

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                                                                          |
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| <p>OS-299 (5-21)</p>  <p><b>pennsylvania</b><br/>DEPARTMENT OF TRANSPORTATION<br/>www.penndot.gov</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>TRANSMITTAL LETTER</p> | <p>PUBLICATION:<br/>Publication 14M</p> <hr/> <p>DATE:<br/>6/15/2022</p> |
| <p>SUBJECT:</p> <p style="text-align: center;"><b>Revisions to<br/>Design Manual, Part 3<br/>Plans Presentation<br/>March 2015 Edition, Change No. 4</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |                                                                          |
| <p>INFORMATION AND SPECIAL INSTRUCTIONS:</p> <p>Incorporate the attached revisions into the March 2015 Edition of Publication 14M.</p> <p>These updates should be effective as soon as practical without affecting any letting schedules, but no later than September 3, 2022.</p> <p>TABLE OF CONTENTS</p> <p>-Updated for consistency with the revisions made as described below.</p> <p>CHAPTER 6 CONTOUR GRADING AND DRAINAGE PLANS, EROSION AND SEDIMENT POLLUTION CONTROL PLANS, AND POST CONSTRUCTION STORMWATER MANAGEMENT PLANS</p> <p>*General</p> <p>-Revised title to Contour Grading and Drainage Plans, Erosion and Sediment Pollution Control Plans, and Post Construction Stormwater Management Plans.</p> <p>-Removed metric units from text.</p> <p>*Section 6.0 (Introduction)</p> <p>-Updated the third, fourth, and fifth paragraphs.</p> <p>*Section 6.1 (Contour Grading and Drainage Plans)</p> <p>-Revised items related to contour intervals and signature/seal on plans.</p> <p>*Section 6.2 (Erosion and Sediment Pollution Control Plans)</p> <p>-Replaced section with detailed outline of plan content, including subsections for Title Sheet, Index Sheet, Construction Notes and Sequence, BMP Detail Sheet, and Plan Sheets.</p> |                           |                                                                          |

\*Section 6.3 (Post Construction Stormwater Management Plans)

-Added new section with detailed outline of plan content, including subsections for Title Sheet, Index Sheet, Detail Sheet, and Plan Sheets.

Gender neutral language has been updated in all new and revised pages, i.e., Table of Contents and Chapter 6.

Any comments or questions regarding the above revisions should be directed to the Highway Design and Technology Division, Bureau of Design and Delivery.

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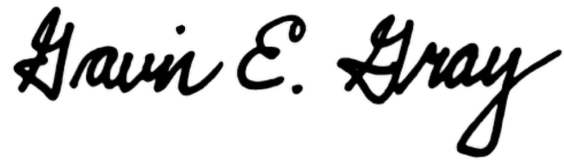
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# **Publication 14M DESIGN MANUAL PART 3 PLANS PRESENTATION**

**March 2015 Edition**  
**June 2022 Change No. 4**

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# DESIGN MANUAL PART 3

## PLANS PRESENTATION

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# CHAPTER 1

## GENERAL PROCEDURES

### 1.0 INTRODUCTION

The objective of this Manual is to promote uniformity in the preparation of plans by establishing the general format and presenting the detailed information which is required for each type of plan sheet required in the maintenance and construction of highway facilities. The drafting standards contained herein apply to all Department plans including Right-of-Way, Structure, Roadway, Geotechnical, Traffic Signal, Highway Lighting, Highway Occupancy, etc. This information, in conjunction with a high, professional standard of drafting techniques, shall ensure, to the greatest extent possible, the uniform appearance and reproduction quality of data presented on right-of-way plan sheets, contract plan sheets, etc. The guidance provided shall also assist the designer in avoiding errors and omissions which consequently would require excessive alterations and corrections.

The accuracy and completeness of all the drawings indicated herein are prerequisites for the fair and equitable compensation of right-of-way and for enabling the Contractor to submit a sound, equitable bid for a project. The final plans, as presented to the Department, shall be concise, complete and contain all the design data necessary to acquire right-of-way or for a Contractor to construct the project to Department standards.

### 1.1 PROCEDURES FOR MODIFICATIONS OR ADDITIONS TO THE DESIGN MANUAL

Whenever a District Executive or a Bureau Director determines that modifications or additions are required to improve the current guidelines in Design Manual, Part 3, the following procedures shall be followed:

1. The recommended modifications or additions shall be transmitted to the Director, Bureau of Project Delivery with the following information:
  - a. The title and page number of the existing practice, if applicable.
  - b. The recommended modifications or additions and the Chapter(s) and the appropriate page number(s) into which they should be incorporated.
  - c. The reasons for recommending the modifications or additions.
2. The Director, Bureau of Project Delivery shall review the recommended modifications or additions and transmit copies to the various Bureau Directors and District Executives involved for their comments. FHWA comments shall also be solicited, when required.
3. All comments shall be submitted to the Director, Bureau of Project Delivery and, upon review, appropriate action shall be taken.
4. If modifications or additions are required to the current criteria, they shall be made through standard procedures for incorporation into Publication 14M, Design Manual, Part 3, *Plans Presentation*.

**1.2 LETTER CODE SYSTEM FOR PLANS DESIGNATION**

To create a uniform system for plans designation, a letter code system has been developed. All plans submitted to the Department shall use the following letter codes when separate plans are submitted:

| <u>TYPE OF PLANS</u>                                            | <u>LETTER CODE</u>                     |
|-----------------------------------------------------------------|----------------------------------------|
| Bridge Rehabilitation, Combination<br>and/or Construction Plans | No Code<br>SR_____ Section_____ Letter |
| Right-of-Way Plans                                              | SR_____ Section_____ -R/W              |
| Right-of-Way Plans (GAP)                                        | SR_____ Section_____ -GR/W             |
| Signing Plans                                                   | SR_____ Section_____ -S                |
| Lighting Plans                                                  | SR_____ Section_____ -L                |
| Safety Rest Area Plans                                          | SR_____ Section_____ -Z                |
| Safety Rest Area Buildings<br>and Related Utilities Plans       | SR_____ Section_____ -W                |
| Right-of-Way Fence Plans                                        | SR_____ Section_____ -F                |
| Landscape Planting Design<br>(Roadside Development) Plans       | SR_____ Section_____ -B                |
| Resurfacing and Widening Plans                                  | SR_____ Section_____ -R                |
| Paving Plans (Original Paving)                                  | SR_____ Section_____ -P                |
| Junkyard Control Plans                                          | SR_____ Section_____ -J                |
| Traffic Signal Plans                                            | SR_____ Section_____ -T                |
| Scenic Overlook Plans                                           | SR_____ Section_____ -R/S              |

When a specialty plan is submitted, as a separate plan, the letter code shall be shown as a suffix to the section number in the Title Block on the Title Sheet and in the Identification Block located in the upper right-hand corner of the Title Sheet and on all plan sheets.

The letter code shall be used as a suffix, as previously described, in the Title Block and in the Identification Block of the Title Sheet and on all Plan Sheets. The exception to this policy shall be for Appropriation 187, Highway Maintenance funded projects. For the Appropriation 187 projects, the letter "M" shall be included in the Section Number.

When several Supplemental Plans are submitted with the prime plan, but are not an integral part of that plan, the Supplemental Plans shall be listed on the Title Sheet, as specified in [Chapter 2, Section 2.1.H](#).

The Section Number may or may not be the same as the Section Number in the Title Block and in all Identification Blocks. The Section Number in the Title Block and in all Identification Blocks shall be three characters.

All plan sheets shall have an Identification Block in their upper right-hand corner. This block is to list the major routes shown on the Title Sheet and the political subdivisions affected by the plan.

On individual Detail Sheets, all major routes involved on the sheet shall be listed. If space is a problem, it is permissible to list the major routes elsewhere on the sheet. Only the political subdivisions involved on the Detail Sheet need be listed in the Identification Block on the Detail Sheets.

