

**John Wayne
Orange County
Airport
Computer Aided Design
Data Standard
Version 1.0**



Table of Contents

Chapter 1 - Introduction	5
Objective of this Document	5
Scope of this Document	5
Related Documents.....	5
Normative References.....	5
Informative References	6
Revision History	6
Consultant Responsibility / Compliance	6
Request for Variance	7
Software Requirements & Resources	7
Chapter 2 – Drawing Objects.....	8
Objects Types	8
Coordinate System.....	8
Topology	9
Accuracy and Precision.....	11
Object Data	11
Chapter 3 – Graphic Concepts	12
Blocks / Cells	12
Line Types	12
Line Weights	12
Text Style.....	13
Dimension Styles / Multileaders	15
Model Space	15

Paper Space	15
Color Table	15
Sheet Size and Scale.....	15
Chapter 4 – Drawing Sheet Structure and Organization.....	16
Border & Titleblock.....	16
Logo	17
Key Map & North Arrow.....	17
Contract Information.....	17
Scale Bar	18
Metadata Elements	18
Sheet Number.....	19
Sheet sequence Number	20
Stage	20
Dates.....	20
Sensitive Information Label.....	20
Revisions.....	20
Electronic File Naming	22
External Reference Files.....	22
Chapter 5 – Layer Assignment	24
Chapter 6 – Facilities.....	25
Building Facilities	25
Base Building	25
Tenant Buildout.....	25
Property Management	25
Site Facilities.....	25
Site Layout.....	25
Utilities.....	26
Property Management	26

As-Built Drawings.....	26
Buildings	26
Site	26
Chapter 7 – Drawing Delivery & Quality of CAD Data	27
Quality Assurance	27
Plotted Drawings	27
Appendices 28	
Appendix A – Acceptable Layers	28
Appendix B – Quality Assurance Checklist	58
Appendix C – Change request Form.....	60
Appendix D – Acronyms.....	62
Appendix E – Project ID List	63
Appendix F – Sheet Properties	64

Chapter 1 - Introduction

Objective of this Document

This Computer Aided Design (CAD) Standard defines the requirements for creating, maintaining and submitting CAD drawings to John Wayne, Orange County Airport (the Airport or SNA). It establishes requirements for the contents of AutoCAD® Drawings (DWGs), including use of paper and model space, handling of externally referenced files, layers to be used, symbology and plotting requirements. It also explains how to correctly organize drawing sheets into drawing sets. Additionally, the Standard explains how to integrate Building and Site Facilities as well as Construction As-Built information into the airport existing CAD base files. Finally, it instructs how to submit completed drawing sets to the Airport.

Scope of this Document

This document defines requirements for all CAD drawings created or maintained for the Airport, including those drawings developed or used throughout the planning, design, construction, operations, and maintenance phases of a facility or asset's lifecycle, and those exchanged internally at the Airport, or between the Airport and its consultants, agencies, surrounding jurisdictions, and other stakeholders. To facilitate the process, CAD templates (i.e., DWGs with layering, symbology, and object table definitions, but with no populated data) are available from the Airport to facilitate compliance with this document. This standard applies to all consultants and staff responsible for creating or maintaining these drawings. Consultants and staff shall use the latest version of these requirements upon commencement of a project.

Related Documents

This document is related to other documents, some of which contain additional requirements that must be met (i.e., normative references) and some of which contain reference information that may be helpful when developing Airport CAD DWGs (i.e., informative references). Normative references take precedence over informative reference should there be any conflicts or contradictions. Airport documents can be provided by the Airport Project Manager.

Normative References

Relevant requirements in the following documents must be met when developing DWGs for the Airport. Relevant requirements are those that are applicable to Airport DWGs, unless otherwise specified in writing by the Airport. These documents include:

- The Airport's contracts and agreements that require the delivery of Airport DWGs.
- If Object Data is required by Contract or Agreement with the Airport, the fields and values must be as specified in the Airport's GIS Standard.
- If the data being developed is defined as Safety Critical in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18 General Guidance and Specification for Aeronautical

Surveys: Airport Survey Data Collection and Geographic Information System Standards or if the Contract or Agreement requires data to be submitted to the FAA’s Airports GIS (AGIS), the requirements of the AC must be met. AC150/5300-18B can be found at: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/74204

- If the data being developed is defined as Sensitive Security Information (SSI) by the Code of Federal Regulations (CFR), Title 49, Chapter XII, Subchapter B, Part 1520, “Protection of Sensitive Security Information (SSI)” it must be handled as required by these regulations. These regulations can be found at: <https://www.gpo.gov/fdsys/pkg/CFR-2011-title49-vol9/pdf/CFR-2011-title49-vol9-part1520.pdf>

Informative References

The following documents provide additional information that may help developers and users of Airport DWGs create, update and use the data they contain. Any requirements defined in these documents may be applied at users’ discretion, but are not necessarily required and must not conflict with the requirements of this document. These documents include:

- John Wayne Airport GIS Standard
- National Institute of Building Sciences’ National CAD Standard (NCS), which can be found at: <https://www.nationalcadstandard.org> A license must be purchased to obtain a copy and use the NCS. This Standard complies with the NCS and can be used for Airport purposes without purchasing an additional license.

Revision History

This document has and will continue to evolve to meet the needs of the Airport, accommodate requests by consultants that are approved by the Airport, and enable the use of new technologies. Following is a list of versions of this document and a summary of the changes implemented with each version.

Table 1.1 - Document Revisions

Summary of Changes	Date Modified	Version
Initial Draft for SNA Review	11/27/2019	0.1

Consultant Responsibility / Compliance

All communications with Airport regarding these standards must be in writing. No verbal approvals of any will be given or considered valid regarding any aspect of these Standards. Due to the importance of CAD submittals, final payment on Airport projects that require DWG submittals will be contingent upon CAD deliverables complying with the minimum requirements of this standard.

Should a project require multiple consultants, the prime consultant, as team leader, will be responsible for the implementation of these standards. The prime consultant will also be responsible for all deliverables to Airport.

Request for Variance

Consultants and Airport staff members are encouraged to recommend changes to this document that they feel will improve their ability to meet the Airport's needs. These changes may be clarifications, additions, or deletions. Requests to add layers shall follow the layer naming conventions specified in the latest version of the NCS. Any changes that deviate from the requirements in this document will not be implemented until approved by the Airport. Approved deviations must be implemented before the first drawings of a contract are submitted. Change requests shall be submitted using the form provided in Appendix X to the Airport Project Manager.

Software Requirements & Resources

Airport DWGs shall be compatible with AutoCAD, AutoCAD MAP 3D®, or AutoCAD Civil 3D® version 2018 - 2020. Users who do not use this software shall ensure that all requirements defined in this document are met in DWGs they create and convert from other software, without any loss of quality or accuracy when they are opened in Autodesk software.

Chapter 2 – Drawing Objects

The proper structure and organization of CAD files facilitates efficient retrieval and effective maintenance of CAD data. File standard elements such as coordinate systems, geometry types, drawing and sheet models, sheet assembly, code, and naming conventions all support a sustainable system of CAD files for the Airport and its consultants.

Objects Types

Objects that depict real-world features (e.g., a door) must be of the specified geometry type and conform to the rules listed below. The following geometry types are permissible as specified.

- **Points** features such as airfield lights, manholes and valves shall be symbolized by the appropriate AutoCAD point or block. If blocks are used, the insertion point of the block must be at the actual physical location of the feature. Other features that are connected to the object represented by a block must connect to the block at this insertion point and not at the edge of the block.
- **Lines** features may be represented by lines or polylines.
- **Polygons** features may be represented by closed polylines or polygons.

Objects in drawings that are used to convey graphical references or alphanumeric information, such as annotations, text, dimensions and leader lines may use other AutoCAD object types, including construction lines, revision clouds and wipeouts. All text used, whether it is annotations associated with features, values within title blocks, or other text, shall be multiline text (MTEXT).

Table 2.1 – Geometry Types

Geometry Types			
Permitted		Non-Permitted	
Lines	Block	Spline	Circle
Polyline	MTEXT	Donut	Arc
Polygon	Construction Line	Region	Text
Revision Cloud	Ray	Ellipse	
Hatch	Dimension	Solid	
Wipeout	Multileader		
Point			

Coordinate System

Objects in CAD drawings that depict real-world features such as buildings, utility pipes, and airfield lights shall be drawn using the California State Plane Coordinate System, Zone VI referenced to the North American Datum of 1983 (NAD 83), 2011 adjustment (FIPS: 0406; WKID: 6426). This coordinate system is defined based on the following parameters, which may be used by surveyors or geospatial analysts when confirming the coordinate system:

Projection: Lambert Conformal Conic
False Easting: 6561666.666666666
False Northing: 1640416.666666667
Central_Meridian: -116.25
Standard Parallel 1: 32.78333333333333
Standard Parallel 2: 33.88333333333333
Latitude Of Origin: 32.16666666666666
Linear Unit: Foot US (0.3048006096012192)
Geographic Coordinate System: GCS_NAD_1983_2011
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_NAD_1983_2011
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

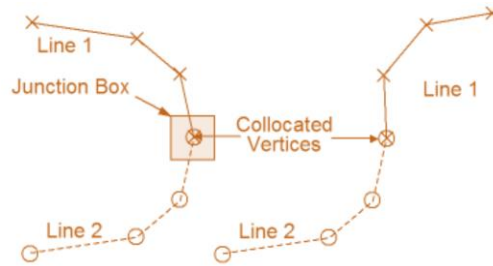
Vertical coordinates (i.e., Z), as required, shall be based on the North American Vertical Datum of 1988 (NAVD88) referenced to the latest geoid.

Units for both horizontal and vertical data will be the U.S. Survey Foot (1200/3937 meters).

Topology

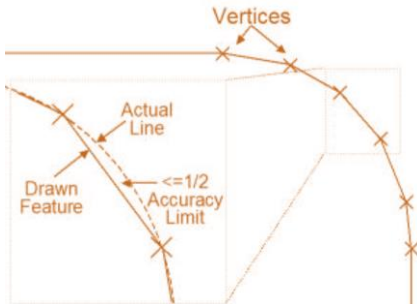
Topology refers to the positional relationship between features. All features are required to meet the following topology rules.

- **Collocated Vertices** - Collocated vertices in two-dimensional data must share the exact same X and Y coordinates out to the same number of decimals. Vertices collocated in three dimensions must share the same X, Y and Z coordinates.
- **Lines Meet at Endpoints** – Line segments and polylines that join to represent one continuous string of linear features (e.g., a utility network) should have collocated vertices as endpoints. .



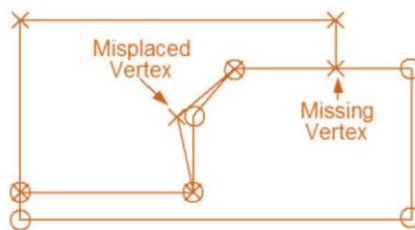
Source: FAA Advisory Circular 18B, Change 1, Page 73

- Lines Meet at Blocks** – Lines that represent features that connect at a junction point (e.g., to water lines that connect at a valve), must have end points that are collocated with the center point location of the junction. If a block is used to represent the junction, the lines and the centroid of the block must be collocated.
- Sufficient Density of Vertices** – Lines and polygon edges should contain one or more segments with vertices placed at intervals, so the feature does not stray from the actual object it represents by more than half of the defined accuracy limit.



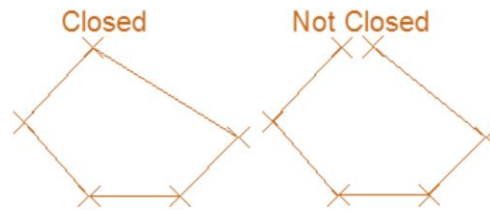
Source: FAA Advisory Circular 18B, Change 1, Page 73

- Shared Vertices between Adjacent Features** – Features that are intended to be adjacent to one another should share all collocated vertices along their common edge(s), as shown in the figure below. This ensures that there are no unintentional gaps (empty space) or slivers (overlaps) between adjacent features.



Source: FAA, AC150/5300-18B Change 1, Page 74

- **Polygons must always be closed** – The endpoints of line segments that form a polygon must be collocated and closed in the CAD program as shown in the figure below:



Source: FAA Advisory Circular 18B, Change 1, Page 75

Accuracy and Precision

All features and components of features shall be located within the specified distance of the location of the real-world object or component they are meant to represent (i.e., absolute positional accuracy). The accuracy tolerances where specified must be achieved at a 95% confidence level meaning that statistically 95% or more of the features will be at this accuracy level or better. Coordinate values shall be recorded to a precision (i.e., number of decimal places in the coordinate value) that is at least sufficient to represent the accuracy level specified.

Object Data

Object data associates alphanumeric information such as identifiers, material type, sizes, and other relevant data to CAD objects. It is similar and related to, but not the same as, text annotations that may be added to the drawing. Object data, and therefore this section, are only required if explicitly stated in the contract or agreement with the Airport.

Object data tables shall be connected to objects where attribute data and metadata are required within an Airport Contract or Agreement. These tables are defined based on the feature class to be used for each type of object. Values for object data table fields must be of the type and within the length specified in the Airport's GIS Standard. Where fields are tied to a domain, the values used must be one of the acceptable values defined in the Airport's GIS Standard.

Chapter 3 – Graphic Concepts

Whether drawing objects are being used to represent real-world features, provide additional information that describes those features, or provide metadata about the drawing as a whole, objects shall use graphics that meet the following requirements:

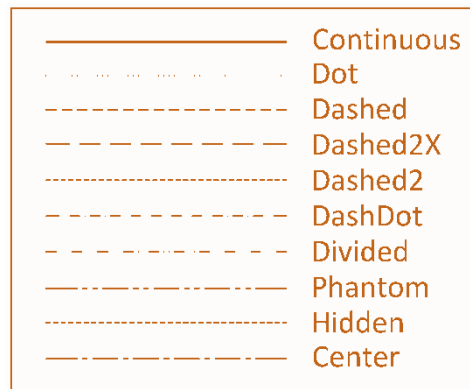
Blocks / Cells

Point features are represented by blocks. The insertion point of these blocks is at the location of the object represented by the feature. AutoCAD default blocks, as well as those defined by the Airport, are acceptable. These block definitions are provided in the Airport Standard CAD template file. Blocks shall not be nested. All block properties shall be set to “By Layer”. Existing Cell files from MicroStation shall be converted from DGN to DWG and adjust properties to comply with this document.

Line Types

The Airport accepts both AutoCAD default and custom line types. The use of AutoCAD default line types shall be in accordance with industry standards. These generally include center, continuous, dashed, hidden and phantom line types.

Figure 3.1. Predominant line types/styles.



Line Weights

Varied line weights substantially improve readability of drawing objects. The line widths defined in **Table 3.1** provide sufficient flexibility and shall be used. If additional line weights are desired prior approval of the Airport Project Manager is required.

Table 3.1 Comparison of line weights

Line Thickness	mm	In.	Typical Use
Fine	0.18	0.007	Patterning and material indications
Thin	0.25	0.010	Dimension lines, leaders, extension lines, break lines, grid lines, schedule grid lines, hidden objects, center lines, setback lines
Medium	0.35	0.014	Object lines, text, property lines, terminator marks, schedule grid accent lines
Wide	0.50	0.020	Major object lines, cut lines, section cutting plane lines, property lines, drawing block borders, titles
Extra wide	0.70	0.028	Minor title underlining, footprints, match lines, schedule outlines, sheet borders, large titles, object lines requiring special emphasis
XX Wide	1.00	0.040	Major title underlining and separating portions of drawings
XXX Wide	1.40	0.055	Border sheet outlines and cover sheet line work
XXXX Wide	2.00	0.079	Border sheet outlines and cover sheet line work

Source: A/E/C CAD Standard Release 6.0, Change 2, Page 26

Note: As per the NCS, there is an Extra Fine (0.13 mm) line width. However, the Airport is aware that the legibility on printouts becomes more difficult when the line width goes below the Fine (0.18 mm) line width. For this reason, use of Extra Fine line widths should be avoided if the drawing will be plotted half-size, consistent with the NCS guidance.

Text Style

Different styles of text fonts shall be used within a drawing to delineate types of information. This text shall be capitalized, to allow readability to be retained when reproduced at one-half size.

- **Regular font** is to be used for most general notes, labels, dimensions, or title blocks.
- **Italic font** is to be used where text needs to be easily distinguished from other text.
- **Filled fonts** are to be used primarily for titles and on cover sheets.
- **Symbol font** should be used in cases where Greek symbols are used to represent technical information.

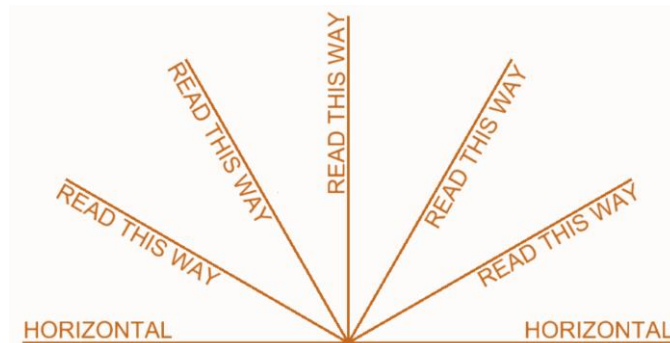
Table 3.2 – Comparison of font types

Font Type	TrueType
Regular	Arial ABCDEFGHIJKLMNOPQRSTUVWXYZ UVWXYZ
Italic	Arial (Italic) <i>ABCDEFGHIJKLMNOPQRSTUVWXYZ</i> <i>UVWXYZ</i>
Filled	Arial (Bold) ABCDEFGHIJKLMNOPQRSTUVWXYZ UVWXYZ
Symbol	Arial (Symbols) ΑΒΧΔΕΦΓΗΙΘΚΛΜΝΟΠΡΣΤ ΥϚΩΞΨΖ αβγδεφγηηιφκλμνοπθρστ υωξψζ

Source: ERDC/ITL TR-12-1; Release 2.0, Page 45

Text shall be oriented such that it is parallel to the primary base of the drawing. If necessary, text can be rotated at angles up to 180 degrees so long as the orientation is as shown in **Figure 3.2**. Regardless of orientation, all text shall be oriented to be read from bottom to top or from left to right as displayed within the final plotted viewport.

