MTA Bridges and Tunnels

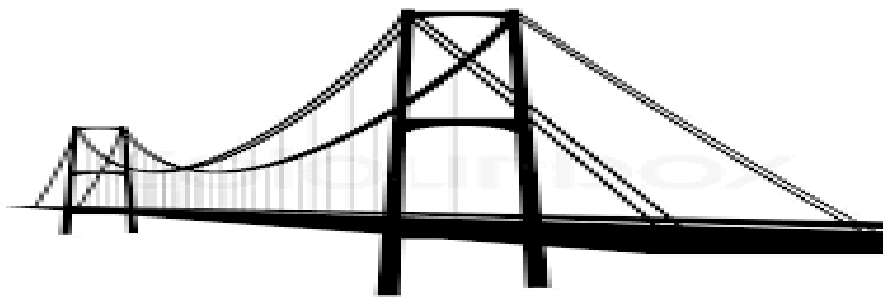# Computer Aided Design and Drafting (CADD) Standard System Manual and Guidelines

Metropolitan Transportation Authority
Bridges and Tunnels

Engineering and Construction Department

Engineering Applications Management

8th Edition
November 2019

CADD SYSTEM MANUAL

Table of Contents

1.0   PURPOSE

    1.1   This manual is for the consistent production, organization, issuance, revision and management of AutoCAD or MicroStation® CADD Drawings in both electronic and printed format. This will ensure the following:

        1.1.1   Consistent organization of data for all projects, from all sources, at all stages of development and identified.

        1.1.2   Greater clarity of communication of design intent.

        1.1.3   Streamline electronic data management.

        1.1.5   Consistent deliverables.

        1.1.6   Easy access, management and viewing of electronic files especially defined their content, in Section 5.4.1

        1.1.7   Consistent organization of data facilitating uses beyond original construction.

2.0   SCOPE

    2.1   This manual is applicable to all Engineering and Construction (E & C) Department Capital and Major Maintenance projects and in-house design required to be documented with Drawings.

    2.2   This manual shall be used in conjunction with and complementary to ECP-106 (Drawings and Specifications), ECP-301 (Design Reviews), Internal Security Department's ISD-506 (Securing Classified Documents) procedure and the consultant solicitation (RFP) along with the consultant contract.

    2.3   This manual shall be applicable to all Drawing produced, revised and issued by In-house staff, consultants and contractors. These drawing include, but are not limited to the following:

        2.3.1   Contract Drawings

        2.3.2   Design Drawings

        2.3.3   As-Built Drawings (Record Drawings)

        2.3.4   Shop Drawings

        2.3.5   Sketches

        2.3.6   Surveyor Drawings

3.0   DEFINITIONS

    3.1   **Contract Drawings**

A set of Sheets with Drawings upon which a contract is based which when completed and signed, are in intended to be released for bid and/or construction.

3.2   Design Drawings
Drawings developed and used during various design stages preceding the development of Contract Drawings, to establish the extent and design of a project.

3.3   As-Built Drawings (Record Drawings)
Drawings that accurately indicate and record the work of the project as actually constructed and installed. As-Built Drawings are the Contract Drawings and\or Shop Drawings which have been corrected, typically from red-lined Sheets, to incorporate changes that occur during construction and installation and have been verified by Contract Administration Inspection Consultant or Authority personnel. As-Built Drawings include the Sheet Files as well as the Model File(s) to be referenced into the Facility Model File. As-Built Drawings are often referred to as "Record Drawings".

3.4   Shop Drawings
Drawings are prepared by manufacturers, suppliers, subcontractors, and contractors to illustrate a portion of the work. Shop Drawings usually illustrate proposed Details and techniques to show compliance with the contract documents and may include Dimensions obtained at the project site and show how the specialized work will be incorporated into the project. Shop Drawings, regardless of approvals, are not Contract Drawings and do not waive requirements of the contract documents.

3.5   Sketch
A Drawing is typically issued in expediency and or to supplement a previously issued Drawing that is more specific in scope and can indicate changes. Sketches are on hardcopy Sheet sizes of:
- 8 ½" inches by 11 inches   (ANSI 'A') or
- 11 inches by 17 inches   (ANSI 'B').

3.6   Surveyor Drawings
Those Drawings prepared and sealed by a qualified licensed and registered Land Surveyor that accurately define the existing site conditions and features of a specified parcel. Site conditions and features commonly depicted on Surveyor Drawings include, but are not limited to, site boundaries, such as property lines and their reference monuments, easements, structures, roadways, topography, plant growth and utilities. Surveyor Drawings include the Sheet Files as well as the Project Model File(s) to be referenced into the Facility Model File.

3.7   CADD

An acronym for Computer Aided Design and Drafting and synonymous with the Authority's software requirement of AutoCAD or MicroStation specified in this manual.

3.8 Cell

A CADD element used in Drawings to represent or identify something else by association, resemblance and convention. Cells are typically a group graphic and/or text elements that are stored for repeated placement. The scales of some Cells are dependent upon the scale of the Drawings they are placed within while others are scaled relative to the Sheet they are placed within. Cell types are:

3.8.1 Object Cell
Resembles the actual objects being represented, such as plumbing fixtures. This Cell type is at a 1:1 real world scale and resides within a Project Model File.

3.8.2 Line Cell
Indicates and identifies continuous objects as either a single or multiple lines often with line styles applied. Site elements and utilities drawn as lines with intermittent text characters are an example. When these cells reside within Sheet files; their scale is relative to the Sheet.

3.8.3 Material Cell
Graphically indicates and differentiates materials often as area patterns or hatching such as concrete. These Cells reside within Sheet Files and their scale is relative to the Sheet.

3.8.4 Reference Cell
Refers to another Drawing(s) elsewhere in the Sheet, or set of Sheets; or give basic information regarding the Drawing. Drawing view titles or North arrows are an example. These Cells reside within Sheet Files and their scale is relative to the Sheet.

3.8.5 Identity Cell
Identifies individual objects and entities and often with an alphanumeric identifier associated to a Schedule to further define attributes. This Cell can also be one that is graphically abstracted from the actual physical form of the object it represents, such as electrical outlets. When these Cells reside within Sheet Files, their scale is relative to the Sheet.

3.9 Dimension
A combined graphical and numerical means of sizing and locating elements and largely resides on Sheet Files.

3.10 Drawing

Different from a Sheet, Drawings are the individual graphic, pictorial and textual portions of the documents that are organized on a two dimensional surface for the purpose of conveying data about a specific aspect of a project. Drawings can convey design intent and may show multiple views, either of the whole project or of its parts. Drawings indicate relationships between elements.

Drawing types are:

3.10.1 Plans
View of horizontal planes, showing components in their horizontal relationship.

3.10.2 Sections
Views of vertical cuts through and perpendicular to components showing their detailed arrangement.

3.10.3 Elevations
Views of vertical planes, showing components in their vertical relationship, viewed perpendicularly from a selected vertical plane.

3.10.4 Details
Plans, Elevations, or Sections that provide more specific information about a portion of a project component or element than smaller-scale Drawings.

3.10.5 Diagrams
Non-scaled views showing arrangements of special system components and connections not possible to clearly show in scaled views.

3.10.6 Schedules
A tabular means for communicating information for a related group of items formatted with vertical columns and horizontal rows that reside on Sheet Files. Typically, the columns identify the features or attributes of the items while the rows identify the individual items with its identifier in the left-most column.

3.10.7 3D Representations
Isometric; axonometric, or perspective views of a three dimensional object.

3.11 Global Origin
A setting in a CADD file that defines the location(s) of all entities in a Drawing using specified coordinate system. Consistency in this setting is important for maintaining positional relationships amongst Project Model Files.

3.12 Level
The function within CADD which serves to segregate various elements for the purpose of visual display and printing and is similar to transparent overlays. This function allows

information to be organized and coordinated in a systematic fashion. Turning on or off various Levels allows for the viewing and printing of drawings that can communicate specified subsets of information or those which are comprehensive.

3.13   Model
Not to be confused with Model Files, Models are the function within CADD which allows for numerous separate and independent design planes (2D) and or design cubes (3D), along with their respective contents, to all reside within a single CADD file.

3.14   Model Files
3.11.1 Project Model File - A single or combination of CADD files containing whole or partial drawings depicting the real world physical form, layout and components of built entities (structure, building, etc.) and features for a specified project. The drawn contents are to be shared among disciplines and Referenced into Sheet Files for consistent and accurate Drawings. All Project Model Files are geo-spatially located and share the same settings. See Figure 6.1-a.

3.11.2 Facility Model File - A collection of geo-spatially coordinated and Referenced Project Model Files used only for As-Built and Surveyor Drawings that is maintained by the Authority. The Facility Model File is a comprehensive record of the built environment and physical conditions of the Authority's property and serves as a resource to facilitate operation, maintenance, and future modifications throughout the life cycle of the built environment. See Figure 6.1-a.

3.15   Notes
Text information, identification and instruction that largely reside on Sheet Files. The two basic types of Notes are those that stand on their own within the Sheet(s), such as general notes, and those which supplement the graphical and pictorial portions of the Drawings.

3.16   Reference
A function within CADD to display information from another CADD file allowing for shared, current and consistent information. References cannot be edited. Title blocks and Project Model Files are Common References.

3.17   Sheet
An individual hardcopy document with a title block and unique Sheet identifier within a set of related documents. Sheets are typically composed of one or more Drawings which are printed on reproducible media, such as Mylar.

3.18 Sheet File

A CADD file that is assembled and composed for printing and viewing an individual Sheet that always References a title block. Project Model Files, or portions thereof are commonly Referenced. The Sheet File contains annotative information, such as hatch patterns, Notes and Dimensions, used to supplement a Referenced Project Model file(s), as active elements and they are independent of the Model File's scale. See Figure 6.1-a.

3.19 Supportive CADD Files

CADD files and associative files, other than Sheet Files and Model Files used to implement the standards of this manual and manage consistency throughout the Drawings and Sheets.

3.20 Working Units

A setting in a CADD file that defines the measurable limits and real world units of the design plane (2D) or design cube (3D) for which the Drawing is within.

4.0 RESPONSIBILITIES

4.1 Preparer of CADD files and Drawings

4.1.1 Implement and comply with all standards described within this manual.

4.1.2 Attain written approvals from the Manager, of the Authority's Engineering Applications Management Unit for any deviations or changes to this manual.

4.1.3 Utilize all necessary Supportive CADD Files to implement the standards of this manual.

4.1.4 Develop all the content for Drawings necessary. See Appendix D.

4.1.5 Submit all CADD deliverables to the Project Engineer as describe:
A. Sheet Files
B. Project Model Files
C. New or modified Supportive CADD files.

4.1.6 Use the project specific CADD file project sequence numbers provided by the Authority's Engineering Applications Management Unit.

4.2 Authority's Engineering Applications Management (EAM) Unit

4.2.1 Maintain and update this manual and its standards.

4.2.2 Maintain, track and monitor CADD files for implementing this manual.

4.2.3 Maintain, track and monitor and enforce the standards of this manual for all CADD deliverables.

4.2.4 Incorporate Project Model files into the Facility Model File (Development Stage).

4.2.5 Maintain the Facility Model File (Development Stage).

4.2.6 Establish and maintain access to the Facility Model File (Development Stage).

4.2.7 Provide CADD file project sequence numbers to the Project Engineer within three business days of receipt of the "CADD Project Number Request Form". See Appendix A.

4.2.8 Provide the Supportive CADD Files necessary for implementing the standards of this manual.

4.2.9 Maintain a database of all Non-Authority Personnel who have requested and received CADD files.

4.2.10 Maintain the Authority's plotters and plotting software.

4.2.11 Forward the Supportive CADD Files necessary for implementing the standards of this manual to the preparer of CADD files, Sheets and Drawings.

4.3 **Project Engineer**

4.3.1 Attain CADD file project sequence numbers before the preparer of CADD files and Drawings initiates any work by completing and submitting "CADD Project Number Request Form" to the EAM Unit. See Appendix A.

4.3.2 Forward all CADD deliverables to the EAM Unit, including, but not limited to following listed below:
A. Sheet Files
B. Project Model Files
C. New or modified Supportive CADD Files

4.4 **Facility Engineer**

4.4.1 Direct the Project Engineer in attaining all the necessary CADD information and for completing the work of the project in a timely manner.

4.4.2 Direct the Project Engineer in distributing all the necessary CADD files and Drawings to the Preparer of CADD files and Drawings, the EAM Unit and other specified Authority personnel in a timely manner.

4.5 **Engineering Information Center**

4.5.1 Provide secure access to the E & C Department Information Center through screened appointments and prepared Umbrella Confidentiality Agreement including its Appendix A & B as required by the Internal Security Department's ISD-506 (Securing Classified Documents) procedure.

4.5.2 Serve as the primary interface entity between E&C Department and all entities seeking access to digital and hardcopy documents, including, engineering drawings, project specifications, the Authority's bridge Biennial Inspection Reports, etc.

4.6 **GIS (Geographical Information Systems)**
For the Projected Coordinate System, use NAD 1983 StatePlane New York Long Island FIPS 3104 Feet.

4.7 **VDCO (BIM) – Virtual Design, Construction and Operations**
Please refer to MTABT VDCO Standards – available upon request.

5.0 **IMPLEMENTATION**

5.1 Portions of this manual conform to the U.S. National CAD Standard (NCS), Version 6.0 or above as published by the National Institute of Building Sciences. For guidance and direction for CADD conditions or issues not addressed in this manual, the Authority's EAM Unit shall first be consulted with for resolution. All proposed resolutions for CADD conditions and issues not addressed in this manual shall be guided for compliance with the NCS. All proposed resolutions require the submission of a written request for review and approval by the Manager of the Authority's EAM Unit, prior to utilization or use.

5.2 The Authority maintains and makes available Supportive CADD Files to simplify the implementation of this manual. These Supportive CADD Files Incorporate and facilitate the prescribed requirements of this manual such as Levels, title blocks and the settings for Working Units. Any and all modifications to these Supportive CADD Files require the approval by the Manager of the Authority's EAM unit prior to utilization or use.

5.3 **CADD Software and File Formats:**

5.3.1 This manual is based on the requirement that all Project Model Files and Sheet Files are created, developed and submitted in the native (.dgn) file format of the V8i (8.11x) version of Bentley MicroStation® or (.dwg) file format of AutoDesk AutoCAD software in use at the Authority. Other compatible versions of AutoCAD or MicroStation® format are acceptable only with prior written request and approval from the Manager of the Authority's EAM Unit.

    A. **The use of CADD software systems other than that described above is not allowed. Translations or conversions from other CAD software systems are also not allowed.**

    B. Means, methods and terminology used in this manual are based on Bentley MicroStation® or AutoDesk AutoCAD software systems.

    C. Supportive CADD Files and templates provided by the Authority for implementation of this manual are based on this software system.

5.3.2 Supportive CADD Files responsive to the particular needs of a project shall be of a format that is native to and compatible with the CADD software system specified above.

5.3.3 Additional file formats also are required as set forth in the Consultant Solicitation (RFP) and the Consultant Contract.

5.4 **CADD Files Deliverable:** CADD Files should be submitted on media CD(s). All disks are to be delivered virus free. CDs(s) submitted should be labeled with the following information:

- Consultant Name
- Project Number and Title
- Date of Issue
- Project Status such as 75%, 100% or Rev. 0
- Format: DGN/DWG and PDF

6.0   CADD FILE ORGANIZATION

6.1   Introduction:

This is to establish the way for which the electronic or digital files are organized, utilized and named within the CADD software system, for a consistent and efficient management and use of the electronic or digital data and files.

Facility Model File

Reference

Reference

Sheet File

Reference

Reference

Project Model File

Reference

Project Model File

N

3
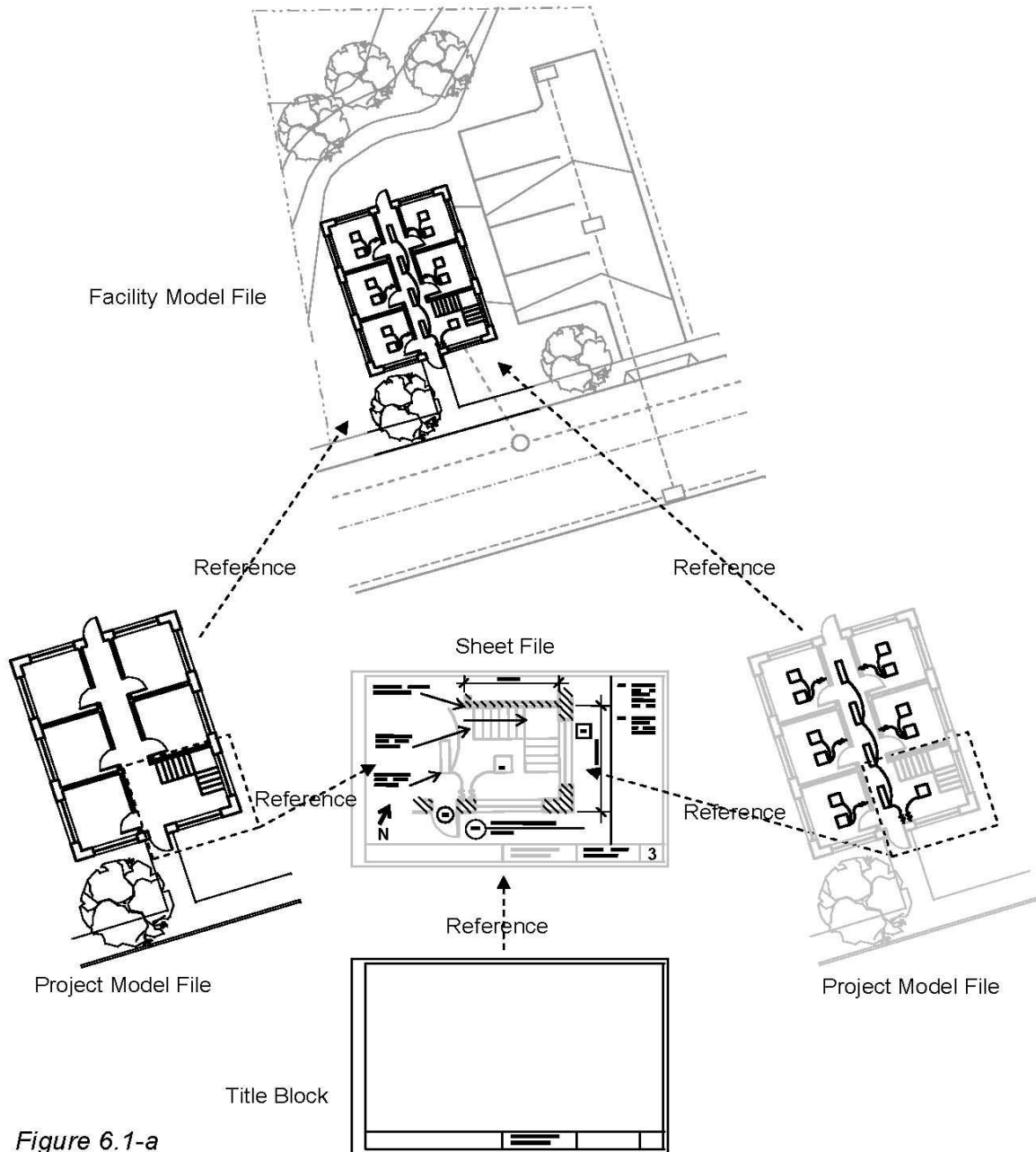
Title Block

Figure 6.1-a

6.2 CADD File Types

6.2.1 Sheet Files

    A. Each sheet file shall contain only one Sheet and no other information shall be outside the title block border.

    B. Naming standards: Every Sheet File must have a unique name to be tracked in the system, to avoid overwriting an existing file and manage References.

This systematic naming convention is developed to work within an 8.3 character file format of computer systems.
See Figure 6.2-a.

Figure 6.2-a

| H | 2 | 3 | 4 | S | 0 | 1 | 2 | . d g n

Facility Designator

Project Sequence Number

Discipline Sequence Number

Discipline Designator
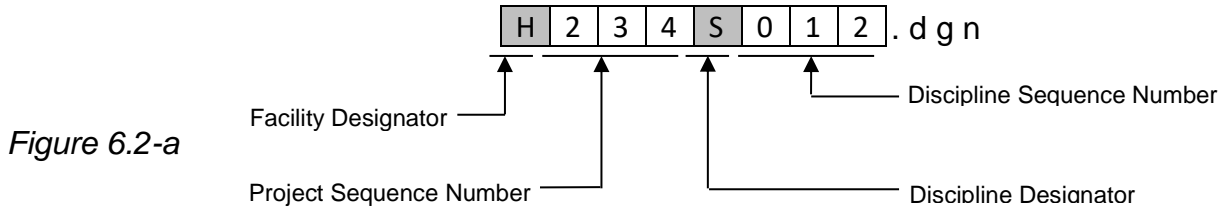
1. **Facility Designator:** The first letter character in this format denotes the subject Authority facility or facilities. See Table 6.2-1.