When a plan sheet involves only work on an adjacent or intersecting route, that route number may be indicated to the left of and outside the Identification Block.

### 1.3 SIGNATURE BLOCK FOR REQUIRED SIGNATURES

The Title Sheet for all plans shall include a Signature Block providing for the required signatures as indicated in Figure 1.1. Refer to [Chapter 15, Section 15.2, Plate B-I](#) for an example of a Signature Block for Construction Plans, [Plate B-VIII](#) for an example of a Signature Block for Right-of-Way Plans and [Chapter 2, Section 2.10, Figure 2.16](#) for an example of a Signature Block for 11 in × 8.5 in Construction Plans.

| TYPE<br>OF<br>PROJECT                                | REQUIRED SIGNATURES             |                       |                     |                                |
|------------------------------------------------------|---------------------------------|-----------------------|---------------------|--------------------------------|
|                                                      | DISTRICT<br>PLANS<br>ENGINEER** | DISTRICT<br>EXECUTIVE | DEPUTY<br>SECRETARY | SECRETARY OF<br>TRANSPORTATION |
| <u>STATE PROJECTS</u>                                |                                 |                       |                     |                                |
| RIGHT-OF-WAY PLAN                                    | X                               | X                     | X                   | X                              |
| CONSTRUCTION PLAN                                    | X                               | X                     | X                   | X                              |
| ABBREVIATED<br>CONSTRUCTION<br>PLAN (11 in × 8.5 in) | X                               | X                     | X                   | X                              |
| <u>LOCAL PROJECTS*</u>                               |                                 |                       |                     |                                |
| RIGHT-OF-WAY PLAN                                    | X                               | X                     |                     |                                |
| CONSTRUCTION PLAN                                    | X                               | X                     |                     |                                |

\* Includes projects with any combination of Federal, State and Local funding with the exception of 100% Liquid Fuels Tax funding.

\*\* In-house plans only.

**FIGURE 1.1**  
**REQUIRED SIGNATURES FOR**  
**SIGNATURE BLOCK ON TITLE SHEETS**

## 1.4 STATIONING

Stationing for metric Construction Plans shall be based on the AASHTO recommended stationing where one station equals 1 km or 1000 m, and is typically written:

1+000.000

By example, station 1+326.130 indicates a point 326.130 m ahead of station 1+000.000. Stations shall be indicated and labeled every 100 m along the baseline with additional stationing indicated at every 20 m but not labeled. Equality, PT, PI, PC, PVT, PVI and PVC stationing shall be indicated and labeled. All stationing shall be computed to the nearest 0.001 m or 1 mm.

Stationing for English Construction Plans, where one station equals 100 ft, is typically written:

1+00.00

By example, station 1+56.25 indicates a point 56.25 feet ahead of station 1+00.00. Stations shall be indicated and labeled every 100 ft along the baseline. Equality, PT, PI, PC, PVT, PVI and PVC stationing shall be indicated and labeled. All stationing shall be computed to the nearest 0.01 ft.

## 1.5 REQUIREMENTS FOR FINAL ELECTRONIC DELIVERABLE OF FINAL RIGHT-OF-WAY AND CONSTRUCTION PLAN SHEETS

Upon completion of final Right-of-Way Plans, final Construction Plans, supplemental Construction Plans and as-built Construction Plans, it shall be a requirement to prepare "PDF" (Portable Document File) files for each sheet, with one sheet per "PDF" file, as the final deliverable. This requirement shall be applicable to both Department and consultant prepared plans\*.

The final deliverable for all right-of-way plan sheets, construction plan sheets, supplemental plan sheets, and as-built plan sheets shall be prepared following normally acceptable drafting standards and meeting microfilming requirements. These "PDF" files shall contain all applicable signatures and seals. This requirement will provide the Department files that can efficiently be captured in the Electronic Document Management System (EDMS).

All files shall be documents with black line work on white background in "PDF" format (600 dots per inch (DPI)) with no layer or security settings when the files are being created directly from drafting software such as "Microstation". However, if the hard copy plan sheets are being scanned to produce the "PDF" files, the dots per inch setting shall be 200. "PDF" is a common format for exchanging raster graphics (bitmap) images between applications programs, including those used for scanner images.

The files shall represent the final right-of-way plan sheets, construction plan sheets (all roadway plans and supplemental plans) and the final as-built construction plan sheets. All Department prepared "PDF" files shall be created in a shared folder on the Department's computer network. All consultant prepared "PDF" files should be delivered on CD-ROM. Each document type shall be in a separate and appropriately named folder (i.e. River County>SR9999Sec023>Roadway Plan). Each plan sheet shall be a single "PDF" file.

The naming convention for standard ANSI D size, 863.6 mm × 558.8 mm (34 in × 22 in) plan sheets, that has been established for the Department's EDMS, is outlined in [Appendix A](#) and shall be followed.

\* Other plans such as the Post Construction Stormwater Management (PCSM) plans may have different requirements. See appropriate directives.

## CHAPTER 2

### CONSTRUCTION PLANS

#### 2.0 INTRODUCTION

The purpose of this Chapter is to provide guidance for the orderly preparation of final Construction Plans. The methods, procedures and examples presented herein are to be followed to promote consistency in the preparation of Construction Plans.

Combination Plans, in which the Right-of-Way Plan and the Construction Plan are combined, shall contain data and information normally required to prepare individual plans for Construction and Right-of-Way. In this case, separate sheets shall be used to tabulate parcels, areas taken, residue, etc. Combination Plans shall be accepted only on small, Federal and 100% State-financed projects involving few properties with no relocation problems. Prior approval shall be received from the Field Liaison Engineer, Bureau of Design and Delivery. No Combination Plans shall be accepted without required approval.

When a project is designed for stage construction (see Publication 13M, Design Manual, Part 2, *Highway Design*, Chapter 1, Section 1.8), one set of Construction Plans shall be provided to cover both stages. These plans shall show the future construction as dashed lines labeled "By Others" and shall show the presently proposed construction as solid lines. These plans shall not be destroyed after microfilming since they shall be utilized to the greatest extent possible for the second stage of construction at some future date. Two sets of forms shall be supplied with the Construction Plans. The first set shall show information quantities for the first stage of construction and the second set shall show information quantities for the second stage of construction. They shall be clearly identified as to which stage they apply.

Projects which are financed jointly with Appalachia funds (APD) and other types of Federal-aid funds do not require separate Construction Plans and proposals. However, it shall be necessary to differentiate on the plan, for information only, the construction items to be financed with Federal funds other than Appalachia funds. It shall also be necessary to provide separate programming documents and estimates.

If it is advantageous to combine two or more projects, the following shall be required:

1. One proposal containing all quantities, supplements and Special Provisions pertinent to both (or more) projects.
2. One complete set of original drawings including the signed Title Sheet for each project.
3. One new Title Sheet clearly indicating the contents of each project.
4. One new Summary of Quantities Sheet indicating all items and the total quantities for both (or more) projects.

If possible, avoid combining Federal and 100% State-financed projects.

When local governments prepare plans to be financed with Federal-aid funds, they should be encouraged to follow the presentation format provided herein; however, some flexibility is permissible. The main concern is that the Construction Plans be complete enough to allow a Contractor to accurately bid and construct the project. For example, the size of the plan sheets could be other than standard ANSI D size, 34 in × 22 in, dependent on their own policies, and the type and size of lettering is flexible as long as a half-size print is legible. Since the projects are administered by the Department, the Title Sheet for all highway plans should provide a Signature Block for the "Recommended" signature by the District Executive (see [Chapter 1, Section 1.3](#)).

Final Plans shall be prepared on either linen, drafting film or vellum. The drafting film shall be a minimum of 3 mils in thickness and the vellum for the plan sheets shall be between 18 lb and 20 lb.

## 2.1 TITLE SHEET

The information presented in this section shall be shown on the Title Sheet, in the appropriate location, for all Construction Plans. An example of a typical Title Sheet is shown in [Chapter 15, Section 15.2, Plate B-I](#).