Figure 3.2. Text Orientation



Source: ERDC/ITL TR-12-1; Release 2.0, Page 43

In addition, it is important to consider the following:

- Text shall never be placed over other text.
- Text shall not be placed over feature lines, hatching, or patterning. In case text is unreadable due to the background where is placed, text shall be masked, by turning “Background Mask” for the text properties on, so the text can be clearly read.
- Text justification depends upon the type of text being placed. For example, general numbered notes shall have upper-left justification, elevation labels appearing to the left of a feature shall have bottom-right justification, and elevation labels appearing to the right of a feature shall have bottom-left justification.

- All text shall be Multiline Text (MTEXT).
- If text is moved from the location of the object it represents, a leader line shall be provided to point from the text to its corresponding object in the drawing.

Dimension Styles / Multileaders

The dimension style has line weights defined for dimension lines and extension lines at 0.006 inches. Extend beyond dim lines and offset from origin lines are set at 0.0625 inches. Arrowheads are closed and filled at 0.125 inches in size. The text height is 0.125 inches with text alignment set to horizontal. The format, structure, and content of the multileader style is like that of the dimension style. The dimension style and multileader style are provided in the Airport CAD Standard CAD template. Chapter 4 – Drawing Components

Drawings are made up of objects placed onto appropriate layers within model space or paper space. This work must be done in a methodical and organized manner that yields clear, consistent and legible results.

Model Space

All drawing objects shall be drawn at either full scale or 1/12th scale. Full scale means that the true size of an object is reflected in the same number of drawing units (i.e., 1:1 scale). For example, a 75 foot wide taxiway will space 75 drawing units. Architectural drawings may be drawn at 1/12th so long as the scale is clearly indicated in the title block. Dimensions, annotations, and text (as described above) shall be set to Annotative to be displayed at the proper Annotative Scale.

Paper Space

Paper space is utilized for plots (sheet files) of drawings created in model space. It usually contains single or multiple viewports each showing a portion of the features in model space. The viewport(s) typically contain a specified scale and orientation. Cover sheet and title block shall be placed in paper space. Notes, tables, details, diagrams and other entities not requiring scaling or external referencing should be placed in paper space. The paper space tabs shall be renamed to reflect the sheet number as defined below.

Color Table

Color table files (.CTB) control the color objects on specific layers are plotted or printed, regardless of their color in the drawing. The default AutoCAD CTB file should be used. If Airport has customized CTB files, this shall be provided to consultants as part of the CAD standards package prior the start of the project.

Sheet Size and Scale

The Airport recommends that drawings be ARCH E1 (30" x 42") in size. Other sizes may be used to accommodate specific project needs, if approved in advance by the Airport. Each drawing shall be

established at a drawing scale of 1:1 in the Design Model (Model Space) allowing the accurate preparation of views in the Sheet Model (Paper Space).

Chapter 4 – Drawing Sheet Structure and Organization

The organization and structure of CAD files is important in order to facilitate efficient retrieval and effective maintenance of CAD data. File standard elements such as border and titleblocks, sheet assembly and numbering, and file naming conventions all support a sustainable system of CAD files for JWA and its consultants.

Border & Titleblock

Drawings that are required to be plotted either in hard copy or Portable Document Format (PDF) must have a border and title block of the proper format that is populated with all relevant information about the drawing (i.e., metadata). The format of this information and fields to be used to populate metadata are described below and provided in the template files. The format of these elements shall not be changed and specific layers, as indicated in Appendix A, “Title Block Layers,” shall be used. The line weights for the title block are defined through polylines and the layer properties manager. The plotting scheme shall conform to these values. There are small circles located at the corners of the sheet which define the plot area when selecting the centers by window. A bar scale is provided to verify that the plotting is 1:1. Figure 4.1 below shows an example of the required title block:

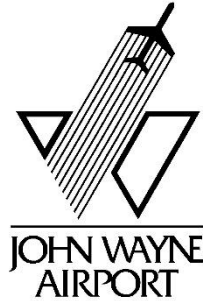
Figure 4.1 –Title Block



Logo

The Airport logo will appear on all drawings created for or by the Airport. The logo to use has been included in the template files, as well as part of the Titleblock file. Consultant or other logos may appear on drawings submitted to the Airport, subject to approval by the Airport Project Manager.

Figure 5.2 –Logo



Key Map & North Arrow

A key map will be provided that shows the full extent of the Airport base map and highlights with a rectangle the area shown on this sheet. An arrow that shows the direction of the True North shall be provided on all Sheet Files that show the horizontal location of features (i.e., planimetric perspective). Such a North Arrow is not required on Sheet Files that contain not planimetric information such as riser diagrams, schematic diagrams, or one-line diagrams.

Contract Information

The contract number and title under which the drawing was developed should appear in the title block in the locations shown in Figure 4.3, exactly as they are presented in the executed contract. Contract numbers format shall be the same as those in the contract or agreement under which the drawing was prepared or as otherwise requested by the Airport Project Manager in writing.

Figure 4.3 – Contract Information

CONTRACT NO.: CONTRACT_NO	CONTRACT NAME: CONTRACT_NAME	COPYRIGHT NO.: COPYRIGHT_NO
------------------------------	---------------------------------	--------------------------------

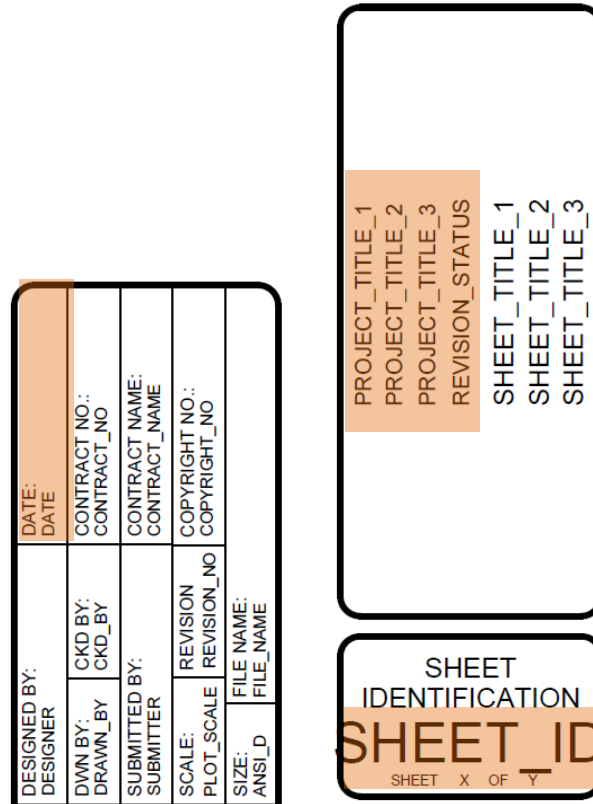
Scale Bar

A scale bar should be provided in the title block. The scale bar should be in imperial units with a sufficient number of intervals to estimate drawing distances either visually or with a ruler.

Metadata Elements

Additional information about the data presented in a drawing also appears in the title block. This information (metadata) is shown in Figure 4.4 and described in the subsequent sections:

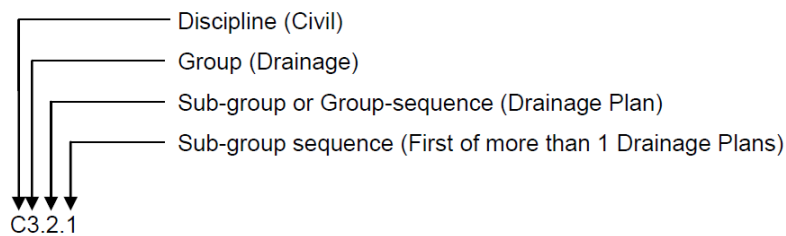
Figure 4.4 – Metadata Elements



Sheet Number

The sheet number, or sheet ID, shall be entered into the title block as shown in Figure 4.4. Sheet numbers shall take a two, three, or four position form: Discipline, Group, Sub-group and Sub-group sequence, with the latter three positions separated by periods, as shown in Figure 4.5. In some instances, the Sub-group position is used as Group-sequence. See Appendix E and F for more details on Projects ID and Sheet properties including discipline designators by JWA.

Figure 4.5 – Sheet Number



Only when there is more than one sheet of a Group or Sub-group shall the sequencing positions be used. When the Sequence positions are used, the implication is that there is more than one sheet for that Group or Sub-group.

Sheet sequence Number

The sequential number of the sheet within the drawing set and the total number of sheets in the drawing set should be indicated in the title block. The cover sheet should be sheet sequence number 1 (one) with all subsequent sheets numbered sequentially. The order in which sheets should appear in a drawing set is described in the Drawing Set Assembly section.

Stage

The user shall indicate the stage of the facility design and construction process that the drawing reflects. Some examples are “30% Design”, “60% Design”, “90% Design”, “Conformed Set”, and “As-Built”. If not apparent based on the contract or agreement, then the Airport PM will provide direction as to the stage to be indicated at each phase of the project.

Dates

The date indicated shall coincide with the date upon which the drawing was submitted, unless otherwise indicated. All dates shall spell out the full name of the month with all letters capitalized, followed by a space and the number representing the day of the month, followed by a comma then a space, and finally the four-digit number for the year (e.g., “JULY 4, 2019”).

Sensitive Information Label

If the drawing contains Sensitive Security Information (SSI) as defined by the Code of Federal Regulations (CFR), Title 49, Chapter XII, Subchapter B, Part 1520, then the Distribution Limitation Statement, shown below or a more recent version, must appear on the bottom of each sheet that contains SSI, as well as the cover sheet of a drawing set that includes one or more sheets that contain SSI. The protective marking “SENSITIVE SECURITY INFORMATION” must also appear on the top each sheet that contains SSI.

WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a “need to know”, as defined in 49 CFR parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520

Revisions

Throughout design development and up to the original version, the drawing shall be indicated as Revision – [applicable revision sequence number]. There may be multiple revisions within a given stage of design or construction. When the drawing is initially submitted as complete within a stage, it shall be Revision 0. Revisions shall be sequentially numbered (i.e., 1, 2, 3, etc.). When a drawing is initially submitted as complete within a subsequent stage the revision sequence number will be reset to 0. If a revision is made,

two areas of the drawing shall be changed to show the correct revision number: the drawing area and the title block.

All revised drafting work in the drawing area shall be enclosed by cloud, and each cloud shall have a revision triangle, including the pertinent number, as its callout (see Figure 4.8). The cloud shall be appropriately dark and bold so that the contractor can clearly see what is different from the previous submittal. The title block shall be changed in two places: the revision number (see Figure 4.6), and the revision column (see Figure 4.7). The revision column shall also include the revision triangle, as an exact match to the triangle in the drawing area (see Figure 4.8).

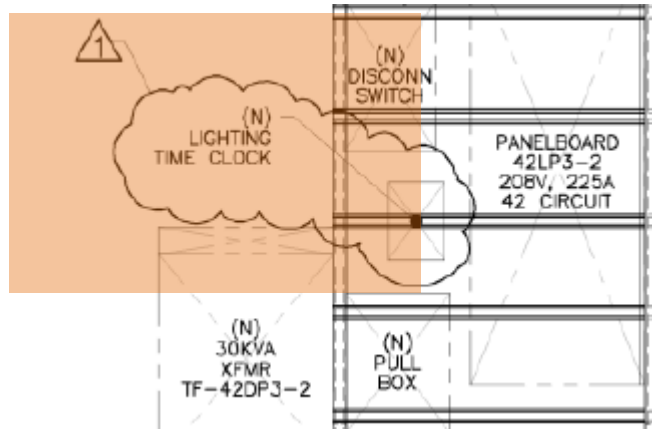
Figure 4.6 – Revision Number

DRAWN_BY	CKD_BY	CONT
SUBMITTED BY: SUBMITTER		CON CONT
SCALE:	REVISION REVISION_NO	COPY COPY
PLOT_SCALE		
SIZE: ANSI_D	FILE_NAME: FILE_NAME	

Figure 4.7 – Revision Column

1	ACCORDANCE W/MODIFICATION NO. 1	7/1/2005	TSR
MARK	DESCRIPTION	DATE	APPR.

Figure 4.8 – Revision Cloud



Electronic File Naming

Each sheet shall be saved as a separate electronic file. For construction drawings, the name of those files shall match those of the sheet numbers, as shown below:

Table 4.1—Example File Names for Construction Drawings

Sheet Number	Revision	Filename
A1.2.3	0	A1_2_3.DWG
M3.R.1	2	M3_R_1_R2.DWG

For as-built drawings, the name of those files shall match those of the sheet numbers with AB at the end, as shown below:

Table 4.2—Example File Names for Construction Drawings

Sheet Number	Revision	Filename
A1.2.3	AB	A1_2_3_AB.DWG
M3.3.1	AB	M3_3_1_AB.DWG

PDF files of drawings shall be numbered the same as the drawing, with the corresponding revision for the particular revised sheet only, as shown in Table 4.3:

Table 4.3—Example File Names for PDF

Sheet Number	Revision	Filename
A1.2.3	0	A1_2_3.PDF
M3.3	2	M3_3_R2.PDF

When an entire set of drawings for the same contract is submitted as a single PDF, the file shall be named with the contract number and latest revision separated by a dash, for example: **10634_51-R4.PDF**.

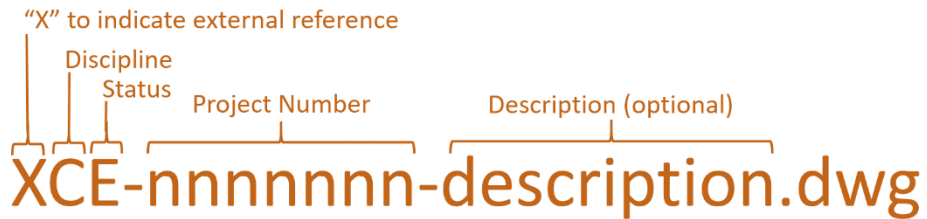
External Reference Files

Base map and related drawings being developed by others may be incorporated into a separate drawing for reference. These externally Referenced (XREFXREF) drawings allow objects to be available for viewing and reference without the need to redundantly store a copy of these objects in the drawing itself. The insertion point for XREFXREFs shall be 0, 0, 0.

All external reference files shall be attached as an overlay (rather than as an attachment) with the relative path unbound and located within the same folder structure to allow for relative path selection. The folder structure **shall be maintained** on the submittal media so as not to require the re-attaching of external references upon receipt by the Airport. Airport staff may add XREFs in networked file folders.

XREF files should be appropriately and uniquely named. XREFs prepared specifically for a project shall be named with “X” for XREF, discipline, condition, a delimiter dash, and contract number. Contract numbers should be formatted as “nnnnnnn” and confirmed with the Airport Contract Manager or PM. If desired, a word or brief phrase that describes the contents of the XREF may be added after the project number separated by a dash. The format of XREF file names is shown below in Figure 4.9.

Figure 4.9 - Naming of Externally Referenced Files

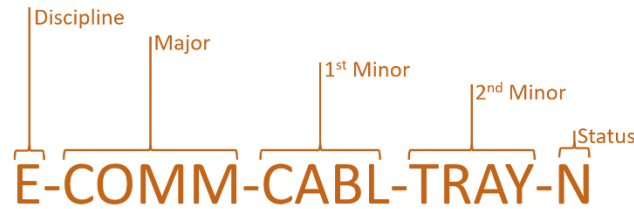


There shall be only two status codes used for XREF drawings, E for existing and N for new. The existing condition file shall contain all AutoCAD entities prior to the proposed construction, including the entities intended for demolition, which shall be managed using layers. The new condition file shall contain only those AutoCAD entities which are new, and these new entities should be located such that externally referencing the existing condition file matches both new and existing entities together.

Chapter 5 – Layer Assignment

All objects including those that represent real-world features, graphical annotations, title block information, data tables, and other details shall be placed on layers defined in Appendix A. Layer names have been established based on the NCS layer naming convention, which is shown in the figure below.

Figure 5.1 Layer Naming Convention



- The discipline shall be a one-character code representing the primary discipline of the objects contained on that layer. One-character discipline codes to be used are listed in Appendix A.
- The major describes the category in which the objects on the layer fall.
- The first minor defines the type of object on that layer.
- A second minor is sometimes used to indicate the sub-type of the objects on that layer.
- A status code that indicates the status of the objects on that layer. Status codes as listed in the table below shall be used. Existing features not impacted by a project are to be shown on layers without a status code.

Table 5.1 - Status Codes

Code	Status
A	Abandoned
F	Planned or proposed future features
U	Unverified

For design and construction projects that will be altering features shown on drawings, the additional status codes shall be used to indicate how features will be altered by the project. These codes should not be used on as-built drawings, which show existing conditions that do not require a status code or may use one of the status codes above where appropriate.

Table 5.2 – Design and Construction Project Status Codes

Code	Status
D	To be demolished
N	To be constructed
R	To be relocated
T	Temporary features to be installed and removed

Chapter 6 – Facilities

There are several types of facilities throughout the airport and knowing their categories and components is a key factor in understanding the type of data and how to utilize it productively. Additionally, this information will allow consultants and Airport to produce, manage, process and maintain CAD data more efficiently.

Building Facilities

This type of facility data addresses all type of information files for those areas contained within building perimeters. A combination of as-built, design and construction drawings served as the base drawings to be used, managed and maintained daily by the airport staff. Disciplines to be included within building areas are architectural, mechanical, electrical, plumbing, audio, structural, etc. Building facilities include:

Base Building

These type of data contain existing building condition as per as-built, design and construction drawings information, supplemented by shop drawings and field verification information prior to tenant development. Their function is to serve as base drawings for all tenant construction documents and as background for any other categories and/or discipline.

Tenant Buildout

This category relates to existing building conditions for tenant improvements projects. The tenant improvement information may include but not limited to retail, airlines, food & beverage, car rentals, etc.

Property Management

Includes the ability of tracking all information related to tenants, including but not limited to tenant name, tenant type, lease agreements, area (square footage), etc.

Site Facilities

The data included as Site Facilities addresses information files related to areas located outside of building perimeters such as the airfield, taxiways, aprons, etc. These CAD files will served as the base drawings to be used, managed and maintained daily by the airport staff. Part of site facilities are:

Site Layout

This category relates to base topography features per as-built drawings and/or subsequent field verification or aerial mapping. Their function is to serve as base drawings for all site documents and as background for any other categories and/or discipline.

Utilities

This category serves to documents all utility features. Utility information may include but not limited to above and underground gas, electrical, fuel systems distribution, etc.