Table 6.2-1

Facility Designators	
Design.	Description
H	Henry Hudson Bridge
T	Robert F. Kennedy/Triborough Bridge/Randall's Island
W	Bronx-Whitestone Bridge
N	Throgs Neck Bridge
X	Cross Bay Bridge only
M	Marine Parkway Bridge only
V	Verrazano-Narrows Bridge
Q	Queens Mid-Town Tunnel
B	Hugh L. Carey/Brooklyn Battery Tunnel & Garage
Z	Authority-Wide (AW), General Maintenance (GM/GFM) or multi-facilities combined (i.e. MPB & CBB or BBT & QMT)

2. **Project Sequence Number:** The 2nd to 4th numeric characters are the project sequence number assigned by the Authority's EAM Unit. (See Appendix B)
3. **Discipline Designator:** The 5th character in this format denotes the primary discipline subject matter. See Table 6.2-2.
4. **Discipline Sequence Number:** The 6th through 8th numeric characters in this format denotes drawing number for the discipline as shown in item 3 above. (e.g. M001 denotes 1st Mechanical drawing)

Table 6.2-2

Discipline Designators	
Design.	Description
A	Architectural
C	Civil

D	All Demolition
E	Electrical
G	General (or non-discipline specific)
H	Hazardous Materials / Environmental
L	Landscape
M	Mechanical
S	Structural
T	Traffic
U	Utilities
V	Survey / Mapping
X	Secured and Controlled information (Non-Discipline Specific)

C. **Working Units:**
Unless otherwise specified, the Authority accepts only *English* working units that are Feet and Inches. Within the CAD file settings the master unit is defined in *feet* (')and the sub unit is defined in *inches (")*.

D. **Scale:**

1. **Active Drawings within the Sheet File**:
In general, Real World one to one (1:1) will be used except multi-scale drawings.

2. **Project Model Files and other Drawing References:**
Scale to fit within drawing area of the title block or module(s) and at a standard architectural or engineering scale when the Sheet is printed in Full size. See Table 7.5-1.

3. **Title Block References:**
Title blocks referenced into Sheet Files shall be at a 1:1 scale, except for conditions where the Drawings within are active and not referenced into the Sheet File. For this exception, the title block may not be 1:1, but scaled so that the Drawings, when printed with the title block and at full size, are at standard architectural engineering scales. See Table 7.5-1. Also for this exception, elements such as Notes, Dimensions and Cells must be relatively scaled to maintain consistency with those on Sheet Files which have title blocks at 1:1 scale.

6.2.2 Project Model Files

A. All Project model files used for a single project shall comply with requirements herein to allow for a coordinated and accurate Referencing among the disciplines.

B. Separate Project Model Files shall be used for each discipline involved with the project. Each discipline's Project Model File shall graphically define the physical limits of its respective work with a closed polygon(s).
C. Separate 2D Project Model Files shall be used for each datum level or location for which a Plan, Section or Elevation Drawing is cut.
D. Naming standards:

Every Project Model File must have a unique name to be tracked in the system, to avoid overwriting an existing file and manage References. This systematic naming system is developed to work within an 8.3 character file format of computer systems. See Figure 6.2-b.

Figure 6.2-b
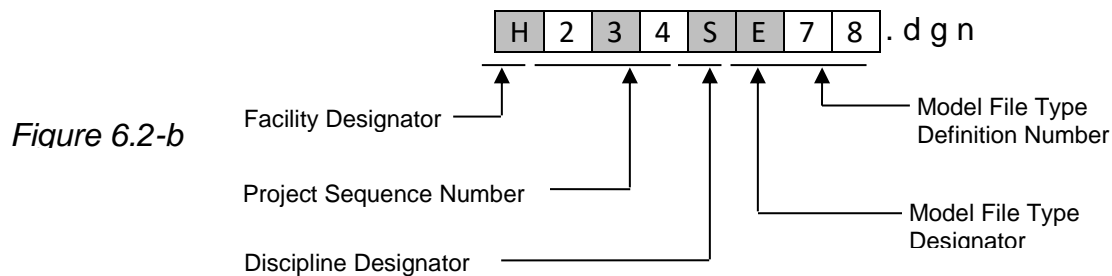
1. **Facility Designator:** The 1st character in this format denotes the subject Authority facility or facilities. See Table 6-2-1.
2. **Project Sequence Number:** The 2nd to 4th numeric characters is the project sequence number which is assigned by the Authority's EAM Unit.
3. **Discipline Designator:** The 5th character in this format denotes the primary discipline subject matter. See Table 6.2-2.
4. **Model File Type Designator:** The 6th character in this format largely denotes the drawing type. See Table 6-2-3.

Table 6.2-3

Model File Type Designators	
Design.	Description
P	Plan (Floor Plan, Site Plan, Reflected Ceiling Plan, etc.)
E	Elevation
S	Section
D	Detail
I	Isometric / 3D
G	Diagrams

5. **Model File Type Definition Number:**
The 7th and 8th characters in this format to further define the Model File type. This number can designate datum or Plan levels such as 01 for first Floor, 02 for second Floor, etc.

E. **Working Units:**

Unless otherwise specified, the Authority accepts only English working units that are feet and inches. Within the CADD file settings the master unit is defined in feet with 'for the label and the subunit is defined inches with "for the label".

F. **Global Origin:**

Each Project Model File has a unique coordinate space. The horizontal coordinate datum for the mapping of Project Model Files is based on the New York State Plane Coordinate System. Long Island Zone (3104) using NAD83. The vertical datum shall be based on NAVD88.

G. **Orientation:**

True north shall align with the CADD file's Y axis.

H. **Scale:**

Scale for active elements within Project Model files shall be real world and 1:1.

6.2.3 Facility Model File (Development Stage)

A. Only the Project Model File(s) used for As-Built or Surveyor Drawings shall be referenced into the Facility Model File. The description field for each Referenced Project Model File shall indicate which datum level or location for which a Plan, Section or Elevation Drawing is cut followed by the contract number for which it is associated.

B. **Working Units:**

Unless otherwise specified, the Authority accepts only *English* working units that are Feet and Inches. Within the CAD file settings the master unit is defined in *feet* (') and the sub unit is defined in *inches ("*).

C. **Global Origin:**

The Facility Model File has a unique coordinate space. The horizontal coordinate datum for the mapping of Project Model Files is based on the New York State Plane Coordinate System, Long Island Zone (3104) using NAD83. The vertical datum shall be based on NAVD88.

D. **Orientation:**

'True North' shall align with the CADD file's 'Y axis'.

E. **Scale:**

Scale for active elements within the Facility Model file shall be real world and 1:1

6.2.4 Supportive CADD Files

A. **Title Block:**

An Authority provided CADD file that is required to be referenced into all Sheet Files, except for the Cover Sheet, and can only be edited in specified

areas. This file provides a consistent format for all the Sheets in the set and shall be submitted with the electronic deliverables. (Available upon request)

B. Seed Files:
An Authority provided template CADD file that is required to be utilized in the creation of new CADD Drawings. (Available upon request)

C. Cells File:
An Authority provided CADD file that is required to be utilized for the consistent use of Cells and may only be edited by The Authority's EAM Unit. Project specific Cells, not within the Authority provided Cell file, are to be contained in a separate Cell file and submitted with electronic deliverables. (Available upon request)

D. Color Table File:
The standard file provided with the CADD software and used to determine the correspondence between the 256-color attributes values and the display colors within CADD for uniformity.

E. Standard Sheets Files: (Available upon request)
F. Design Library Files (DGNLib):   (Available upon request)
G. Bitmapped/Raster Image Files: (Available upon request)

6.3   Levels

6.3.1   Naming Standards:
Every Level must have a unique name and comply with the formatting requirements defined herein to allow for the organization and management of information provided in CADD files. The Level name format is organized as a hierarchy. Level names consist of distinct character fields separated from one another by hyphens. All characters are upper case and abbreviated, if necessary, to fit within the fields. See Figure 6.3-a format and Appendix C for standard Level names.
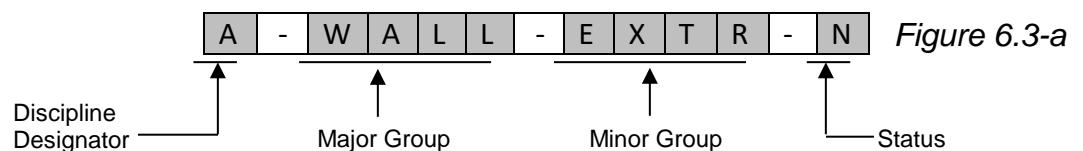
Figure 6.3-a

A. Discipline Designator:
The first letter character in this format denotes the primary discipline subject matter. See Table 6.2-2.

B. Major Group:
A four-character field after the discipline designator that identifies major system of the built environment. Any standard major group field may be

combined with any standard discipline designator. User-defined major group fields are not permitted.

C. **Minor Group:**

This is an optional, four-character field after the major field to further define the major groups. Any standard minor group may be used to modify any standard major group. Therefore, any reasonable combination of the prescribed major and minor groups is permitted. User-defined minor group fields are permitted.

D. **Status (Phase):**

The status field is an optional single-character field that distinguishes the data contained on the Level according to the status of the work or the construction phase. See Table 6-3.1.

Status Field Codes	
Code	Description
N	New Work
E	Existing to remain
D	Existing to demolish
F	Future Work
T	Temporary Work
M	Items to be moved
X	Not in Contract
1-9	Phase Numbers

Table 6.3-1

6.4   Models

All Model Files and Sheet Files are required to have only one Model with all their respective contents residing on that single Model.

7.0   DRAWING STANDARDS

7.1   Introduction:

This is to establish the way for which the Drawings and Sheets as well as their content, are organized and presented individually and as a set, for consistent and efficient communication.

7.2   Sheet Set Organization:

Organizing a set of Sheets is influenced by many factors, including project size, type, complexity and the type and number of contracts. The basic method for organizing Sheet Sets starts with groupings that are based on the architectural/engineering/construction industry's recognized professional disciplines, some of which are defined in Table 6.2-2.

7.2.1   Sheet Order

A. The non-discipline specific (General) Sheets shall be arranged at beginning of the total Sheet set. These include a cover Sheet, the index of drawings

Sheet(s) and non-discipline specific project general notes (Sheets). These may also include project phasing information.

B. See Section 7.3 Project Plan Organization for specific discipline plan order. The plan sheets are grouped by discipline to form subsets of the total drawings set.

1. Each discipline's respective general Sheets shall be arranged at the beginning of its grouping. These include discipline specific symbols (Cells) legend, abbreviations and general notes.

2. The basic order of information for the remaining Sheets of each discipline's grouping shall be one that proceeds from the general to the more specific or larger to smaller scale. This order shall be reinforced by the ascending order of the combined Sheet type and sequence number. For an illustration of this basic order, see Figure 7.2-a. (Next Page)
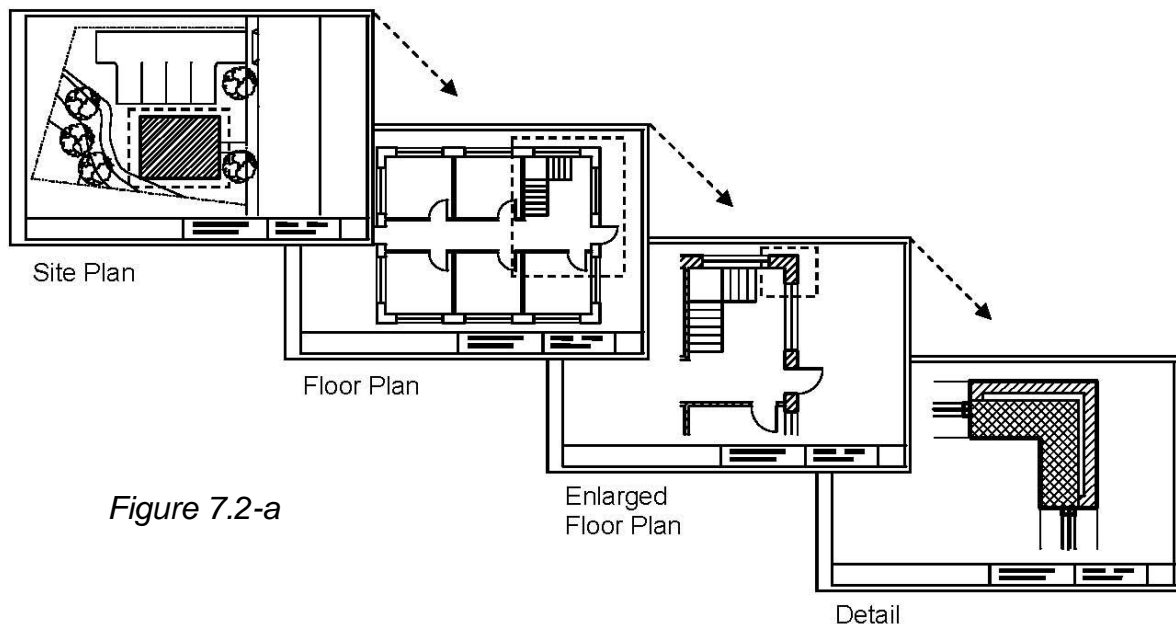
Figure 7.2-a

7.2.2   Sheet Identification:

Every Sheet must have a unique identifier or drawing number and comply with the formatting requirements defined herein to allow for the organization and management of information provided in Sheet sets. A sequential sheet number format (four components) would be used with the Level 1 and 2 discipline designator. See Figure 7.2-b.
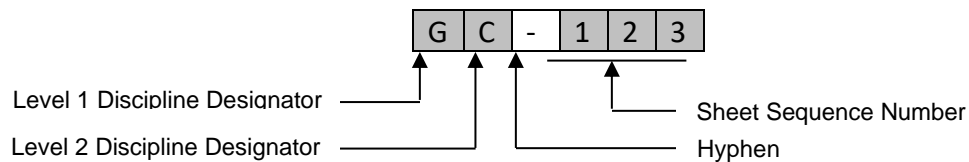
Figure 7.2-b

A.   Discipline Designator:

The first letter in this format denotes the primary discipline subject matter and the second letter denotes the type of drawing if needed. See Table 7.2-1.

B.   The Hyphen:

Separator - separates the discipline designators from the Sheet Sequence number.

C.   Sheet Number:

The next numeric character after the hyphen in this format is the sequence number for the same drawing type.

Table 7.2-1

Discipline	Designator	Description	Content
Architectural (A)	A-	All Architectural	All or any portion of subjects in the following Level 2 Designators
	AD	Architectural Demolition	Protection and removal
	AE	Architectural Elements	General architectural
	AF	Architectural Finishes	
	AG	Architectural Graphics	
	AI	Architectural Interiors	
	AS	Architectural Site	
Civil (C)	C-	All Civil	All or any portion of subjects in the following Level 2 Designators
	CD	Civil Demolition	Structure removal and site clearing
	CG	Civil Grading	Excavation, grading, drainage, erosion control, retention ponds
	CI	Civil Improvement	Pavers, flagstone, exterior tiles, furnishings, retaining walls and water features
	CP	Civil Paving	Roads, driveways, parking lots
	CS	Civil Site	Plats, topographic, dimension control
	CT	Civil Transportation	Waterways, wharves, docks, trams, railways, airfield and people movers
	CU	Civil Utilities	Water, sanitary sewer, power, communications, natural gas and stream systems
	CX	Civil Security	Security-related work
Electrical (E)	E-	All Electrical	All or any portion of subjects in the following Level 2 Designators
	ED	Electrical Demolition	Protection, termination, and removal
	EG	Electrical Grounding	Grounding, lightning protection devices
	EI	Electrical Instrumentation	Controls, relays, instrumentation, and measurement devices
	EL	Electrical Interior Lighting	Interior lighting

	EP	Electrical Interior Power	Interior power
	ES	Electrical Site	Exterior electrical systems (power, lighting, auxiliary)
	ET	Electrical Telecommunications	Telephone, network, voice, and data cables
	EY	Electrical Interior Auxiliary Systems	Fire Alarm, Security, CCTV, and PA System
General (G)	G-	All General	All or any portion of subjects in the following Level 2 Designators
			Title sheet, location and key plan
			Index of drawings
			List of abbreviations, legends and symbol, General notes
			General plan and elevation / Scope of work / Project narrative
Hazardous Materials / Environmental (H)	H-	All Hazardous Materials	All or any portion of subjects in the following Level 2 Designators
	HA	Asbestos	Asbestos abatement, identification, or containment
	HC	Chemicals	Toxic chemicals handling, removal, or storage
	HL	Lead	Lead piping or paint removal
	HP	PCB	PCB containment and removal
	HR	Refrigerants	Ozone depleting refrigerants
Landscape (L)	L-	All Landscape	All or any portion of subjects in the following Level 2 Designators
	LD	Landscape Demolition	Protection and removal of existing landscape
	LG	Landscape Grading	Proposed Contours and spot grades
	LI	Landscape Irrigation	Mainline, valves, controller pimps, etc.
	LL	Landscape Lighting	
	LP	Landscape Planting	Landscape planting
	LR	Landscape Relocation	Vegetation relocation information
	LS	Landscape Site	All site hardscape and callouts
Mechanical (M)	M-	All Mechanical	All or any portion of subjects in the following Level 2 Designators
	MD	Mechanical Demolition	Protection, termination, and removal

	MH	Mechanical HVAC	Ductwork, air devices, and equipment
	MI	Mechanical Instrumentation	Instrumentation and controls
	MP	Mechanical Piping	Chilled and heating water, steam
	MS	Mechanical Site	Utility tunnels and piping between facilities
	MY	Mechanical Hydraulic Systems	Pump stations, spillways, slide gates
Structural (S)	S-	All Structural	All or any portion of subjects in the following Level 2 Designators
	SB	Structural Substructure	Foundations, piers, slabs, and retaining walls
	SC	Structural Components	Gates, armor, bulkheads, and railing
	SD	Structural Demolition	Protection and removal
	SF	Structural Framing	Floors and roofs
	SR	Structural Reinforcement	Concrete reinforcement and anchors
	ST	Structural Superstructure	Walls, decks, abutments, gates, and weir
Traffic (T)	T-	All Traffic	All or any portion of subjects in the following Level 2 Designators
			Maintenance of Traffic Protection and Traffic Sign
Utilities (U)	U-	All Utilities	All or any portion of subjects in the following Level 2 Designators
Survey / Mapping (V)	V-		All or any portion of subjects in the following Level 2 Designators
	VA	Aerial Survey	Aerial surveyed points and features
	VC	Computed Points	Computed points and features
	VF	Field Survey	Field survey points and features
	VI	Digital Survey	Digitized points and features
	VN	Node Points	Node points and features
	VS	Staked Points	Staked points and features
Secured and Controlled Information (X)	X-	All Security Controlled Information	All or any portion of subjects in the following Level 2 Designators
		Monitoring	Access control and alarm systems
		Data Networks	Network cabling and equipment

7.3   Project Plan Organization

The following excerpt from the NYSDOT Bridge Manual provides the general format for bridge plan organization. Additional information for the bridge plan content may be found in the NYSDOT Bridge Manual provides the general format for bridge plan organization. Additional information for the bridge plan content may be found in the NYSDOT Bridge Manual in Section 14.5. Estimate of Quantities drawings are not used for TBTA contract plans.