**A. Title Block Identification Data.** The following data shall constitute the Title Block on the Title Sheet:

1. Headings and Title of Plan.
2. State Route.
3. Section Number.
4. County or Counties.
5. Township, Borough or City.
6. "Limit of Work" Stations.
7. Construction Length.

**B. Identification Block.** The following information shall be provided in the Identification Block in the upper right-hand corner. Refer to [Chapter 15, Section 15.2, Plate B-I](#) for an example of an Identification Block for Construction Plans.

1. State Route.
2. Section Number.
3. Engineering District.
4. County or Counties.
5. Township, Borough or City.
6. Total Number of Sheets.
7. ECMS Number.

Only major routes shall appear in the Title Block and in the Identification Block on the Title Sheet.

**C. "And" Routes.** When the project consists of two or more major routes, the route numbers and the Stationing Limits of each are to be shown, with their individual construction length, and combined in the total construction length. The "And" route requires a separate section number.

**D. "Also" Routes.** When work on an intersecting or adjacent State Route is undertaken in conjunction with the mainline construction, that route shall be identified on the Title Sheet by the word "Also". This route shall be shown after the main route(s) listing and shall show Stationing Limits of work FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ without construction lengths.

The "Also" routes shall not be totaled with the main routes nor shall they appear in the Identification Block in the upper right-hand corner of the Title Sheet.

The "Also" routes shall appear on the Title Sheet only if their construction length is at least 500 ft in length and consists of full width construction, except for interchanges. If the work involved consists only of resurfacing and widening, it shall not be considered full width construction. The inclusion of an additional traffic lane shall be considered full width construction. Interchange route numbers shall be included as an "Also" route if the interchange is part of the route appearing in the Title Block (show interchange numbers only, do not show stations).

**E. "Limit of Work" Stations and Project Length.** Stationing Limits for construction shall include all work to be performed by the Contractor. For exceptions, refer to [Chapter 8](#) and [Chapter 9](#). To allow for working room and any minor construction changes, the Stationing Limit should be set between 50 ft and 100 ft beyond the last work called for on the plan. When the project is located in two or more counties, the Stationing Limits should be broken for each county. Stationing Limits should be from south to north or from west to east. See [Chapter 15, Section 15.1, Plates A-IV and A-VI](#) for example sketches indicating "Limit of Work" stations.

The length indicated on the Title Sheet represents the construction length (see [Section 2.3.D](#)). The length shall be expressed to the nearest 0.001 mi if the project has been surveyed.

For Combination Plans, in which the Right-of-Way Plan and Construction Plan are the same set of plans, the Stationing Limits for construction and the Right-of-Way may coincide or vary. When these Stationing Limits vary, show both the station to station limits and length for construction. For Right-of-Way Plans, show only the station to station limits. If not surveyed, i.e., flat chained, the length shall be expressed to the nearest 1 ft. The length indicated represents the overall construction limits.

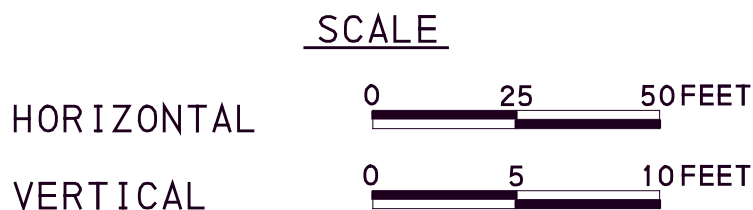
For situations when proposed work is well beyond the project, such as wetland mitigation work or ITS work, the designer shall consult with the Bureau of Design and Delivery for direction.

**F. Bar Scales.** Normally, a horizontal scale of 1" = 25' shall be used on all projects, particularly in built-up areas, where considerable topographic detail is necessary. A horizontal scale of 1" = 50' may be used if conditions dictate, at the discretion of the District Executive.

The vertical scale of the profile shall be one-fifth of the horizontal scale. Circumstances may dictate other scales in which case special permission should be secured from the District Executive before commencing plan preparations.

A Bar Scale shall be used to represent the horizontal and vertical dimensional values as indicated below. A script representation, i.e., 1" = 25', shall not be used to indicate these values.

**Example:**



**G. Design Designation Block.** Complete the Design Designation Block, in the lower left-hand corner, under the heading DESIGN DESIGNATION. The following items shall be included: Highway Functional Classification including designation of "Urban", "Rural", etc., Design Speed, Pavement Width, Shoulder Width, Median Width (Maximum and Minimum), Traffic Data including letting year ADT, design year ADT and DHV, D (%) and T (%). Refer to [Chapter 15, Section 15.2, Plate B-I](#) for an example of a Design Designation Block for Construction Plans.

**H. Supplemental Plans.** Below the Identification Block, list the Supplemental Plans and the number of sheets in the following order, as applicable:

Also Included:

|                                             |              |
|---------------------------------------------|--------------|
| Traffic Control Plan                        | _____ Sheets |
| Traffic Monitoring Plan                     | _____ Sheets |
| Signing and Pavement Marking Plan           | _____ Sheets |
| Utility Relocation Plan                     | _____ Sheets |
| Landscaping Plan                            | _____ Sheets |
| Erosion and Sediment Pollution Control Plan | _____ Sheets |
| Wetland Mitigation Plan                     | _____ Sheets |
| Highway Lighting Plan                       | _____ Sheets |
| Railroad Plan                               | _____ Sheets |

|                                    |       |        |
|------------------------------------|-------|--------|
| Contamination and Remediation Plan | _____ | Sheets |
| Roadway Test Borings Plan          | _____ | Sheets |
| Pavement Sensor Plan               | _____ | Sheets |
| Environmental Mitigation Plan      | _____ | Sheets |
| Highway Advisory Radio Plan        | _____ | Sheets |
| Flashing Warning Device Plan       | _____ | Sheets |
| Sign Structure Plan                | _____ | Sheets |
| Traffic Signal Plan                | _____ | Sheets |
| Interconnect Plan                  | _____ | Sheets |
| Weather Monitoring System Plan     | _____ | Sheets |
| Emergency Detour Plan              | _____ | Sheets |
| Structure Plans                    |       |        |
| S-                                 | _____ | Sheets |
| S-                                 | _____ | Sheets |
| Cross Sections                     | _____ | Sheets |
| Existing Structure Plans           |       |        |
| S-                                 | _____ | Sheets |
| S-                                 | _____ | Sheets |

Supplemental Plans do not have a separate Title Sheet when submitted with the Construction Plans. When submitted separately, a Title Sheet is required.

The Supplemental Plan sheets shall be numbered separately and shall not be included in the "Total Sheets" block shown in the Identification Block.

**I. Limited Access Highway Facility Note.** The following Note shall be shown below the list of supplemental sheets for Limited Access Highway Facilities:

ESTABLISHED (AND/OR RE-ESTABLISHED) AS A LIMITED ACCESS HIGHWAY FROM  
STATION \_\_\_\_\_ TO STATION \_\_\_\_\_

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_ R/W (Where Applicable)

LEGISLATIVE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_ R/W (Where Applicable)

APPROVED \_\_\_\_\_ (DATE) \_\_\_\_\_

Note: The stations should be the original Stationing Limits shown on referenced Right-of-Way Plans.

**J. Public Utility Commission (PUC) Application Docket Number.** Place, under the Title Block, one of the following Notes, when applicable:

1. PUC Application Docket Number \_\_\_\_\_
2. PUC Complaint Docket Number \_\_\_\_\_
3. PUC Investigation Docket Number \_\_\_\_\_

**K. Professional Engineer's Seal Block.** If the plans are prepared in the District Office, the Title Sheet shall be sealed and signed by the Professional Engineer who has direction and control of the engineering aspects of the plan. This is usually the appropriate Assistant District Executive, however the Plans Engineer, Squad Leader or Designer may seal and sign the work for which they are responsible if they so desire. This should be shown in a small block at the bottom of the title sheet. In addition, the District Plans Engineer's signature shall be placed above the District Executive's signature (see [Chapter 15, Section 15.2, Plate B-I](#)).