Property Management

This category includes the function of tracking of parcels, leaseholds, easements, property lines, boundaries, etc.

As-Built Drawings

These type of data includes all information related to construction and as-built documentation.

Buildings

In this category is included all as-built documents related to the construction of buildings and/or interior tenant areas, in addition to all related drawings data such as plans, elevations, details, diagrams, etc. Information.

Site

Site as-built data refers to all documents for construction of civil site projects such as roads, grading, pavement, sidewalks, etc. The category also includes all type of drawings related such as plans, elevations, details, diagrams, etc.

Chapter 7 – Drawing Delivery & Quality of CAD Data

An important objective of this CAD Standard Document is to help create the most accurate and graphically consistent set of CAD drawings for the Airport. Adhering to this standard is an important aspect of achieving the quality of CAD deliverable the Airport expects. Consultants and staff who develop DWGs for the Airport should check the quality of the data as it is being developed (Quality Control) and prior to delivery (Quality Assurance).

Quality Assurance

Before consultants submit DWGs to the Airport and before staff share DWGs with other staff members or consultants, they are responsible for conducting Quality Assurance (QA) on those drawings. QA should be conducted by an individual who is familiar with the content and the requirements of this document, but who did not directly work on the data in the drawing being checked. QA shall check the drawing(s) against all applicable requirements in this document, including but not limited to:

- Objects have the correct geometry, adhere to topology rules, and are on correct layers
- Objects representing real-world features are drawn in the specified coordinate system
- All sheets have a proper title block with metadata fields filled in correctly and completely
- Proper cover sheet is used with metadata fields filled in correctly and completely
- Sheets are numbered correctly and provided in the correct order
- Filenames are correct

QA should also check to ensure that the data in the drawing is comprehensive, accurate, and correct. It may not be feasible to check all objects on drawings. At a minimum, a statistically valid sample of objects to establish a 95 percent confidence level in the data shall be checked. Objects shall be sampled randomly but their location shall be distributed across the extent of the drawing's contents. Objects on numerous layers shall be selected. All properties of the selected objects (i.e., geometry type, topology, layer, symbology, and object data, if present) shall be checked. If any property is not correctly recorded, then the object shall be considered a failure. All failures shall be corrected. If a pattern of failures (e.g., on a specific layer or in a specific area) is evident or a large number of failures are found, then all content in the drawing shall be thoroughly checked and corrected before QA recommences.

The table in Appendix B defines a series of checks that consultants should use to check the quality of drawings before they are submitted to the Airport. The checklist can also be used as a guide for quality control as the data is developed and may be used at the Airport's discretion for acceptance testing.

Plotted Drawings

Drawing sets shall be printed to PDF for delivery, unless otherwise directed by the Airport PM. PDFs should be printed at the full sheet size as described above. When printing to PDF in AutoCAD, the DWG To PDF.pc3 plotter configuration file shall be used. The scale shall be 1:1 and the sheet size shall be of the

full bleed variety for the paper size selected. Also, the “Include Layer Information” interface shall NOT be checked in the Custom Properties setting within the Plotter Configuration Editor. Electronic Delivery

Drawing sets shall be saved to electronic media such as a DVD, CD-ROM, or portable drive. Drawing sets can also be delivered electronically using File Transfer Protocol (FTP) as coordinated with the Airport Project Manager. AutoCAD’s eTransmit function may be used for informal exchange of drawings (e.g., as an email attachment), but the formal submittal of drawings shall not be provided using eTransmit and shall be provided in a proper directory structure and not compressed to maintain external reference overlaying. When submitting drawings electronically, the following requirements must be met:

- Physical media must be labelled with the Airport contract number and name, as they appear on the fully executed copy of the contract; the prime consulting firm’s name, the date of the submittal, the title of the drawing set and the review status.
- If any drawing, file, or additional information provided on the media contains SSI, then the media must be labelled with the statement SENSITIVE SECURITY INFORMATION along with the SSI distribution limitation statement indicated above. If multiple physical media devices are delivered together as a set, the label must indicate a sequence number and the total number in the sequence.
- Appropriate color table (.ctb) files shall be included.
- A tabulated Index of Sheets (.doc or .xls) shall be included. The table shall be titled “Electronic File Submittal Index—Contract ‘XXXX’” and have three columns: Electronic (AutoCAD) File Name, Drawing Number and Drawing Title. In addition, the table shall include a listing of file names and descriptions of external references. The description shall be placed under the heading of Drawing Title.

The final drawings must be tiled into Paper Space, layer set to 0, zoomed to extents and purged prior to saving and closing.

Appendices

Appendix A – Acceptable Layers

The following layers shall be used in all DWGs developed or maintained for the Authority. These layers are included in drawing template files (.DWTs) available from the Authority. Some of these layers are to contain data to be submitted to the FAA and therefore must also comply with the requirements of AC150/5300-18B. If additional layers are required, they must be approved by the Authority PM or LM in advance.

Layer Name	Description	LineType	Lweight (in.)	Color
A-ANNO-DIMS	Witness/Extension Lines, Dimension Terminators, Dimension Text	CONTINUOUS	0.35	7

Layer Name	Description	LineType	Lweight (in.)	Color
A-ANNO-PATT	Patterning, Poche, Shading, And Hatching	CONTINUOUS	0.18	8
A-ANNO-SYMB	Miscellaneous Symbols	CONTINUOUS	0.35	6
A-ANNO-TEXT	Miscellaneous Text and Callouts With Associated Leaders	CONTINUOUS	0.35	7
A-AREA	Area Boundaries	CONTINUOUS	0.18	7
A-AREA-CALC	Architectural Area Calculation	CONTINUOUS	0.5	4
A-CLNG-ACCS	Access Panels	CONTINUOUS	0.35	6
A-CLNG-FIXT	Ceiling Fixtures	CONTINUOUS	0.18	1
A-CLNG-OPNG	Openings, Ceiling/Roof Penetrations (See Also A-Flor-Ovhd In Floor Plan Model File)	CONTINUOUS	0.18	8
A-CLNG-PANL	Ceiling Panels	CONTINUOUS	0.18	7
A-CLNG-SECT	Ceiling Sections	CONTINUOUS	0.18	7
A-CLNG-SFFT	Soffits	CONTINUOUS	0.25	2
A-COLS	Columns	CONTINUOUS	0.18	3
A-CONV-DOOR-DCUR	Draft Curtain	CONTINUOUS	0.35	7
A-CONV-EQPM-BGRD	Belt Guard	CONTINUOUS	0.35	7
A-CONV-EQPM-BTRK	Belt Track	CONTINUOUS	0.35	7
A-CONV-EQPM-MCPP	Motor Control Panel	CONTINUOUS	0.35	7
A-CONV-EQPM-MOTR	Motor	CONTINUOUS	0.35	7
A-CONV-EQPM-OTHR	Equipment, Not Elsewhere Classified	CONTINUOUS	0.35	7
A-DOOR	Doors	CONTINUOUS	0.18	7
A-DOOR-FRAM	Door Frame	CONTINUOUS	0.18	7
A-DOOR-GLAZ	Door Glazing / Windows	CONTINUOUS	0.18	7
A-DOOR-SWNG	Graphical Indication Of Door Swing	CONTINUOUS	0.18	7
A-FLOR-BNDY	Outer Boundary Of Floor	CONTINUOUS	0.18	7
A-FLOR-EVTR	Elevator Cars And Related Equipment	CONTINUOUS	0.35	2
A-FLOR-EVTR-ECSL	Escalator and Related Equipment	CONTINUOUS	0.25	1
A-FLOR-EVTR-MWLK	Moving Walkways And Related Equipment	CONTINUOUS	0.25	1
A-FLOR-FNSH	Area In Which A Consistent Finish Has Been Applied To The Floor	CONTINUOUS	0.18	7
A-GLAZ-FRAM	Glass Frame	CONTINUOUS	0.18	7
A-GLAZ-PANL	Glass Panel	CONTINUOUS	0.18	7
A-GLAZ-SKLT	Skylights	DASHED	0.18	1
A-PROP-LEAS	Architectural Property Lease	CONTINUOUS	0.18	7
A-ROOF-BNDY	Outer Boundary of the Roof	CONTINUOUS	0.18	7
A-ROOF-CNPY	A Canopy or Overhang Attached to the Roof	CONTINUOUS	0.18	7
A-ROOF-EQPM	Equipment Installed On The Roof	CONTINUOUS	0.18	7
A-ROOF-GUTR	Roof Internal Gutters	CONTINUOUS	0.18	8
A-ROOF-OTLN	Roof Perimeter/Edge, Roof Geometry	CONTINUOUS	0.35	6

Layer Name	Description	LineType	Lweight (in.)	Color
A-ROOF-PAVR	Roof Pavers And Pads	CONTINUOUS	0.18	2
A-ROOF-PRPT	Parapet Walls And Wall Caps	CONTINUOUS	0.18	1
A-ROOF-RISR	Roof: Risers	CONTINUOUS	0.18	7
A-ROOF-WALK	Roof Walkways	CONTINUOUS	0.25	3
A-ROOF-WALL	Roof Parapet Walls And Wall Caps	CONTINUOUS	0.35	2
A-WALL-CNTR	Wall Centerlines	CENTER	0.18	5
A-WALL-FULL-EXTR	Exterior Full Height Walls	CONTINUOUS	0.35	2
A-WALL-FULL-INTR	Interior Full Height Walls	CONTINUOUS	0.25	3
A-WALL-PRHT	Partial Height Walls	CONTINUOUS	0.25	1
A-WALL-TPTN	Toilet Partitions	CONTINUOUS	0.18	7
C-AFLD-DSRF-BLDR	Airfield Design Surface - Building Restriction Line (BRL)	CONTINUOUS	0.18	1
C-AFLD-DSRF-ITOFZ	Airfield Design Surface - Inner Transitional Obstacle Free Zone (ITOFZ)	CONTINUOUS	0.18	1
C-AFLD-DSRF-NMOV	Airfield Design Surface - Aircraft Non-Movement Area	CONTINUOUS	0.25	3
C-AFLD-DSRF-POFA	Airfield Design Surface - Precision Object Free Area (POFA)	CONTINUOUS	0.25	3
C-AFLD-DSRF-POFZ	Airfield Design Surface - Precision Runway Obstacle Free Zone (POFZ)	CONTINUOUS	0.18	7
C-AFLD-DSRF-PVFR	Airfield Design Surface - PRSVFR	CONTINUOUS	0.18	7
C-AFLD-DSRF-ROFA	Airfield Design Surface - Runway Object Free Area (ROFA)	CONTINUOUS	0.18	7
C-AFLD-DSRF-RPTX	Airfield Design Surface - Runway To Parallel Taxiway And Taxiline Separation (RWYPTX)	CONTINUOUS	0.18	1
C-AFLD-DSRF-RPZ	Airfield Design Surface - Runway Protection Zone (RPZ)	CONTINUOUS	0.18	7
C-AFLD-DSRF-RSA	Airfield Design Surface - Runway Safety Area (RSA)	CONTINUOUS	0.18	7
C-AFLD-DSRF-TOFA	Airfield Design Surface - Taxiway and Taxilane Object Free Area (TOFA)	CONTINUOUS	0.18	1
C-AFLD-DSRF-TOFZ	Airfield Design Surface - Inner Transitional Obstacle Free Zone (ITOFZ)	CONTINUOUS	0.18	7
C-AFLD-DSRF-TSA	Airfield Design Surface - Threshold Sighting Area (TSA)	CONTINUOUS	0.18	1
C-AFLD-DSRF-TSS	Airfield Design Surface - Threshold Sighting Surface (TSS)	CONTINUOUS	0.18	1
C-AFLD-DSRF-TXSA	Airfield Design Surface - Taxiway Safety Area (TXSA)	CONTINUOUS	0.18	1
C-AFLD-FREQ	Frequency Area	CONTINUOUS	0.18	7
C-AFLD-JETB	Passenger Boarding Bridge	CONTINUOUS	0.35	2
C-AFLD-LMTA-PERI	Security Perimeter Line	CONTINUOUS	0.18	7
C-AFLD-LMTA-RSTR	Military Restricted Access Boundary	PHANTOM	0.7	84
C-AFLD-LMTA-SECA	Airfield Security Area	CONTINUOUS	0.18	7
C-AFLD-LMTA-SIDA	Security Identification Display Area	CONTINUOUS	0.18	7
C-AFLD-LMTA-STER	Airfield Sterile Area	CONTINUOUS	0.18	7

Layer Name	Description	LineType	Lweight (in.)	Color
C-AFLD-NAID-ASR~	Navigational Aid - ASR	CONTINUOUS	0.18	7
C-AFLD-NAID-ASRS	Navigational Aid - ARSR	CONTINUOUS	0.18	7
C-AFLD-NAID-BECN	Navigational Aid - Nondirectional Radio Beacon - Compass Locator, High Frequency, Medium Hf, Ultra Hf	CONTINUOUS	0.18	1
C-AFLD-NAID-BECN	Navigational Aid - Airfield Beacon	CONTINUOUS	0.35	203
C-AFLD-NAID-COMM	Navigational Aid - Communication	CONTINUOUS	0.18	1
C-AFLD-NAID-CRIT	Navigational Aid - Critical Area	CONTINUOUS	0.18	1
C-AFLD-NAID-CRIT	Navigational Aid - Critical Area	CONTINUOUS	0.35	2
C-AFLD-NAID-DF~~	Navigational Aid - Direction Finding Equipment (DF)	CONTINUOUS	0.18	7
C-AFLD-NAID-DME~	Navigational Aid - Direction Measuring Equipment (DME)	CONTINUOUS	0.18	7
C-AFLD-NAID-FANH	Navigational Aid - FMH	CONTINUOUS	0.18	7
C-AFLD-NAID-FANM	Navigational Aid - Fan Marker (FM)	CONTINUOUS	0.18	7
C-AFLD-NAID-GENL	Navigational Aid - Direction Finding Equipment (Df), Fan Marker, Fan Marker Located With A Radio Beacon, Moving Target Indicator Reflector, Simplified Directional Facility (Sdf), Touchdown Reflector	CONTINUOUS	0.18	1
C-AFLD-NAID-GPS_	Navigational Aid - GPS	CONTINUOUS	0.18	1
C-AFLD-NAID-GPS_	Navigational Aid - Global Positioning System (GPS)	CONTINUOUS	0.35	2
C-AFLD-NAID-GSCE	Navigational Aid - Glide Slope (GS) CE	CONTINUOUS	0.18	7
C-AFLD-NAID-GSEF	Navigational Aid - Glide Slope (GS) EF	CONTINUOUS	0.18	7
C-AFLD-NAID-GSNR	Navigational Aid - Glide Slope (GS) NR	CONTINUOUS	0.18	7
C-AFLD-NAID-GSSB	Navigational Aid - Glide Slope (GS) SB	CONTINUOUS	0.18	7
C-AFLD-NAID-ILS_	Navigational Aid - Instrument Landing System (ILs)	CONTINUOUS	0.18	1
C-AFLD-NAID-ILS_	Navigational Aid - Instrument Landing System (ILS)	CONTINUOUS	0.35	2
C-AFLD-NAID-ILSY	Navigational Aid - Distance Measuring Equipment (DME), Glide Slope Capture Effect, Glide Slope End Fire, Glide Slope Null Reference, Glide Slope Side Band, Localizer	CONTINUOUS	0.18	1
C-AFLD-NAID-ILSY	Navigational Aid - Airfield Navigational Aid Distance Measuring Equipment (DME), Glide Slope Capture Effect, Glide Slope End Fire, Glide Slope Null Reference, Glide Slope Side Band, Localizer	CONTINUOUS	0.18	1
C-AFLD-NAID-LOC~	Navigational Aid - Localizer	CONTINUOUS	0.18	7
C-AFLD-NAID-MCWW	Navigational Aid - Microwave	CONTINUOUS	0.18	1
C-AFLD-NAID-MISC	Navigational Aid - Miscellaneous	CONTINUOUS	0.18	1
C-AFLD-NAID-MISC	Navigational Aid - Windcones and Beacons	CONTINUOUS	0.18	1
C-AFLD-NAID-MLSR	Navigational Aid - MLSR Lights	CONTINUOUS	0.18	1
C-AFLD-NAID-MLSY	Navigational Aid - Microwave Landing System Azimuth Antenna, Microwave Landing System Dme, Microwave Landing System Elevation Antenna	CONTINUOUS	0.18	1

Layer Name	Description	LineType	Lweight (in.)	Color
C-AFLD-NAID-MSLY	Navigational Aid - Airfield Navigational Aid Microwave Landing System Azimuth Antenna, Microwave Landing System Dme, Microwave Landing System Elevation Antenna	CONTINUOUS	0.18	1
C-AFLD-NAID-MSLZ	Navigational Aid - MLSAZ	CONTINUOUS	0.18	7
C-AFLD-NAID-MSBA	Navigational Aid - MSBLS AZ	CONTINUOUS	0.18	7
C-AFLD-NAID-MSBD	Navigational Aid - MSBLS DME	CONTINUOUS	0.18	7
C-AFLD-NAID-MSBL	Navigational Aid - Microwave Scan Beam Landing System Azimuth Antenna, Microwave Scan Beam Landing System Distance Measuring Equipment, Microwave Scan Beam Landing System Elevation Antenna	CONTINUOUS	0.18	1
C-AFLD-NAID-MSBL	Navigational Aid - MSBLS EL	CONTINUOUS	0.18	7
C-AFLD-NAID-MTI~	Navigational Aid - Moving Target Indicator (MTI)	CONTINUOUS	0.18	7
C-AFLD-NAID-NDBC	Navigational Aid - Non-Directional Beacon (NDB) C	CONTINUOUS	0.18	7
C-AFLD-NAID-NDBH	Navigational Aid - Non-Directional Beacon (NDB) H	CONTINUOUS	0.18	7
C-AFLD-NAID-NDBM	Navigational Aid - Non-Directional Beacon (NDB) M	CONTINUOUS	0.18	7
C-AFLD-NAID-NDBU	Navigational Aid - Non-Directional Beacon (NDB) U	CONTINUOUS	0.18	7
C-AFLD-NAID-OMNI	Navigational Aid - Tactical Air Navigation, Vhf Omni Directional Range, Vor And Collocated Tacan, Vor Test Facility	CONTINUOUS	0.18	1
C-AFLD-NAID-OMNI	Navigational Aid - Airfield Navigational Aids Tactical Air Navigation, Vhf Omni Directional Range, Vor And Collocated Tacan, Vor Test Facility	CONTINUOUS	0.18	1
C-AFLD-NAID-OTHR	Navigational Aid - Other	CONTINUOUS	0.18	1
C-AFLD-NAID-OTHR	Navigational Aid - Other Airfield Navigational Aides	CONTINUOUS	0.35	2
C-AFLD-NAID-PAR~	Navigational Aid - PAR	CONTINUOUS	0.18	7
C-AFLD-NAID-PARD	Navigational Aid - Airfield Navigational Aids Precision Approach Radar	CONTINUOUS	0.13	7
C-AFLD-NAID-RADI	Navigational Aid - Radio	CONTINUOUS	0.18	1
C-AFLD-NAID-RADI	Navigational Aid - Radio Airfield Navigational Aides	CONTINUOUS	0.35	2
C-AFLD-NAID-RADR	Navigational Aid - Radar, Air Route Surveillance Radar (ArSr), Airport Surveillance Radar (Asr), Precision Approach Radar, Secondary Radar Antenna	CONTINUOUS	0.18	1
C-AFLD-NAID-RADR	Navigational Aid - Radar Airfield Navigational Aides	CONTINUOUS	0.35	2
C-AFLD-NAID-REIL	Navigational Aid - Faa Reils Equipment, Airfield Reil Lights	CONTINUOUS	0.18	1
C-AFLD-NAID-RMTE	Navigational Aid - Remote	CONTINUOUS	0.18	1
C-AFLD-NAID-RMTE	Navigational Aid - Remote Airfield Navigational Aides	CONTINUOUS	0.35	2
C-AFLD-NAID-RWSL	Navigational Aid - Faa RWSL Equipment	CONTINUOUS	0.18	1
C-AFLD-NAID-SCRA	Navigational Aid - SECRA	CONTINUOUS	0.18	7
C-AFLD-NAID-SDF~	Navigational Aid - SDF	CONTINUOUS	0.18	7

