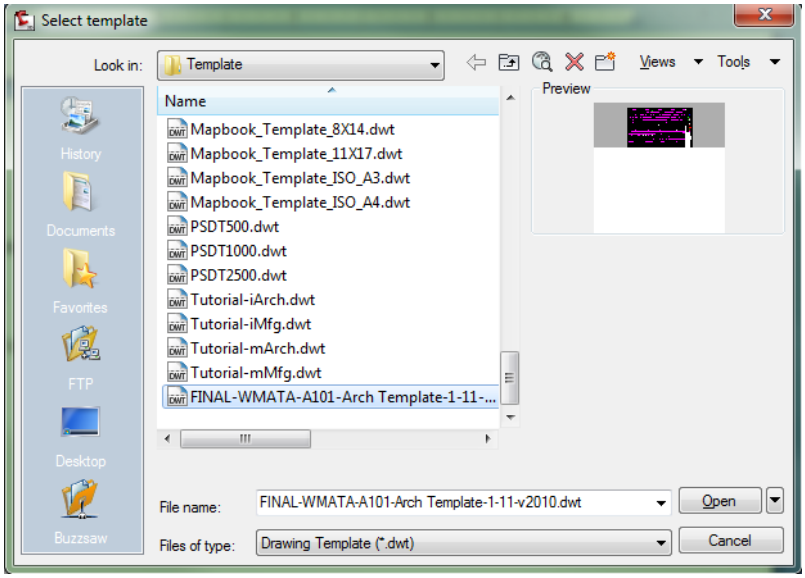


Figure CND-1: Select the template to begin your new drawing

Acknowledgements to the NCS for symbol graphics, layer and file-naming procedures.

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