Plans prepared by Consultants shall have a small block at the bottom of the Title Sheet indicating the name and address of the Consultant, the signature, title and seal of the person responsible for the preparation of the plans and the date.

If multiple registrants prepare or direct and control the preparation of documents, each registrant's Seal and Signature shall appear on the document as appropriate. The responsible registrants shall also place a black rubber stamp Seal and Signature on the Title Sheet. The registrants shall also place either a black ink rubber stamp or facsimile seal on all subsequent sheets for which they are responsible. Impression seals are not permitted.

Examples of typical Signature (Seal) Blocks are indicated in [Figure 2.1](#).

**L. ECMS Number.** The ECMS number shall be placed on the title sheet in the area of the identification block.

INTENTIONALLY BLANK

|                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------|
| <p>PREPARED BY:<br/>(NAME AND ADDRESS)<br/>OF CONSULTANT)</p> <p>(SEAL)</p> <p>_____<br/>(SIGNATURE)<br/>(TITLE)</p> <p>_____<br/>(DATE)</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------|

CONSULTANT'S SIGNATURE BLOCK

|                                                                                |
|--------------------------------------------------------------------------------|
| <p>(SEAL)</p> <p>_____<br/>(SIGNATURE)<br/>(TITLE)</p> <p>_____<br/>(DATE)</p> |
|--------------------------------------------------------------------------------|

DISTRICT UNIT'S SIGNATURE BLOCK

**FIGURE 2.1**  
**EXAMPLES OF TYPICAL SIGNATURE BLOCKS**

**2.2 INDEX SHEET**

The following general information shall be shown on the Index Sheet for all Construction Plans:

1. Index Map.
2. Record of Existing Road Types.
3. Straight Line Diagram Data.
4. Location of Project on State Map.
5. Sheet Index.
6. Tabulation of Equalities Between Segment Node Points and the Survey Stations (if available).

**A. Index Map.** The Index Map shall be placed on the Index Sheet, to best advantage, using a scale no smaller than 1" = 500' and shall show the following data, where applicable:

1. Construction centerline and stations identified at maximum 500 ft intervals.
2. Edge of existing pavement.
3. State Routes and Township Roads (Show posted Traffic Route Numbers).
4. Local road names.
5. Railroads.
6. Edge of streams (Identify major streams).
7. Outline of proposed and existing bridges.
8. Political subdivisions.
9. "Limit of Work" stations on the mainline.

**Example:**

LIMIT OF WORK  
STA 675+00.00  
SEG 20 OFFSET 75  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

10. Channel changes.
11. Temporary roadways.
12. "Stop Work" and "Start Work" stations on all "Also" routes, crossroads, temporary roadways, temporary connections, service roads, railroad-highway grade crossings, channel changes, reconditioning of abandoned State highways and mainlines where the first work starts and the last work stops.

**Example:**

STOP WORK  
STA 240+50.00  
SEG 15 OFFSET 50  
SR 1033 SEC A04  
(Section Number, if applicable,  
See [Section 2.1.B.](#))

13. Equality stations.
14. Property lines and owner's names. Property owner's names shall be spelled out exactly as shown on the Deed. Parcel Identification Numbers, corresponding to those assigned on the Plan Sheet shall appear in their proper location. When the scale is small and/or properties are too numerous, code properties with the Parcel Identification Number and tabulate the property owner's names elsewhere on this sheet. Also see [Section 2.6.A.13](#).
15. Sections of roadway to be abandoned or vacated shall be shown and identified.
16. Limits of project covered within each Plan Sheet with the plan sheet number identified in the Legend using the following appropriate symbols:

## LEGEND



**PLAN**



**PROFILE**



**PLAN AND PROFILE**



**PARCEL IDENTIFICATION NUMBER**



**PARCEL IDENTIFICATION NUMBER-NO TAKE**

17. Distances to the nearest 0.1 mi to the nearest community at each end of project. Also give similar distances from "Stop Work" or "Start Work" stations for the State Route crossroads to the nearest community in each direction. If no towns are nearby, indicate distance (in miles) to Traffic Routes or State Routes.
18. North Arrow and Bar Scale.
19. Abandonment Notes (Same as on the Right-of-Way Plan).

If the project only requires one plan sheet and the above information can be shown, then an index map is not required.

**B. Record of Existing Types of Roadway Pavement (OPTIONAL).** List, in tabular form, a record of the existing types of roadway pavement adjacent to the proposed construction and throughout the limits of construction. Do not list "Also" routes. Include the following disclaimer statement below the listing:

NOTE: THE DEPTHS OF MATERIAL SHOWN ARE FOR DESIGN PURPOSES ONLY. ANY RISK OF UNANTICIPATED COSTS ASSOCIATED WITH DIFFERENCES BETWEEN THE LISTED DEPTHS AND THE ACTUAL DEPTHS SHALL BE ACCEPTED BY THE CONTRACTOR.

**Example:**

|                    |                      |
|--------------------|----------------------|
| Limit of Work      |                      |
| Adjacent to Seg 30 | 24' of 3.5" Bit Surf |
|                    | Crse ID-2 on 10"     |
|                    | Cr Stone Base Crse   |

Seg 30 to Seg 120                      24' of 3.5" Bit Surf  
                                                  Crse ID-2 on 10"  
                                                  Cr Stone Base Crse

Limit of Work  
 Adjacent to Seg 120                      24' of 3.5" Bit Surf  
                                                  Crse ID-2 on 12"  
                                                  Cr Stone Base Crse

**C. Straight Line Diagram Data.** State Routes which are not shown on the Title Sheet shall be tabulated in accordance with increasing mainline stationing. A sample tabulation form is shown in [Figure 2.2](#).

**D. Sheet Index Block.** On projects involving many sheets, a Sheet Index Block is suggested. Small projects may also require a Sheet Index Block when there is more than one Supplemental Plan. A sample Sheet Index Block is shown in [Figure 2.3](#).

**Example:**

| STRAIGHT LINE DIAGRAM DATA |                        |                |                                                                               |
|----------------------------|------------------------|----------------|-------------------------------------------------------------------------------|
| STATE<br>ROUTE             | LIMITS OF CONSTRUCTION |                | PROPOSED<br>CONSTRUCTION                                                      |
|                            | CONSTR STA             | SEGMENT/OFFSET |                                                                               |
| SR 1033                    | 345+50 TO 347+10       | 10/0 TO 10/160 | 18' OF 1.5" BIT WEAR<br>CRSE ID-2 ON 5"<br>BITUMINOUS CONCRETE<br>BASE COURSE |

**FIGURE 2.2  
SAMPLE FORM FOR TABULATION  
OF STATE ROUTES**

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

**FIGURE 2.3  
SAMPLE OF SHEET INDEX BLOCK**

**E. Identification Block.** Complete the Identification Block in the upper right-hand corner. A sample Identification Block is shown below.

|                             |           |       |         |       |
|-----------------------------|-----------|-------|---------|-------|
| DISTRICT                    | COUNTY    | ROUTE | SECTION | SHEET |
|                             |           |       |         | OF    |
| (CITY, BOROUGH OR TOWNSHIP) |           |       |         |       |
| REVISION<br>NUMBER          | REVISIONS |       | DATE    | BY    |
|                             |           |       |         |       |
|                             |           |       |         |       |
|                             |           |       |         |       |

**FIGURE 2.4**  
**SAMPLE OF IDENTIFICATION BLOCK**

**F. Tabulation of Segment Equalities.** A sample format for listing the equalities between segment node points and the survey stationing is shown below:

SR 0010

Segment 10, Offset 141 = Station 153+49

Segment 20 = Station 185+37

Segment 30 = Station 210+93

If desired, the straight line diagram station equivalent may be included with this equality.