Layer Name	Description	LineType	Lweight (in.)	Color
C-AFLD-NAID-SDFC	Navigational Aid - Airfield Navigational Aids Simplified Directional Facility	CONTINUOUS	0.13	7
C-AFLD-NAID-SITE	Navigational Aid - Airfield Navigational Aid - Site	CONTINUOUS	0.35	2
C-AFLD-NAID-STRB	Navigational Aid - Strobe	CONTINUOUS	0.18	1
C-AFLD-NAID-SYST	Navigational Aid - System	CONTINUOUS	0.18	1
C-AFLD-NAID-SYST	Navigational Aid - Navaid System	CONTINUOUS	0.35	2
C-AFLD-NAID-TACN	Navigational Aid - TACAN	CONTINUOUS	0.18	7
C-AFLD-NAID-TDR~	Navigational Aid - TDR	CONTINUOUS	0.18	7
C-AFLD-NAID-TLSY	Navigational Aid - Transponder Landing System Approach Glideslope, Localizer	CONTINUOUS	0.18	1
C-AFLD-NAID-TLSY	Navigational Aid - TLS -Apgs	CONTINUOUS	0.18	7
C-AFLD-NAID-VISI	Navigational Aid - Visual	CONTINUOUS	0.18	7
C-AFLD-NAID-VOR~	Navigational Aid - VOR	CONTINUOUS	0.18	7
C-AFLD-NAID-VORT	Navigational Aid - Vortac	CONTINUOUS	0.18	7
C-AFLD-NAID-VORX	Navigational Aid - Airfield Navigational Aids VHF Omnidirectional Range Test Facility	CONTINUOUS	0.13	7
C-AFLD-NAID-VOT~	Navigational Aid - VOT	CONTINUOUS	0.18	7
C-AFLD-NAID-WIND	Navigational Aid - Windcone	CONTINUOUS	0.5	203
C-AFLD-NAID-WTHR	Navigational Aid - Weather Equipment	CONTINUOUS	0.18	1
C-AFLD-OTLN-AHOA	Navigational Aid - Weather	CONTINUOUS	0.18	1
C-AFLD-OTLN-AOA~	Air Operations Area	FENCE	0.7	84
C-AFLD-OTLN-FREQ	Frequency Area	CONTINUOUS	0.5	4
C-AFLD-OTLN-INFL	Airfield Infield Areas	CONTINUOUS	0.5	4
C-AFLD-SIGN	Airfield Signs	CONTINUOUS	0.18	7
C-AIRS-ARWY	Airway	CONTINUOUS	0.35	2
C-AIRS-MRKR	Airspace Landmarks or Other Markers for Orientation	CONTINUOUS	0.13	7
C-AIRS-OBSC-APRC	FAR Part 77 Approach Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-CONL	FAR Part 77 Conical Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-DPRT	Departure Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-HORZ	FAR Part 77 Horizontal Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-OEI_	One Engine Inoperative Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-OTHR	Other Airspace Surfaces	CONTINUOUS	0.18	7
C-AIRS-OBSC-PRIM	FAR Part 77 Primary Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-TERP	TERPS Surfaces	CONTINUOUS	0.18	7
C-AIRS-OBSC-TRNS	FAR Part 77 Transitional Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-VAPR	Vertically Guided Approach Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-VCON	Vertically Guided Conical Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-VHOR	Vertically Guided Horizontal Surface	CONTINUOUS	0.18	7

Layer Name	Description	LineType	Lweight (in.)	Color
C-AIRS-OBSC-VPRM	Vertically Guided Runway Primary Surface	CONTINUOUS	0.18	7
C-AIRS-OBSC-VTRN	Vertically Guided Approach Transitional Surface	CONTINUOUS	0.18	7
C-AIRS-OBST-LINE	Obstruction Line	CONTINUOUS	0.18	7
C-AIRS-OBST-POLY	Obstruction Area	CONTINUOUS	0.18	7
C-AIRS-OBST-PPNT	Obstacle Point	CONTINUOUS	0.18	7
C-AIRS-OTHR	Civil Airport Airspace Related Features	CONTINUOUS	0.18	7
C-AIRS-TRKL	Flight Track Line	CONTINUOUS	0.35	2
C-AIRS-TRKP	Flight Track Point	CONTINUOUS	0.35	2
C-APRN-ANOM	Aircraft Non-Movement Area	CONTINUOUS	0.5	4
C-APRN-JETB	Aircraft Jetbridge	CONTINUOUS	0.18	7
C-APRN-MRKG-CNTR	Apron Centerlines	CENTER	0.35	1
C-APRN-MRKG-GSEP	Ground Service Equipment	CONTINUOUS	0.18	7
C-APRN-MRKG-GTLN	Gate Line	CONTINUOUS	0.25	255,0,0
C-APRN-MRKG-INGZ	Aircraft - Ingestion Zone	CONTINUOUS	0.18	7
C-APRN-MRKG-LDIN	Apron - Lead In Line	CONTINUOUS	0.18	7
C-APRN-MRKG-OTHL	Other Line	CONTINUOUS	0.18	7
C-APRN-MRKG-OTHP	Other Polygon	CONTINUOUS	0.25	255,0,0
C-APRN-MRKG-PBBZ	Apron - Passenger Boarding Bridge Zone	CONTINUOUS	0.18	7
C-APRN-MRKG-PLBE	Apron - Pavement Marking PLBE	CONTINUOUS	0.18	7
C-APRN-MRKG-PLBH	Apron - Pavement Marking PLBH	CONTINUOUS	0.18	7
C-APRN-MRKG-PLBS	Apron - Pavement Marking PLBS	CONTINUOUS	0.18	7
C-APRN-MRKG-SBAR	Apron - Stopbar	CONTINUOUS	0.18	7
C-APRN-MRKG-SECU	Security Zone Markings	CONTINUOUS	0.25	1
C-APRN-MRKG-SENV	Apron - Service Envelope	CONTINUOUS	0.18	7
C-APRN-MRKG-WALK	Apron - Walk	CONTINUOUS	0.18	7
C-APRN-OTLN	Airfield Apron Outline	CONTINUOUS	0.5	4
C-BLDG-DECK	Outdoor Decks (Attached, No Roof Overhead)	CONTINUOUS	0.5	4
C-BLDG-DOCK	Loading Docks	CONTINUOUS	0.5	4
C-BLDG-OTLN	Building Outlines	CONTINUOUS	0.25	1
C-BLDG-PRCH	Porches (Attached, Roof Overhead)	CONTINUOUS	0.5	4
C-BLDG-TOWR	Tower	CONTINUOUS	0.5	4
C-BRDG-OTLN	Bridge Outline	CONTINUOUS	0.5	255,2,55
C-DRIV	Driveways	CONTINUOUS	0.18	7
C-DRIV-CNTR	Driveways: Center	CENTER	0.18	7
C-DRIV-CURB	Driveways: Curb	CONTINUOUS	0.18	7
C-DRIV-FLNE	Driveways: Fire Lane	CONTINUOUS	0.18	7
C-DRIV-MRKG	Driveways: Pavement Markings	CONTINUOUS	0.18	7

Layer Name	Description	LineType	Lweight (in.)	Color
C-DTCH-CNTR	Ditch Centerline	CENTER	0.18	5
C-DTCH-EWAT	Dirch Edge Of Water	CONTINUOUS	0.25	4
C-GATE-LINE	Gates Incidental To Structure	CONTINUOUS	0.25	5
C-HYDR-CTCH-BNDY	Water Catchment Area - Boundary	CONTINUOUS	0.18	7
C-JNTS-CNSL	Construction Joints - Longitudinal	CONTINUOUS	0.35	6
C-JNTS-CNST	Construction Joints - Transverse	CONTINUOUS	0.35	6
C-JNTS-EXPJ	Expansion Joints	CONTINUOUS	0.35	165,0,0
C-LOCN-OTLN-PROJ	Civil Site Limits Of Construction Outline	CONTINUOUS	0.18	7
C-LOCN-OTLN-STAG	Civil Site Limits Of Construction Outline	CONTINUOUS	0.18	7
C-OVRN-CNTR	Civil Vehicle Overrun Center	CENTER	0.25	255,0,0
C-OVRN-IDEN	Airfield Overrun Area - Annotation	CONTINUOUS	0.35	2
C-OVRN-SHLD	Civil Vehicle Overrun Shoulder	CONTINUOUS	0.18	7
C-PADS-CNTR	Civil Pads Center	CENTER	0.18	7
C-PADS-OTLN	Civil Pads Outline	CONTINUOUS	0.18	7
C-PERC	Perc Testing	CONTINUOUS	0.18	7
C-PERC-HOLE	Perc Testing: Holes	CONTINUOUS	0.18	7
C-POLE-GUYL	Guy Line	CONTINUOUS	0.18	7
C-POLE-GUYP	Guy Line Anchor Point	CONTINUOUS	0.18	7
C-POND-OTLN	Ponds: Edge	CONTINUOUS	0.18	7
C-PRKG-BARR	Parking Barrier	CONTINUOUS	0.18	7
C-PRKG-BLRD	Parking Bollard	CONTINUOUS	0.18	7
C-PRKG-CARS	Graphic Illustration Of Cars	CONTINUOUS	0.35	2
C-PRKG-CNTR	Parking Lot Centerlines	CENTER	0.25	1
C-PRKG-CURB	Parking Curb	CONTINUOUS	0.18	7
C-PRKG-EQPM	Parking Equipment (I.E., Booths, Gates, Etc.)	CONTINUOUS	0.5	4
C-PRKG-EQPM-FEE~	Parking Equipment (I.E., Booths, Gates, Etc.)	CONTINUOUS	0.5	4
C-PRKG-EQPM-GATE	Parking Equipment (I.E., Booths, Gates, Etc.)	CONTINUOUS	0.5	4
C-PRKG-EQPM-TCKT	Parking Equipment (I.E., Booths, Gates, Etc.)	CONTINUOUS	0.5	4
C-PRKG-FLNE	Fire Lanes	CONTINUOUS	0.25	1
C-PRKG-ISLD	Parking Island	CONTINUOUS	0.18	7
C-PRKG-MRKG	Parking Area Markings	CONTINUOUS	0.18	7
C-PRKG-MRKG	Pavement Markings	CONTINUOUS	0.35	2
C-PRKG-OTLN	Parking Area Outline	CONTINUOUS	0.18	7
C-PRKG-SBMP	Speed Bumps In Parking Areas	CONTINUOUS	0.35	6
C-PROP-BNDY	Property: Boundary Area	CONTINUOUS	0.18	7
C-PROP-BNDY-LINE	Property: Boundary Lines	Property Line	0.5	255,2,55 0

Layer Name	Description	LineType	Lweight (in.)	Color
C-PROP-ESMT	Civil Property Easement	DASHED2	0.7	255,255,255
C-PROP-LEAS	Civil Property Lease	CONTINUOUS	0.18	7
C-PROP-SBCK	Property: Setback Lines	DASHED	0.25	255,255,255
C-RAIL-BRDG-ATRN	Airport Train Bridge	CONTINUOUS	0.18	7
C-RAIL-CNTR-AFLD	Airport Train Centerline	TRACKS	0.25	1
C-RAIL-CNTR-ATRN	Airport Train Track Centerline	CENTER	0.18	7
C-RAIL-EQPM	Railroad Equipment (E.G., Gates, Signals)	CONTINUOUS	0.35	91
C-RAIL-STAT	Railroad Train Station	CONTINUOUS	0.18	7
C-RAIL-YARD	Civil Railroad	CONTINUOUS	0.18	7
C-ROAD-BOLL	Bollard	CONTINUOUS	0.18	7
C-ROAD-BRDG	Bridge Outlines	CONTINUOUS	0.5	4
C-ROAD-BRDG-ROAD	Road	CONTINUOUS	0.18	7
C-ROAD-CNTR	Civil Roadways Center	CENTER	0.25	255,0,0
C-ROAD-CURB	Curbs And Gutters	CONTINUOUS	0.35	6
C-ROAD-CURB-EDGE	Civil Transportation Roadways Curb	CONTINUOUS	0.18	7
C-ROAD-DEVC	Civil Transportation Roadways Devices	CONTINUOUS	0.18	7
C-ROAD-DRIV	Driveway Edge Of Pavement	CONTINUOUS	0.25	7
C-ROAD-EDGE	Roadway Edge of Pavement	CONTINUOUS	0.18	7
C-ROAD-FLNE	Roadways: Fire Lane	CONTINUOUS	0.18	7
C-ROAD-GRAL	Guard Rails	GUARD	0.35	6
C-ROAD-MRKG-BIKE	Roadway Markings - Pavement Markings, Bicycles	CONTINUOUS	0.18	7
C-ROAD-MRKG-CNTR	Roadway Markings - Centerline	CENTER	0.18	7
C-ROAD-MRKG-CURB	Roadway Markings - Pavement Marking, Curb	CONTINUOUS	0.18	7
C-ROAD-MRKG-EDGE	Roadway Markings - Edge	CONTINUOUS	0.18	7
C-ROAD-MRKG-GUTR	Roadway Markings - Pavement Markings, Gutter	CONTINUOUS	0.18	7
C-ROAD-MRKG-LANE	Roadway Markings - Lane	CONTINUOUS	0.18	7
C-ROAD-MRKG-OTHR	Rodwway Markings - Other	CONTINUOUS	0.35	2
C-ROAD-MRKG-SBAR	Roadway Markings - Stopbar	CONTINUOUS	0.18	7
C-ROAD-MRKG-SHLD	Roadway Markings - Pavement Markings, Shoulder	CONTINUOUS	0.18	7
C-ROAD-MRKG-SIGN	Roadway Markings - Sign	CONTINUOUS	0.18	7
C-ROAD-MRKG-SLDR	Roadway Markings - Shoulder	CONTINUOUS	0.18	7
C-ROAD-OTLN	Road Outlines	CONTINUOUS	0.25	4
C-ROAD-POIN	Road Point	CONTINUOUS	0.18	7
C-ROAD-PROF	Roadway Profile	CONTINUOUS	0.18	7
C-ROAD-SHLD	Roadway Shoulder	CONTINUOUS	0.35	6
C-ROAD-SIGN	Signs	CONTINUOUS	0.25	1

Layer Name	Description	LineType	Lweight (in.)	Color
C-ROAD-SIGN-STOP	Road Stop	CONTINUOUS	0.18	7
C-ROAD-SIGN-YILD	Road Yield	CONTINUOUS	0.18	7
C-RRAP-GABN	Gabions	CONTINUOUS	0.25	1
C-RRAP-MATS	Articulated Concrete Mats	CONTINUOUS	0.25	3
C-RRAP-RVMT	Revetments	CONTINUOUS	0.25	1
C-RRAP-WEIR	Weirs	CONTINUOUS	0.25	3
C-RUNW-ARST	Runway Arresting Gear Location	CONTINUOUS	0.18	7
C-RUNW-BLST	Runway Blast Pad area	CONTINUOUS	0.35	255,0,0
C-RUNW-CNTR	Runway Centerline	CENTER	0.25	255,0,0
C-RUNW-CNTR-DISP	Displaced Threshold Markings	CONTINUOUS	0.35	1
C-RUNW-CNTR-ENDP	Runway Endpoint	CONTINUOUS	0.25	1
C-RUNW-CNTR-THRS	Threshold Markers	CONTINUOUS	0.35	6
C-RUNW-EDGE	Civil Runway Edge	CONTINUOUS	0.35	255,0,25 5
C-RUNW-INTS	Civil Runway	CONTINUOUS	0.18	7
C-RUNW-LABL	Runway Intersection	CONTINUOUS	0.35	6
C-RUNW-LABL-BOTM	Runway Label Marking Point	CONTINUOUS	0.25	1
C-RUNW-LINE	Centerlines	CENTER	0.25	1
C-RUNW-LINE-LAHS	Runway Land And Hold Short Area	CONTINUOUS	0.35	6
C-RUNW-MRKG-AMPT	Runway - Aiming Point Marking (Aiming Point)	CONTINUOUS	0.18	7
C-RUNW-MRKG-ARWS	Runway - Arrowhead Marking (Arrowhead)	CONTINUOUS	0.18	7
C-RUNW-MRKG-CHEV	Runway - Chevron Marking (Chevron)	CONTINUOUS	0.18	7
C-RUNW-MRKG-CNTR	Runway - Centerline Marking (Rwy Cl)	CENTER	0.18	7
C-RUNW-MRKG-DESG	Runway - Designated Name Marking (Rwy Id)	CONTINUOUS	0.18	7
C-RUNW-MRKG-DISP	Displaced Threshold Markings	CONTINUOUS	0.18	7
C-RUNW-MRKG-DIST	Fixed Distance Markings	CONTINUOUS	0.35	1
C-RUNW-MRKG-EDGE	Runway - Striping	CONTINUOUS	0.18	7
C-RUNW-MRKG-IDEN	Airfield Runway Annotation	CONTINUOUS	0.35	2
C-RUNW-MRKG-LABL	Runway Label Point	CONTINUOUS	0.18	7
C-RUNW-MRKG-RHLD	Runway Holding Line Markings	CONTINUOUS	0.18	7
C-RUNW-MRKG-SHLD	Shoulder Markings	CONTINUOUS	0.35	6
C-RUNW-OTLN	Airfield Runway Edges	CONTINUOUS	0.35	6
C-RUNW-OTLN-ARST	Runway Arresting Gear Location	CONTINUOUS	0.25	1
C-RUNW-OTLN-BLST	Blast Pad And Stopway Markings	CONTINUOUS	0.35	1
C-RUNW-OTLN-INTS	Civil Transportation Runway Outline	CONTINUOUS	0.25	255,0,0
C-RUNW-OTLN-SEGM	Runway Segment	CONTINUOUS	0.35	6
C-RUNW-OTLN-STWY	Runway Stopway Markings	CONTINUOUS	0.25	1
C-RUNW-PVMT-SHLD	Runway Pavement Area, Shoulder	CONTINUOUS	0.18	7