The project plans shall, as closely as possible, follow the order and content specified below:

- **Title Sheet (including Location Plan, Key Plan and Signatures)**
- **Index of Drawings**
- **Symbols & Legends / General Notes / Load Rating Summary / Scope of Work Description**
- **Survey / Baseline / Benchmarks**
- **General Plan and Elevation**
- **Maintenance of Traffic (Work Zone Traffic Control) / Stage Construction**
- **Civil / Utilities / Hazardous Material Abatement / Environmental / Landscape**
- **Structure Plans:**
    Rehabilitation Plans
        Substructures
        Bearings
        Superstructure
        Bridge Deck
- **New Structure Plans** (excerpt from NYSDOT Bridge Manual Chapter 14.4)
        Typical Sections
        Profiles
        Boring Location Plan
        General Subsurface Profile
        Excavation and Embankment
        Beginning Abutment Plan and Elevation
        Beginning Abutment Details
        Pier 1 Plan and Elevation
        Pier 1 Details
        (Subsequent up-station piers shall be numbered sequentially and shall follow in order)
        Ending Abutment Plan and Elevation
        Ending Abutment Details
        Bearings
        Transverse Section
        Framing Plan *(Bridges with Steel Girders or Spread Prestressed Concrete Beams)*

Beam Layout *(Bridges with Adjacent Prestressed Beams)*
Girder Details *(Bridges with Steel Girders)*
Beam Details *(Bridges with Prestressed Concrete Beams)*
Haunch Table
Superstructure Slab
Approach Slabs
Joint System
Barrier *(Bridges with Concrete Barrier)*
Railing *(Bridges with Steel Railing)*
Approach Drainage
Miscellaneous Details
Bar Bending Diagrams
Bar Lists

- **Architectural Plans**
  Symbols and Abbreviations/Architectural General Notes
  Demolition Plans
  Architectural Site Plan(s)
  Details
  Schedules

- **Mechanical Plans**
  Symbols and Abbreviations/Mechanical General Notes
  Demolition Plans
  Mechanical Site Plan(s)
  Details
  Schedules

- **Electrical Plans**
  Symbols and Abbreviations/Electrical General Notes
  Demolition Plans
  Electrical Site Plan(s)
  Lighting Plans
  Power Plans
  Lightning Protection Plans (may be combined with roof and ground floor/site power plans on projects with few lightning protection components)
  Telecommunications Plans
  Signal or Other Plans
  One-line Diagrams and Riser Diagrams
  Details
  Schedules, Summary Load Studies, Lighting Fixture Schedule

7.4   Sheet Organization
7.4.1   Sheet Size:

All hardcopy Sheets of specified quantities and media shall be the same within each respective set and of the following sizes:

A. Full   (100%):   ANSI 'D', 22 inches by 34 inches.
B. Reduced   (50%):   ANSI 'B', 11 inches by 17 inches

7.4.2 Title Block:

This format shall be used on all Sheets, except the Cover Sheet, to provide a consistent format throughout the total Sheet set and only that information identified herein shall be editable. Its longest side shall be oriented horizontally with its editable text upright. Its format divides the sheet into three (3) main areas:

A. Drawing area,
B. Title Block Area, and
C. Production Data Area.

All of this is surrounded by a Sheet margin. See (rotated) Figure 7.4-a next page.

7.4.3 Electronic signature:

The Engineering & Construction Department has decided to deploy Bluebeam within the Department for viewing and commenting CAD drawings in PDF format. Also, we are currently evaluating the use of e-Signature in Bluebeam for the approval (certification) process of the engineering drawings and project sign-offs. Therefore, if a decision is made to use e-Signature in the Department then more information will be made available with detail instructions.

Figure 7.4-a
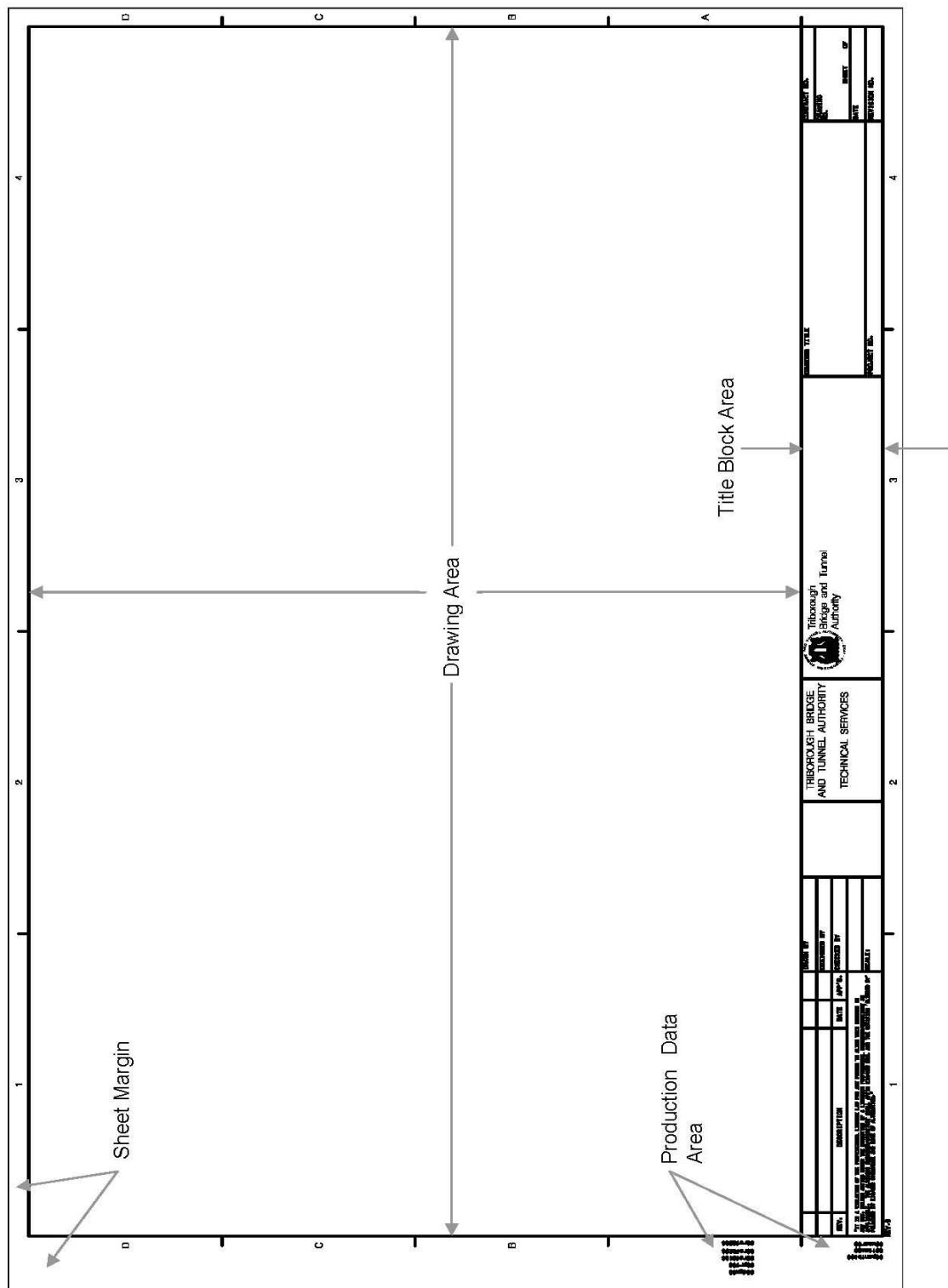
A. The Title Block Area is that portion of the Sheet containing Project, Designer, Sheet Identification, and Sheet Management Information. This area is divided into the following blocks:

1. **Revision No. Block:**
   An editable single character that designates the project milestone for which the Sheets are issued. See Table 7.4-1. In the event that more than one issuance occur within a project milestone, the suffix '-1', '-2', etc. shall be added to the letter designation.

Table 7.4-1

Title Block Revision No.	
Design.	Project Milestone
C	Conceptual/Design Brief
P	Preliminary Design
A	Advanced Design
F	Final Design
0	Sign-off

2. **Date Block:** The editable date of issuance.

3. **Drawing No. Block:**
   While somewhat of a misnomer, it is more accurately described as a Sheet identifier that is editable. See Table 7.2.2. **Once established and submitted, the drawing number or Sheet identifier shall not change throughout the development of the Drawings.** Within the same block and below this identifier includes an editable pair of numbers. The first identifies the sequential order of that particular Sheet within the total Sheet set and the second is the amount of Sheets within the total set. This pair of numbers may be revised at each issuance to accurately depict this order and amount.

4. **Contract Number Block:**
   The project's editable Contract Number and only used when the project's Contract Number differs from its Project Number.

5. **Project Number Block:**
   The editable project number as assigned by the Authority.

6. **Drawing Title Block:**
   Describes the type of information presented on the Sheet which may contain one or more Drawing types. The Drawing Title is made up of as many as three lines of editable text shall only include the major type of information shown on the Sheet.

7. **Project Identification Block:**
   Contains the non-editable Authority logo and name. This block also contains the editable project title, as assigned by the Authority below.

The project title is made up of as many as three lines of text that must include the project location or (Authority) Facility.

8. **Firm/Organization Identification Block:**
Editable information that identifies the firm or organization responsible for preparing and developing the Sheet, which is typically a consultant or the Authority itself. In the case of a consultant prepared Sheet, this block shall include the consultant firm name and logo, address, telephone number as well as web address.

9. **Professional Seal Block:**
Between the Designer Identification Block and the Management block, contains the preparer's signed professional seal.

10. **Management Block:**
Editable information that identifies the individuals responsible for preparing and developing the Sheet and the sole scale of the Drawings(s) on the Sheet. For conditions where there is more than one scale for the Drawings on a Sheet, the term 'VARIES' shall be used. Blocks within include:
- Drawn By
- Designed By
- Checked By
- Blank
- Scale

11. **Revision Block:**
Editable information that indicates the chronological issue of, and revisions to, the Sheet. The initial entry should be placed at the bottom row, with subsequent entries placed above each previous entry. This block has four columns:
- Rev.
- Description
- Date
- App'd.

B. The drawing area is that portion of the Sheet containing Drawings, Keynotes, Key Plans, Schedules, and other graphic and text data necessary to illustrate and describe the work.

1. **Modules:**
The drawing area of the title block is divided into (hidden) modules which are used for organizing Drawings within the drawing area of the Sheet. Individual Drawing types may utilize one or more modules. This modular organization allows for the creation of standard Drawing types that may be easily located within the drawing area or be moved between Sheets or projects. See Figure 7.4-b.

Figure 7.4-b
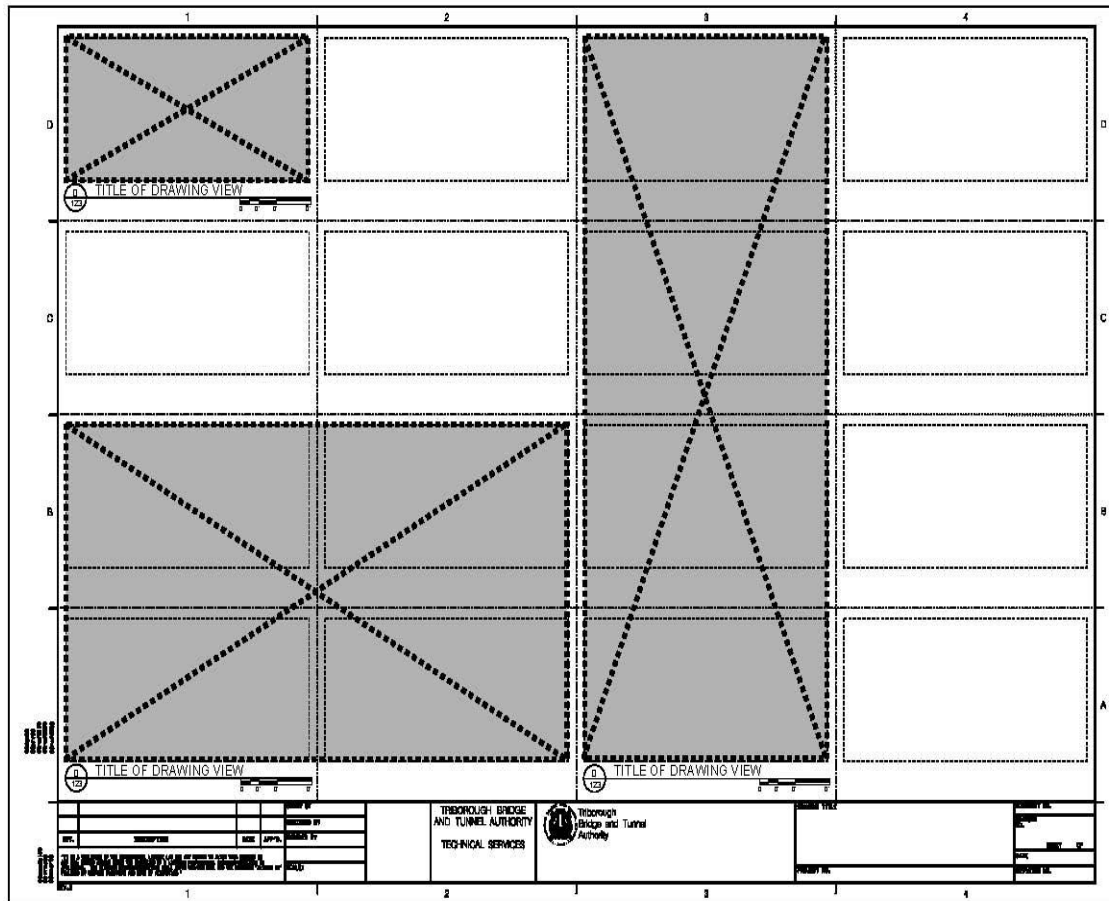
• **Organization within Module(s):** All modules or module groupings contain areas for the Drawing types and any accompanying Notes and Dimensions. This area is separated on all sides by margins with space below for the Drawing view title. It is preferable to keep Notes (with their leaders) and Dimensions clear of the graphical depiction as well as on opposite sides for clarity. It is also preferable to have the Notes aligned with the left most limits of the module or group of modules. See Figure 7.4-c.

• **Key Plan Module(s):** When a Key Plan accompanies other Drawing types, such as Plans, within the drawing area, they are to be located within the lower-most module(s) of the far right column(s).

• **Notes Module(s):** When Notes and or Keynotes accompany other Drawing types, within the drawing area, they are to be located within the uppermost module(s) in the far right column of the drawing area. When Notes are the exclusive content within a Sheet, they are to be located within the modules in the right-most column(s), starting from the top of the upper-most module and continuing down. When more than one column of modules is necessary, these Notes and text are to proceed from its left column to the next right column.
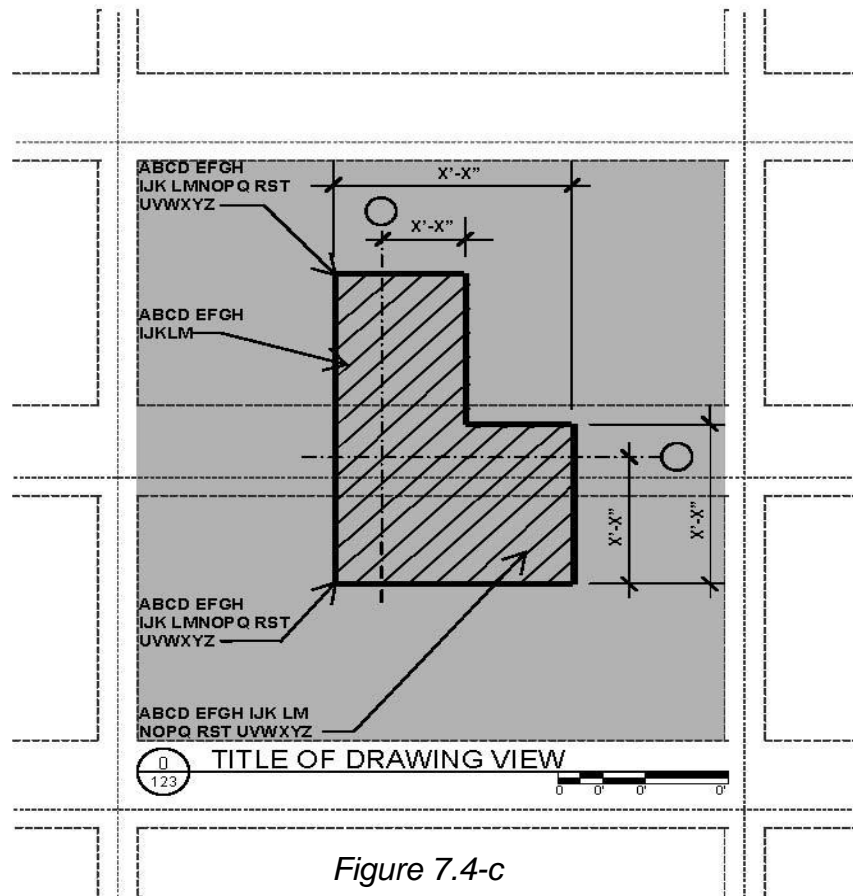
Figure 7.4-c

7.5   Graphic Standards

> ### 7.5.1   Orientation:
> Drawings may be oriented on a Sheet in a variety of ways to display the requirements of the project and in a simple manner.
> A. Ideally, the entire Plan shall be oriented to be shown on one Sheet. If it cannot be oriented to fit on one Sheet, the Plan is to be subdivided into convenient segments with match lines provided to refer to the Sheet(s) where the Plan is continued.
> B. Plans cut from the same horizontal position but at different vertical datum or Plan levels shall maintain a consistent orientation within or among Sheets for which that Plan is depicted on.
> C. It is preferred that Key Plans maintain the same orientation as those Plan(s) for which they refer to or from.
> D. The north arrow is to be shown on all Plans.
> E. Sections and Elevations shall be oriented on a Sheet so that the Section's or Elevation's vertical or plumb line aligns with Title block's shorter length (vertically).

7.5.2   Standard Scales:

With the exception of Diagrams, Schedules, Maps and Key Plans, the scale and related scale factor of all Drawings on sheet(s) shall be one of the standard scales listed in Table 7.5-1 & 7.5-2 and be expressed graphically. The scale chosen shall be large enough to allow the Drawing to display its graphic, dimensional, and textual content clearly, without congestion or ambiguity. For other exceptions where the scale is unknown, that Drawing shall be indicated as '**Not To Scale**'.

Table 7.5-1

Standard Scales		
Architectural	**Engineering**	**Typical use**
	1" = 5000'	Site Plans
	1" = 2500'	Site Plans
	1" = 1000'	Site Plans
	1" = 500'	Site Plans
	1" = 200'	Site Plans
	1" = 150'	Site Plans
	1" = 100'	Site Plans
	1" = 80'	Site Plans
	1" = 60'	Site Plans
	1" = 50'	Site Plans
	1" = 40'	Site Plans
1/32" = 1'-0"	1" = 30'	Site Plans
3/16" = 1'-0"		Floor Plans, Elevations, Sections
1/16" = 1'-0"	1" = 20'	Floor Plans, Elevations, Sections
1/8" = 1'-0"	1" = 10'	Floor Plans, Elevations, Sections
1/4" = 1'-0"	1" = 5'	Floor Plans, Elevations, Sections
3/8" = 1'-0"		Enlarged Floor Plans, Elevations
1/2" = 1'-0" 3/4" = 1'-0"	1" = 2'	Enlarged Floor Plans, Wall Sections, Foundation, Footings, Details, etc.
1" = 1'-0" 1 1/2" = 1'-0"	1" = 1'	Wall Sections, Foundations, Footings, Details, etc.
3" = 1'-0"		Details
6" = 1'-0		Details
12" = 1'-0"		Details

Table 7.5-2

Active Scale and Text Size Setup			
Drawing Scale	**Active Scale (AS)**	**Text Size (TX)**	**Line Space (LS)**
1"=1"	1	0.125 in.	0.0625 in.
3"=1'-0"	4	0.5 in.	0.25 in.
1 1/2"=1'-0"	8	1 in.	0.5 in.
1"=1'-0"	12	1.5 in.	0.75 in.
3/4"=1'-0"	16	2 in.	1 in.
1/2"=1'-0"	24	3 in.	1.5 in.
3/8"=1'-0"	32	4 in.	2 in.
1/4"=1'-0"	48	6 in.	3 in.
3/16"=1'-0"	64	8 in.	4 in.
1/8"=1'-0"	96	1 ft.	6 in.
3/32"=1'-0"	128	1 ft. 4 in.	8 in.
1/16"=1'-0"	192	2 ft.	1 ft.
1"=20'-0"	240	2.5 ft.	1.25 ft.
1"=30'-0"	360	3.75 ft.	1.875 ft.
1"=40'-0"	480	5 ft.	2.5 ft.
1"=50'-0"	600	6.25 ft.	3.125 ft.

Reminder: In general, line spacing is one half of your text size.

7.5.3 Lines:

A. **Lines Widths, Weights and Thicknesses:**

Defined by line width, it affects Drawing clarity and legibility with the wider line weights typically attracting more attention. The application of different line weights to the elements of a Drawing help to emphasize or de-emphasize those elements and are influenced by such factors as the Drawing type, scale, positional relationships and the order of emphasis. Only the line weights prescribed in Table 7.5-3 shall be used to distinguish the various elements of a Drawing.