### 2.3 TYPICAL SECTION SHEET

The following general information shall be shown on the Typical Section Sheet for all Construction Plans:

1. General Notes.\*
2. Identification Block.\*
3. Location Map.\*
4. Tabulation of Overall and Construction Lengths.\*
5. List of all Equalities.\*
6. Earthwork Summary Entire Project.\*
7. Listing of Public Utilities.\*
8. Tabulation of Project Coordinates.\*
9. Special Details.\*\*
10. Typical Sections.\*\*

\* To be shown on the first Typical Section Sheet.

\*\* Use additional sheets, as required.

**A. General Notes.** The following is a listing of sample and standard Notes which shall be used, where applicable:

1. Legal Right-of-Way record (width, date published and date recorded). Legal Right-of-Way for all routes referenced to in the plan should be clearly defined as follows:

- a. Route Number or street name.
- b. Segment and offset or identifying stations.
- c. Legal width.
- d. Basis of legal width, including dates of plans, ordinances, etc., and places and dates of record.

Examples:

(1) THE LEGAL RIGHT-OF-WAY ON SR 1524 FROM THE WEST CHESTER BOROUGH LINE (STATION 0+00) TO THE INTERSECTION OF SR 1509 (STATION 9+35) IS 60 FEET, BASED ON PLAN OF LR 21524, SECTION 1, SIGNED ON JULY 2, 1949, AND RECORDED ON AUGUST 5, 1949, IN THE CHESTER COUNTY RECORDER'S OFFICE IN PLAN BOOK 3, PAGE 17.

(2) THE LEGAL RIGHT-OF-WAY ON SR 1524, FORMERLY LR 17, FROM THE WEST CHESTER BOROUGH LINE TO THE INTERSECTION OF SR 1509, FROM STATION 0+00 TO STATION 9+35 IS 50 FEET BASED ON REPORT OF VIEWERS, CONFIRMED ON APRIL 26, 1846, FILED IN CHESTER COUNTY COURT OF QUARTER SESSIONS.

(3) THE LEGAL RIGHT-OF-WAY ON SR 6046, FORMERLY LR 359, FROM STATION 201+02 TO STATION 216+50 IS 50 FEET, BASED ON POTTSTOWN BOROUGH ORDINANCE DATED MAY 1, 1929, RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE ON JUNE 15, 1929, IN DEED BOOK 21, PAGE 171.

(4) THE LEGAL RIGHT-OF-WAY ON SR 3021, FORMERLY LR 15039, IS 33 FEET, BASED ON THE ACT OF MAY 1, 1933, P.L. 103, SECTION 1105, AS AMENDED. PRIOR TO THE ADOPTION OF LR 15039 AS A STATE HIGHWAY IN 1942, IT HAS BEEN OPENED AND MAINTAINED FOR TWENTY-ONE (21) YEARS OR MORE BY GREEN TOWNSHIP, A SECOND-CLASS TOWNSHIP. THERE IS NO PUBLIC RECORD OF ANY OTHER WIDTH.

(5) THE LEGAL RIGHT-OF-WAY ON SR 6114, FORMERLY LR 19054, FROM STATION 0+00 TO STATION 9+17 IS 50 FEET BASED ON DEED OF DEDICATION DATED MAY 29, 1856, AND RECORDED IN DEED BOOK 311, PAGE 47, IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE.

(6) THE LEGAL RIGHT-OF-WAY ON SR 3021 IS \_\_\_\_\_ FEET BASED ON THE EXISTING EDGES OF PAVEMENT AND SHOULDER WIDTH. THERE IS NO OTHER PUBLIC RECORD.

Note: When two or more Right-of-Way Plans are developed, it shall be necessary to reference all plans on the Construction Plans under the General Notes.

2.  THE DEPARTMENT RESERVES THE RIGHT TO ELIMINATE ANY OR ALL OF THIS WORK. DO NOT PERFORM WORK EXCEPT THAT WHICH IS WITHIN THE HIGHWAY RIGHT-OF-WAY UNTIL SO ORDERED IN WRITING BY THE ENGINEER. (This Note applies to driveway adjustments and other similar work extending beyond the Right-of-Way. This symbol shall appear in the remarks section of the tabulations.)

3. BUILDINGS AND STRUCTURES MARKED  HAVE BEEN OR ARE TO BE REMOVED OR ALTERED BY THE DEPARTMENT OR OTHER AUTHORITY RESPONSIBLE FOR THE PAYMENT OF PROPERTY DAMAGES AND SUCH WORK IS NOT PART OF THIS CONTRACT. (This Note applies to structures removed or altered under a separate contract and is applicable to Construction Plans and Combination Plans.)

4. BUILDINGS AND STRUCTURES MARKED  ARE ENCROACHMENTS WHICH ARE THE RESPONSIBILITY OF THE PROPERTY OWNER TO REMOVE. IN CASE ANY ENCROACHMENTS SO MARKED ARE NOT REMOVED BY THE PROPERTY OWNER, DO NOT INTERFERE WITH OR REMOVE SAME UNTIL AUTHORIZED IN WRITING BY THE ENGINEER.

5. DEMOLISH AND REMOVE BUILDINGS AND STRUCTURES MARKED D AS LUMP SUM ITEMS AT THE LOCATIONS INDICATED.

6. REMOVE BUILDINGS AND STRUCTURES MARKED R UNDER THE ITEM FOR CLEARING AND GRUBBING.

7. List all Roadway Construction Standard Drawings, Bridge Standards and any other standards with dates of drawing approval which are required for the project. This list is to be preceded by the following Note:

DETAILS, OTHER THAN THOSE INDICATED, ARE ON THE FOLLOWING STANDARD DRAWINGS

8. Other Notes, where applicable:

a. DO NOT INTERFERE WITH THE OPERATION OF ANY FIRE HYDRANT, FIRE CALL BOX OR POLICE CALL BOX.

b. THE DEPARTMENT RESERVES THE RIGHT TO ELIMINATE ANY OR ALL OF THE WORK WHICH IS LISTED IN THE TABULATION AS BOROUGH PORTION OR CITY PORTION OR TOWNSHIP PORTION. DO NOT PERFORM ANY SUCH WORK UNTIL SO ORDERED IN WRITING BY THE ENGINEER.

c. THIS IS A FEDERAL-AID PROJECT AND AS SUCH IS SUBJECT TO INSPECTION BY REPRESENTATIVES OF THE FEDERAL HIGHWAY ADMINISTRATION AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION. (Additional Municipalities if their funding is involved.)

d. VACATIONS AS SHOWN ON THIS PLAN ARE EFFECTIVE ONLY AFTER AN ORDER OF VACATION HAS BEEN EXECUTED BY THE DEPARTMENT AND FILED IN THE APPROPRIATE COUNTY COURTHOUSE.

e. THREE TO TEN WORKING DAYS PRIOR TO EXCAVATION BASED ON THE COMPLEXITY OF THE PROJECT, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM, INC., PHONE 1-800-242-1776, SERIAL NO. \_\_\_\_\_ FOR (list municipality). ADDITIONAL INFORMATION IS AVAILABLE AT <https://www.pa1call.org/PA811/Public/>.

f. THE CONTRACTOR IS REQUIRED TO NOTIFY THE DEPARTMENT AND SUBMIT AN ALLEGED VIOLATION REPORT (AVR) TO THE PA PUBLIC UTILITY COMMISSION THROUGH THE PA ONE CALL SYSTEM, [WWW.PA1CALL.ORG](http://WWW.PA1CALL.ORG), WITHIN TEN (10) BUSINESS DAYS AFTER A UTILITY LINE IS STRUCK, DAMAGED, OR PREVIOUS DAMAGE IS DISCOVERED AS REQUIRED BY PENNSYLVANIA'S UNDERGROUND UTILITY LINE PROTECTION LAW ACT 50 (P.L.852, NO. 287 AMENDED OCT. 30, 2017).