Layer Name	Description	LineType	Lweight (in.)	Color
C-RUNW-SAFT	Runway Safety Area	CONTINUOUS	0.35	6
C-RUNW-SEGM	Civil Runway	CONTINUOUS	0.18	7
C-RUNW-SHLD	Shoulder Markings	CONTINUOUS	0.25	6
C-RUNW-SIGN	Airfield Signs On The Runway Such As Distance Remaining Signs	CONTINUOUS	0.35	1
C-SIGN-POLE	Civil Site Sign Poles	CONTINUOUS	0.18	7
C-STRC-BLLD	Structure - Bollard	CONTINUOUS	0.18	7
C-STRC-TOWR	Civil Towers	CONTINUOUS	0.18	7
C-SWLK	Sidewalks	CONTINUOUS	0.18	7
C-TAXI-MRKG-CNTR	Centerline Markings	CENTER	0.25	1
C-TAXI-MRKG-DECP	Taxiway - Deceptive Bar	CONTINUOUS	0.18	7
C-TAXI-MRKG-DIRS	Dir Sign	CONTINUOUS	0.35	255,2,55 0
C-TAXI-MRKG-HBAR	Taxiway - Hold Bar Line (Twy Hold)	CONTINUOUS	0.18	7
C-TAXI-MRKG-HINT	Taxiway Intersection Holding Marking	CONTINUOUS	0.18	7
C-TAXI-MRKG-HLDS	Hold Sign	CONTINUOUS	0.35	255,2,55 0
C-TAXI-MRKG-MNMV	Taxiway - Movement/Nonmovement Area Boundary (Non Move Area)	CONTINUOUS	0.18	7
C-TAXI-MRKG-NOMV	Non Move Area	CONTINUOUS	0.35	255,2,55 0
C-TAXI-MRKG-SHLD	Shoulder Markings	CONTINUOUS	0.35	2
C-TAXI-MRKG-THLD	Twy Hold	CONTINUOUS	0.35	255,2,55 0
C-TAXI-MRKG-TLOC	Location Sign	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN	Airfield Signs On The Taxiway Such As Taxiway Designator, Hold Short And Directional Signs	CONTINUOUS	0.5	203
C-TAXI-SIGN-HILS	Hold Instrument Landing System	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN-HRAP	Hold Runway Approach	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN-TDIR	Taxiway Direction	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN-TEND	Taxiway End	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN-TERM	Terminal	CONTINUOUS	0.35	255,2,55 0
C-TAXI-SIGN-TLOC	Taxiway Location	CONTINUOUS	0.35	255,2,55 0
C-TOPO-BKLN	Breaklines	CONTINUOUS	0.5	7
C-TOPO-CNTR-GENL	Airport Elevation	CENTER	0.18	7
C-TOPO-CNTR-GEOD	Geodetic Control - Primary Airport Control Station (PACS)	CENTER	0.18	7
C-TOPO-CNTR-IDEN	Spot Elevations - Annotation	CONTINUOUS	0.35	2

Layer Name	Description	LineType	Lweight (in.)	Color
C-TOPO-CNTR-SPOT	Spot Elevations	CONTINUOUS	0.35	2
C-TOPO-DEPR	Depression	CONTINUOUS	0.18	7
C-TOPO-DTMO	DTM Obscure Area Boundary	CONTINUOUS	0.35	6
C-TOPO-DTMP	DTM Points	CONTINUOUS	0.35	6
C-TOPO-DTMT	DTM Triangles	CONTINUOUS	0.35	22
C-TOPO-GRAD	Grasing	CONTINUOUS	0.18	7
C-TOPO-MAJR	Major Contours	CONTINUOUS	0.35	2
C-TOPO-MINR	Minor Contours	CONTINUOUS	0.25	3
C-TOPO-OTLN-AUZN	Noise Contour/Zone	CONTINUOUS	0.18	7
C-TOPO-SHOR	Shorelines, Land Features, And References	CONTINUOUS	0.35	4
C-TOPO-WATR	Water Level Reference (Lwrp, After-Grading Lwrp, Swl, Etc)	DASHED	0.5	255,255,255
C-TOPO-WSHD	Watershed Boundary	CONTINUOUS	0.18	7
C-TRAF-CNTR-STOP	Bus Stop	CENTER	0.18	7
C-TRAF-GRAL	Civil Transportation Traffic Guard Rail	CONTINUOUS	0.18	7
C-TRAF-SWLK	Walks, Trails And Bicycle Paths	CONTINUOUS	0.35	2
C-WALL-NSBR	Noise Barrier Wall	CONTINUOUS	0.18	7
C-WALL-RTWL	Retaining Wall	CONTINUOUS	0.18	7
C-WETL-BOGS	Bogs	CONTINUOUS	0.35	6
C-WETL-MRSH	Fresh Water Marshes	CONTINUOUS	0.35	162
C-WETL-PHOL	Vernal Pools, Playas, Prairie Potholes, Wet Meadows, And Wet Prairies	CONTINUOUS	0.35	6
C-WETL-RPRN	Riparian Forested Wetlands	CONTINUOUS	0.35	162
C-WETL-SLGH	Sloughs	CONTINUOUS	0.35	162
C-WETL-SWMP	Swamps	CONTINUOUS	0.35	162
E-AFLD-CIRC-SERS	Series Circuits	CONTINUOUS	0.18	145,82,165
E-AFLD-DEVC	Capacitors, Voltage Regulators, Motors, Buses, Generators, Meters, Grounds, And Markers	CONTINUOUS	0.5	23
E-AFLD-FAA-MHLE	FAA Airfield Manhole	CONTINUOUS	0.18	4
E-AFLD-LITE-APPR	Approach Lights	CONTINUOUS	0.18	145,82,165
E-AFLD-LITE-DIST	Distance and Arresting Gear Markers	CONTINUOUS	0.18	145,82,165
E-AFLD-LITE-OBST	Obstruction Lights	CONTINUOUS	0.18	145,82,165
E-AFLD-LITE-RUNW	Runway Lights	CONTINUOUS	0.18	145,82,165
E-AFLD-LITE-SIGN	Taxiway Guidance Signs	CONTINUOUS	0.18	145,82,165
E-AFLD-LITE-TAXI	Taxiway Lights	CONTINUOUS	0.18	145,82,165

Layer Name	Description	LineType	Lweight (in.)	Color
E-AFLD-LITE-THRS	Threshold Lights	CONTINUOUS	0.18	145,82,165
E-ALRM-EQPM	Alarm System Equipment	CONTINUOUS	0.18	255,6,30
E-CABL-TRAY	Cable Trays And Wireways	CABLTV	0.5	203
E-CATV-EQPM	Cable TV System Equipment	CCTV	0.18	255,6,30
E-CCTV-EQPM	Closed-Circuit Television System Equipment	CCTV	0.18	255,6,30
E-CLOK-EQPM	Clock System Equipment	CONTINUOUS	0.5	203
E-COMM-CIRC	Communications: Circuits	CONTINUOUS	0.18	255,6,30
E-COMM-COVR-AREA	Electrical Telecommunications Communications Coverage	CONTINUOUS	0.18	1
E-COMM-EQPM	Other Communications Distribution Equipment	CONTINUOUS	0.5	23
E-COMM-FIBR	Electrical Telecommunications Communications Fiber Optics Cable	CONTINUOUS	0.18	1
E-COMM-LCAP	Load Capacitor	CONTINUOUS	0.5	23
E-COMM-LCOL	Load Coil	CONTINUOUS	0.5	23
E-COMM-LOSL	Line Of Sight Line	CONTINUOUS	0.5	23
E-COMM-MCNV	Media Converter	CONTINUOUS	0.5	23
E-COMM-MHOL	Communications Manhole	CONTINUOUS	0.5	23
E-COMM-MHOP	Multihop Polygon Area	CONTINUOUS	0.5	23
E-COMM-PATH-SITE	Path Node Site	CONTINUOUS	0.5	23
E-COMM-PATH-SLIN	Path Segment Line	CONTINUOUS	0.5	23
E-COMM-PEDS	Pedestal Site	CONTINUOUS	0.5	23
E-COMM-POLE	Poles	CONTINUOUS	0.5	203
E-COMM-RADI	Radio	CONTINUOUS	0.5	23
E-COMM-RADI-RCVR	Radio Receiver Site	CONTINUOUS	0.5	23
E-COMM-RADI-TRNS	Radio Transmitter Site	CONTINUOUS	0.5	23
E-COMM-RADR	Radar Site	CONTINUOUS	0.5	23
E-COMM-UGND	Underground Communications/Telephone Lines	JWA-COMM	0.18	255,6,30
E-COMM-UNDR	Communications	CONTINUOUS	0.18	1
E-COMM-VALT	Vault Site	CONTINUOUS	0.5	23
E-COMM-VOIC	Voice Switch Site	CONTINUOUS	0.5	23
E-COMM-VSIT	Vertical Site	CONTINUOUS	0.5	23
E-COMM-WAVG	Waveguide Line	CONTINUOUS	0.5	23
E-DUCT-MULT	Multi-Conductor Cable	CONTINUOUS	0.18	1
E-ELEC-DBNK	Electrical Ductbank	HIDDEN	0.18	1
E-ELEC-POLE	Electrical light Poles	CONTINUOUS	0.18	1
E-ELEC-PRIM-OVHD	Overhead Electrical Utility Lines	CONTINUOUS	0.18	1
E-ELEC-VALT	Electrical Power Electrical System, Telecom Plan Vault & Pits	CONTINUOUS	0.18	1

Layer Name	Description	LineType	Lweight (in.)	Color
E-EMCS-UNDR	Buried Sensors	CONTINUOUS	0.5	23
E-LITE-COND	Lightning Protection Conductors	CONTINUOUS	0.5	203
E-LITE-EMER	Emergency Fixtures (Outline Of Light (If Ceiling Mounted) Should Go On E-Lite-Clng)	CONTINUOUS	0.5	23
E-LITE-EXIT	Exit Fixtures (Outline Of Light (If Ceiling Mounted) Should Go On E-Lite-Clng)	CONTINUOUS	0.5	203
E-LITE-FLOR	Floor Mounted Fixtures (E.G., Stage)	CONTINUOUS	0.5	203
E-LITE-ROOF	Roof Lighting	CONTINUOUS	0.5	203
E-LITE-TERM	Lightning Protection Terminals	CONTINUOUS	0.35	2
E-POWR-CAPC	Capacitor	ESUGN	0.5	163
E-POWR-CLNG	Ceiling Outlets (Receptacles And Switches)	CONTINUOUS	0.5	83
E-POWR-CNDDT	Power: Conduit	CONTINUOUS	0.18	105,0,0
E-POWR-CNMB	Power: Circuit Number	CONTINUOUS	0.18	255,255,0
E-POWR-DEVC	Capacitors, Voltage Regulators, Motors, Buses, Generators, Meters, Grounds, And Markers	CONTINUOUS	0.5	23
E-POWR-DSCO	Power: Disconnect Switches	CONTINUOUS	0.18	105,0,0
E-POWR-GENR	Generators And Auxiliary Equipment	CONTINUOUS	0.5	4
E-POWR-HBLT	Head Bolt Outlet	ESUGN	0.5	163
E-POWR-METR	Meter	ESUGN	0.5	163
E-POWR-MOTR	Motors And Utilization Equipment	CONTINUOUS	0.5	4
E-POWR-PANL	Panelboards, Switchboards, Mcc, Unit Substations, Backing Boards, Patch Panel Racks	CONTINUOUS	0.5	4
E-POWR-PEDS	Pedestal	ESUGN	0.5	163
E-POWR-POLE	Power Poles	CONTINUOUS	0.5	203
E-POWR-POLE-GUYS	Guying Equipment	CONTINUOUS	0.5	203
E-POWR-REGL	Regulator	ESUGN	0.5	163
E-POWR-SBST	Sub Station	CONTINUOUS	0.18	105,0,0
E-POWR-SITE	Utility Electric Utility Site	ESUGN	0.5	163
E-POWR-SPLC	Splice	ESUGN	0.5	163
E-POWR-SWBD	Power: Switchboards	CONTINUOUS	0.18	105,0,0
E-POWR-SWCH	Fuse Cutouts, Motor Starters, Contactors, Pole Mounted Switches, Circuit Breakers, Gang Operated Disconnects, Reclosers, Cubicle Switches	CONTINUOUS	0.5	163
E-POWR-URAC	Underfloor Raceways	DASHED	0.5	203
E-PRIM-OVHD	Overhead Electrical Utility Lines	EPARN	0.5	4
E-PRIM-UGND	Underground Electrical Utility Lines	Electrical Primary	0.18	105,0,0
E-SECD-OVHD	Overhead Electrical Utility Lines	ESARN	0.5	163
E-SECD-UGND	Underground Electrical Utility Lines	Electrical Secondary	0.18	105,0,0
E-SERT-ACCS	Access Control System	CONTINUOUS	0.18	255,6,30

Layer Name	Description	LineType	Lweight (in.)	Color
E-SERT-CLNG	Ceiling Mounted Sensors	CONTINUOUS	0.18	255,6,30
E-SERT-FLOR	Floor Mounted Sensors	CONTINUOUS	0.18	255,6,30
E-SERT-UNDR	Security System	CONTINUOUS	0.18	255,6,30
F-AFFF-EQPM	Aqueous Film-Forming Foam System Equipment	CONTINUOUS	0.35	82
F-AFFF-PIPE	Aqueous Film-Forming Foam System Piping	CONTINUOUS	0.35	82
F-CO2S-EQPM	Equipment	CONTINUOUS	0.35	6
F-CO2S-PIPE	Co2 Piping Or Co2 Discharge Nozzle Piping	CONTINUOUS	0.35	6
F-CTRL-PANL	Control Panels	CONTINUOUS	0.5	23
F-LITE-EXIT	Exit Fixtures	CONTINUOUS	0.5	203
F-LSFT-EGRE	Egress Requirements Designator	CONTINUOUS	0.35	6
F-PROT-ALRM	Fire Alarms	CONTINUOUS	0.18	2
F-PROT-EQPM	Fire Protection System: Equipment	CONTINUOUS	0.18	5
F-PROT-EXTI-CABN	Fire Extinguisher Cabinets	CONTINUOUS	0.18	1
F-PROT-HOSE	Fire Hoses	CONTINUOUS	0.35	2
F-PROT-HOSE-CABN	Fire Hose Cabinets	CONTINUOUS	0.35	2
F-PROT-HYDT	Fire Protection: Hydrants And Connections	CONTINUOUS	0.18	7
F-PROT-PANL	Fire Suppression Fire Protection System Panels	CONTINUOUS	0.18	7
F-PROT-SMOK	Smoke Detectors And Heat Sensors	CONTINUOUS	0.5	23
F-PROT-STOR	Fire Suppression Fire Protection System Storage	CONTINUOUS	0.18	7
F-SMOK-DMPR	Dampers	CONTINUOUS	0.35	22
F-SPKL-OTHD	Sprinkler - Other Heads	CONTINUOUS	0.18	1
F-SPKL-STAN	Standpipe System	CONTINUOUS	0.18	1
F-SPRN-PIPE	Sprinkler Piping	SPRINK	0.5	4
F-WATR-CONN	Fire Department Connections	CONTINUOUS	0.35	122
F-WATR-HYDR	Hydrants	CONTINUOUS	0.35	122
F-WATR-PIPE	Piping	FIRE	0.5	4
F-WATR-PUMP	Fire Pumps	CONTINUOUS	0.35	122
G-GRID-COOR	X-Y Coordinate Grid Lines	CONTINUOUS	0.25	7
G-PROJ-LALO-COOR	Latitude/Longitude Coordinate Grid Ticks	CONTINUOUS	0.25	2
G-PROJ-LALO-IDEN	Latitude/Longitude Coordinate Text	CONTINUOUS	0.25	2
G-PROJ-STAT-IDEN	State Plane Coordinate Text	CONTINUOUS	0.25	2
H-ABAT-BARR	Tape Barrier	CONTINUOUS	0.5	255,2,55 0
H-ABAT-BARR-STRC	Critical Structural Barriers	CONTINUOUS	0.35	255
H-ABAT-POLY	Polyethylene Sheeting	DASHED	0.5	2,55,0
H-DISP-HAZW	Hazardous Waste	CONTINUOUS	0.18	5
H-DISP-TANK	Spill Containment Tanks	CONTINUOUS	0.35	6
H-FIXT-EYEW	Emergency Eyewashes	CONTINUOUS	0.25	3