Table 7.5-3

Line Widths, Weights and Thickness					
Line Description	Line Width	AutoCAD (mm)	Inches	MicroStation® Line Weights (mm)	
Fine	——	0.25	0.010	Wt. = 0 (0.25)	Material Indications, surface marks, hatch lines and patterns
Thin	——	0.35	0.015	Wt. = 1 (0.375)	Dimension lines, leaders, extension lines, break lines, grid lines, schedule grid lines, hidden objects, centerlines, setback lines, drawing text and general notes
Medium	——	0.50	0.020	Wt. = 2 (0.50)	Object lines, property lines, terminator marks, and schedule grid accent line
Wide	——	0.70	0.030	Wt. = 4 (0.75)	Major object lines, cut lines, section cutting plane lines, schedule outlines, drawing block and sheet borders. Large titles text (1/4 inch to 15/32 inch), object outlines and edges of elevation drawings.
Extra Wide	——	1.00	0.040	Wt. = 6 (1.00)	Minor title underlining footprints, match lines, schedule outlines, sheet borders, large titles, and object lines requiring special emphasis.
XX Wide	——	1.40	0.055	Wt. = 9 (1.375)	Major or title underlining and separating portions of the drawing Text (1/2 inch to 23/32 inch)
XXX Wide	——	2.00	0.079	Wt. = 14 (2.00)	Border sheet underlining and cover sheet line work

B. **Tones:**

The application of screened or half-tone lines to the elements of a Drawing further helps to de-emphasize those elements. Backgrounds used by another discipline as a reference for their drawing are an example. Consideration must be given to the percentage of screening as it can adversely affect Drawing clarity and legibility.

C. **Line Types, Description and Designators:**

Different from weight and tone, it is the graphical differentiation applied to the line enabling the communication of specific information through symbolic representation. The line style can represent positional location, such as the dashed style defining items hidden in the Drawing view. See Table 7.5-4. Line style can be applied to lines for use as Cells to represent a specific continuous object or identify its attributes – See Cells.

Table 7.5-4

Line Types, Description and Designators			
ID	**AutoCAD Designator**	**MicroStation® Designator**	**Example**
0	CONTINUOUS	0	━━━━━━━━
1	DOT	1	▪▪▪▪▪▪▪▪▪▪▪▪▪
2	DASHED	2	━ ━ ━ ━ ━ ━
3	DASHEDX2	3	━ ━ ━ ━ ━
4	DASHDOT	4	━▪━▪━▪━▪━
6	DIVIDE2	6	━▪▪━▪▪━▪▪━
7	CENTER2	7	━▪━▪━▪━

D. **Colors:**
   Different levels can have different colors. See Table 7.5-5.

Table 7.5-5

Color Indexes			
MicroStation® Color	**AutoCAD Color Index (ACI)**	**MicroStation® Color**	**AutoCAD Color Index (ACI)**
0	255 (White)	27	12
1	170 (Blue)	30	30
2	90 (Green)	33	172
3	10 (Red)	34	92
4	50 (Yellow)	38	30
5	210 (Magenta)	41	172
6	30	42	92
7	130 (Cyan)	46	30
8	250	114	92
9	9	115	12
10	230	119	132
11	62	130	94
12	120	140	54
15	132	146	94
23	132	174	34

7.5.4 Notes:
The following are requirements for all Notes, excluding Titles and the text which are part of Cells:

A. Size:
   The requirements for all printed Full Size Sheets 22"x34" (100%) are:
   - Text height and width shall be 1/8" for scale 1"=1".
   - Multiple line Notes shall have 1/16" line spacing 0 intercharacter spacing and left top justified for scale 1"=1".
   - Refer Table 7.5-2 for proper text size and line space in different scale of drawings

B. Line Weight:
   - Weight Number 1 or 2 (See Table 7.5-3)

C. Orientation:
   - Upright and aligned with title block's longer length (horizontally).

D. Font:
   - For Engineering General Notes and Text : **Font 3 (Engineering)**

- For Bolded Title and Subtitle Text: **Font 43 (Low_Res_Filled)**
  (Note: All characters must be upper case)

E. **Terminology and Abbreviations:**
- Generic terminology shall be based on a well-known, commonly available industry sources.
- Terminology used in Contract Drawings shall be consistent with the Terminology used in the contract specifications.
- Avoid the use of abbreviations, but when an abbreviation is essential, it must be defined within the Sheet set

7.5.5 Schedules:

The following are requirements for all Schedules:

A. **Size:**

All shall be printed at Full Scale (100%) Sheets
- Sheet size shall be (22 inches by 34 inches) and shall be relatively scaled for Reduced Sized Sheets.

B. **Row Height:**
- Sized so that there is a 1/16 inch margin above and below the line(s) of text within the borders of the row and continuous across all columns.

C. **Column Width:**
- Sized so that there is a minimum 1/16 inch space between the text within and borders of the columns and continuous across all rows.

D. **Line Weight:**
- Column and Row Borders: **Weight Number 3**
- Schedule Outline Border: **Weight Number 3** (See Table 7.5-3.)

F. **Terminology and Abbreviations:**

Match requirements for Notes except that text within column headings may be oriented to align with the Title block's shorter length (vertically).

G. **Title:** All Schedules shall be titled in the top-most row

7.5.6 Dimensions:

All Dimensions must be accurate and tied to a fixed point or reference.

The following requirements are for all Dimensions. See Figure 7.5-a.

A. **Size:**

The requirements illustrated in Figure 7.5-a are for all printed full (100%) Sheets (22 inches by 34 inches) and shall relatively scaled
For reduced Sheets.

B. **Line weight:**
- Dimension Lines, Extension lines and Leader lines:
- **Weight Number 0 or 1** (See Table 7.5-3.)
- Dimension and Leader Terminators:
- **Weight Number 0 or 1** (See Table 7.5-3)

C. Text:

Match requirements for Notes except for those regarding orientation.

D. Style:

1. Linear and Angular Dimensions:

- Individual Dimensions shall have text and or numbers aligned, above and centered on the unbroken
- Dimension line. Extension lines and diagonal stroke terminators shall be on both ends.

2. Radial Dimensions:

- Individual Dimensions shall have a vertical and/or horizontal leader ending with no center marks and an open arrow terminator.
- Text and or numbers shall be aligned and above the leader ending with an abbreviation prefix indicating radius or diameter.

E. Units:

Express the same units as those defined in the Working Units with the MU label-SU label format.
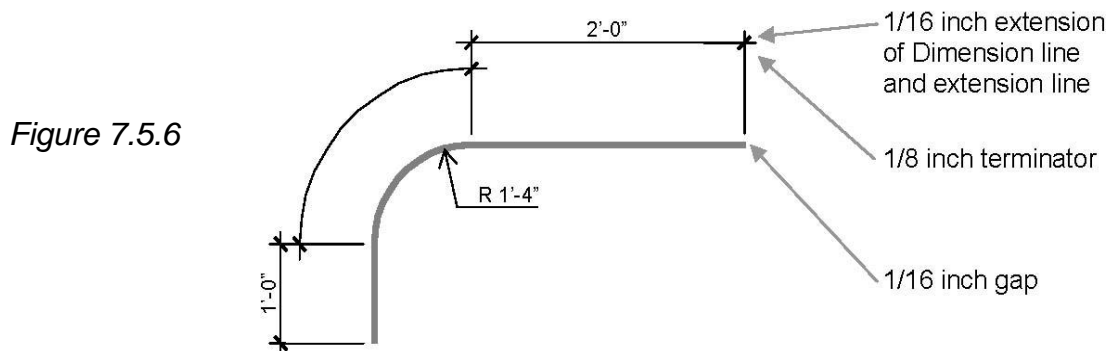
Figure 7.5.6

7.5.7 Cells:

A. Reference Cells:

1. Drawing View Title:

With the exception of Schedules, this Cell is used to identify all Drawing types. See Figure 7.5-b.

- All identifying alphanumeric characters shall be different on the Sheet in which it resides and maintain a continuous and sequential order.
- The Sheet(s) from which the titled Drawing is referred from shall be indicated with that Sheet's combined Sheet type and sequence number (no discipline designator). This combined number is part of the Sheet Identification defined in section 7.2-2 and shall be the number below the view's identifying character.
- The Title's scale bar shall accurately depict its Drawing's scale. If the titled Drawing is not to scale, then no numerical indications shall be made in the Scale Bar.
- The Title, at a minimum, shall identify its Drawing type with text.
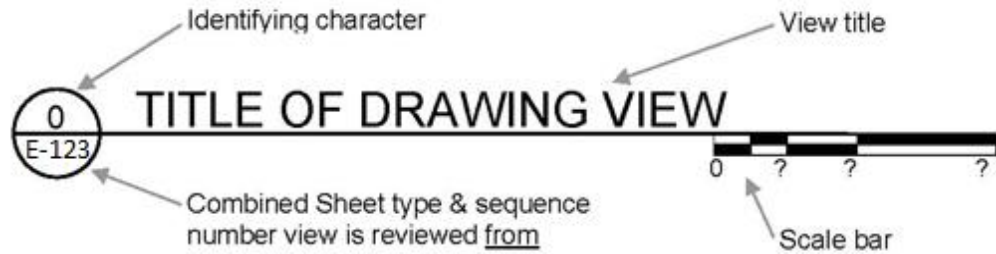
Figure 7.5-b

B. Identity Cells:

1. Column or Pier Centerline Identifiers:

These Cells are used to identify the centerlines of major structural elements such as piers, columns and bents. The alphanumeric identifiers must be the same for all disciplines indicating them. See Figure 7.5-c. These Cells shall:

- Use the existing or established alphanumeric identifiers for existing conditions, and;

- Where new centerlines or unidentified existing centerlines occur between those established, a fractional designation shall be interpolated. For example, a centerline occurring at midpoint between established centerlines **02** and **03** would be designated as **2.5**. In a similar manner, a centerline occurring between established centerlines **B** and **C** would be represented as **B.5**, or;

- Where centerlines, new or existing, have no established identifiers, they shall be identified with a two digit number that proceeds in a sequential manner relative to their positional relationship to each other. The first starts with **01** and is followed by **02** through **99**, and;

- For conditions where centerlines intersect, as is typical for a column grid, those centerlines of same orientation and of the least amount shall be identified with a single upper case letter that proceeds in a sequential manner relative to their positional relationship to each other. The first starts with **A** and is followed by **B** through **Z**, avoiding the use of letters **I** and **O** to avoid confusion with numerals **0** and **1**. Those centerlines intersecting these identified with letters shall be identified with the two digit numbers described above

Figure 7.5-c
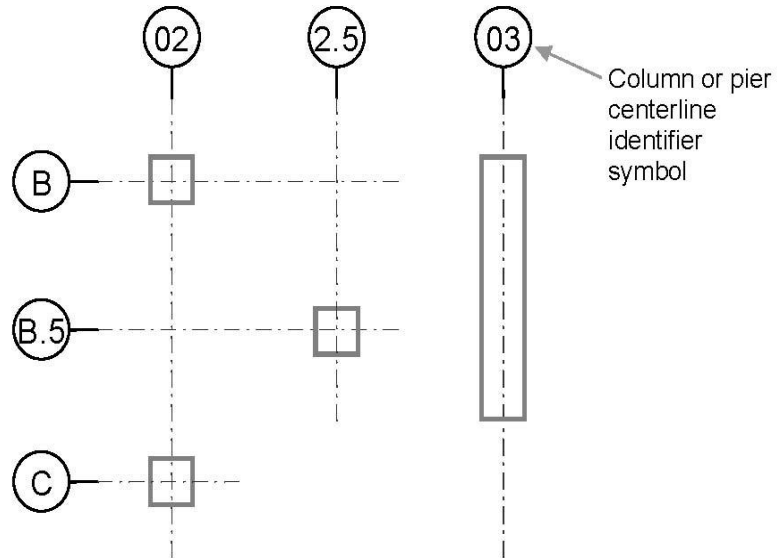
2. **Room/Space Identifier:**
    These Cells are used to identify all the major spaces or rooms in buildings and Structures within a Project's limits. The alphanumeric identifiers must be same for all disciplines indicating them. See Figure 7.5-d. The identifier shall:
    - Use the existing or established alphanumeric identifiers for existing conditions, and;
    - Where new rooms or spaces or unidentified existing rooms or spaces occur between those established, a fractional designation shall be interpolated. For example, a room occurring between rooms **202** and **203** would be Designated **202.5**, or;
    - Where rooms or spaces, new or existing, have no established identifiers,
    - They shall be identified with a three character identifier. The first alphanumeric character shall indicate the level or Floor for which the room or space occurs and is followed by a two digit number that proceeds in a sequential manner relative to their positional relationship to each other. The first of this two digit number starts with **01** and is followed by **02** through **99**. For example, Room **205** occurs next to or within Room **204**, both of which are on the Second Floor, while Room **305** occurs on the Third Floor.

3. **Door Opening Identifier:**
    These Cells are used to identify all doors and door openings within a project's limits. See Figure 7.5-d. These Cells shall:
    - Use existing or established alphanumeric identifiers for existing conditions, or;

- Where door openings, new or existing, have no established identifiers, its identifier shall match that of the room or space for which it serves as egress from, and;
- When more than one door serves a room or space, each identifier which matches that of the room or space, shall be further identified with an additional single capitalized or uppercase letter that proceeds in a sequential manner relative to their positional relationship to each other. The first starts with **A** and is followed by **B** through **Z**, avoiding the use of letters **I** and **O** to avoid confusion with numerals **0** and **1**.
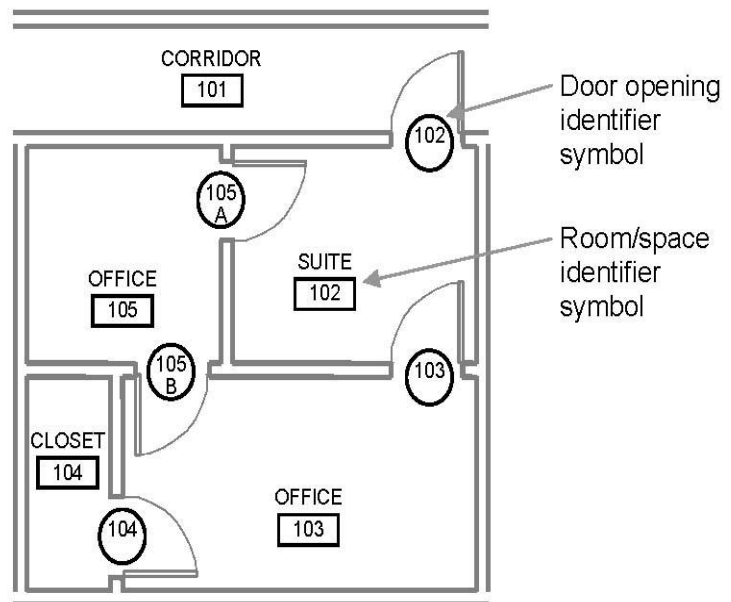
Figure 7.5-d

8.0   Digital Photographic Images

The use of photographic images provides substantially clearer details of existing conditions that may not be fully represented in drawing or sketch form. Use of photographic images should be from a digital format source. The images shall be clear, focused and well illuminated. Images should include a description; and as necessary, the specific detail in the image should be highlighted and identified with an arrow or circled to denote the specific detail in question.

The level of resolution of the image should capture adequate information of the original object to be considered high resolution for the intended use. For example, a general view image would be satisfactory for portraying the overall depiction but the same general view image file should not be magnified to provide a close up detail as the resolution of the magnified image would

not be clear and focused. A separate close up image should be provided for a high resolution of the portrayed detail.

9.0   ACKNOWLEDGEMENTS

9.1   The development of this edition of the Authority's CADD System Manual Was largely a collaborative effort within the Authority's Engineering and Construction Department, Program Support Services.

9.2   Portions of this Document are based upon the U.S. National CAD Standard™ Version 6.0; published by the National Institute of Building Sciences.

MTA **Bridges and Tunnels**

Appendix A of

Confidentiality Agreement

Date: 11/8/2019
Name

Address
Address
Address
Tel. No.

RE: CADD Disclaimer – Contract Number#

Dear Ms./Mr.

The selected CADD files and/or hard copies for existing project *(Project No.)* are being made available to you without any guarantee on the part of the Authority, as to their accuracy or completeness. Moreover, you are hereby notified that CADD files for the *facility(s) (i.e.Triborough, Marine Parkway and etc.)* were created by scanning the aperture cards, original drawings, AutoCAD or MicroStation vector (.DGN or .DWG) drawings and as a result there may be inaccuracies in the information they contain. The selected CADD files are presented to you in good faith, but they are not intended to be a substitute for your personal investigations, interpretations or judgment. It is therefore expressly agreed that you are using these CADD files at your own risk and that you shall make no claim of any kind against the Authority based upon the contents of these CADD files. These drawings shall be solely used by the consultant of record with the TBTA for work performed on TBTA projects only. At the completion of the project all copies of the drawings received from TBTA shall be either returned to the EAM Unit or destroyed with a written confirmation to the EAM Unit of the actions taken by the consultant.

Please sign at the bottom of this letter to indicate your agreement and mail it to me immediately. Upon receipt of this letter I will deliver the CADD files to you.

If you have any questions feel free to call me at (646) 252-7065

> i. DO NOT DISSEMINATE ANY OF TBTA'S DOCUMENTS (I.E. CADD DRAWINGS, REPORTS) WITHOUT TBTA'S WRITTEN AUTHORIZATION

ACCEPTED AND AGREED:

_____

_____
Engineering Applications Management Supervisor

CADD SYSTEM MANUAL

MTA Bridges and Tunnels

MTA Bridges and Tunnels

CADD PROJECT NUMBER REQUEST FORM

TBTA PROJECT NUMBER: ☐   **FACILITY:** ☐

TBTA CONTRACT NUMBER: ☐   **START DATE:** ☐
   (IF APPLICABLE)

PROJECT DESCRIPTION: ☐

TBTA PROJECT MANAGER: ☐   **PHONE:** ☐

CONSULTANT'S/   NAME: ☐
CONTRACTOR'S

LIST BELOW THE APPROXIMATE NUMBER OF DRAWINGS PER DISCIPLINE:

ARCHITECTURAL: ___	**UTILITY:** ___	**AS-BUILTS:** YES ☐	NO ☐
CIVIL: ___	**SECURTY:** ___		CHECK ONE
ELECTRICAL: ___			
GEOTECHNICAL: ___			
MECHANICAL: ___			
STRUCTURAL: ___			
TRAFFIC: ___			
ENVIRONMENTAL: ___			

DO NOT WRITE BELOW THIS LINE   FOR CADD USE ONLY

ARCHITECTURAL: ☐   **CADD PROJECT NUMBER:** ☐

CIVIL: ☐   **CADD PROJECT DIRECTORY:** ☐

ELECTRICAL: ☐

GEOTECHNICAL: ☐   H - Henry Hudson Bridge
          T - Triborough Bridge
          W - Bronx-Whitestone Bridge
MECHANICAL: ☐   N - Throgs Neck Bridge
          X - Cross Bay Bridge
          M - Marine Parkway Bridge
STRUCTURAL: ☐   V - Verrazano-Narrows Bridge
          Q - Queens Mid-Town Tunnel
TRAFFIC: ☐   B - Brooklyn Battery Tunnel
          Z – Authority Wide or Multi-facilities
ENVIRONMENTAL: ☐

Rev. 6/6/2006

Cadd Request Form.doc

Form is available upon request

CADD SYSTEM MANUAL

Appendix C Standard Level Names *(*For AutoCAD colors, line weights and types, see Table 7.5-3, 7.5-4 and 7.5-5)*

General (Non-Discipline Specific)

	Level Name	Description	Color	Style	Wt.
1.	G-ANNO-BRKL	Break Lines	5	0	0
2.	G-ANNO-COLS-IDEN	Column or Pier Centerline Identification Tags	2	0	0
3.	G-ANNO-DIMS	Dimensions	3	0	0
4.	G-ANNO-ESMT-LINE	Easement or Right-of-Way Lines	4	6	4
5.	G-ANNO-LIMT-LINE	Working or Contract Limit Lines	4	0	1
6.	G-ANNO-NORT-SYMB	North Arrow	5	0	2
7.	G-ANNO-NOTE-LEAD	Notes and Leaders	0	0	1
8.	G-ANNO-OTHR	Other Annotation Information	4	0	0
9.	G-ANNO-PATN-POCÉ	Patterns, Hatches, Fills and Pouché	9	0	0
10.	G-ANNO-PHAS-LINE	Phasing Lines	2	2	3
11.	G-ANNO-PRES-GRAF	Presentation Graphics	0	0	0
12.	G-ANNO-REFR-SYMB	Drawing Reference Cells (Elevation, Title, Section, Match Line, etc.)	2	4	4
13.	G-ANNO-REVI-BUBL	Addenda and Revision Bubbling	3	0	3
14.	G-ANNO-REVI-IDEN	Addenda and Revision Cells	0	0	2
15.	G-ANNO-ROAD-IDEN	Street or Roadway Names	3	0	1
16.	G-ANNO-SCHD-TABL	Schedule and Legends Table/Grid	1	0	1
17.	G-ANNO-SCHD-TEXT	Text and Graphics within Schedule and Legend	0	0	1
18.	G-ANNO-STAN-CNTR	Stationing Lines and Identification	0	6	0
19.	G-ANNO-TTLB	Uneditable Line work and Text of Title Block	1	0	0
20.	G-ANNO-TTLB-TEXT	Editable Text of Title Block	3	0	2
21.	G-BLDG	Buildings and Primary Structure Outlines	7	0	2
22.	G-COLS	Columns or Piers	15	0	2
23.	G-COLS-CNTR	Column or Pier Centerlines	10	4	0
24.	G-DEMO	Demolition/Removal of all items	7	0	2
25.	G-FENC	Fencing	4	0	2
26.	G-FUTR	Future Work and Items	0	0	0
27.	G-PHAS-1	Construction Phase 1	9	0	1
28.	G-PHAS-2	Construction Phase 2	9	0	1
29.	G-PHAS-3	Construction Phase 3	9	0	1
30.	G-PHAS-4	Construction Phase 4	9	0	1
31.	G-PHAS-MPTT-1	Maintenance and Protection of Traffic Phase 1	9	0	2
32.	G-PHAS-MPTT-2	Maintenance and Protection of Traffic Phase 2	9	0	2
33.	G-PHAS-MPTT-3	Maintenance and Protection of Traffic Phase 3	9	0	2
34.	G-PHAS-MPTT-4	Maintenance and Protection of Traffic Phase 4	9	0	2
35.	G-PROP-LINE	Property Lines	3	6	4
36.	G-SITE-OTHR	Other Site Information	4	0	1
37.	G-SITE-PLNT-TREE	Planting and Trees	8	0	2
38.	G-SITE-RETN	Retaining Wall	4	0	3
39.	G-SITE-ROAD	Roadways, Streets and Highways	7	0	1