9. All existing easements shall be indicated in the general notes. Use the description of the easement from the existing Right-of-Way Plan or see [Chapter 3, Section 3.4.H](#) for the appropriate wording.

10. When a Temporary Construction Easement is required, an expiration statement shall be indicated in the General Notes as follows:

TEMPORARY CONSTRUCTION EASEMENT. AN EASEMENT TO USE THE LAND AS NECESSARY DURING CONSTRUCTION OF THE PROJECT. THE EASEMENT IS REQUIRED ONLY UNTIL THE CONSTRUCTION OR WORK INDICATED BY THE PLAN IS COMPLETED, UNLESS SOONER RELINQUISHED IN WRITING BY THE DEPARTMENT.

The expiration date shall be at the discretion of the District Executive.

The Notes shown on the Property Plots (see [Chapter 3, Section 3.4.H.5](#)), which clarify the status of the land utilized for slope easements, underground anchor easements and temporary construction easements, are also to be shown in the General Notes. This also includes existing easements not acquired for this project.

11. The General Notes shall contain a Note stating whether the survey is based on the National Geodetic Reference System (formerly USC & GS) or other datum (i.e. wheel survey, flat chain, existing as-built plans).

12. A Note shall indicate whether the horizontal control is tied to the Pennsylvania State Plane Coordinate System (SPCS 83) or True North, etc.

13. A note shall indicate the vertical control is based upon the USGS National Geodetic vertical datum of 1929 (NGVD 29), North American Vertical Datum of 1988 (NAVD 88), or other datum.

14. Applicable Notes for City of Philadelphia projects shall be shown (see [Chapter 3, Section 3.10](#)).

15. The Department has obtained permission for the Contractor to perform work outside the legal Right-of-Way. Right (or left) of Station \_\_\_\_\_.

16. A Note stating that State Route \_\_\_\_\_, previously known as Legislative Route \_\_\_\_\_, may be placed with the General Notes if desired.

**B. Identification Block.** Complete the Identification Block in the upper right-hand corner.

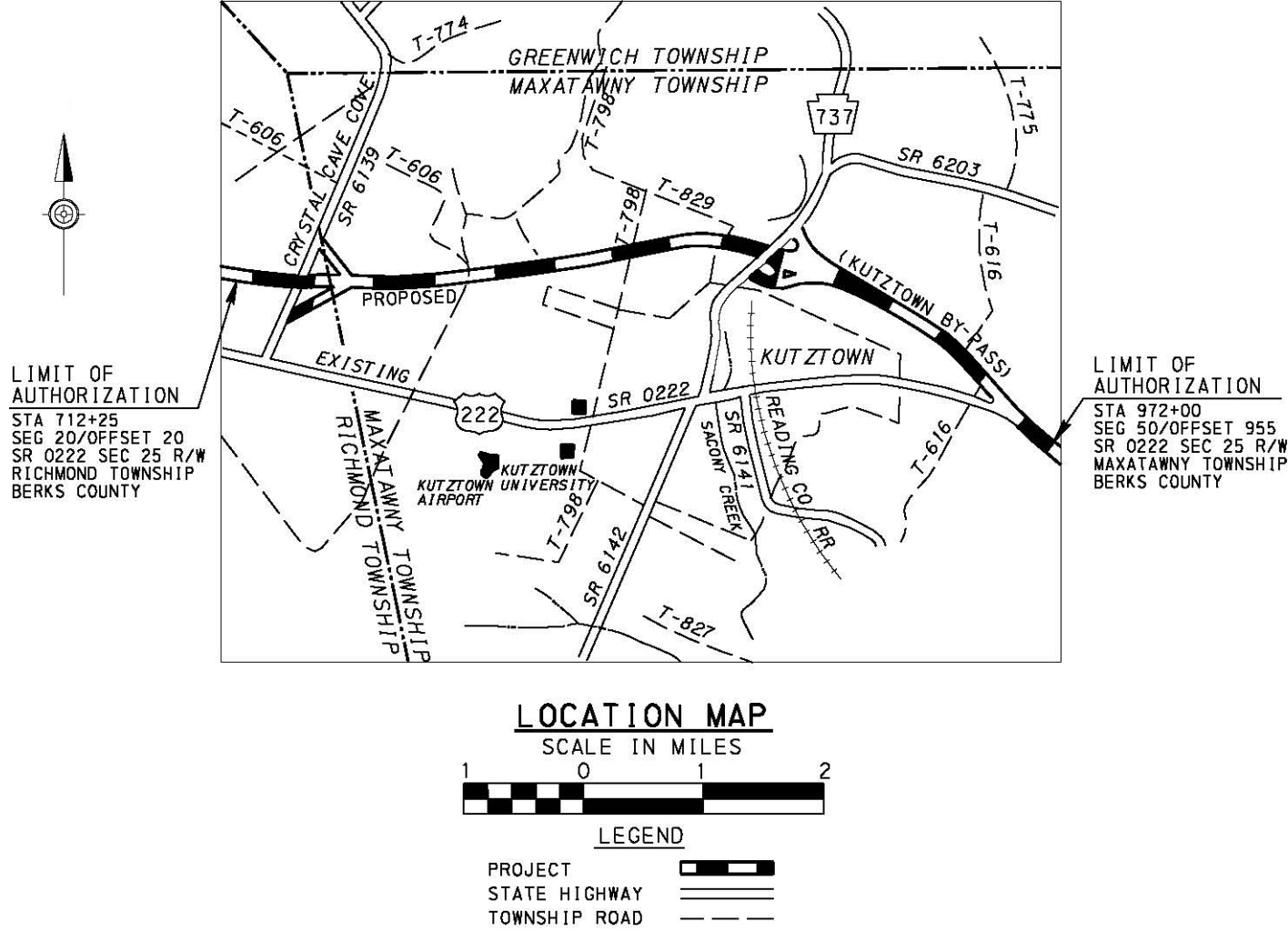
**C. Location Map.** The Location Map shall be placed in the lower left-hand corner on the first Typical Section Sheet and may be reproduced from County or City maps. For an example of a typical Location Map, refer to [Figure 2.5](#). This map shall be oriented so that the North Arrow is vertical toward the top of the sheet with a Bar Scale provided below the map. Indicate the following data on the Location Map:

1. Label and place a Legend below the Location Map as shown on [Chapter 15, Section 15.2, Plate B-XIII](#).
2. All adjacent and intersecting State Routes, Traffic Routes and Township Roads by number.
3. If a city map is used, streets should be shown and named.
4. Cities, towns and physical features such as lakes, streams, canals, railroads, etc.
5. City limits and urban limits, where applicable.
6. Show "Limits of Work" stations (Do not show for "Also" routes).

**Example:**

LIMIT OF WORK  
STATION 675+00.00  
SEG 50 OFFSET 75  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

7. Bar Scale.



**FIGURE 2.5**  
**TYPICAL LOCATION MAP**

**D. Tabulation of Overall Length and Construction Length.** The Overall Length is the total length between the "Limit of Work" stations. On divided highways with separate baseline stationing, a length shall be tabulated for each line and the longest Stationing Limits shall be used on the Title Sheet. The Construction Length is the overall length between the "Limit of Work" stations minus the no construction areas including the distance between the "Limit of Work" and the "Start Work" and "Stop Work" at the beginning and end of the project.

The tabulation of the Overall and Construction Lengths shall be shown on the Typical Section Sheet.

**E. List of All Equalities.** All Equalities occurring on the major routes appearing in the Title Block shall be listed on the Typical Section Sheet. If there are no Equalities, indicate as such.

**F. Earthwork Summary.** The earthwork summary should include all excavation and borrow excavation items including those that are incidental to other lump sum items. For a sample presentation of an earthwork summary, see [Figure 2.6](#).