Layer Name	Description	LineType	Lweight (in.)	Color
H-FIXT-SHWR	Emergency Showers	CONTINUOUS	0.25	3
H-POLL-CONC	Hazardous Materials Concrete	CONTINUOUS	0.35	255,2,55 0
H-POLL-ORIG	Point Of Pollution Origin	CONTINUOUS	0.35	255,2,55 0
H-POLL-POTN	Hazardous Materials	CONTINUOUS	0.35	255,2,55 0
H-SAMP-AIRS	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-BIOL	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-BLDG	Building Material Samples (E.G., Asbestos, Lead, Pcb, Etc.)	CONTINUOUS	0.25	255,0,0
H-SAMP-GWTR	Hazardous Materials	CONTINUOUS	0.25	255,0,0
H-SAMP-MAGN	Magnetometer Location Points	CONTINUOUS	0.25	255,0,0
H-SAMP-SEDI	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-SOIL	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-SOLI	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-SWTR	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-SAMP-WAST	Hazardous Material Sample	CONTINUOUS	0.25	255,0,0
H-STOR-HAZM	Hazardous Material Sample	CONTINUOUS	0.35	255,0,25 5
H-STOR-HAZW	Hazardous Material Sample	CONTINUOUS	0.35	255,0,25 5
H-WELL-INJN	Injection Well	CONTINUOUS	0.25	255
H-WELL-XTRA	Extraction Well	CONTINUOUS	0.25	255
I-AREA-OTLN	Interior Area	CONTINUOUS	0.18	7
I-AREA-OTLN-MNTN	Interior Maintenance Area	CONTINUOUS	0.18	7
I-CRPT	Carpet/Carpet Tile	CONTINUOUS	0.18	7
I-CSWK	Casework	CONTINUOUS	0.18	7
I-EQPM-ACCS	Equipment Access	DASHED	0.18	8
I-EQPM-CHLD	Child Development (Play Toys, Teaching Rugs, Play Forms)	CONTINUOUS	0.35	2
I-EQPM-COPY	Copiers, Fax Machines, Office Equipment	CONTINUOUS	0.35	2
I-EQPM-DEVC-DFIB	Automatic Electronic Defibrillators	CONTINUOUS	0.35	2
I-EQPM-MEDI	Medical (Exam Beds, Dental Chairs, Etc.)	CONTINUOUS	0.35	2
I-EQPM-STOR	Storage Equipment	CONTINUOUS	0.35	2
I-FLOR-FNSH	Interior Design Floor Finishes	CONTINUOUS	0.18	7
I-FLOR-HRAL	Floor: Handrails/Guard Rails	CONTINUOUS	0.18	7
I-FLOR-MILL	Millwork	CONTINUOUS	0.18	7
I-FLOR-SIGN	Signage	CONTINUOUS	0.35	6
I-FLOR-TPTN	Floor: Toilet Partitions	CONTINUOUS	0.18	7
I-FLRG-MATS	Entrance Mat Components And Frames	CONTINUOUS	0.18	4

Layer Name	Description	LineType	Lweight (in.)	Color
I-FURN-ACCS	Accessories (Vestibule Matts, Partitions, Draperies, Clocks, Trash Cans, Lecturns, Lamps, Etc.)	CONTINUOUS	0.25	1
I-FURN-ADPC	Automated Data Processing Components	CONTINUOUS	0.35	2
I-FURN-ARTW	Artwork	CONTINUOUS	0.35	2
I-FURN-CASE	Furniture Cases	CONTINUOUS	0.18	7
I-FURN-CHAR	Furniture Chairs	CONTINUOUS	0.18	2
I-FURN-FILE	Furniture File Cabinets	CONTINUOUS	0.18	7
I-FURN-FIXT-ART	Interior Furnishings Furnishings Fixtures	CONTINUOUS	0.18	7
I-FURN-FREE	Free-Standing Furnishings (Desks, Beds, Tables, Dressers, Credenzas, Caseloads)	CONTINUOUS	0.35	6
I-FURN-GRID	Planning Grid/Modular Outline	CONTINUOUS	0.5	4
I-FURN-IDEN	Furniture Code Identification	CONTINUOUS	0.25	3
I-FURN-OTHR	Furniture Other	CONTINUOUS	0.18	7
I-FURN-PLNT	Plants	CONTINUOUS	0.25	3
I-FURN-SEAT	Seating (Chairs, Sofas, Etc.)	CONTINUOUS	0.35	2
I-FURN-STOR	File Cabinets, High Density Storage, Shelving, Storage Cabinets	CONTINUOUS	0.35	2
I-SIGN-FIXT	Interior Furnishings Sign Fixtures	CONTINUOUS	0.18	7
I-SYST-BIDS	Baggage Information Display System Equipment Used In An Airport Terminal	CONTINUOUS	0.5	4
I-SYST-CUTE	Common Use Terminal Equipment In An Airport Terminal	CONTINUOUS	0.5	4
I-SYST-FIDS	Flight Information Display System Equipment Used In An Airport Terminal	CONTINUOUS	0.5	4
L-DETL-FENC	Landscape Detail Fences	CONTINUOUS	0.18	7
L-DETL-GRAS	Landscape Detail	CONTINUOUS	0.18	7
L-DETL-TKST	Tank Site	CONTINUOUS	0.35	2
L-DETL-VLVE	Landscape Detail	CONTINUOUS	0.18	7
L-DETL-WIRE	Landscape Detail Wiring	CONTINUOUS	0.18	7
L-FENC	Fences	CONTINUOUS	0.18	7
L-IRRG-COVR	Irrigation Coverage, Spray Distribution Patterns	CONTINUOUS	0.18	5
L-IRRG-EQPM	Equipment (E.G., Controllers, Valves, Rpbps, Etc.)	CONTINUOUS	0.35	6
L-IRRG-HEAD	Irrigation Heads, Bubblers, And Drip Irrigation Emitters	CONTINUOUS	0.25	1
L-IRRG-VALV	Irrigation: Valves	CONTINUOUS	0.18	7
L-PLNT-BEDS	Landscape Plant And Landscape Material Perennial And Annual Beds	CONTINUOUS	0.18	1
L-PLNT-BUSH	Landscape Plant And Landscape Material Bushes And Shrubs	CONTINUOUS	0.18	1
L-PLNT-CONI	Plant And Landscape Material: Coniferous Trees	CONTINUOUS	0.18	7
L-PLNT-CTNR	Containers Or Planters	CONTINUOUS	0.25	1

Layer Name	Description	LineType	Lweight (in.)	Color
L-PLNT-EVGR	Plant And Landscape Material: Evergreen Trees - Broadleaf	CONTINUOUS	0.18	7
L-PLNT-GCVR	Plant And Landscape Material: Ground Cover	CONTINUOUS	0.18	1
L-PLNT-GRND	Landscape Plant And Landscape Material Ground	CONTINUOUS	0.18	7
L-PLNT-MLCH	Landscape Plant And Landscape Material Mulches- Organic And Inorganic	CONTINUOUS	0.18	1
L-PLNT-PALM	Plant And Landscape Material: Palm Trees	CONTINUOUS	0.18	7
L-PLNT-SEED	Plant And Landscape Material: Seeding Areas	CONTINUOUS	0.18	7
L-PLNT-SHAD	Shadow Areas	CONTINUOUS	0.18	5
L-PLNT-TREE	Landscape Plant And Landscape Material Trees	CONTINUOUS	0.18	1
L-PLNT-TURF	Landscape Plant And Landscape Material Lawn Areas	CONTINUOUS	0.18	1
L-PLNT-VINE	Plant And Landscape Material: Vines	CONTINUOUS	0.18	7
L-SITE-BRDG	Bridges (Pedestrian)	CONTINUOUS	0.35	22
L-SITE-CURB	Site Features: Curb	CONTINUOUS	0.18	7
L-SITE-DECK	Decks	CONTINUOUS	0.35	232
L-SITE-FENC	Landscape Site Features Fences	FENCE	0.18	1
L-SITE-GATE	Landscape Site Features	CONTINUOUS	0.18	7
L-SITE-PLAY	Site Features: Play Structures: Equipment	CONTINUOUS	0.18	1
L-SITE-POOL	Site Features: Pools And Spas: Face Of Pool Wall	CONTINUOUS	0.18	1
L-SITE-PRKG	Site Features: Parking	CONTINUOUS	0.18	7
L-SITE-ROAD	Site Features: Edge Of Roadway Line	CONTINUOUS	0.18	7
L-SITE-ROCK	Boulders And Cobble	CONTINUOUS	0.25	1
L-SITE-RRAP	Site Features: Riprap	CONTINUOUS	0.18	7
L-SITE-RTWL	Retaining Walls	CONTINUOUS	0.5	4
L-SITE-SPRT	Sports Fields	CONTINUOUS	0.35	2
L-SITE-STEP	Site Features: Steps	CONTINUOUS	0.18	7
L-SITE-SWLK	Site Features: Sidewalks And Steps	CONTINUOUS	0.18	1
L-SITE-TRAL	Site Features: Trail Or Path	CONTINUOUS	0.18	7
L-SITE-TUNL	Landscape Site Features	CONTINUOUS	0.18	7
L-SITE-WALK	Landscape Site Features	CONTINUOUS	0.18	7
L-SITE-WEIR	Site Features: Pool Weir	CONTINUOUS	0.18	7
M-AFRZ-RETN-PIPE	Anti-Freeze Return Piping	CONTINUOUS	0.18	255,6,30
M-AFRZ-SPLY-PIPE	Anti-Freeze Supply Piping	CONTINUOUS	0.5	82
M-AFRZ-WAST	Mechanical	CONTINUOUS	0.18	7
M-AHU	Air Handling Unit	CONTINUOUS	0.18	7
M-CHEM-RETN-PIPE	Chemical Treatment System Return Piping	CONTINUOUS	0.5	123
M-CHEM-SPLY-PIPE	Chemical Treatment System Supply Piping	CONTINUOUS	0.18	255,6,30
M-CMPA-EQPM	Compressed Air Equipment	CONTINUOUS	0.7	84

Layer Name	Description	LineType	Lweight (in.)	Color
M-CMPA-PIPE	Plumbing Compressed / Processed Air Systems Piping	Compressed	0.18	255
M-CMPA-RETN-PIPE	Compressed/Processed Air Systems Piping Return	CONTINUOUS	0.18	7
M-CMPA-SPLY-PIPE	Compressed/Processed Air Systems Piping Supply	CONTINUOUS	0.18	7
M-CNDW-EQPM	Condenser Water Equipment	CONTINUOUS	0.18	5
M-CNDW-PIPE	Mechanical Condenser Water Systems Piping	CONTINUOUS	0.18	7
M-CNDW-RETN-PIPE	Condenser Water System Return Piping	CONDWR	0.5	83
M-CNDW-SPLY-PIPE	Condenser Water System Supply Piping	CONDWS	0.5	83
M-COND-EQPM	Condenser Water Systems Equipment	CONTINUOUS	0.18	7
M-COND-PIPE	Mechanical Piping	CONTINUOUS	0.18	7
M-COND-PIPE-RETN	Condenser Water Systems Piping Return	CONTINUOUS	0.18	7
M-COND-PIPE-SUPL	Condenser Water Systems Piping Supply	CONTINUOUS	0.18	7
M-CONT-PIPE	Mechanical Controls And Instrumentation Piping	CONTINUOUS	0.18	7
M-CONT-THER	Thermostats	CONTINUOUS	0.25	1
M-CONT-WIRE	Low Voltage Wiring	DASHED	0.25	1
M-CWTR-CNDS	Condensate Piping	JWA- CONDDRAIN(HVAC)	0.18	255,127, 191
M-CWTR-EQPM	Chilled Water Equipment	CONTINUOUS	0.18	7
M-CWTR-PIPE-SUPL	Chilled Water Systems Piping Supply	CONTINUOUS	0.18	7
M-CWTR-RETN-PIPE	Chilled Water Return Piping	CWR	0.5	163
M-CWTR-SPLY-PIPE	Chilled Water Supply Piping	CWS	0.5	163
M-DETL-BOIL	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-COIL	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-DUCT	Mechanical Detail Ductwork	CONTINUOUS	0.18	7
M-DETL-EQPT	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-FANS	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-PIPE	Mechanical Detail Piping	CONTINUOUS	0.18	7
M-DETL-PUMP	Mechanical Detail Pumps	CONTINUOUS	0.18	7
M-DETL-TANK	Mechanical Detail Storage Tanks	CONTINUOUS	0.18	7
M-DETL-TRAP	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-VENT	Mechanical Detail Vents	CONTINUOUS	0.18	7
M-DETL-VLVE	Mechanical Detail	CONTINUOUS	0.18	7
M-DETL-WIRE	Mechanical Detail Wiring	CONTINUOUS	0.18	7
M-DUAL-RETN-PIPE	Dual Temperature System Return Piping	DTR	0.5	23
M-DUAL-SPLY-PIPE	Dual Temperature System Supply Piping	Dual Temperature - Supply	0.18	255,0,25 5
M-DUST-DUCT-CNTR	Dust And Fume Ductwork Centerlines	CENTER	0.18	5

Layer Name	Description	LineType	Lweight (in.)	Color
M-DUST-GRIL	Dust And Fume Grilles	CONTINUOUS	0.35	203
M-EMCS-DUCT	Civil Energy Monitoring Control System Ductwork	CONTINUOUS	0.18	7
M-EMCS-JBOX	Civil Energy Monitoring Control System Junction Box	CONTINUOUS	0.18	7
M-ESCA	Mechanical Escallator	CONTINUOUS	0.18	7
M-EVTR	Mechanical Elevator	CONTINUOUS	0.18	7
M-EXHS-CDFF	Exhaust System: Ceiling Diffusers	CONTINUOUS	0.18	7
M-EXHS-DUCT	Exhaust Ductwork	CONTINUOUS	0.5	83
M-EXHS-DUCT-CNTR	Exhaust Ductwork Centerlines	CENTER	0.18	5
M-EXHS-EQPM	Exhaust System Equipment	CONTINUOUS	0.18	5
M-EXHS-GRIL	Grilles	CONTINUOUS	0.35	83
M-EXHS-RFEQ	Exhaust System Rooftop	CONTINUOUS	0.18	5
M-FUEL-DIES-RETN	Diesel Fuel Return Piping	CONTINUOUS	0.5	23
M-FUEL-DIES-SPLY	Diesel Fuel Supply Piping	CONTINUOUS	0.5	23
M-FUEL-DIES-VENT	Diesel Fuel Vent Piping	CONTINUOUS	0.5	23
M-FUEL-EQPM	Equipment	CONTINUOUS	0.7	24
M-FUEL-GGEP-LQPG	Liquid Petroleum Gas	LIQPET	0.5	23
M-FUEL-OGEP-RETN	Return Oil Piping	FUELOR	0.5	23
M-FUEL-OGEP-SPLY	Supply Oil Piping	FUELOS	0.5	23
M-FUEL-OGEP-VENT	Oil Piping Vent	FUELOV	0.5	23
M-FUME-DUCT	Fume Hood: Ductwork	CONTINUOUS	0.18	7
M-FUME-EQPM	Fume Hood Exhaust System	CONTINUOUS	0.18	5
M-GLYC-CULV-LINE	Culvert Line	CONTINUOUS	0.35	82
M-GLYC-CULV-SITE	Culvert Site	CONTINUOUS	0.35	82
M-GLYC-DRAN-BASN	Deicing Drainage Basic	CONTINUOUS	0.35	82
M-GLYC-EQPM	Glycol System Equipment	CONTINUOUS	0.35	82
M-GLYC-EQPM-VLVE	Valve	CONTINUOUS	0.35	82
M-GLYC-FTTG	Fitting	CONTINUOUS	0.35	82
M-GLYC-RESV	Reservoir Point	CONTINUOUS	0.35	82
M-GLYC-RETN-PIPE	Glycol System Return Piping	GHR	0.5	82
M-GLYC-REVR	Recovery Pit	CONTINUOUS	0.35	82
M-GLYC-SPLY-PIPE	Glycol System Supply Piping	GHS	0.5	82
M-GLYC-STAT-PUMP	Pump Station	CONTINUOUS	0.35	82
M-GTHP-EQPM	Geothermal Heat Pump System Equipment	CONTINUOUS	0.35	203
M-GTHP-PIPE	Mechanical Piping	CONTINUOUS	0.18	7
M-GTHP-RETN-PIPE	Geothermal Heat Pump System Return Piping	CONTINUOUS	0.18	7,67,6
M-GTHP-SPLY-PIPE	Geothermal Heat Pump System Supply Piping	CONTINUOUS	0.18	7,67,6
M-HCSF-CYLD	Hydraulic Cylinders	CONTINUOUS	0.35	7

Layer Name	Description	LineType	Lweight (in.)	Color
M-HCSF-CYLD-PSTN	Hydraulic Cylinder Pistons	CONTINUOUS	0.35	5
M-HCSF-CYLD-WEAR	Wear Rings	CONTINUOUS	0.35	3
M-HCSF-EQPM	Hydraulic System Equipment	CONTINUOUS	0.35	200
M-HCSF-FTTG	Hose And Pipe Fittings	CONTINUOUS	0.35	4
M-HCSF-HOSE	Hydraulic Hoses	CONTINUOUS	0.35	4
M-HCSF-MOTR	Hydraulic Motors And Actuators	CONTINUOUS	0.35	7
M-HCSF-OTLN	Outlines Of Machinery, Etc. In The Vicinity Of The Hydraulic Components	CONTINUOUS	0.35	80
M-HCSF-PUMP	Hydraulic Pumps And Pump Motors	CONTINUOUS	0.35	7
M-HCSF-RETN-PIPE	Hydraulic System Return Piping	CONTINUOUS	0.5	120
M-HCSF-ROOM	Floor, Walls, Etc. That Hydraulic System Attaches To	CONTINUOUS	0.35	5
M-HCSF-SCHM-MISC	Miscellaneous Schematic Figures (I.E., Common Location Lines)	CONTINUOUS	0.35	6
M-HCSF-SPLY-PIPE	Hydraulic System Supply Piping	CONTINUOUS	0.5	200
M-HCSF-SUPT	Pipe Supports, Hangers, Etc.	CONTINUOUS	0.18	255,6,30
M-HCSF-VALV	Hydraulic Valves	CONTINUOUS	0.35	6
M-HCSF-VALV-CONT	Hydraulic Directional Control Valves	CONTINUOUS	0.35	6
M-HCSF-VALV-PRES	Pressure Control Valves: Relief Valves, Counterbalance Valves, Etc.	CONTINUOUS	0.35	6
M-HCSF-VALV-SOFF	Hydraulic Shutoff Type Valves (Ball, Gate, Etc.)	CONTINUOUS	0.35	6
M-HCSW-DEVC	Stilling Wells, Rigid Anchors, Anchor Guides, Rectifiers, Reducers, Markers, Meters, Regulators, Tanks, And Valves	CONTINUOUS	0.35	6
M-HCSW-EQPM-ACCS	Equipment Access Doors	CONTINUOUS	0.25	3
M-HCSW-PUMP	Pump Station Equipment	CONTINUOUS	0.35	6
M-HCSW-PUMP-PIPE	Pump Piping (Includes Fittings And Valves)	CONTINUOUS	0.5	163
M-HTCW-ABND	Abandoned Piping	CONTINUOUS	0.18	7
M-HTCW-CWTR-MAIN	Main Chilled Water Piping	CONTINUOUS	0.18	255
M-HTCW-CWTR-PLNT	Chilled Water Plant	CONTINUOUS	0.18	255
M-HTCW-CWTR-SERV	Chilled Water Service Piping	CONTINUOUS	0.18	255
M-HTCW-DEVC	Rigid Anchors, Anchor Guides, Rectifiers, Reducers, Markers, Meters, Pumps, Regulators, Tanks, And Valves	CONTINUOUS	0.35	6
M-HTCW-FTTG	Caps And Flanges	CONTINUOUS	0.35	6
M-HTCW-HWTR-MAIN	Main High Temperature Piping	CONTINUOUS	0.18	255,0,0
M-HTCW-HWTR-PLNT	High Temperature Water Plant	CONTINUOUS	0.18	255,0,0
M-HTCW-HWTR-SERV	High Temperature Service Piping	CONTINUOUS	0.18	255,0,0
M-HTCW-JBOX	Mechanical Junction Box	CONTINUOUS	0.18	255,0,25 5
M-HTCW-LWTR-MAIN	Main Low Temperature Piping	CONTINUOUS	0.18	255,25,5 0