Architecture

	Level Name	Description	Color	Style	Wt.
1.	A-ANNO-DIMS	Dimension Lines	3	0	0
2.	A-ANNO-DIMS-EXST	Existing Dimension Lines	0	0	0
3.	A-ANNO-KEYN	Key Notes	0	0	0
4.	A-ANNO-NOTE	Notes and Leaders	0	0	1
5.	A-ANNO-NPLT	Non-Plotting	0	0	0
6.	A-ANNO-PATT	Patterns, hatches, and fills elements	0	0	0
7.	A-ANNO-REFR	Drawing reference symbols (elevation,title,section,match,etc.)	2	4	4
8.	A-ANNO-SYMB	Symbology	0	0	0
9.	A-ANNO-TEXT	Drawing Text	0	0	1
10.	A-ANNO-TEXT-EXST	Existing Drawing Text	0	0	0
11.	A-ANNO-TEXT-TITL	Title Text	0	0	0
12.	A-ANNO-BREK	Break lines	5	0	0
13.	A-ANNO-COLS-CNTR-E	Existing column centerlines	5	4	0
14.	A-ANNO-COLS-CNTR-N	New column centerlines	10	4	0
15.	A-ANNO-COLS-IDEN-E	Existing column centerline identification tags	2	0	0
16.	A-ANNO-COLS-IDEN-N	New column centerline identification	11	0	2
17.	A-ANNO-DOOR-IDEN	Door symbols	4	0	2
18.	A-ANNO-EASE-LINE	Easement lines	4	6	4
19.	A-ANNO-ELEV-SYMB	Elevation 'bullets' for section, elevation or plans (spot)	3	0	2
20.	A-ANNO-ESCL-WKPT	Escalator working points	2	0	2
21.	A-ANNO-LIMT-LINE	Working or contract limit lines	4	0	1
22.	A-ANNO-LOUV-IDEN	Louver symbols	3	0	1
23.	A-ANNO-NORT-SYMB	North arrow	0	0	0
24.	A-ANNO-OTHR	Other annotation information	4	0	0
25.	A-ANNO-PHAS-LINE	Phasing lines	2	2	3
26.	A-ANNO-PRES-GRAF	Presentation graphics	0	0	0
27.	A-ANNO-PROP-LINE	Property or building lines	3	6	4
28.	A-ANNO-QUEU-LINE	Lines of queuing areas	7	2	0
29.	A-ANNO-RAIL-IDEN	Railing symbols	6	0	1
30.	A-ANNO-REVI-BUBL	Revision bubbling	3	0	3
31.	A-ANNO-REVI-IDEN	Revision symbols	0	0	2
32.	A-ANNO-ROOM-IDEN	Room names & symbols	2	0	1
33.	A-ANNO-SCHD-TABL	Schedule & legends table/grid	1	0	1
34.	A-ANNO-SCHD-TEXT	Text & graphics within schedule & legend	23	0	1
35.	A-ANNO-STAT-CNTR	Stationing lines and identification	0	6	0
36.	A-ANNO-STRT-IDEN	Street names	3	0	1
37.	A-ANNO-TRCK-CNTR	Track centerlines	8	7	1
38.	A-ANNO-TTLB	Uneditable line of work & text of title block	0	0	0
39.	A-ANNO-TTLB-TEXT	Editable text of title block	4	0	2
40.	A-ANNO-UPDN-ARRO	Up or down direction arrow for stairs, ramps & pitch	2	0	0
41.	A-ANNO-WALL-IDEN	Partition type symbols	2	0	1
42.	A-ANNO-WNDW-IDEN	Window symbols	3	0	1
43.	A-DEMO	Demolition/removal of all items	7	2	2
44.	A-NPLT		0	0	0
45.	A-FUTR	Future work and items	0	0	0
46.	A-COLS-E	Existing columns	15	0	2
47.	A-COLS-N	New columns	2	0	2
48.	A-BEAM-E	Existing beams	3	0	1
49.	A-BEAM-N	New beams	2	0	2
50.	A-WALL-EXTR-E	Existing exterior walls	3	0	2

Architecture

	Level Name	Description	Color	Style	Wt.
51.	A-WALL-EXTR-N	New exterior walls	4	0	4
52.	A-WALL-INTR-E	Existing interior walls	3	0	2
53.	A-WALL-INTR-N	New interior walls	4	0	2
54.	A-WALL-OPNG-ABOV	Wall opening head/lintel above	6	2	1
55.	A-WALL-OPNG-BELO	Wall opening sill below	7	2	1
56.	A-WALL-CAVI-WYTH	Lines of cavity or wythes within wall	3	0	0
57.	A-WALL-PATN-ELEV	Finish patterns or joints of wall finish in elevation	3	0	0
58.	A-WALL-OTHR	Other wall information	0	0	0
59.	A-DOOR-LEAF-E	Existing door leaf	3	0	1
60.	A-DOOR-LEAF-N	New door leaf	5	0	1
61.	A-DOOR-SWNG-E	Existing door swing	3	0	0
62.	A-DOOR-SWNG-N	New door swing	4	0	0
63.	A-DOOR-FRAM-E	Existing door frame jamb	3	0	1
64.	A-DOOR-FRAM-N	New door frame jamb	6	0	3
65.	A-DOOR-HEAD-E	Existing door frame head	3	0	1
66.	A-DOOR-HEAD-N	New door frame head	6	0	3
67.	A-DOOR-SILL-E	Existing door sill/saddle or curb	3	0	1
68.	A-DOOR-SILL-N	New door sill/saddle or curb	6	0	3
69.	A-DOOR-OVHD-E	Existing overhead/roll-up door	3	0	1
70.	A-DOOR-OVHD-N	New overhead/roll-up door	8	0	1
71.	A-DOOR-OVHD-ABOV	Overhead/roll-up door head & drum	7	2	1
72.	A-DOOR-HTCH-E	Existing hatch/scuttle	3	0	0
73.	A-DOOR-HTCH-N	New hatch/scuttle	7	0	0
74.	A-DOOR-SLID-E	Existing sliding door	3	0	1
75.	A-DOOR-SLID-N	New sliding door	5	0	0
76.	A-WNDW-EXTR-E	Existing exterior window unit	3	0	1
77.	A-WNDW-EXTR-N	New exterior window unit	7	0	1
78.	A-WNDW-INTR-E	Existing interior window unit	3	0	0
79.	A-WNDW-INTR-N	New interior window unit	1	0	1
80.	A-CRTN-WALL-E	Existing curtainwall/storefront system	3	0	0
81.	A-CRTN-WALL-N	New curtainwall/storefront system	0	0	0
82.	A-LOUV-E	Existing louver	3	0	0
83.	A-LOUV-N	New louver	6	0	1
84.	A-FLOR-LEVL-SLAB	Slab, change in floor level or opening in floor	4	0	1
85.	A-FLOR-PATN	Finish patterns of floor finish	2	1	1
86.	A-FLOR-DRAN	Floor drain	7	3	0
87.	A-FLOR-PTCH	Lines of pitch or slope in floor	2	0	0
88.	A-FLOR-PLTF	Platform edge	4	0	2
89.	A-FLOR-OTHR	Other floor information	4	0	1
90.	A-STRS-E	Existing stairs	3	0	1
91.	A-STRS-N	New stairs	5	0	1
92.	A-STRS-OTHR	Other stair information	4	0	1
93.	A-RAMP-E	Existing ramps	3	0	0
94.	A-RAMP-N	New ramps	2	0	2
95.	A-RAMP-OTHR	Other ramp information	4	0	1
96.	A-RAIL-GARD-E	Existing guardrails	3	0	0
97.	A-RAIL-GARD-N	New guardrails	5	0	0
98.	A-RAIL-HAND-E	Existing handrails	3	0	0
99.	A-RAIL-HAND-N	New handrails	4	0	0
100.	A-RAIL-AFCR-E	Existing full height/AFC railings and gates	3	0	0

Architecture

	Level Name	Description	Color	Style	Wt.
101.	A-RAIL-AFCR-N	New full height/AFC railings and gates	8	0	1
102.	A-RAIL-OTHR	Other railing information	4	0	1
103.	A-CLNG	Outline of ceiling (steps, outline, etc..)	5	0	0
104.	A-CLNG-SOFF	Outline of soffit conditions (eave overhangs)	5	0	0
105.	A-CLNG-GRID	Ceiling grid pattern	3	0	1
106.	A-CLNG-OTHR	Other ceiling information	4	0	1
107.	A-ROOF-OTLN-E	Existing roof outline (e.g. roofs with overhangs)	3	0	0
108.	A-ROOF-OTLN-N	New roof outline (e.g. roofs with overhangs)	10	0	4
109.	A-ROOF-DRAN	Roof drain	2	0	1
110.	A-ROOF-CURB	Roof curb	0	0	0
111.	A-ROOF-PTCH	Lines of pitch or slope in roof (peaks,saddles,valleys)	2	0	0
112.	A-ROOF-PADS	Roof walkway pads	2	0	1
113.	A-ROOF-MATL	Roofing material for detail (e.g. membrane)	4	0	0
114.	A-ROOF-PATN	Lines of pitch or slope in floor (i.e. saddles, valleys, etc.)	2	0	0
115.	A-ROOF-OTHR	Other roof information	4	0	1
116.	A-ELEV	Elevator car/cab platform, excl. glazing & doors	4	0	2
117.	A-ELEV-OTHR	Other elevator information	4	0	1
118.	A-ESCL---	Escalator	3	0	0
119.	A-ESCL-OTHR--	Other escalator information	4	0	1
120.	A-SITE-BLDG	Building outlines	4	4	4
121.	A-SITE-FENC	Fencing	7	0	1
122.	A-SITE-CURB	Sidewalk or street curb	3	0	2
123.	A-SITE-RETN-WALL	Retaining wall	4	0	3
124.	A-SITE-PLNT-TREE	Planting and trees	2	0	1
125.	A-SITE-DRAN	Drains	4	0	0
126.	A-SITE-MANH	Manhole	4	0	0
127.	A-SITE-FURN	Site furnishing	3	0	0
128.	A-SITE-PAVG	Paving	1	0	0
129.	A-SITE-STRP	Striping	1	0	0
130.	A-SITE-EXST	Existing site items to remain	5	0	0
131.	A-SITE-OTHR	Other site information	4	0	1
132.	A-SITE-KEYP	Key Plan Platform	0	0	0
133.	A-SITE-KEYM	Key Plan Mezzanine	0	0	0
134.	A-SITE-KEYS	Key Plan Street	0	0	0
135.	A-FURN	Furniture	7	0	1
136.	A-FURN-LOKR	Lockers	2	0	1
137.	A-SIGN	Signage (other than Station Signage)	2	0	0
138.	A-FIXT	Fixtures	4	0	1
139.	A-EQPM-E	Existing equipment	3	0	0
140.	A-EQPM-N	New equipment	2	0	1
141.	A-EQPM-OTHR	Other equipment information	4	0	1
142.	A-PLUM-FIXT-E	Existing plumbing fixtures	3	0	0
143.	A-PLUM-FIXT-N	New Plumbing fixtures	2	0	1
144.	A-PLUM-FIXT-OTHR	Other plumbing fixture information	4	0	1
145.	A-TOIL-PART-E	Existing toilet partitions & doors	3	0	0
146.	A-TOIL-PART-N	New toilet partitions & doors	2	0	1
147.	A-TOIL-ACCS	Toilet accessories	1	0	1
148.	A-CASE	Casework, millwork & cabinetry	5	0	1
149.	A-STAT-EQPM-TRNS-E	Existing station turnstiles	3	0	0
150.	A-STAT-EQPM-TRNS-N	New station turnstiles	4	0	1

Architecture

	Level Name	Description	Color	Style	Wt.
151.	A-STAT-EQPM-MVMS-E	Existing station MVM's, MRM's, MRC's, AFAS, ...	3	0	0
152.	A-STAT-EQPM-MVMS-N	New station MVM's, MRM's, MRC's, AFAS, ...	5	0	1
153.	A-STAT-EQPM-ABTH-E	Existing agent booth	3	0	0
154.	A-STAT-EQPM-ABTH-N	New agent booth	2	0	1
155.	A-STAT-EQPM-MAPS-E	Existing station maps, PIC	3	0	0
156.	A-STAT-EQPM-MAPS-N	New station maps, PIC	1	0	1
157.	A-STAT-EQPM-FURN-E	Existing benches, trash receptacles, etc.	3	0	0
158.	A-STAT-EQPM-FURN-N	New benches, trash receptacles, etc.	6	0	1
159.	A-STAT-WIND-SCRN-E	Existing wind screens	3	0	0
160.	A-STAT-WIND-SCRN-N	New wind screens	12	0	1
161.	A-STAT-GRIL	Roll up grilles	8	0	0
162.	A-STAT-TRCK	Track rails	7	0	0
163.	A-STAT-SCAR-OTLN	Subway car outline	3	0	1
164.	A-STAT-OTHR	Other station items	4	0	1
165.	A-ELEV-CASE	Wall-mounted casework	2	0	1
166.	A-ELEV-FIXT	Miscellaneous fixtures	4	0	1
167.	A-ELEV-FNSH	Finishes, woodwork, trim	2	0	0
168.	A-ELEV-IDEN	Component identification numbers	4	0	0
169.	A-ELEV-OTLN	Building outlines	5	0	4
170.	A-ELEV-PATT	Textures and hatch patterns	9	0	0
171.	A-ELEV-PFIX	Plumbing fixtures	5	0	1
172.	A-ELEV-SIGN	Signage	3	0	0
173.	A-SECT-MBND	Material beyond section cut	1	0	1
174.	A-SECT-MCUT	Material cut by section	2	0	4
175.	A-SECT-PATT	Textures and hatch patterns	9	0	0

Civil

	Level Name	Description	Color	Style	Wt.
1.	C-ANNO-DIMS	Dimensions, terminators, text, etc.	8	0	0
2.	C-ANNO-KEYN	Reference keynotes with associated leaders.	0	0	0
3.	C-ANNO-KEYP	Key Plan	0	0	0
4.	C-ANNO-MARK	Detail Marks	0	0	0
5.	C-ANNO-NARR	North Arrow	0	0	0
6.	C-ANNO-NOTE	General Notes and general remarks	0	0	1
7.	C-ANNO-NPLT	Non-plotting graphic information	0	0	0
8.	C-ANNO-PLAN	Key Plan (Floor Plan)	0	0	0
9.	C-ANNO-REFR	Reference Drawing	0	0	0
10.	C-ANNO-REVC	Revision Cloud Symbol	8	0	2
11.	C-ANNO-SYMB	Miscellaneous Symbols	0	0	0
12.	C-ANNO-TEXT	Miscellaneous text	0	0	1
13.	C-ANNO-TEXT-TITL	Title Text	0	0	3
14.	C-ANNO-TTLB	Uneditable line work & text of title block	0	0	0
15.	C-ANNO-TTLB-REV	Names and Revision Box Info	2	0	1
16.	C-ANNO-TTLB-TEXT	Information (Dwg.Title/Number/Revision Label)	2	0	3
17.	C-SYMB-BRAK	Break line	0	7	4
18.	C-SYMB-MATC	Match line	0	0	0
19.	C-SYMB-PATT	Hatching and Patterning	0	6	0
20.	C-SYMB-RAIL-BASE	Base of Rail	8	0	2
21.	C-SYMB-REVS	Revision Marker	0	0	0
22.	C-SYMB-STRA-SUB	Gravel/Soil/Ground/Rock Symbols	0	0	0
23.	C-DEMO-TEXT	Demolition Text	9	0	1
24.	C-DEMO	Demolition	9	1	2
25.	C-SITE-BLDG-EXST	Building Line (EXIST)	1	0	1
26.	C-SITE-BLDG-NEW	Building Line (NEW)	1	0	2
27.	C-SITE-CURB-EXST	Curb Line (EXIST)	2	0	0
28.	C-SITE-CURB-NEW	Curb Line (NEW)	2	0	2
29.	C-SITE-ELEV-EXST	Spot Elevations (EXIST)	0	0	0
30.	C-SITE-ELEV-NEW	Spot Elevations (NEW)	0	0	2
31.	C-SITE-FENC-EXST	Fence Line (EXIST)	7	0	1
32.	C-SITE-FENC-NEW	Fence Line (NEW)	7	0	3
33.	C-SITE-GNDW	Ground Water	3	0	0
34.	C-SITE-GNDW-TEXT	Ground Water Text	3	0	1
35.	C-SITE-GRAL	Guard Rail	5	0	0
36.	C-SITE-PROP-EXST	Property Line (EXIST)	3	6	1
37.	C-SITE-PROP-NEW	Property Line (NEW)	3	6	3
38.	C-SITE-PVMT-ASPH	Asphalt Pavement	5	0	0
39.	C-SITE-PVMT-CONC	Concrete Pavement	5	0	0
40.	C-SITE-PVMT-GRVL	Gravel Pavement	5	0	1
41.	C-SITE-SIGN	Sign	1	0	2
42.	C-SITE-SWLK	Sidewalk	0	0	0
43.	C-SITE-UNID	Unidentified Site Objects	3	0	1
44.	C-SITE-UPVD	Unpaved Surface	0	0	0
45.	C-SITE-VAUL-EXST	Basement and Vaults (EXIST)	3	0	0
46.	C-SITE-VAUL-NEW	Basement and Vaults (NEW)	3	0	2
47.	C-SITE-XCAV	Proposed Excavation	9	1	2
48.	C-UTIL-CDOT-NEW	NYC DOT (NEW)	140	0	2
49.	C-SYMB-DRAN	Drainage Slope Indications	41	0	0
50.	C-UTIL-BASN-EXST	Catch Basin (EXIST)	9	0	1