**G. List of Public Utilities.** List all Public Utilities known to be located within the scope and extent of work activity defined for this construction area in accordance with Act 287-1974, as amended. List the name of the Public Utility, their address with Zip Code, the name, title and telephone number of the utility representative responsible for the project, and show the unique acronym to indicate ownership that accompanies the utility line depictions on the plans. The data shown on the tabulation shall be in complete agreement with the Engineering Construction Management System (ECMS) Project Development Checklist D419 Utility Clearance Document.

List the Pennsylvania One Call System telephone number and both the preliminary and final design serial numbers and dates completed for the project.

Example Format:

THE PA ONE CALL NOTIFICATIONS PERFORMED DURING PROJECT DEVELOPMENT ARE AS FOLLOWS:

- PRELIMINARY DESIGN SERIAL NO. \_\_\_\_\_ ON \_\_\_\_\_ (date) FOR (list municipality).
- FINAL DESIGN SERIAL NO. \_\_\_\_\_ ON \_\_\_\_\_ (date) FOR (list municipality).

**H. Tabulation of Project Coordinates.** A Tabulation of Project Coordinates shall be provided for all projects on new location or involving a shift of existing horizontal alignment. Coordinates shall be provided for all horizontal control points such as Beginning and Ending Stations, PC's, PI's, PT's, POT's and POC's. A sample format is shown in [Figure 2.7](#). The Pennsylvania State Plane Coordinate System or, if necessary, an arbitrary coordinate system shall be utilized and properly identified.

When a project includes a 1" = 200' or smaller scale interchange drawing (see [Section 2.6.W](#)), the coordinate data for the ramps shall be tabulated on that drawing along with the other geometric information provided. If a perimeter traverse is used, coordinates shall also be provided for the traverse points.

**I. Special Details.** Show detailed sketches of all construction items which are not covered by the Department's Standard Drawings, such as the following:

1. Stairway and step details - Sta.
2. Special curb details - Sta.
3. Special manholes, endwalls, etc. - Sta.
4. Benching and special earthwork.
5. Intersection sketches.

If, at the discretion of the District Executive, sketches of intersections are required, indicate special features, including curbs, angles of approach, contours and locations of expansion, construction and longitudinal joints. An appropriate scale shall be used for these sketches and they may be placed with the details in the plan.

**EARTHWORK SUMMARY ENTIRE PROJECT**

| THE INFORMATION ON ESTIMATED AMOUNTS OF EARTHWORK HAS BEEN USED IN THE PRELIMINARY ESTIMATE. DO NOT USE AS A WAIVER OF ANY PROVISIONS OF THE SPECIFICATIONS AND CONTRACTS. |          |          |         |            |         |                                      |                                  |                              |                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------|------------|---------|--------------------------------------|----------------------------------|------------------------------|----------------------|
| CUBIC YARDS OF EXCAVATION                                                                                                                                                  |          |          |         |            |         | CUBIC YARDS OF COMPLETED EMBANKMENT* | CUBIC YARDS OF BORROW EXCAVATION | CUBIC YARDS OF SELECT BORROW | CUBIC YARDS OF WASTE |
| CLASS 1                                                                                                                                                                    | CLASS 1A | CLASS 1B | CLASS 2 | CLASS 3 ** | CLASS 4 |                                      |                                  |                              |                      |
|                                                                                                                                                                            |          |          |         |            |         |                                      |                                  |                              |                      |
|                                                                                                                                                                            |          |          |         |            |         |                                      |                                  |                              |                      |

\*INCLUDES ALL BORROW ITEMS

\*\* \_\_\_\_\_ CY PART OF LUMP SUM STRUCTURE ITEM.

**NOTES**

1. IN SPECIAL CASES, WHERE BORROW ITEMS ARE NOT INCLUDED IN THE COMPLETED EMBANKMENT QUANTITY, SHOW A NOTE IN ACCORDANCE WITH THE FOLLOWING EXAMPLE.

EXAMPLE: \*INCLUDES ALL BORROW ITEMS, EXCEPT \_\_\_\_\_ CY OF SELECTED BORROW EXCAVATION - GRANULAR, TYPE B.

2. FOR EARTHWORK SUMMARY, SHOW ONLY THE TOTAL EARTHWORK QUANTITIES FOR THE ENTIRE PROJECT. INCLUDE ALL SELECTED BORROW ITEMS (GRANULAR, ROCK, ETC.).

**FIGURE 2.6**  
**EXAMPLE OF EARTHWORK SUMMARY**

SUMMARY OF PROJECT COORDINATES

BASED ON \_\_\_\_\_ \* \_\_\_\_\_ COORDINATE SYSTEM

| RTE                             | STATION  | POINT     | COORDINATES |           | BEARING       |
|---------------------------------|----------|-----------|-------------|-----------|---------------|
|                                 |          |           | NORTH       | EAST      |               |
| SR _____<br>(Indicate Baseline) | 0+00.00  | BEGIN STA | 5000.0000   | 5000.0000 |               |
|                                 | 5+00.00  | PC        | 5401.9332   | 5297.4122 | N36°-30'-00"E |
|                                 | 8+00.00  | PI        | 5643.0917   | 5475.8623 | N36°-30'-00"E |
|                                 | 10+88.88 | PT        | 5793.0901   | 5735.6733 | N60°-00'-00"E |
|                                 | 14+00.00 | POT       | 5998.6523   | 6091.7132 | N60°-00'-00"E |
|                                 | 15+50.00 | END STA   | 6073.6514   | 6221.6141 | N60°-00'-00"E |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
| SR _____<br>(Indicate Baseline) |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |
|                                 |          |           |             |           |               |

\*Note: Example shown is based on "Assumed" Coordinates System. Recommended minimum values are N 5000.00 and E 5000.00.

Note: Four (4) place coordinates are used for computational purposes only and do not imply a precision beyond two (2) places.

**FIGURE 2.7**  
**SAMPLE FORMAT FOR SUMMARY OF**  
**PROJECT COORDINATES INFORMATION**

**J. Typical Sections.** Typical Sections and Stationing Limits for each type of construction encountered on the project shall be shown and shall be in accordance with the Department's current Typical Roadway Cross Sections as shown in Publication 13M, Design Manual, Part 2, *Highway Design*, Chapter 1, unless otherwise approved. Typical Sections are required for the following:

1. Normal section.
2. Superelevated or transition sections. Any special treatment shall be clearly indicated. Show the high side in fill and the low side in cut or vice versa but do not superimpose one on the other.
3. Partial sections for special treatment such as curbs, sidewalks, bicycle facilities, trails, etc.
4. Side roads, crossroads, ramps, service roads, frontage roads, temporary roadways, fringe or off-street parking facilities, crossovers, etc.
5. Partial sections to show typical seeding requirements if not shown on the regular Typical Sections.

The minimum data required on each Typical Section shall include the following, where applicable:

1. Profile grade point.
2. Pavement width, type, depth and cross slope (indicate cross slope as a percentage).
3. Shoulder width, type, depth and cross slope (indicate cross slope as a percentage). When the shoulder is constructed the same as the roadway pavement structure, show the limits of the effective shoulder width and label as EFFECTIVE SHOULDER AREA in addition to the width.
4. Centerline or baseline locations.
5. Base course and subbase width, type and depth.
6. Median width, type and cross slope.
7. Embankment and cut slopes.
8. Location and type of underdrain or pavement base drain (the type of backfill need not be shown).
9. Indicate reference to Standard Drawing RC-10M for cut slope rounding used.
10. Special reinforcement and special tiebar or tiebolt longitudinal joints.
11. Topsoil limits.
12. Median barrier and guide rail.
13. Subgrade slopes (if not parallel to pavement).
14. Label all items in accordance with the Summary of Quantities Sheet.

## 2.4 SUMMARY OF QUANTITIES SHEET

An example format of the Summary of Quantities Sheet is shown in [Chapter 15, Section 15.2, Plate B-II](#).