Layer Name	Description	LineType	Lweight (in.)	Color
M-HTCW-LWTR-SERV	Low Temperature Service Piping	CONTINUOUS	0.18	255,25,50
M-HTCW-METR	Meter	CONTINUOUS	0.18	255,0,255
M-HTCW-PITS	Valve Pits/Vaults, Steam Pits	CONTINUOUS	0.18	7
M-HTCW-PUMP	Mechanical Pumps	CONTINUOUS	0.18	7
M-HTCW-RETN-PIPE	Return For All Htcw Lines	CONTINUOUS	0.18	255,0,255
M-HTCW-SPLY-PIPE	Supply For All Htcw Lines	CONTINUOUS	0.18	255,0,255
M-HTCW-STEM-MAIN	Main Steam Piping	CONTINUOUS	0.18	255,127,191
M-HTCW-STEM-SERV	Steam Service Piping	CONTINUOUS	0.18	255,127,191
M-HTCW-STNS-PUMP	Pump Stations	CONTINUOUS	0.18	255,0,255
M-HTCW-VALT	Valve Pits/Vaults, Steam Pits	CONTINUOUS	0.18	255,0,255
M-HVAC-ABND-PIPE	Abandoned Piping	DASHED	0.25	1
M-HVAC-ACCS	Equipment Access Doors	CONTINUOUS	0.25	3
M-HVAC-CDFF	Ceiling Diffusers, Registers, And Grilles	CONTINUOUS	0.35	20
M-HVAC-CWTR-MAIN	Main Chilled Water Piping	CONTINUOUS	0.35	163
M-HVAC-CWTR-SERV	Chilled Water Service Piping	CONTINUOUS	0.25	163
M-HVAC-DAMP	Mechanical Hvac Systems	CONTINUOUS	0.18	7
M-HVAC-DMPR	Fire, Smoke, Volume Dampers	CONTINUOUS	0.25	1
M-HVAC-EQPM-EFAN	Equipment With Electric Fans Or Motors	CONTINUOUS	0.35	2
M-HVAC-EQPM-EPIP	Equipment With Piping And Electricity	CONTINUOUS	0.35	2
M-HVAC-EQPM-FLOR	Equipment - Floor Mounted	CONTINUOUS	0.35	2
M-HVAC-EQPM-SUSP	Equipment - Suspended	CONTINUOUS	0.35	2
M-HVAC-FDFF	Floor Diffusers, Registers, And Grilles	CONTINUOUS	0.35	162
M-HVAC-FTTG	Fitting	CONTINUOUS	0.35	2
M-HVAC-HWTR-MAIN	Main High Temperature Piping	CONTINUOUS	0.35	113
M-HVAC-HWTR-SERV	High Temperature Service Piping	CONTINUOUS	0.25	113
M-HVAC-LINE	Mechanical Hvac Hvac Systems Lines	CONTINUOUS	0.18	7
M-HVAC-LWTR-MAIN	Main Low Temperature Piping	CONTINUOUS	0.35	1
M-HVAC-LWTR-SERV	Low Temperature Service Piping	CONTINUOUS	0.25	1
M-HVAC-METR	Meter	CONTINUOUS	0.35	2
M-HVAC-PITS	Valve Pits/Vaults, Steam Pits	CONTINUOUS	0.25	3
M-HVAC-RDFF	Return Air Diffusers	CONTINUOUS	0.35	23
M-HVAC-RETN	Return Ductwork	CONTINUOUS	0.5	23
M-HVAC-RETN-CNTR	Return Ductwork Centerlines	CENTER	0.18	5

Layer Name	Description	LineType	Lweight (in.)	Color
M-HVAC-RETN-DUCT	Hvac Ductwork-Return Air	CONTINUOUS	0.18	7
M-HVAC-RETN-HDUC	Return Ductwork - High Pressure	CONTINUOUS	0.5	4
M-HVAC-RETN-LDUC	Return Ductwork - Low Pressure	CONTINUOUS	0.5	4
M-HVAC-RETN-PIPE	Geothermal Heat Pump System Return Piping	CONTINUOUS	0.5	203
M-HVAC-ROOF	Roof Mounted Hvac Equipment	CONTINUOUS	0.35	2
M-HVAC-SPLY	Supply Ductwork	CONTINUOUS	0.5	4
M-HVAC-SPLY-CNTR	Supply Ductwork Centerlines	CENTER	0.18	5
M-HVAC-SPLY-DUCT	Hvac Ductwork-Supply Air	CONTINUOUS	0.18	7
M-HVAC-SPLY-HDUC	Supply Ductwork - High Pressure	CONTINUOUS	0.18	255,2,55
M-HVAC-SPLY-LDUC	Supply Ductwork - Low Pressure	CONTINUOUS	0.18	255,2,55
M-HVAC-SPLY-PIPE	Geothermal Heat Pump System Supply Piping	CONTINUOUS	0.5	203
M-HVAC-STEM-MAIN	Main Steam Piping	CONTINUOUS	0.35	113
M-HVAC-STEM-SERV	Steam Service Piping	CONTINUOUS	0.25	113
M-HVAC-STNS-PUMP	Pump Stations	CONTINUOUS	0.35	6
M-HVAC-TAGS	Diffuser/Register/Grille Tags And Air Flow Arrows	CONTINUOUS	0.35	6
M-HVAC-VALT	Mechanical Hvac Hvac Systems Vault & Pits	CONTINUOUS	0.18	7
M-HVAC-WDFE	Wall Diffusers, Registers, And Grilles	CONTINUOUS	0.35	2
M-HWTR-EQPM	Hot Water Heating Equipment	CONTINUOUS	0.18	5
M-HWTR-RETN-PIPE	Hot Water Heating System Piping Return	CONTINUOUS	0.18	7
M-HWTR-SPLY-PIPE	Hot Water Heating System Supply Piping	JWA-WATR	0.18	255,6,30
M-HYDR-EQPM	Mechanical Hydraulic Structure Equipment	CONTINUOUS	0.18	7
M-HYDR-PIPE	Mechanical Hydraulic Structure Piping	CONTINUOUS	0.18	7
M-INSL-EQPM	Insulating Oil Equipment	CONTINUOUS	0.35	200
M-INSL-PIPE	Mechanical Piping	CONTINUOUS	0.18	7
M-INSL-RETN-PIPE	Insulating Oil Return Piping	CONTINUOUS	0.5	200
M-INSL-SPLY-PIPE	Insulating Oil Supply Piping	CONTINUOUS	0.5	200
M-LUBE-EQPM	Lubrication Oil Equipment	CONTINUOUS	0.35	200
M-LUBE-PIPE	Mechanical Piping	CONTINUOUS	0.18	7
M-LUBE-RETN-PIPE	Lubrication Oil Return Piping	CONTINUOUS	0.5	200
M-LUBE-SPLY-PIPE	Lubrication Oil Supply Piping	CONTINUOUS	0.5	200
M-MACH-CMPA	Miscellaneous Machinery Parts And Components	CONTINUOUS	0.35	2
M-MAIR-DUCT	Mixed Air Ductwork	CONTINUOUS	0.5	7
M-MAIR-DUCT-CNTR	Mixed Air Ductwork Centerlines	CENTER	0.18	5
M-MATL-CRAN	Cranes	CONTINUOUS	0.35	2
M-MATL-CRAN-BOOM	Crane, Boom	CONTINUOUS	0.35	2
M-MATL-HOIS	Hoists	CONTINUOUS	0.35	2
M-MATL-HOOK	Hooks, Eyes, And Other End Attachments	CONTINUOUS	0.35	2

Layer Name	Description	LineType	Lweight (in.)	Color
M-MATL-LIFT	Miscellaneous Lifting Equipment	CONTINUOUS	0.35	6
M-MATL-WIRE	Wire Rope, Chains, And Other Hoisting Medium	CONTINUOUS	0.35	6
M-MKUP-DUCT	Makeup Air Ductwork	CONTINUOUS	0.5	2
M-MKUP-DUCT-CNTR	Makeup Air Ductwork Centerlines	CENTER	0.18	5
M-MKUP-EQPM	Makeup Air Equipment	CONTINUOUS	0.35	2
M-MKUP-GRIL	Makeup Air Grilles	CONTINUOUS	0.35	2
M-NGAS-EQPM	Natural Gas Equipment	CONTINUOUS	0.35	6
M-NGAS-PIPE	Natural Gas Piping	NTGASN	0.35	6
M-PENE-FLOR	Floor Penetrations	CONTINUOUS	0.25	3
M-PENE-ROOF	Roof Penetrations	CONTINUOUS	0.25	1
M-PROC-RETN-PIPE	Process Return Piping	CONTINUOUS	0.5	120
M-PROC-SPLY-PIPE	Process Supply Piping	CONTINUOUS	0.5	120
M-RAIR-DUCT	Relief Air Ductwork	CONTINUOUS	0.5	1
M-RAIR-DUCT-CNTR	Relief Air Ductwork Centerlines	CENTER	0.18	5
M-RCOV-EQPM	Energy Recovery Equipment	CONTINUOUS	0.18	5
M-RCOV-RETN-PIPE	Energy Recovery System Return Piping	CONTINUOUS	0.5	203
M-RCOV-SPLY-PIPE	Energy Recovery System Supply Piping	CONTINUOUS	0.5	203
M-REFG-EQPM	Refrigeration Equipment	CONTINUOUS	0.18	5
M-REFG-RETN-PIPE	Refrigeration System Return Piping	REFRS	0.5	163
M-REFG-SPLY-PIPE	Refrigeration System Supply Piping	REFRL	0.5	163
M-ROOF-PENE	Roof: Penetrations	DASHED	0.18	255,0,0
M-RWTR-EQPM	Raw Water Equipment	CONTINUOUS	0.35	123
M-RWTR-PIPE	Mechanical Piping	CONTINUOUS	0.18	7
M-RWTR-RETN-PIPE	Raw Water Return Piping	CONTINUOUS	0.5	123
M-RWTR-SPLY-PIPE	Raw Water Supply Piping	CONTINUOUS	0.18	79,127,6 3
M-STEM-BLBD	Steam System: Boiler Blow Down Piping: Piping	BOILBD	0.18	255,127, 191
M-STEM-CNDS	Steam System: Condensate Piping: Sketch	JWA- CONDRAIN(HVAC)	0.18	255,127, 191
M-STEM-EQPM	Steam System Equipment	CONTINUOUS	0.18	5
M-STEM-HPIP	Steam Piping (High Pressure)	CONTINUOUS	0.18	3
M-STEM-LPIP	Steam Piping (Low Pressure)	CONTINUOUS	0.18	3
M-STEM-MPIP	Steam Piping	CONTINUOUS	0.18	3
M-STEM-PIPE	Mechanical Steam System Piping	CONTINUOUS	0.18	7
M-TAIR-DUCT	Transfer Air Ductwork	CONTINUOUS	0.5	200
M-TAIR-DUCT-CNTR	Transfer Air Ductwork Centerlines	CENTER	0.18	5
M-TEST-EQPM	Test Equipment	CONTINUOUS	0.18	3

Layer Name	Description	LineType	Lweight (in.)	Color
P-CMPA-PIPE	Plumbing Compressed / Processed Air Systems Piping	CONTINUOUS	0.18	3
P-DOMW-CPIP	Cold Water Piping	CLDWTR	0.5	123
P-DOMW-EQPM	Hot And Cold Water Equipment	CONTINUOUS	0.7	7
P-DOMW-EQPM-ACCS	Equipment Access Doors	CONTINUOUS	0.35	82
P-DOMW-FPIP	Domestic Filtered Water Piping	CONTINUOUS	0.5	83
P-DOMW-HPIP	Hot Water Piping	HWTR, HWTRR	0.5	113
P-DOMW-RISR	Hot And Cold Water Risers	CONTINUOUS	0.25	3
P-FUEL-FGAS	Plumbing Fuel Systems	CONTINUOUS	0.18	3
P-FUEL-FOIL	Plumbing Fuel Systems	CONTINUOUS	0.18	3
P-GRAY-PIPE	Graywater Systems; Piping	GRAY	0.18	1
P-LGAS-DH2O	Distilled Water Piping	WATERL	0.18	1
P-LGAS-EQPM	Equipment	CONTINUOUS	0.7	24
P-LGAS-NITG	Nitrogen Piping	NITROG	0.18	1
P-LGAS-OXYG	Pure O2 Piping	OXYGEN	0.18	1
P-LGAS-PIPE	Piping	LIQNIT	0.5	23
P-MDGS-EQPM	Equipment	CONTINUOUS	0.7	24
P-MDGS-PIPE	Plumbing Medical Gas Systems Piping	CONTINUOUS	0.18	3
P-SANR-COND	Condensate Piping	CONTINUOUS	0.5	83
P-SANR-EQPM	Equipment (E.G., Sand/Oil/Water Separators)	CONTINUOUS	0.7	204
P-SANR-FLDR	Floor Drains, Sinks, And Cleanouts	CONTINUOUS	0.35	6
P-SANR-PIPE	Piping	SSWAF	0.5	203
P-SANR-VENT	Vent Piping	VENT	0.5	203
P-SSWR-CNDS	Condensate Piping	CONTINUOUS	0.18	1
P-SSWR-DRNS	Floor Drains, Sinks, And Cleanouts	CONTINUOUS	0.18	1
P-SSWR-EQPM	Sanitary Sewer: Equipment	CONTINUOUS	0.18	1
P-SSWR-PIPE	Sanitary Sewer: Piping	Sanitary Waste	0.18	1
P-SSWR-RISR	Sanitary Sewer: Risers	DASHED	0.18	1
P-SSWR-VENT	Sanitary Sewer: Vents	VENT	0.18	1
P-STAT-TEMP	Plumbing Temporary	CONTINUOUS	0.18	3
P-STRM-DRNS	Roof Drains	CONTINUOUS	0.18	1
P-STRM-RISR	Storm Drain Risers	DASHED	0.5	163
S-BEAM	Beams	CONTINUOUS	0.18	5
S-BEAM-CNTR	Beam Centerlines	CENTER	0.18	214
S-BEAM-PRIM	Continuous Beam Or Primary Beam Of Two-Way Beam System	CONTINUOUS	0.5	211
S-BEAM-RBAR	Beam Rebar	CONTINUOUS	0.7	5

Layer Name	Description	LineType	Lweight (in.)	Color
S-BEAM-SECD	Girders Or Secondary Beams Of Two-Way Beam System	CONTINUOUS	0.35	212
S-BRCG-DIA~	Diagonal Bracing	CONTINUOUS	0.35	161
S-BRCG-HORZ	Horizontal Bracing	CONTINUOUS	0.35	161
S-BRCG-VERT	Vertical Bracing	CONTINUOUS	0.35	144
S-COLS	Structural Columns	CONTINUOUS	0.18	3
S-COLS-PRIM	Primary Columns	CONTINUOUS	0.35	3
S-COLS-SECD	Secondary Columns	CONTINUOUS	0.35	84
S-CURB	Structural Curbing	CONTINUOUS	0.18	7
S-DECK	Deck	CONTINUOUS	0.18	7
S-FNDN-ANCH	Anchor Piles, Blocks, Strands, Deadmen, Soil/Rock Anchors	CONTINUOUS	0.35	42
S-FNDN-BLRD	Bollards, Bollard Foundations	CONTINUOUS	0.35	165,124,0
S-FNDN-CNTR	Foundation Centerlines	CENTER	0.18	44
S-FNDN-CSON	Caissons	HIDDEN	0.18	2
S-FNDN-DRNS	Foundation Drainage Features And Objects	CONTINUOUS	0.25	165,145,82
S-FNDN-FTNG-RBAR	Footing Rebar	CONTINUOUS	0.7	5
S-FNDN-PEDS	Foundation Pedestals/Pads	CONTINUOUS	0.35	41
S-FNDN-PIER	Piers, Drilled Shafts, Caissons	CONTINUOUS	0.5	72
S-FNDN-PILE	Piles	CONTINUOUS	0.35	40
S-FNDN-RIBS	Ribbed Mat Foundation	CONTINUOUS	0.35	52
S-GRAT-SUBS	Structural Sub-Surface Areas	CONTINUOUS	0.18	7
S-GRDL-WATR	Structural Water Supply	CONTINUOUS	0.18	7
S-GRID-MSC	Structural Grids	CONTINUOUS	0.18	7
S-GRID-MSC2	Structural Grids	CONTINUOUS	0.18	7
S-GRID-MSC3	Structural Grids	CONTINUOUS	0.18	7
S-GRID-MSC4	Structural Grids	CONTINUOUS	0.18	7
S-HYDR-AXIS	Axis Of Structure	CENTER	0.18	202
S-HYDR-BAFL	Baffle Blocks, Splash Pads	CONTINUOUS	0.35	122
S-HYDR-BASN	Stilling And Settling Basins	CONTINUOUS	0.35	122
S-HYDR-CHAN	Channel (Does Not Include Earthen Structures)	CONTINUOUS	0.35	122
S-HYDR-COFF	Cofferdam	CONTINUOUS	0.35	42
S-HYDR-COND	Diversinary/Bypass Conduits And Culverts	CONTINUOUS	0.35	122
S-HYDR-DAM~	Dam	CONTINUOUS	0.35	122
S-HYDR-FISH	Fish Ladder Or Passage	CONTINUOUS	0.35	122
S-HYDR-FLUM	Flume	CONTINUOUS	0.35	122
S-HYDR-INTK	Intake, Outlet	CONTINUOUS	0.35	122