Civil

	Level Name	Description	Color	Style	Wt.
51.	C-UTIL-BASN-NEW	Catch Basin (NEW)	9	0	2
52.	C-UTIL-CATV-MHOL-EXST	Cable TV Lines Manhole (EXIST)	0	0	0
53.	C-UTIL-CATV-MHOL-NEW	Cable TV Lines Manhole (NEW)	0	0	2
54.	C-UTIL-CATV-OVHD-EXST	Cable TV Overhead Lines (EXIST)	0	0	0
55.	C-UTIL-CATV-OVHD-NEW	Cable TV Overhead Lines (NEW)	0	0	2
56.	C-UTIL-CATV-TEXT	Cable TV Lines Text	0	0	1
57.	C-UTIL-CATV-UGND-EXST	Cable TV Underground Lines (EXIST)	9	2	0
58.	C-UTIL-CATV-UGND-NEW	Cable TV Underground Lines (NEW)	9	2	2
59.	C-UTIL-CCTV-MHOL-EXST	Closed-Circuit TV Manholes (EXIST)	0	0	0
60.	C-UTIL-CCTV-MHOL-NEW	Closed-Circuit TV Manholes (NEW)	0	0	2
61.	C-UTIL-CCTV-OVHD-EXST	Closed-Circuit TV Overhead Lines (EXIST)	0	0	0
62.	C-UTIL-CCTV-OVHD-NEW	Closed-Circuit TV Overhead Lines (NEW)	0	0	2
63.	C-UTIL-CCTV-TEXT	Closed-Circuit TV Lines Text	0	0	1
64.	C-UTIL-CCTV-UGND-EXST	Closed-Circuit TV Underground Lines (EXIST)	0	0	0
65.	C-UTIL-CCTV-UGND-NEW	Closed-Circuit TV Underground Lines (NEW)	0	0	2
66.	C-UTIL-CDOT-EXST	NYC DOT (EXIST)	140	0	0
67.	C-UTIL-CDOT-TEXT	NYC DOT Text	140	0	1
68.	C-UTIL-CSWR-EXST	Combined Sewers (EXIST)	4	SEWER	0
69.	C-UTIL-CSWR-MHOL-EXST	Combined Sewers Manholes (EXIST)	4	0	0
70.	C-UTIL-CSWR-MHOL-NEW	Combined Sewers Manholes (NEW)	4	0	2
71.	C-UTIL-CSWR-NEW	Combined Sewers (NEW)	4	SEWER	2
72.	C-UTIL-CSWR-TEXT	Combined Sewers Text	4	0	1
73.	C-UTIL-DUCT-EXST	Duct Bank (EXIST)	0	0	0
74.	C-UTIL-DUCT-NEW	Duct Bank (NEW)	0	0	2
75.	C-UTIL-DUCT-TEXT	Duct Bank Text	0	0	1
76.	C-UTIL-ELEC-EXST	Electric Lines (EXIST)	3	DUCT	0
77.	C-UTIL-ELEC-MHOL-EXST	Electric Lines Manholes (EXIST)	3	0	0
78.	C-UTIL-ELEC-MHOL-NEW	Electric Lines Manholes (NEW)	3	0	2
79.	C-UTIL-ELEC-NEW	Electric Lines (NEW)	3	DUCT	2
80.	C-UTIL-ELEC-TEXT	Electric Text	3	0	1
81.	C-UTIL-FLDR-EXST	Floor Drains (EXIST)	9	0	0
82.	C-UTIL-FLDR-NEW	Floor Drains (NEW)	9	0	2
83.	C-UTIL-FLDR-TEXT	Floor Drains Text	9	0	1
84.	C-UTIL-GAS-EXST	Gas Lines (EXIST)	2	GAS	0
85.	C-UTIL-GAS-NEW	Gas Lines (NEW)	2	GAS	2
86.	C-UTIL-GAS-TEXT	Gas Text	2	0	1
87.	C-UTIL-GAS-VALV-EXST	Gas Valve (EXIST)	7	0	1
88.	C-UTIL-GAS-VALV-NEW	Gas Valve (NEW)	7	0	2
89.	C-UTIL-GRID	Utility Grid	0	0	0
90.	C-UTIL-GRID-TEXT	Utility Grid Annotation	0	0	1
91.	C-UTIL-HATCH-ACCS-EXST	Access Hatch (EXIST)	4	0	0
92.	C-UTIL-HATCH-ACCS-NEW	Access Hatch (NEW)	4	0	2
93.	C-UTIL-HYDR-EXST	Fire Hydrants (EXIST)	7	WATER	0
94.	C-UTIL-HYDR-NEW	Fire Hydrants (NEW)	7	WATER	2
95.	C-UTIL-HYDR-TEXT	Fire Hydrants Text	7	0	1
96.	C-UTIL-HYDR-VALV-EXST	Fire Hydrants Valves (EXIST)	7	0	0
97.	C-UTIL-HYDR-VALV-NEW	Fire Hydrants Valves (NEW)	7	0	2
98.	C-UTIL-IW-STOR	Industrial Waste Storage (Oil/W Separator)	3	0	0
99.	C-UTIL-MHOL-UNKW	Unknown Manholes	0	0	0
100.	C-UTIL-MISC	Miscellaneous Utility	3	0	0
101.	C-UTIL-MHOL-UNKW-TEXT	Unknown Manholes Text	0	0	1

Civil

	Level Name	Description	Color	Style	Wt.
102.	C-UTIL-MISC-ABND	Miscellaneous Abandoned Utility	3	0	0
103.	C-UTIL-MISC-TEXT	Miscellaneous Utility Text	3	0	1
104.	C-UTIL-NETL	Net Line of Excavation	0	0	4
105.	C-UTIL-NETL-TEXT	Net Line of Excavation Text	0	0	1
106.	C-UTIL-POWR-EXST	Power Lines (EXIST)	174	DUCT	0
107.	C-UTIL-POWR-NEW	Power Lines (NEW)	174	DUCT	2
108.	C-UTIL-POWR-MHOL-EXST	Power Line Manholes(EXIST)	174	0	0
109.	C-UTIL-POWR-MHOL-NEW	Power Line Manholes (NEW)	174	0	2
110.	C-UTIL-POWR-TEXT	Transit Power Text	174	0	1
111.	C-UTIL-PARK-EXST	Park Objects (EXIST)	130	0	0
112.	C-UTIL-PARK-NEW	Park Objects (NEW)	130	0	2
113.	C-UTIL-PARK-TEXT	Park Objects Text	130	0	1
114.	C-UTIL-RFDR-EXST	Roof Drains (EXIST)	41	0	0
115.	C-UTIL-RFDR-NEW	Roof Drains (NEW)	41	0	2
116.	C-UTIL-RFDR-TEXT	Roof Drains Text	41	0	1
117.	C-UTIL-SSWR-EXST	Sanitary Sewer Lines (EXIST)	4	SEWER	0
118.	C-UTIL-SSWR-MHOL-EXST	Sanitary Manholes (EXIST)	4	0	1
119.	C-UTIL-SSWR-MHOL-NEW	Sanitary Manholes (NEW)	4	0	2
120.	C-UTIL-SSWR-NEW	Sanitary Sewer Lines (NEW)	4	SEWER	2
121.	C-UTIL-SSWR-TEXT	Sanitary Sewer Text	4	0	1
122.	C-UTIL-STEM-EXST	Steam Lines (EXIST)	5	STEAM	0
123.	C-UTIL-STEM-MHOL-EXST	Steam Manholes (EXIST)	5	0	1
124.	C-UTIL-STEM-MHOL-NEW	Steam Manholes (NEW)	5	0	2
125.	C-UTIL-STEM-NEW	Steam Lines (NEW)	5	STEAM	2
126.	C-UTIL-STEM-TEXT	Steam Text	5	0	1
127.	C-UTIL-STRM-EXST	Storm Sewer Lines (EXIST)	4	SEWER	0
128.	C-UTIL-STRM-MHOL-EXST	Storm Sewer Manholes (EXIST)	4	0	1
129.	C-UTIL-STRM-MHOL-NEW	Storm Sewer Manholes (NEW)	4	0	2
130.	C-UTIL-STRM-NEW	Storm Sewer Lines (NEW)	4	SEWER	2
131.	C-UTIL-STRM-TEXT	Storm Sewer Text	4	0	1
132.	C-UTIL-TELE-MHOL-EXST	Telephone/Western Union Manhole (EXIST)	6	0	0
133.	C-UTIL-TELE-MHOL-NEW	Telephone/Western Union Manhole (NEW)	6	0	2
134.	C-UTIL-TELE-OVHD-EXST	Telephone/Western Union Overhead (EXIST)	6	0	0
135.	C-UTIL-TELE-OVHD-NEW	Telephone/Western Union Overhead (NEW)	6	0	2
136.	C-UTIL-TELE-POLE-EXST	Telephone/Western Union Pole (EXIST)	6	0	0
137.	C-UTIL-TELE-POLE-NEW	Telephone/Western Union Pole (NEW)	6	0	2
138.	C-UTIL-TELE-TEXT	Telephone Text	6	0	1
139.	C-UTIL-TELE-UGND-EXST	Telephone/Western Union Underground Lines (EXIST)	6	0	0
140.	C-UTIL-TELE-UGND-NEW	Telephone/Western Union Underground Lines (NEW)	6	0	2
141.	C-UTIL-TOPO-EXST	Surface Topo (EXIST)	0	0	0
142.	C-UTIL-TOPO-NEW	Surface Topo (NEW)	0	0	2
143.	C-UTIL-TPIT	Test Pit	3	0	2
144.	C-UTIL-TPIT-TEXT	Test Pit Annotation	3	0	1
145.	C-UTIL-TRAF-SIGL	Traffic Signal	12	0	1
146.	C-UTIL-TRAF-SIGL-TEMP	Traffic Signal (TEMP)	12	0	2
147.	C-UTIL-UGND-TANK	Underground Storage Tank	3	0	1
148.	C-UTIL-WATR-EXST	Water Lines (EXIST)	7	WATER	0
149.	C-UTIL-WATR-MHOL-EXST	Water Lines Manhole (EXIST)	6	0	1
150.	C-UTIL-WATR-MHOL-NEW	Water Lines Manhole (NEW)	6	0	2
151.	C-UTIL-WATR-TEXT	Water Text	7	0	1
152.	C-UTIL-WATR-NEW	Water Lines (NEW)	7	WATER	2

Electrical

	Level Name	Description	Color	Style	Wt.
1.	E-ANNO-DIMS	Dimensions	3	0	0
2.	E-ANNO-DIMS-EXST	Existing Dimensions	0	0	0
3.	E-ANNO-KEYN	Key Notes	0	0	0
4.	E-ANNO-NOTE	Notes	0	0	1
5.	E-ANNO-NPLT	Non Plotting	0	0	0
6.	E-ANNO-PATT	Patterns	0	0	0
7.	E-ANNO-REFR	Reference	2	4	4
8.	E-ANNO-SYMB	Symbology	0	0	0
9.	E-ANNO-TEXT	Text	0	0	1
10.	E-ANNO-TEXT-EXST	Existing Text	0	0	0
11.	E-ANNO-TEXT-TITL	Title Text	0	0	0
12.	E-ANNO-TTLB	Title Block	0	0	0
13.	E-ANNO-TTLB-TEXT	Editable Text of Title Block	0	0	0
14.	E-PWR-COMP	Equipment Components – Disconnect Switch, Circuit Breaker, etc.	3	0	3
15.	E-PWR-PNL	Equipment - Panels	3	0	3
16.	E-PWR-TRN	Equipment - Transformers	3	0	3
17.	E-PWR-CBL	Equipment - Cable	3	0	3
18.	E-PWR-CNDT	Equipment - Conduit	3	0	3
19.	E-PWR-CNDT-EXP	Exposed Conduit	3	0	3
20.	E-PWR-CNDT-CONC	Concealed Conduit	3	6	3
21.	E-PWR-CNDT-UNG	Conduit Installed Underground	3	3	3
22.	E-PWR-GND	Grounding System	3	0	3
23.	E-PWR-TEXT	POWER TEXT	3	0	2
24.	E-LTG	Light Fixture	3	0	3
25.	E-LTG-CABL	Light - Cable	3	0	3
26.	E-LTG-CNDT	Light - Conduit	3	0	3
27.	E-LTG-CKT	Light - Circuit numbers	3	0	2
28.	E-LTG-PNL	Light - Panel	3	0	3
29.	E-RCPT	Receptacles	3	0	3
30.	E-RCPT-I	Receptacles - Isolated Ground	3	0	3
31.	E-EXIST-NON ELEC	NON ELECTRICAL EXIST	3	0	0
32.	E-EXIST-ELEC	ELECTRICAL EXIST	3	0	0
33.	E-EXIST-REM	ELECTRICAL REMOVALS	3	2	0
34.	E-EXIST-TEXT	EXISTING TEXT	0	0	0
35.	E-CCTV-ALRM-DRES	Duress Alarm	5	0	0
36.	E-CCTV-ALRM-SECU	Local Security Alarm	5	0	0
37.	E-CCTV-CARD	Card Reader	5	0	0
38.	E-CCTV-CBNT	CCTV Cabinet	5	0	0
39.	E-CCTV-DATE	Date Time Character Generator	5	0	0
40.	E-CCTV-DCTR	Photo-Electric Detector	5	0	0
41.	E-CCTV-DEMO		0	2	0
42.	E-CCTV-DOOR	Door Strike	5	0	0
43.	E-CCTV-EBCS	Emergency Booth Communication System	5	0	0
44.	E-CCTV-EXST		0	0	0
45.	E-CCTV-FIBR-RCVR	Fiber Optic Receiver	5	0	0
46.	E-CCTV-FIBR-TRAN	Fiber Optic Transmitter/Multiplexer	5	0	0
47.	E-CCTV-KPAD	Key Pad	5	0	0
48.	E-CCTV-LOCK	Electromagnetic Lock	5	0	0
49.	E-CCTV-LOOP	Vehicle Detecting Magnetic Loop	5	0	0
50.	E-CCTV-MIRR	Mirror	5	0	0

Electrical

	Level Name	Description	Color	Style	Wt.
51.	E-CCTV-MOTN	Motion Detector	5	0	0
52.	E-CCTV-MOVE		0	0	0
53.	E-CCTV-MULT	Multiplexer	5	0	0
54.	E-CCTV-NEWW		0	0	1
55.	E-CCTV-PANL-ALRM	Alarm Monitoring Panel	5	0	0
56.	E-CCTV-PANL-AUXL	Auxiliary Panel for Backup Alarm Monitoring	5	0	0
57.	E-CCTV-PANL-GATE	Gate Control Panel	5	0	0
58.	E-CCTV-QUAD	Quad Processor	5	0	0
59.	E-CCTV-SENS	Shock Sensor	5	0	0
60.	E-CCTV-SRCE	Photo-Electric Source	5	0	0
61.	E-CCTV-SWCH-DOOR	Door Security Switch	5	0	0
62.	E-CCTV-SWCH-ELEV	Elevator Door Security Switch	5	0	0
63.	E-CCTV-SWCH-GATE	Gate Security Switch	5	0	0
64.	E-CCTV-SWCH-ROLL	Roll-Up Door Security Switch	5	0	0
65.	E-CCTV-TEMP		0	0	0
66.	E-CCTV-TRAN	Portable Panic Transmitter	5	0	0
67.	E-CCTV-TRAP	Trap	5	0	0
68.	E-CCTV-VDEO-CMRA	Video Camera	5	0	0
69.	E-CCTV-VDEO-MNTR	Video Monitor	5	0	0
70.	E-CCTV-VDEO-SPLT	Video Splitter	5	0	0
71.	E-CCTV-VDEO-SWCH	Video Switcher	5	0	0
72.	E-CCTV-VDEO-ZOOM	Video Camera with Pan, Tilt and Zoom	5	0	0
73.	E-FIRE-AREA	Area Smoke Detector	3	0	0
74.	E-FIRE-CMOD	FA Remote Relay Control Module	3	0	0
75.	E-FIRE-CTRL	Fire Alarm Control Panel	3	0	0
76.	E-FIRE-DEMO		0	2	0
77.	E-FIRE-DUCT	Duct Smoke Detector	3	0	0
78.	E-FIRE-EXST		0	0	0
79.	E-FIRE-FLOW	Water Flow Switch	3	0	0
80.	E-FIRE-FUSE	Fuse Cut Out Box	3	0	0
81.	E-FIRE-FIRE	Fire Extinguisher	3	0	0
82.	E-FIRE-HEAT	Heat Detector	3	0	0
83.	E-FIRE-HORN	Fire Alarm Horn/Strobe	3	0	0
84.	E-FIRE-MANU	Fire Alarm Manual Station	3	0	0
85.	E-FIRE-MMOD	FA Remote Relay Transponder Monitor Module	3	0	0
86.	E-FIRE-MOVE		0	0	0
87.	E-FIRE-NEWW		0	0	1
88.	E-FIRE-PRES	Pressure Switch	3	0	0
89.	E-FIRE-PULL	Pull Box	3	0	0
90.	E-FIRE-RLAY	Remote Relay	3	0	0
91.	E-FIRE-STRO	Strobe	3	0	0
92.	E-FIRE-TEMP		3	0	0
93.	E-FIRE-TMPR	Tamper Switch	3	0	0
94.	E-PUBL-AMPL	Booster Amplifier	5	0	0
95.	E-PUBL-CBNT	Public Address Equipment Cabinet	5	0	0
96.	E-PUBL-DEMO		0	2	0
97.	E-PUBL-DISP-CBNT	Train Dispatching System Cabinet	5	0	0
98.	E-PUBL-DISP-CONS	Train Dispatching Console	5	0	0
99.	E-PUBL-EXST		0	0	0
100.	E-PUBL-FTRE	Feature Phone	5	0	0

Electrical

	Level Name	Description	Color	Style	Wt.
101.	E-PUBL-ICOM	Staff Station Intercom	5	0	0
102.	E-PUBL-INFO	Customer Information Screen	5	0	0
103.	E-PUBL-KEYS	Key Service Unit	5	0	0
104.	E-PUBL-LOUD	Talkback Loudspeaker	5	0	0
105.	E-PUBL-MICR	Microphone	5	0	0
106.	E-PUBL-MOVE		0	0	0
107.	E-PUBL-MSTR	Trainmaster Console	5	0	0
108.	E-PUBL-NEWW		0	0	1
109.	E-PUBL-PANL	Electrical Panel	5	0	0
110.	E-PUBL-PHON	Speakerphone	5	0	0
111.	E-PUBL-SPKR	Speaker	5	0	0
112.	E-PUBL-TEMP		0	0	0
113.	E-PUBL-TURR	Public Address Turret	5	0	0
114.	E-PUBL-UPSS	Uninterruptable Power Supply	5	0	0
115.	E-SCDA-BRKR	Machine Breaker	7	0	0
116.	E-SCDA-BUTN-CLOSE	Normally Closed Pushbutton	7	0	0
117.	E-SCDA-BUTN-OPEN	Normally open Pushbutton	7	0	0
118.	E-SCDA-CAPA	Capacitor	7	0	0
119.	E-SCDA-CBNE-RTUU	RTU Cabinet	7	0	0
120.	E-SCDA-CBNE-SRTU	SRTU Cabinet	7	0	0
121.	E-SCDA-COIL	Relay Coil	7	0	0
122.	E-SCDA-CONN	Connection to Supervisors Equipment	7	0	0
123.	E-SCDA-CONE-CLOSE	Normally Closed Contact	7	0	0
124.	E-SCDA-CONE-OPEN	Normally Open Contact	7	0	0
125.	E-SCDA-DEMO		0	2	0
126.	E-SCDA-DIOD	Diode	7	0	0
127.	E-SCDA-DIOD-OPTI	Optical Diode	7	0	0
128.	E-SCDA-DIOD-ZNER	Zine Diode	7	0	0
129.	E-SCDA-EXST		0	0	0
130.	E-SCDA-FUSE	Fuse	7	0	0
131.	E-SCDA-MOVE		0	0	0
132.	E-SCDA-NEWW		0	0	1
133.	E-SCDA-RSTR	Resistor	7	0	0
134.	E-SCDA-TEMP		0	0	0
135.	E-TELE-ALRM	Emergency Alarm	2	0	0
136.	E-TELE-BLOK	Telephone Connecting Block	2	0	0
137.	E-TELE-BLOK-FACS	Telephone Connecting Block - Fax	2	0	0
138.	E-TELE-BLOK-MODM	Telephone Connecting Block - Modem	2	0	0
139.	E-TELE-BLUE	Blue Light	2	0	0
140.	E-TELE-CABL-DUCT	Cable in Duct	2	0	0
141.	E-TELE-CABL-EXPO	Exposed Cable	2	1	0
142.	E-TELE-CABL-FIG8	Figure 8 Cable	2	0	0
143.	E-TELE-CABL-LADR	Cable on Ladder	2	0	0
144.	E-TELE-CABL-MESS	Cable on Messenger	2	0	0
145.	E-TELE-CABL-RACE	Cable in Surface Metal Raceway	2	0	0
146.	E-TELE-CABL-SPLC	Splice	2	0	0
147.	E-TELE-CABL-SURF	Cable in Surface Duct	2	0	0
148.	E-TELE-CABL-TREN	Cable in Trench	2	0	0
149.	E-TELE-CABL-TROF	Cable in Trough	2	0	0
150.	E-TELE-COIL	Loading Coil	7	0	0

CADD SYSTEM MANUAL

Electrical

	Level Name	Description	Color	Style	Wt.
151.	E-TELE-COND-CEIL	Conduit Exposed	5	0	0
152.	E-TELE-COND-CONC	Conduit Concealed	5	4	0
153.	E-TELE-COND-FLOOR	Conduit Concealed in Floor	5	6	0
154.	E-TELE-DEMO		0	2	0
155.	E-TELE-DESK	Telephone Desk Set	7	0	0
156.	E-TELE-DIST	Distribution Frame	7	0	0
157.	E-TELE-EMER	Emergency Telephone	7	0	0
158.	E-TELE-EXST		0	0	0
159.	E-TELE-FACS	Facsimile	7	0	0
160.	E-TELE-JACK	Duplex Jack	5	0	0
161.	E-TELE-KEYS	Key Service Unit	7	0	0
162.	E-TELE-LOUD	Loudspeaking Telephone	7	0	0
163.	E-TELE-MAGN	Magneto Telephone	7	0	0
164.	E-TELE-MODE	Modem	7	0	0
165.	E-TELE-MOVE		0	0	0
166.	E-TELE-NEWW		0	0	1
167.	E-TELE-OUTL-2PRT	Data 2 Port Wall Outlet	5	0	0
168.	E-TELE-OUTL-4PRT	Tel/Data 4 Port Recessed Wall Outlet	5	0	0
169.	E-TELE-POWR	Power Failure Telephone	7	0	0
170.	E-TELE-SELE	Direct Station Selector	7	0	0
171.	E-TELE-SOND	Sound Powered Telephone	7	0	0
172.	E-TELE-STAT	Dedicated Station to Station Telephone	7	0	0
173.	E-TELE-TELE	Weather Proof Telephone	7	0	0
174.	E-TELE-TEMP		0	0	0
175.	E-TELE-TTBD	Telephone Terminal Board	7	0	0
176.	E-TELE-TTBI	Telephone Terminal Box Interface	7	0	0
177.	E-TELE-TTBX	Telephone Terminal Box	7	0	0
178.	E-TELE-UPSS	Uninterrupted Power Supply	7	0	0
179.	E-TELE-WALL	Wall Telephone	7	0	0

Mechanical

	Level Name	Description	Color	Style	Wt.
1.	M-ANNO-DIMS	Dimensions	3	0	1
2.	M-ANNO-DIMS-EXST	Existing Dimensions	0	0	0
3.	M-ANNO-KEYN	Key Notes	3	0	3
4.	M-ANNO-NOTE	Notes	0	0	1
5.	M-ANNO-NPLT	Non Plotting	0	0	0
6.	M-ANNO-PATT	Patterns	0	0	0
7.	M-ANNO-REFR	Reference	2	4	4
8.	M-ANNO-SYMB	Symbology	0	0	0
9.	M-ANNO-TEXT	Text	0	0	1
10.	M-ANNO-TEXT-EXST	Existing Text	0	0	0
11.	M-ANNO-TEXT-TITL	Title Text	0	0	0
12.	M-ANNO-LEGN	Annotation	2	0	1
13.	M-ANNO-REVS	Annotation	0	0	1
14.	M-ANNO-SCAL	Annotation	3	0	1
15.	M-ANNO-TTLB	Title text	2	0	3
16.	M-CMPA-CPIP-EXST	Compressed Air	3	0	1
17.	M-CMPA-CPIP-NEW	Compressed Air	3	0	3
18.	M-CMPA-DEMO	Compressed Air	3	2	1
19.	M-EQPM-COMM-EXST	Equipment	1	0	1
20.	M-EQPM-COMM-NEW	Equipment	1	0	3
21.	M-EQPM-DEMO	Equipment	4	5	1
22.	M-EQPM-EXST	Equipment	4	0	1
23.	M-EQPM-NEW	Equipment	4	0	3
24.	M-FIXT-EQPM-DEMO	Plumbing Fixtures	114	5	1
25.	M-FIXT-EQPM-EXIST	Plumbing Fixtures	114	0	1
26.	M-FIXT-EQPM-NEW	Plumbing Fixtures	114	0	3
27.	M-FIXT-PIPE-DEMO	Plumbing Fixtures	2	5	1
28.	M-FIXT-PIPE-EXST	Plumbing Fixtures	2	0	1
29.	M-FIXT-PIPE-NEW	Plumbing Fixtures	2	0	3
30.	M-HVAC-DUCT-EXST	HVAC - Ductwork	7	0	1
31.	M-HVAC-DUCT-NEW	HVAC - Ductwork	7	0	3
32.	M-HVAC-EXHS-EXST	HVAC - Exhaust	5	0	1
33.	M-HVAC-EXHS-NEW	HVAC - Exhaust	5	0	3
34.	M-PIPE-SPRN-EXST	Sprinkler System	2	0	1
35.	M-PIPE-SPRN-NEW	Sprinkler System	2	0	3
36.	M-ANNO-TTLB-TEXT	Editable text of title block	0	0	0
37.	M-DOMW-CPIM-NEW	DOMESTIC COLD WATER PIPING-NEW	1	4	3
38.	M-DOMW-CPIM-EXIST	DOMESTIC COLD WATER PIPING-EXISTING	1	4	0
39.	M-DOMW-HPIM-NEW	DOMESTIC HOT WATER PIPING-NEW	3	6	3
40.	M-DOMW-HPIM-EXIST	DOMESTIC HOT WATER PIPING-EXISTING	3	6	0
41.	M-SANR-PIPE-NEW	SANITARY DRAINAGE PIPING-NEW	7	0	3
42.	M-SANR-PIPE-EXIST	SANITARY DRAINAGE PIPING-EXISTING	7	0	0
43.	M-SANR-FLDR-NEW	FLOOR DRAINS-NEW	7	0	3
44.	M-SANR-FLDR-EXIST	FLOOR DRAINS-EXISTING	7	0	0
45.	M-SANR-VENT-NEW	VENT PIPING-NEW	7	3	3
46.	M-SANR-VENT-EXIST	VENT PIPING-EXISTING	7	3	0
47.	M-CMPA-EQPM	COMPRESSED AIR EQUIPMENT	34	0	3
48.	M-CMPA-PIPE-NEW	COMPRESSED AIR PIPING-NEW	42	0	3
49.	M-CMPA-PIPE-EXIST	COMPRESSED AIR PIPING-EXISTING	42	0	0
50.	M-FUEL-EQPM	FUEL SYSTEM EQUIPMENT	38	0	3

Mechanical

	Level Name	Description	Color	Style	Wt.
51.	M-FUEL-NGAS-NEW	NATURAL GAS PIPING-NEW	46	0	3
52.	M-FUEL-NGAS-EXIST	NATURAL GAS PIPING-EXISTING	46	0	0
53.	M-HVAC-EQPM-NEW	HVAC EQUIPMENT-NEW	4	0	3
54.	M-HVAC-ROOF	HVAC ROOF MOUNTED EQUIPMENT	4	0	3
55.	M-HVAC-RETN	HVAC RETURN DUCTWORK	46	0	3
56.	M-HVAC-SUPP	HVAC SUPPLY DUCTWORK	7	0	3
57.	M-HVAC-TAGS	HVAC EQUIPMENT TAGS AND IDENTIFICATION	5	0	3
58.	M-HVAC-CDFF	CEILING DIFFUSERS, REGISTERS, GRILLES	27	0	3
59.	M-HVAC-WDFF	WALL DIFFUSERS, REGISTERS, GRILLES	4	0	3
60.	M-EXHS-DUCT	EXHAUST DUCTWORK	42	0	3
61.	M-CWTR-PIPE	CHILLED WATER PIPING	41	0	3
62.	M-COND-PIPE-NEW	CONDENSATE PIPING-NEW	42	0	3
63.	M-LUBE-EQPM	LUBRICATION EQUIPMENT	5	0	3
64.	M-LUBE-PIPE	LUBRICATION PIPING	4	0	3
65.	M-SPRN-STAN-NEW	FIRE STANDPIPE SYSTEM-NEW	3	0	3
66.	M-SPRN-CLHD	SPRINKLER CEILING HEADS	3	0	3
67.	M-SPRN-PIPE-NEW	SPRINKLER PIPING-NEW	3	0	3
68.	M-SPRN-EQPM	SPRINKLER EQUIPMENT	3	0	3
69.	M-WATR-HYDR	HYDRANTS	3	0	0
70.	M-ANNO-PLAN	PLAN TITLE	0	0	4
71.	M-ANNO-SECTION	SECTION TITLE	0	0	3
72.	M-ANNO-DETAIL	DETAIL TITLE	0	0	3
73.	M-FLOR-IDEN	ROOM NAME	2	0	0
74.	M-FLOR-NUMB	ROOM/SPACE IDENTIFICATION NUMBER	2	0	0
75.	M-SPRN-STAN-EXIST	FIRE STANDPIPE SYSTEM-EXISTING	3	0	0
76.	M-SPRN-PIPE-EXIST	SPRINKLER PIPING-EXISTING	3	0	0
77.	M-STEM-PIPE-NEW	STEAM PIPING - NEW	0	0	3
78.	M-STEM-PIPE-EXIST	STEAM PIPING- EXISTING	0	0	1
79.	M-FUEL-SUPP-NEW	FUEL OIL SUPPLY PIPE-NEW	0	0	3
80.	M-FUEL-SUPP-EXIST	FUEL OIL SUPPLY PIPE-EXISTING	0	0	1
81.	M-FUEL-RETN-NEW	FUEL OIL RETURN PIPE-NEW	0	0	3
82.	M-FUEL-RETN-EXIST	FUEL OIL RETURN PIPE-EXISTING	0	0	1
83.	M-FLUE-PIPE-NEW	FLUE PIPE-NEW	0	0	3
84.	M-FLUE-PIPE-EXIST	FLUE PIPE-EXISTING	0	0	1
85.	M-COND-PIPE-EXIST	CONDENSATE PIPING-EXIST	0	0	1
86.	M-HVAC-EQPM-EXIST	HVAC EQUIPMENT-EXISTING	0	0	1
87.	M-VENT-FAN-NEW	FAN	4	0	3
88.	M-HYDR-EQPM-NEW	HYDRAULIC SYSTEM EQUIPMENT-NEW	5	0	3
89.	M-HYDR-EQPM-EXST	HYDRAULIC SYSTEM EQUIPMENT-EXST	5	0	0
90.	M-HYDR-PIPE-NEW	HYDRAULIC SYSTEM PIPING-NEW	4	0	3
91.	M-HYDR-PIPE-EXST	HYDRAULIC SYSTEM PIPING-EXISTING	4	0	0
92.	M-IGAS-EQPM	INERT GAS EQUIPMENT	33	0	3
93.	M-IGAS-PIPE	INERT GAS PIPING	33	0	3
94.	M-WATR-HPIP-NEW	HIGH PRESSURE WATER PIPING	5	0	3
95.	M-EQPM-HPIP-NEW	HIGH PRESSURE EQUIPMENT	5	0	3
96.	M-ANNO-CNTR	Centerline	3	7	1
97.	M-MECH-CLEA	MECHANICAL CLEARANCES	3	2	0
98.	M-COND-LPIP	LOW PRESSURE CONDENSATE PIPING	0	0	3
99.	M-HTWR-RETN	HOT WATER PIPING RETURN	0	0	3
100.	M-HTWR-SUPP	HOT WATER PIPING SUPPLY	0	0	3
101.	M-REFG-PIPE	REFRIGERANT PIPING	0	0	3

Structural

	Level Name	Description	Color	Style	Wt.
1.	S-ANNO-DIMS	Dimensions, terminators, dimension text, etc.	8	0	0
2.	S-ANNO-DIMS-EXST	Dimensions, terminators, dimension text, etc.	0	0	0
3.	S-ANNO-KEYN	Reference keynotes with associated leaders.	0	0	0
4.	S-ANNO-NOTE	General Notes and general remarks	0	0	1
5.	S-ANNO-NPLT	Non-plotting graphic information	0	0	0
6.	S-ANNO-PATT	Miscellaneous patterning and hatching	0	0	0
7.	S-ANNO-REFR		2	4	4
8.	S-ANNO-SYMB	Miscellaneous symbols	0	0	0
9.	S-ANNO-TEXT	Miscellaneous text	0	0	1
10.	S-ANNO-TEXT-EXST	Miscellaneous text	0	0	1
11.	S-ANNO-TEXT-TITL	Title Text	0	0	3
12.	S-ANNO-ADDE-BUB	Addenda and Bulletin Bubbles	3	0	2
13.	S-ANNO-DETL-MARK	Detail Marks	0	0	0
14.	S-ANNO-GRAP-SCAL	Graphic Scale	0	0	0
15.	S-ANNO-KEYP	Key Plan	0	0	0
16.	S-ANNO-NARR	North Arrow	0	0	0
17.	S-ANNO-TTLB	Uneditable line work & text of title block	0	0	0
18.	S-ANNO-TTLB-REV	Names and Revision Box Info	2	0	1
19.	S-ANNO-TTLB-TEXT	Editable text of title block	2	0	3
20.	S-BLDG-OUTL	Building Outline	3	0	1
21.	S-BRAC-EXST	Bracing New	3	0	1
22.	S-BRAC-NEW	Bracing Existing	3	0	3
23.	S-COL-CNTR	Centerline	4	4	0
24.	S-CONC-BEAM-EXST	Concrete Beam	4	0	1
25.	S-CONC-BEAM-NEW	Concrete Beam	4	0	3
26.	S-CONC-COL-EXST	Concrete Column	4	0	1
27.	S-CONC-COL-NEW	Concrete Column	4	0	3
28.	S-CONC-MISC-EXST	Misc. Concrete Elements	4	0	1
29.	S-CONC-MISC-NEW	Misc. Concrete Elements	4	0	3
30.	S-CONC-SLAB-EXST	Concrete Slabs	4	0	1
31.	S-CONC-SLAB-NEW	Concrete Slabs	4	0	3
32.	S-DEMO	Existing Elements To Be Removed	4	1	0
33.	S-DWG-OUTL	Drawing Outline	1	0	4
34.	S-MEZZ-OUTL	Mezzanine Outline	4	0	1
35.	S-MISC-ARCH-EXST	Arch Elements	0	0	1
36.	S-MISC-ARCH-NEW	Arch Elements	0	0	1
37.	S-MISC-ELEC-EXST	Elec Elements	0	0	1
38.	S-MISC-ELEC-NEW	Elec Elements	0	0	1
39.	S-MISC-EXST	Mics. Elements	0	0	1
40.	S-MISC-MECH-EXST	Mech.Elements	0	0	1
41.	S-MISC-MECH-NEW	Mech.Elements	0	0	1
42.	S-MISC-NEW	Mics. Elements	0	0	3
43.	S-PLAT-LOWR	Lower	6	0	1
44.	S-PLAT-OUTL	Platform Outline	4	0	1
45.	S-PLAT-UPPR	Upper	5	0	1
46.	S-REIN-RBAR-EXST	Reinforcement Bar/Welded Wire Fabric	0	0	1
47.	S-REIN-RBAR-NEW	Reinforcement Bar/Welded Wire Fabric	0	0	3
48.	S-SHEE-TEMP-EXST	Sheeting	6	0	1
49.	S-SHEE-TEMP-NEW	Sheeting	6	0	3
50.	S-SLAB-EXST	Slabs	4	0	1

Structural

	Level Name	Description	Color	Style	Wt.
51.	S-SLAB-NEW	Slabs	4	0	3
52.	S-SLAB-OPEN-EXST	Open Slabs	4	0	1
53.	S-SLAB-OPEN-NEW	Open Slabs	4	0	3
54.	S-SPPT-TEMP-EXST	Temporary Support	6	0	1
55.	S-SPPT-TEMP-NEW	Temporary Support	6	0	3
56.	S-STAT-LINE	Stationing Lines	0	6	0
57.	S-STAT-OUTL	Station Outline	3	0	1
58.	S-STAT-TEXT	Stationing Text	0	0	1
59.	S-STEE-BEAM-EXST	Steel Beam	2	0	1
60.	S-STEE-BEAM-NEW	Steel Beam	2	0	3
61.	S-STEE-COL-EXST	Steel Column	3	0	1
62.	S-STEE-COL-NEW	Steel Column	3	0	3
63.	S-STEE-DECK-EXST	Decking and Checkered Plate	6	0	1
64.	S-STEE-DECK-NEW	Decking and Checkered Plate	6	0	3
65.	S-STEE-GRAT-EXST	Grating and Checkered Plate	6	0	1
66.	S-STEE-GRAT-NEW	Grating and Checkered Plate	6	0	3
67.	S-STEE-MISC-EXST	Misc. Steel Elements	2	0	1
68.	S-STEE-MISC-NEW	Misc. Steel Elements	2	0	3
69.	S-STEE-PING-EXST	Steel Pinning	3	0	1
70.	S-STEE-PING-NEW	Steel Pinning	3	0	3
71.	S-SYMB-BRAK	Break line	8	0	0
72.	S-SYMB-CELL	Cells	0	0	0
73.	S-SYMB-CENT	Centerline	4	4	0
74.	S-SYMB-CENT-TRAK	Track Centerline	4	4	1
75.	S-SYMB-CRAK	Concrete Crack	0	0	0
76.	S-SYMB-MTCH	Match line	0	7	4
77.	S-SYMB-PATT	Hatching and Patterning	0	0	0
78.	S-SYMB-RAIL-BASE	Base of Rail	0	6	1
79.	S-SYMB-STRA-SUB	Gravel/Soil/Ground/Rock Symbols	0	0	0
80.	S-SYMB-WATR-LEAK	Water Leak Symbol	0	0	0
81.	S-SYMB-WELD	Weld Symbol	8	0	0
82.	S-TAGS	Tags	4	0	1
83.	S-WALL-EXST	Walls	4	0	1
84.	S-WALL-NEW	Walls	4	0	3
85.	S-WATR-PRFG-EXST	Waterproofing	6	0	1
86.	S-WATR-PRFG-NEW	Waterproofing	6	0	3

Survey / Mapping

	Level Name	Description	Color	Style	Wt.
1.	V-ALGN-DATA	ALIGNMENT DATA	6	0	1
2.	V-ALGN-LINE	ALIGNMENT LINE	2	4	1
3.	V-ALGN-PONT-CRVE	ALIGNMENT POINT OF CURVATURE	4	0	1
4.	V-ALGN-PONT-ITSN	ALIGNMENT POINT OF INTERSECTION	4	0	1
5.	V-ALGN-PONT-MISC	MISCELLANEOUS ALIGNMENT POINT	4	0	1
6.	V-ALGN-PONT-TANG	ALIGNMENT POINT OF TANGENCY	4	0	1
7.	V-ALGN-STAT	ALIGNMENT STATIONING	4	0	1
8.	V-ANNO-DATM	DATUM CELL	4	0	0
9.	V-ANNO-DIMS	WITNESS/EXTENSION LINES, DIMENSION TERMINATORS, DIMENSION TEXT	7	0	0
10.	V-ANNO-ELEV	ANNOTATION: ELEVATIONS	2	0	0
11.	V-ANNO-FRAM	ANNOTATION FRAME	4	0	0
12.	V-ANNO-LOGO	TBTA LOGO	5	0	1
13.	V-ANNO-NOTE	GENERAL NOTES AND GENERAL REMARKS	0	0	1
14.	V-ANNO-NOTH-AROW	NORTH ARROW	4	0	3
15.	V-ANNO-PATT	MISCELLANEOUS PATTERNING AND HATCHING	2	0	0
16.	V-ANNO-SCAL	SCALE	4	0	0
17.	V-ANNO-TEXT	GENERAL ANNOTATION TEXT	0	0	1
18.	V-ANNO-TITL	TITLE BLOCK	4	0	0
19.	V-ANNO-TITL-WITN	TITLE BLOCK - WITNESS BLOCK	4	0	0
20.	V-BLDG-LINE	BUILDING LINE	4	0	1
21.	V-BLDG-LINE-TEXT	BUILDING LINE TEXT	3	0	0
22.	V-BLDG-PONT-NAME	BUILDING POINT NAME	2	0	0
23.	V-BLDG-ROOF-NOUT	ROOF OUTLINE NO ELEVATION	4	0	1
24.	V-BLDG-ROOF-NOUT-LOCN	ROOF OUTLINE NO ELEVATION POINT LOCATION	2	0	0
25.	V-BLDG-ROOF-OTLN	ROOF OUTLINE	4	0	1
26.	V-BLDG-ROOF-OTLN-LOCN	ROOF OUTLINE POINT LOCATION	2	0	0
27.	V-COMM-ANNO-ELEV	COMMUNICATIONS ELEVATION	2	0	0
28.	V-COMM-PONT-NAME	COMMUNICATIONS POINT NAME	2	0	0
29.	V-COMM-TELE-BOTH	TELEPHONE BOOTH	1	0	0
30.	V-COMM-UNDR-TV	MANHATTAN CABLE 2.5' X 1.75'	1	0	0
31.	V-COMM-UTIL-TELE	TELEPHONE CO.	1	0	0
32.	V-ELEC-ANNO-ELEV	ELECTRICAL ELEVATION	2	0	0
33.	V-ELEC-BECO	BECO (Brooklyn Edison)	6	0	0
34.	V-ELEC-CNED	CON ED	6	0	0
35.	V-ELEC-CNED-VALT	CON EDISON VAULT	6	2	0
36.	V-ELEC-CNED-VALT-LOCN	CON EDISON VAULT POINT LOCATION	0	0	0
37.	V-ELEC-CTES	CTES	6	0	0
38.	V-ELEC-ECS	ECS	6	0	0
39.	V-ELEC-ELEC	ELECTRIC 2.5' X 1.75'	6	0	0
40.	V-ELEC-LGHT-VALT	VAULT LIGHTS	1	0	0
41.	V-ELEC-PONT-NAME	ELECTRICAL POINT NAME	2	0	0
42.	V-FIRE-ANNO-ELEV	FIRE ELEVATION	2	0	0
43.	V-FIRE-CALL	FIRE ALARM PULL BOX	1	0	0
44.	V-FIRE-HYDT	FIRE HYDRANT	1	0	0
45.	V-FIRE-HYDT-HPFH	HIGH PRESURE FIRE HYDRANT	1	0	0
46.	V-FIRE-HYDT-HPFS	HPFS	1	0	0
47.	V-FIRE-PONT-NAME	FIRE POINT NAME	2	0	0
48.	V-GRAD-EXST	EXISTING GRADE, GROUND LINE	2	1	2
49.	V-GRAD-FNSH	FINISHED GRADE	6	0	2
50.	V-ALGN-DATA	ALIGNMENT DATA	6	0	1