Layer Name	Description	LineType	Lweight (in.)	Color
S-HYDR-NOVR	Non-Overflow Structures	CONTINUOUS	0.35	122
S-HYDR-PENS	Penstock Outline And Features	CONTINUOUS	0.35	122
S-HYDR-STRC-POWR	Powerhouse	CONTINUOUS	0.35	124
S-HYDR-SWAY	Spillway	CONTINUOUS	0.35	122
S-HYDR-WEIR	Weirs And Sluiceways	CONTINUOUS	0.35	122
S-JNTS	Joints	CONTINUOUS	0.18	7
S-JOIS	Joists	CONTINUOUS	0.18	7
S-PADS	Foundation Pedestals/Pads	CONTINUOUS	0.18	7
S-PIPE-CULV	Precast/Manufactured Culverts	CONTINUOUS	0.35	200
S-PIPE-GATE	Structural Piping	CONTINUOUS	0.18	7
S-PITT	Foundation Pits	CONTINUOUS	0.18	7
S-PLAT	Platform	CONTINUOUS	0.18	7
S-SAFE-WATR	Waterway Safety Barriers	CONTINUOUS	0.35	3
S-SIGN-BUOY	Sign Buoys	CONTINUOUS	0.35	242
S-SIGN-FRMG	Framing & Connections	CONTINUOUS	0.35	3
S-SIGN-SUPT	Supports	CONTINUOUS	0.35	5
S-STAT-FUTR	Structural	CONTINUOUS	0.18	7
S-STAT-TEMP	Structural Temporary	CONTINUOUS	0.18	7
S-STIF-LONG	Stiffeners - Longitudinal	CONTINUOUS	0.35	3
S-STIF-TRAV	Stiffener: Transverse	CONTINUOUS	0.18	2,55,0
S-STRS	Stairs	CONTINUOUS	0.18	7
S-STRS-LADD	Ladders	CONTINUOUS	0.18	7
S-STRS-RISR	Structural - Stairs: Riser	CONTINUOUS	0.18	7
S-STRS-TRED	Structural - Stairs: Tread	CONTINUOUS	0.18	7
S-TRUS	Structural Trusses	CONTINUOUS	0.18	7
U-FUEL-AIRE	Fuel Air Eliminator	CONTINUOUS	0.18	40
U-FUEL-ATS	Fuel Electrolysis Test Station	CONTINUOUS	0.18	40
U-FUEL-DEVC-HYDR	Civil Fuel Systems Devices	CONTINUOUS	0.18	40
U-FUEL-HIPT	Highpoint Vent	CONTINUOUS	0.18	40
U-FUEL-HYDR	Fuel Hydrant	CONTINUOUS	0.18	40
U-FUEL-JUNC	Junction	CONTINUOUS	0.18	40
U-FUEL-LOPT	Fuel Lowpoint Drain	CONTINUOUS	0.18	40
U-FUEL-MAIN	Survey/Mapping Fuel Systems Mainline	CONTINUOUS	0.18	40
U-FUEL-METR	Fuel Meters	CONTINUOUS	0.18	40
U-FUEL-MWEL	Fuel Monitoring Well	CONTINUOUS	0.18	40
U-FUEL-NODE	Node Abandoned	CONTINUOUS	0.18	40
U-FUEL-PIPE	Fuel Systems Piping	CONTINUOUS	0.18	40

Layer Name	Description	LineType	Lweight (in.)	Color
U-FUEL-PIPE-SUPL	Fuel Systems Piping Supply	CONTINUOUS	0.18	40
U-FUEL-PIT	Fuel Pit	CONTINUOUS	0.18	40
U-FUEL-PLUG	Fuel Plug	CONTINUOUS	0.18	40
U-FUEL-PUMP	Fuel Systems Pumps	CONTINUOUS	0.18	40
U-FUEL-RETN-PIPE	Fuel Systems Piping Return	CONTINUOUS	0.18	40
U-FUEL-SURG-ABSO	Surge Absorber	CONTINUOUS	0.18	40
U-FUEL-TANK	Fuel Systems Storage Tanks	CONTINUOUS	0.18	40
U-FUEL-VALT	Fuel Systems Vault & Pits	CONTINUOUS	0.18	40
U-FUEL-VALV-SHUT	Valve	CONTINUOUS	0.18	40
U-FUEL-VENT	Fuel Systems Vents	CONTINUOUS	0.18	40
U-INDW-ATS	Industrial Waste Electrolysis Test Station	CONTINUOUS	0.18	5
U-INDW-CBSN	Industrial Waste Catch Basin	CONTINUOUS	0.18	5
U-INDW-COUT	Industrial Waste Cleanout	CONTINUOUS	0.18	5
U-INDW-JUNC	Junction	CONTINUOUS	0.18	5
U-INDW-LSTA	Liftstation	CONTINUOUS	0.18	5
U-INDW-MHOL	Industrial Waste Manhole	CONTINUOUS	0.18	5
U-INDW-NODE-INACT	Node Inactive	CONTINUOUS	0.18	5
U-INDW-NODE-UNV	Node Unverified	CONTINUOUS	0.18	5
U-INDW-OIL-WATR	Industrial Waste Oil Water Separator	CONTINUOUS	0.18	5
U-INDW-PIPE	Industrial Waste System Piping	CONTINUOUS	0.18	5
U-INDW-PLUG	Industrial Waste System Piping Plug	CONTINUOUS	0.18	5
U-INDW-PSTA	Industrial Waste Pump Station	CONTINUOUS	0.18	5
U-INDW-REDU	Industrial Waste Piping Reducer	CONTINUOUS	0.18	5
U-INDW-STBO	Industrial Waste Piping Stubout	CONTINUOUS	0.18	5
U-INDW-TANK	Tanks	CONTINUOUS	0.18	5
U-INDW-VALV-AIR	Industrial Waste Air Vacuum Release Valve	CONTINUOUS	0.18	5
U-INDW-VALV-SHUT	Industrial Waste Shutoff Valve	CONTINUOUS	0.18	5
U-INDW-WASH	Industrial Waste Washrack	CONTINUOUS	0.18	5
U-NGAS-ATS	Electrolysis Test Station	CONTINUOUS	0.18	2
U-NGAS-JUNC	Junction	CONTINUOUS	0.18	2
U-NGAS-METR	Natural Gas Meters	CONTINUOUS	0.18	2
U-NGAS-MHOL	Civil Natural Gas Systems Manhole	CONTINUOUS	0.18	2
U-NGAS-NODE-INACT	Node Inactive	CONTINUOUS	0.18	2
U-NGAS-NODE-UNV	Node Unverified	CONTINUOUS	0.18	2
U-NGAS-PLUG	Natural Gas Systems Piping Plug	CONTINUOUS	0.18	2
U-NGAS-REG	Natural Gas Piping Regulator	CONTINUOUS	0.18	2
U-NGAS-STBO	Stubout	CONTINUOUS	0.18	2

Layer Name	Description	LineType	Lweight (in.)	Color
U-NGAS-VALV-SHUT	Natural Gas Systems Piping Shutoff Valve	CONTINUOUS	0.18	2
U-NGAS-VAULT	Vault	CONTINUOUS	0.18	2
U-NGAS-VENT	Natural Gas Systems Vents	CONTINUOUS	0.18	2
U-SSWR-CBSN	Sanitary Sewer Systems Catch Basin	CONTINUOUS	0.18	3
U-SSWR-COUT	Sanitary Sewer Systems Cleanout	CONTINUOUS	0.18	3
U-SSWR-FDRN	Sanitary Sewer Systems Floor Drain	CONTINUOUS	0.18	3
U-SSWR-FMAIN	Sanitary Sewer Systems Force Main	CONTINUOUS	0.18	3
U-SSWR-GRSE-INTE	Sanitary Sewer Grease Interceptor	CONTINUOUS	0.18	3
U-SSWR-JUNC	Sanitary Sewer Systems Junction	CONTINUOUS	0.18	3
U-SSWR-MAIN	Sanitary Sewer Systems Main	CONTINUOUS	0.18	3
U-SSWR-MHOL	Sanitary Sewer Manhole	CONTINUOUS	0.18	3
U-SSWR-NODE	Node Abandoned	CONTINUOUS	0.18	3
U-SSWR-PIPE	Sanitary Sewer Piping	CONTINUOUS	0.18	3
U-SSWR-PLUG	Sanitary Sewer Systems Plug	CONTINUOUS	0.18	3
U-SSWR-POC	Point Of Connection	CONTINUOUS	0.18	3
U-SSWR-PSTA	Sanitary Sewer Pump Station	CONTINUOUS	0.18	3
U-SSWR-PUMP	Sanitary Sewer Pumps	CONTINUOUS	0.18	3
U-SSWR-REDU	Sanitary Sewer Systems Piping Reducer	CONTINUOUS	0.18	3
U-SSWR-SRVC	Service Connect	CONTINUOUS	0.18	3
U-SSWR-STBO	Sanitary Sewer Systems Piping Plug	CONTINUOUS	0.18	3
U-SSWR-TANK	Sanitary Sewer Storage Tanks	CONTINUOUS	0.18	3
U-SSWR-VALV-AIR	Sanitary Sewer Air Vacuum Release Valve	CONTINUOUS	0.18	3
U-SSWR-VALV-SHUT	Sanitary Sewer Shutoff Valve	CONTINUOUS	0.18	3
U-STRM-OUTFALL	Outfall	CONTINUOUS	0.18	3
U-STRM-PSTA	Pump Station	CONTINUOUS	0.18	3
U-WATR-BKFLO	Back Flow Pd	CONTINUOUS	0.18	5
U-WATR-FDC	Water Systems Fire Department Connection	CONTINUOUS	0.18	5
U-WATR-FDSC	Fire Connect	CONTINUOUS	0.18	5
U-WATR-FHYD	Water Systems Fire Hydrant	CONTINUOUS	0.18	5
U-WATR-HBIB	Water Systems Hose Bib	CONTINUOUS	0.18	5
U-WATR-MTER	Meter	CONTINUOUS	0.18	5
U-WATR-NODE	Node Abandoned	CONTINUOUS	0.18	5
U-WATR-PLUG	Water Systems Piping Plug	CONTINUOUS	0.18	5
U-WATR-REDU	Water Systems Piping Reducer	CONTINUOUS	0.18	5
U-WATR-REGL	Water Systems Piping Regulator	CONTINUOUS	0.18	5
U-WATR-SMPL	Water Systems Sampling Station	CONTINUOUS	0.18	5
U-WATR-SRVC	Water Systems Piping Service Connect	CONTINUOUS	0.18	5

Layer Name	Description	LineType	Lweight (in.)	Color
U-WATR-STBO	Water Systems Piping Stubout	CONTINUOUS	0.18	5
U-WATR-TANK	Water Systems Piping Storage Tanks	CONTINUOUS	0.18	5
U-WATR-VALV-AIR	Water Systems Piping Air Release Valves	CONTINUOUS	0.18	5
U-WATR-VALV-POST	Post Indic Vv	CONTINUOUS	0.18	5
U-WATR-VALV-SHUT	Water Systems Piping Shutoff Valve	CONTINUOUS	0.18	5
U-WATR-VAULT	Water Systems Vaults	CONTINUOUS	0.18	5

Appendix B – Quality Assurance Checklist

The following checklist should be used to confirm that drawings delivered to the Airport are acceptable. The individual who satisfactorily completes each step should fill in their initials in the corresponding row. The name of another individual within the submitting organization should review the completed checklist to confirm that all applicable tests have been completed. Satisfying the requirements of this checklist does not waive any of the requirements of this document or its normative references.

Table B.1 – Quality Assurance Checklist

Completed By	TOPIC
(initials)	1. General
	Check Drawing Title (against List of drawings)
	Check Drawing Scale and date
	Check standard sheet numbering
	Check revision format
	2. Documentation
	Check the list of deliverables
	3. Project check list
	Check graphic consistency
	Check readability
	Check standard symbols
	Check design correctness/problems, build-ability
	Check spelling
	Check Line weights, Line types
	Check Dimensions and Style
	4. Data check list
	Check data in correct layer
	Check XREF in correct layer
	Check annotations, dimension & notes in correct layer
	Check legend, north arrow and scale bars in correct layer
	Check for extra information to be deleted, file to be purged
	5. Data Structure check list
	Check Relevant Data
	Check if correctly named and or naming convention
	6. Attribute check list
	Check Label is from an attribute
	Check the attribute symbolize use a domain or block reference
	7. Relationship/coordination check list with other services/disciplines
	Check coordination with Civil
	Check coordination with Architectural
	Check coordination with Mechanical
	Check coordination with Structural

Completed By	TOPIC
	Check coordination with Plumbing
	Check coordination with Interiors
	Check coordination with Electrical
	Check coordination with Telecommunications
	Check coordination with Fire Protection
	Check coordination with Landscape
	Check coordination with Other
	8. Annotation check list
	Check visibility and placement of annotation
	Check overlap and masking
	Check Consistent size and style
	9. AutoCAD check list
	Check AutoCAD Layers
	Check AutoCAD Blocks
	Check AutoCAD Viewports
	Check Layout Tabs against List of drawings
	Check AutoCAD XREF (Overlay/attach, relative path, etc..)
	Check AutoCAD Drawing Origin (georeferenced file)
	10. References
	Check Standard Details
	Check General Notes
	Check Abbreviations

Appendix C – Change request Form

If users of this Standard feel that a change would best meet the needs of the airport, they should complete the following form and submit it to their Project Manager. One form should be submitted for each change, although requests to add or change multiple related layers can be included on one form. Deviations from this Standard are not permitted until such changes are approved by the Airport. Approved changes will be incorporated into subsequent versions of this document.

Change Requested By:

Date of Request: _____

Name : _____

Date Response Requested : _____

Organization: _____

Phone: _____

Email: _____

Type of Change (select one):

Text: _____ Title Block: _____ Sheet Sizes: _____ Layers: _____

Other (please explain): _____

Location of Change:

Page(s) in latest version : _____

Requested Change (attach additional pages or provide data electronically as applicable):

Rationale for Change (please provide as much details as possible and explain why the current Standard does not address your requirement):

JON WAYNE AIRPORT AIRPORT RESPONSE

Change Accepted: Yes ____ No ____

Reason:

Appendix D – Acronyms

The following abbreviations are used in this document as defined below.

ATG	Arora Technology Group
CAD	Computer Aided Design
CONUS	Continental United States
DWG	AutoCAD Drawing File
EPSG	European Petroleum Survey Group
GeoJSON	Geographic JavaScript Object Notation
GIS	Geographic Information System
IMDF	Indoor Mapping Data Format
NAVD88	North American Vertical Datum of 1988
NCS	National CAD Standards
SPCS	State Plane Coordinate System
SSI	Sensitive Security Information
VMP	Venue Management Platform
XREF	A DWG that is referenced from within another DWG.

Appendix E – Project ID List

The following is the released project listings with the designated ID. This list will be updated as new projects are issued for CAD development. **ID****Description**

AA	Airport Administration
AT	Air Traffic Control Tower
EM	Eddie Martin Terminal
EV	Electrical Vault
ES	Electric Substation
F1	Fire Station No. 33
F2	Fire station No. 27
FB	FBO Facilities
FF	Fuel Farm
MT	Maintenance Building
PA	Parking Structure A
PB	Parking Structure B
PC	Parking Structure C
PS	Paint Storage Building
RC	Rental Car Storage
RT	Remote Transmitter
RW	Restroom Westside
TH	Tee Hangers
TR	Thomas Riley Terminal

Appendix F – Sheet Properties

The following are standard sheets properties as per JWA discipline designators, including content and Plot Scale.

AR Architectural

1/8"=1'-0"

Walls, doors, windows, columns, column grids, plumbing fixtures, casework, millwork, stairs, elevators, penetrations, floor patterns, associated notes and dimensions, structural columns referenced.

AU Audio

1/8"=1'-0"

Audio speaker system location, wiring, intercom, associated notes and dimensions, architectural group layers referenced.

CM Communications

1/4"=1'-0"

Telephone outlets, computer data outlets, wiring, fire alarm system, associated notes and dimensions, architectural group layers referenced.

FP Fire Protection

1/8"=1'-0"

Sprinkler lines, sprinkler heads, associated notes and dimensions, architectural group layers referenced.

LA Landscaping

1/8"=1'-0"

Planting, irrigation, equipment, associated notes and dimensions, architectural group layers referenced.

LT Lighting

1/8"=1'-0"

Lights, switches, circuit wiring and destinations, associated notes and dimensions, architectural group layers referenced

ME Mechanical

1/4"=1'-0"

HVAC ductwork, return and supply grilles, thermostats, exhaust hoods and grilles, mechanical equipment, piping, CFM annotations, associated notes and dimensions, architectural group layers referenced.

MS Miscellaneous

Varies

Details, elevations, sections, schedules, charts, etc..

OC Occupancy

1/16"=1'-0"

Occupancy zones, associated notes and dimensions, architectural group layers referenced.

PL Plumbing

1/4"=1'-0"

Storm, sewer, vent, cold and hot water, gas and fuel piping, associated notes and dimensions, architectural group levels referenced.

PW Power

1/4"=1'-0"

Junction boxes, power panels & wiring, receptacles & wiring, associated notes and dimensions, architectural group levels referenced.

RC Reflected Ceiling

1/8"=1'-0"

Ceiling grids & surfaces, ceiling features, associated notes and dimensions, architectural, sprinkler heads, mechanical grilles and ceiling mounted lights referenced.

TP Tenant Placement

1/16"=1'-0"

Room and tenant areas, block areas, square footage and address annotations, architectural group levels referenced.

ST Structural

1/8"=1'-0"

Columns, beams, joists, slabs, footings, structural walls, associated notes and dimensions, column grid lines referenced.