CADD SYSTEM MANUAL

Survey / Mapping

	Level Name	Description	Color	Style	Wt.
51.	V-GRID-FRAM	FRAME	2	0	1
52.	V-GRID-MAJR	MAJOR GRID LINES	2	0	0
53.	V-GRID-MINR	MINOR GRID LINES	1	0	0
54.	V-GRID-TEXT	BORDER TEXT, ANNOTATION	0	0	0
55.	V-PROP-LINE	PROPERTY LINE	2	0	0
56.	V-PROP-LINE-TEXT	PROPERTY LINE TEXT	2	0	0
57.	V-RAIL-ANNO-ELEV	RAIL ELEVATION	2	0	0
58.	V-RAIL-LINE	AILROAD LINE	6	0	0
59.	V-ROAD-ANNO-ELEV	ROAD ELEVATION	2	0	0
60.	V-ROAD-CRWN	CROWN OF ROADWAY	6	0	0
61.	V-ROAD-CRWN-LOCN	CROWN OF ROADWAY POINT LOCATION	2	0	0
62.	V-ROAD-PONT-NAME	ROAD POINT NAME	2	0	0
63.	V-SITE-ANNO-ELEV	SITE ELEVATION	2	0	0
64.	V-SITE-CURB-BOTM	BOTTOM OF CURB LINE	6	0	0
65.	V-SITE-CURB-BOTM-LOCN	BOTTOM OF CURB LINE POINT LOCATION	6	0	0
66.	V-SITE-CURB-BOTM-TEXT	BOTTOM OF CURB LINE TEXT	6	0	0
67.	V-SITE-CURB-DEPR	DEPRESSED CURB	0	2	1
68.	V-SITE-CURB-LINE	CURB LINE	0	0	1
69.	V-SITE-CURB-LINE-LOCN	CURB LINE POINT LOCATION	0	0	1
70.	V-SITE-CURB-LINE-TEXT	CURB LINE TEXT	0	0	1
71.	V-SITE-CURB-TOP	TOP OF CURB LINE	6	0	0
72.	V-SITE-CURB-TOP-LOCN	TOP OF CURB LINE POINT LOCATION	6	0	0
73.	V-SITE-CURB-TOP-TEXT	TOP OF CURB LINE TEXT	6	0	0
74.	V-SITE-DOOR-BSMT	TRAPDOORS	0	0	0
75.	V-SITE-FENC-CLFW	CHAIN LINK FENCE WALL	1	6	1
76.	V-SITE-FENC-CLFW-TEXT	CHAIN LINK FENCE WALL TEXT	1	0	0
77.	V-SITE-FENC-IF	IRON FENCE	1	6	1
78.	V-SITE-FENC-IF-TEXT	IRON FENCE TEXT	1	0	0
79.	V-SITE-FENC-LINK	CHAINLINK FENCE	1	6	1
80.	V-SITE-FENC-LINK-TEXT	CHAIN LINK FENCE TEXT	1	0	0
81.	V-SITE-FENC-WF	WOODEN FENCE	7	6	2
82.	V-SITE-FENC-WF-TEXT	WOODEN FENCE TEXT	1	0	0
83.	V-SITE-FLOR-BRCK	BRICK PAVED	0	0	0
84.	V-SITE-FLOR-BRCK-TEXT	BRICK PAVED TEXT	0	0	0
85.	V-SITE-FLOR-COBB	COBBLE STONES	0	0	0
86.	V-SITE-FLOR-COBB-TEXT	COBBLE STONES TEXT	0	0	0
87.	V-SITE-FLOR-HEX	HEX BLOCKS	0	0	0
88.	V-SITE-FLOR-HEX-TEXT	HEX BLOCKS TEXT	0	0	0
89.	V-SITE-GRTG	GRATING	1	0	1
90.	V-SITE-GRTG-LOCN	GRATING POINT LOCATION	0	0	1
91.	V-SITE-IBEM	I BEAM	7	0	0
92.	V-SITE-MISC-MBOX	MAIL BOX	1	0	0
93.	V-SITE-MISC-SIGN	SIGN POST	0	0	0
94.	V-SITE-MISC-SPKL	SPRINKLER STANDPIPE	2	0	0
95.	V-SITE-MISC-STPI	STAND PIPE	2	0	0
96.	V-SITE-PONT-NAME	SITE POINT NAME	2	0	0
97.	V-SITE-PRKG-FIXT	PARKING METER	0	0	0
98.	V-SITE-SLPE-BOTM	BOTTOM OF SLOPE LINE	6	0	0
99.	V-SITE-SLPE-BOTM-LOCN	BOTTOM OF SLOPE LINE POINT LOCATION	6	0	0
100.	V-SITE-SLPE-TOP-LOCN	TOP OF SLOPE LINE POINT LOCATION	6	0	0

CADD SYSTEM MANUAL

Survey / Mapping

	Level Name	Description	Color	Style	Wt.
101.	V-SITE-SLPE-TOP-TEXT	TOP OF SLOPE LINE TEXT	6	0	0
102.	V-SITE-STRC-COL	COLUMN	3	0	1
103.	V-SITE-STRC-COL-LOCN	COLUMN POINT LOCATION	3	0	1
104.	V-SITE-STRC-LITP	LIGHT POST	0	0	0
105.	V-SITE-STRC-PTWL	PARAPET WALL	5	0	1
106.	V-SITE-STRC-PTWL-TEXT	PARAPET WALL TEXT	5	0	0
107.	V-SITE-STRC-RFST	ROOF STRUCTURAL STEEL	7	0	1
108.	V-SITE-STRC-RFST-LOCN	ROOF STRUCTURAL STEEL POINT LOCATION	2	0	0
109.	V-SITE-WALL	STONE WALL	2	0	1
110.	V-SITE-WALL-CONC	CONCRETE WALL	2	0	1
111.	V-SITE-WALL-CONC-TEXT	CONCRETE WALL TEXT	2	0	0
112.	V-SITE-WALL-TEXT	STONE WALL TEXT	2	0	0
113.	V-SPCL-ANNO-ELEV	SPECIAL SYSTEMS ELEVATION	2	0	0
114.	V-SPCL-OTLN	OUTLINE	0	0	0
115.	V-SPCL-OTLN-DNC	OUTLINE WITH NO ELEVATION	0	0	0
116.	V-SPCL-OTLN-DNC-LOCN	OUTLINE NO ELEVATION POINT LOCATION	0	0	0
117.	V-SPCL-OTLN-LOCN	OUTLINE POINT LOCATION	0	0	0
118.	V-SPCL-PONT-NAME	SPECIAL SYSTEMS POINT NAME	2	0	0
119.	V-SPCL-TRAF-PX	PEDISTRIAN CROSSING SIG.	2	0	0
120.	V-SPCL-TRAF-PXL	COMBO. TS. & PED. XING	2	0	0
121.	V-SPCL-TRAF-TR	TRAFFIC 2.5' X 1.75'	1	0	0
122.	V-SPCL-TRAF-TS	TRAFFIC SIGNAL	0	0	0
123.	V-SPCL-TRAF-TSLP	TRAFFIC SIGNAL & LIGHT POLE	0	0	0
124.	V-SPCL-TRAF-TSXL	COMBO. TS, PED. XING & LT	2	0	0
125.	V-SPCL-UTIL-VENT	2.5' SQ VENT	0	0	0
126.	V-SSWR-ANNO-ELEV	SEWER ELEVATION	2	0	0
127.	V-SSWR-PONT-NAME	SEWER POINT NAME	2	0	0
128.	V-SSWR-STRM-SANT	SEWER - STORM / SANITARY	4	0	0
129.	V-SSWR-STRM-SANT-ELEV	SEWER - STORM / SANITARY ELEVATION	2	0	0
130.	V-SSWR-VENT	SEWER GOOSENECK VENT	2	0	0
131.	V-STRM-ANNO-ELEV	STORM SEWER ELEVATION	2	0	0
132.	V-STRM-DRAN-CB	CATCH BASIN	4	0	0
133.	V-STRM-DRAN-CB-ELEV	CATCH BASIN ELEVATION	2	0	0
134.	V-STRM-DRAN-PENT	DRAIN PIPE PENETRATION	4	0	0
135.	V-STRM-INLO-WATR	STORM WATER INLET WITH CLEAN OUT	4	0	0
136.	V-STRM-INLT-WATR	STORM WATER INLET	4	0	0
137.	V-STRM-PONT-NAME	STORM SEWER POINT NAME	2	0	0
138.	V-SURV-ANNO-ELEV	SURVEY ELEVATION	2	0	0
139.	V-SURV-DATA-CCPT	CONSULTANT CONTROL POINT	7	0	0
140.	V-SURV-DATA-CCPT-SYMB	CONSULTANT CONTROL POINT SYMBOL	7	0	1
141.	V-SURV-DATA-CKPT	CHECK CONTROL POINT	6	0	0
142.	V-SURV-DATA-CKPT-SYMB	CHECK CONTROL POINT SYMBOL	6	0	1
143.	V-SURV-DATA-TRAV	TRAVERSE POINT	4	0	0
144.	V-SURV-DATA-TRAV-SYMB	TRAVERSE POINT SYMBOL	4	0	1
145.	V-SURV-DATA-TRVS	TRAVERSE SIDE SHOT	5	0	0
146.	V-SURV-DATA-TRVS-SYMB	TRAVERSE SIDE SHOT SYMBOL	5	0	1
147.	V-SURV-DATA-WKPT	WORKING POINT	5	0	0
148.	V-SITE-SLPE-TOP-TEXT	TOP OF SLOPE LINE TEXT	6	0	0
149.	V-SITE-STRC-COL	COLUMN	3	0	1
150.	V-SURV-DATA-WKPT-SYMB	WORKING POINT SYMBOL	5	0	1

Survey / Mapping

	Level Name	Description	Color	Style	Wt.
151.	V-SURV-PONT-NAME	SURVEY POINT NAME	2	0	0
152.	V-TOPO-ANNO-ELEV	TOPOGRAPHY ELEVATION	2	0	0
153.	V-TOPO-BLKN	BREAKLINES	2	0	0
154.	V-TOPO-BORE	BORING	6	0	0
155.	V-TOPO-BORE-WELL	BORING MONITORING WELL	6	0	0
156.	V-TOPO-DTMT	TRIANGLES	4	0	0
157.	V-TOPO-GURD-POST	GUARD POST	0	0	0
158.	V-TOPO-LOCN-PONT	LOCATION OF POINT	2	0	0
159.	V-TOPO-MAJR	MAJOR CONTOURS	2	0	1
160.	V-TOPO-MAJR-DPRN	MAJOR DEPRESSION CONTOURS	7	0	1
161.	V-TOPO-MAJR-IDEN	MAJOR CONTOURS TEXT	2	0	1
162.	V-TOPO-MINR	MINOR CONTOURS	4	2	0
163.	V-TOPO-MINR-DPRN	MINOR DEPRESSION CONTOURS	7	2	0
164.	V-TOPO-PMTR	PERIMETER	2	0	1
165.	V-TOPO-PONT-NAME	TOPOGRAPHY POINT NAME	2	0	0
166.	V-TOPO-SHRB	SHRUB	2	0	0
167.	V-TOPO-SHRB-LINE	SHRUB LINE	2	SHRUB	1
168.	V-TOPO-SPOT	GROUND SHOT	6	0	0
169.	V-TOPO-SPOT-ANNO-ELEV	GROUND SHOT ELEVATION	6	0	0
170.	V-TOPO-SPOT-CEIL	CEILING SHOT	7	0	0
171.	V-TOPO-SPOT-CEIL-ANNO-ELEV	CEILING SHOT ELEVATION	7	0	0
172.	V-TOPO-SPOT-CEIL-PONT-NAME	CEILING SHOT POINT NAME	7	0	0
173.	V-TOPO-SPOT-PONT-NAME	GROUND SHOT POINT NAME	6	0	0
174.	V-TOPO-TREE	TREE	2	0	0
175.	V-UTIL-ANNO-ELEV	UTILITY ELEVATION	2	0	0
176.	V-UTIL-COAL-COVR	COAL SHOOT COVER	4	0	0
177.	V-UTIL-DPW	DEPT PUBLIC WORKS	4	0	0
178.	V-UTIL-FILL-OIL	OIL FILL	1	0	0
179.	V-UTIL-FLDR	DRAIN	4	0	0
180.	V-UTIL-FLDR-ELEV	DRAIN ELEVATION	2	0	0
181.	V-UTIL-GAS	GAS	3	0	0
182.	V-UTIL-MHOL	MANHOLE	2	0	0
183.	V-UTIL-POLE	UTILITY POLE	2	0	0
184.	V-UTIL-PONT-NAME	UTILITY POINT NAME	2	0	0
185.	V-UTIL-ROOF-DRAN	ROOF DRAIN	4	0	0
186.	V-UTIL-STEM	NEW YORK STEAM CO.	3	0	0
187.	V-UTIL-SWCH-AIR	AIR SWITCH	4	0	0
188.	V-UTIL-VALV-AIR	AIR LINE SHUT OFF VALVE	4	0	0
189.	V-UTIL-VENT-OIL	OIL VENT	1	0	0
190.	V-UTIL-WATR	WATER	1	0	0
191.	V-UTIL-WATR-DWS	DWS	1	0	0

CADD SYSTEM MANUAL

Environmental

	Level Name	Description	Color	Style	Wt.
1.	H-ANNO-DIMS	Dimension Lines	3	0	0
2.	H-ANNO-KEYN	Key Notes	0	0	0
3.	H-ANNO-NOTE	Notes and Leaders	0	0	1
4.	H-ANNO-NPLT	Non Plotting	0	0	0
5.	H-ANNO-REFR	Reference, external files	0	0	0
6.	H-ANNO-SYMB	Reference Symbols	0	0	0
7.	H-ANNO-TEXT	Text	0	0	1
8.	H-ANNO-MARK	Markers, break marks, leaders	5	0	0
9.	H-ANNO-TTLB	Border and Title Block	4	0	2
10.	H-ANNO-LEGN	Legends, symbols Keys	0	0	0
11.	H-ANNO-TITL	Drawing or detail Titles	0	0	0
12.	H-ANNO-REVC	Revision Clouds	3	0	3
13.	H-ANNO-MATC	Match lines	0	7	4
14.	H-ANNO-TABL	Data Tables	0	0	0
15.	H-PLAN	Key Plan (floor Plan)	4	0	1
16.	H-SITE	Key plan (site features)	2	0	4

Traffic

	Level Name	Description	Color	Style	Wt.
1.	T-ANNO-BRKL	Break Lines	5	0	0
2.	T-ANNO-COLS-IDEN	Column or Pier Centerline Identification Tags	2	0	0
3.	T-ANNO-DIMS	Dimensions	3	0	0
4.	T-ANNO-ESMT-LINE	Easement or Right-of-Way Lines	4	6	4
5.	T-ANNO-LIMT-LINE	Working or Contract Limit Lines	4	0	1
6.	T-ANNO-NORT-SYMB	North Arrow	5	0	2
7.	T-ANNO-NOTE-LEAD	Notes and Leaders	0	0	1
8.	T-ANNO-OTHR	Other Annotation Information	4	0	0
9.	T-ANNO-PATN-POCÉ	Patterns, Hatches, Fills and Pouché	9	0	0
10.	T-ANNO-PHAS-LINE	Phasing Lines	2	2	3
11.	T-ANNO-PRES-GRAF	Presentation Graphics	0	0	0
12.	T-ANNO-REFR-SYMB	Drawing Reference Cells (Elevation, Title, Section, Match Line, etc.)	2	4	4
13.	T-ANNO-REVI-BUBL	Addenda and Revision Bubbling	3	0	3
14.	T-ANNO-REVI-IDEN	Addenda and Revision Cells	0	0	2
15.	T-ANNO-ROAD-IDEN	Street or Roadway Names	3	0	1
16.	T-ANNO-SCHD-TABL	Schedule and Legends Table/Grid	1	0	1
17.	T-ANNO-SCHD-TEXT	Text and Graphics within Schedule and Legend	0	0	1
18.	T-ANNO-STAN-CNTR	Stationing Lines and Identification	0	6	0
19.	T-ANNO-TTLB	Uneditable Line work and Text of Title Block	1	0	0
20.	T-ANNO-TTLB-TEXT	Editable Text of Title Block	3	0	2
21.	T-BLDG	Buildings and Primary Structure Outlines	7	0	2
22.	T-COLS	Columns or Piers	15	0	2
23.	T-COLS-CNTR	Column or Pier Centerlines	10	4	0
24.	T-CONE	Cones	5	0	2
25.	T-DEMO	Demolition/Removal of all items	7	0	2
26.	T-DRUM	Drum	5	0	2
27.	T-FENC	Fencing	4	0	2
28.	T-FLOW	Flow	0	0	3
29.	T-FUTR	Future Work and Items	0	0	0
30.	T-LANE-CLOS	Lane closure locations	6	2	3
31.	T-MPT-1	Maintenance and Protection of Traffic Phase 1	9	0	2
32.	T-MPT-2	Maintenance and Protection of Traffic Phase 2	9	0	2
33.	T-MPT-3	Maintenance and Protection of Traffic Phase 3	9	0	2
34.	T-MPT-4	Maintenance and Protection of Traffic Phase 4	9	0	2
35.	T-MRKG-LANE	Lane markings	0	3	0
36.	T-MRKG-PVMT-CNTL	Pavement centerline markings	0	4	0
37.	T-MRKG-PVMT-SYMB	Pavement markings symbols & text	0	0	1
38.	T-MRKG-STRP-PVMT	Pavement markings & striping	0	0	1
39.	T-SGNL	Traffic signals	12	0	1
40.	T-SIGN	Signage	12	0	1
41.	T-SIGN-SUPT	Sign support & gantries	12	0	1

Appendix D TBTA Standard Files (Available Upon Request):

1.0 **Border Files**
TBTABDRA.DGN - ANSI Size A 8 ½" X 11"
TBTABDRB.DGN - ANSI Size B 11" X 17"
TBTABDRC.DGN - ANSI Size C 17" X 22"
TBTABDRD.DGN - ANSI Size D 22" X 34" (TBTA Standard Border)

2.0 **Cover Sheet Files**
TITLESHT-.DGN - For projects with a construction estimate **under** $500,000
TITLESHT+.DGN - For projects with a construction estimate **over** $500,000

3.0 **Cells Library Files**
AR1TBTA.CEL – Architectural Cell Library
EL1TBTA.CEL – Electrical Cell Library
ST1TBTA.CEL – Structural Cell Library

4.0 **Level Library Files**
MTA_B&T_Arch.DGNLIB – Architectural Level Library
MTA_B&T_Civl.DGNLIB – Civil Level Library
MTA_B&T_Elec.DGNLIB – Electrical Level Library
MTA_B&T_Gene.DGNLIB – General Use Level Library
MTA_B&T_Mech.DGNLIB – Mechanical Level Library
MTA_B&T_Stru.DGNLIB – Structural Level Library
MTA_B&T_Surv.DGNLIB – Survey/Mapping Level Library
MTA_B&T_Traf.DGNLIB – Traffic Level Library

5.0 **Seed Files**

	Drawing Scale		Drawing Scale
SEED001.DGN	1"=1"	SEED112.DGN	1½"=1'-0"
SEED003.DGN	3"=1'-0"	SEED116.DGN	1/16"-1'-0"
SEED011.DGN	1"=1'-0"	SEED316.DGN	3/16"=1'-0"
SEED012.DGN	½"=1'-0"	SEED332.DGN	3/32"=1'-0"
SEED014.DGN	¼"=1'-0"	SEED020.DGN	1"=20'-0"
SEED018.DGN	⅛"=1'-0"	SEED030.DGN	1"=30'-0"
SEED034.DGN	¾"=1'0"	SEED040.DGN	1'=40'-0"
SEED038.DGN	⅜"=1'-0"	SEED050.DGN	1'=50'-0"

6.0 **Template Files**

MicroStation: **TBTA_TEMPLATE.DGN**
AutoCAD: **TBTA_BORDER_TEMPLATE.DWT**