All items with their respective quantities payable under the Construction Contract shall be tabulated on a Summary of Quantities Sheet and the Summary of Quantities Sheet made part of the Construction Plans. These sheets shall follow the Typical Section Sheets in the Construction Plan.

The tabulations shall be prepared using the standard nomenclature as shown in the Construction Items Catalog (Publication 7).

For items not appearing in the Construction Items Catalog, contact the District Contract Management Engineer.

The quantities indicated for each item shall be calculated in accordance with the "Measurement and Payment" for the various items in Publication 408. Items not covered by Publication 408 shall require a Special Provision. A symbol shall be placed in the description block of these items that provides a reference to the special provision.

The blocks in the Summary of Quantities Sheet shall be of sufficient height to enter a final quantity above the plan quantity.

Pipe alternates with end sections shall be shown on the Summary of Quantities Sheet as indicated in [Figure 2.8](#).

The item descriptions shall not be abbreviated.

| QUANTITY | ITEM<br>NUMBER | DESCRIPTION                                                                                        | DESIGN<br>NUMBER | FOR TAB<br>SEE<br>SHEET |
|----------|----------------|----------------------------------------------------------------------------------------------------|------------------|-------------------------|
|          | UNIT           |                                                                                                    |                  |                         |
| EITHER   | 0601<br>7015   | 18" REINFORCED CONCRETE PIPE, TYPE A, 20' – 1.5' FILL                                              | 2                | 28                      |
|          | LF             |                                                                                                    |                  |                         |
| AND      | 0616<br>1202   | CONCRETE END SECTIONS FOR 18" PIPE                                                                 |                  |                         |
|          | EACH           |                                                                                                    |                  |                         |
| OR       | 0601<br>9653   | 18" CORRUGATED GALVANIZED STEEL PIPE, TYPE I, POLYMER COATED (2 2/3" × 1/2" CORRUGATIONS), 16 GAGE |                  |                         |
|          | LF             |                                                                                                    |                  |                         |
| AND      | 0616<br>0009   | STEEL END SECTION, METALLIC COATED, 16 GAGE FOR 18" PIPE                                           |                  |                         |
|          | EACH           |                                                                                                    |                  |                         |

**FIGURE 2.8**  
**PIPE ALTERNATES LISTING**  
**ON SUMMARY OF QUANTITIES SHEET**

## 2.5 TABULATION OF QUANTITIES SHEETS

Contract items shall be tabulated as shown in the examples of typical Tabulation of Quantities Sheets in [Chapter 15, Section 15.2](#). These sheets shall follow the Summary of Quantities Sheet in the Construction Plan. The blocks in all tabulations shall be of sufficient height to enter a final quantity above the plan quantity.

**A. Tabulation of Drainage Items.** The following should be included in the Tabulation of Drainage Items along with other related items:

1. All pipe culverts with "Design Numbers", if appropriate.
2. Inlet tops or frames, Inlet boxes and manholes.
3. Class 2 and Class 4 Excavation.
4. Endwalls (specify type).
5. Pipe end sections and slope pipe fittings.
6. Pipe bedding, if necessary.
7. Embankment (for information only).
8. Remarks Column.
9. Maximum/Minimum Fill Height (for information only).

For projects where the number of drainage items exceeds the number of spaces available on a single width Tabulation Sheet, an alternate method of tabulation may be provided, as shown in [Chapter 15, Section 15.2, Plate B-VI](#). This alternate method shall only be used when necessary to maintain a drainage tabulation one sheet wide.

**B. List of Individual Tabulations.** Individual tabulations normally should be made for the following items:

1. Guide Rail and Median Barrier (with related items).
2. Right-of-Way Fence (with related items).
3. Driveways (including base and wearing courses, subbase, etc.).
4. Pavement Base Drains, Subgrade Drains, Pipe Underdrain and Outlets.
5. Roadway Quantities (shoulder, base and wearing courses, etc.), tabulated on a route by route basis.
6. Miscellaneous Items.
7. Grading sections of 1000 ft by route and stations with totals.
8. Tabulation of miscellaneous earthwork for special embankment excavation quantities. Include quantities (by route and stations) such as pocket fills, benching, rock embankment, removal of unsuitable material, etc.
9. Tabulation of topsoil quantities by route and stations.
10. Landscape Planting Design (Roadside Development) items (Jute Matting, Sodding, Seeding, etc.), tabulated by route if more than one, and the stations. Use individual tabulations when a few items have many breaks in the stationing.
11. Erosion and Sediment Pollution Control items shall normally be combined with the Landscape Planting Design (Roadside Development) items; however, depending on the size and type of the projects, these may be separate or combined with the Drainage or Miscellaneous Items.

Where quantities for items such as pavement base drains, parallel ditches, sidewalks, pipe removal and items involved with driveway construction are small, they may be included in the Miscellaneous Tabulation. The listing of items shall be in a sequential order of their occurrence with respect to increasing stationing off a baseline, survey or construction centerline for each route.

When required, all items which are to be reserved by the Department are to be listed in the proposal by a Special Provision for that item.

A breakdown (for information only) of estimated quantities for Lump Sum Items such as temporary bridges, cofferdams and erosion and sediment pollution control items shall be provided and may be shown in a tabulated form. A cross reference from the Summary of Quantities Sheet shall be provided.

**C. Information for Consideration in the Development of Tabulations.** The following information should be considered in the development of the tabulations:

**1. Structures.** Structures are stationed where their centerline intersects the construction centerline. The item for the REMOVAL OF EXISTING BRIDGE or the REMOVAL OF EXISTING BRIDGE SUPERSTRUCTURE shall be stationed at the intersection of the construction centerline with a line perpendicular to the construction centerline from the centerline of the bridge. When these Lump Sum Items are used, it shall be clearly indicated on the drawings and/or clearly defined in the Special Provisions exactly what is included in the items. When the existing structure is an arch, RC box culvert or pipe, the limits of removal shall be clearly indicated on the Structure Plans and supplemented by compatible, clearly defined limits in the Special Provisions. Where the existing structure occupies an area which shall be occupied by a new structure, the limits of removal shall be indicated on the new bridge plans. Limits of structure removal shall also be indicated on the Cross Sections.

Removal of existing bridges or bridge superstructures and construction of temporary bridges shall not be shown in the bridge quantities. These items are considered as roadway items and may be shown in the roadway or miscellaneous tabulations. Partial removal of an existing bridge (also partial removal of bridge superstructure) of which the remaining portion is intended to be used as part of a new bridge is considered a bridge item and shall be shown in the structure tabulation.

When two or more structures, such as dual bridges, are presented on the S-Drawings, separate stations, quantities and pay items shall be tabulated for each structure.

Structure items and quantities shown in the Construction Plan should not be finalized until the Bridge Plan has been signed and the Structure Estimate has been prepared.

**2. Channel Change.** The channel change station to be indicated in the tabulations is the station at which the channel base line or the construction centerline of the channel intersects the roadway construction centerline. For parallel channel changes, use the beginning station and ending station projected to the mainline. When the channel change requires items in addition to excavation, the above noted station is to be given along with the stations where other items are required.

**3. Pipes.** The pay length of all pipes shall be from end to end of the pipe measured along the centerline of the pipe excluding the end section. Because of the difference between the lengths of metal and nonmetal end sections of pipe culverts, the length of connecting pipe can vary. To avoid showing different lengths of the connecting pipe on the plans, the designer should show the length of the metal-type pipe for all alternates on the plan.

Parallel pipes shall be shown in the tabulations by the Stationing Limits.

Lateral pipes shall be shown by the station at which the pipe crosses the construction centerline.

**4. Curbs.** Curbs generally run parallel to the construction centerline and are stationed from end to end on the construction centerline stations. If the curb continues around a corner for side roads, the mainline stationing is stopped at the point of curvature. The arc and tangent length on the side road are carried on the side road stationing. The actual curved length of the curb shall be computed rather than using straight line distances between stations.

**5. Guide Rail.** Guide Rail is stationed from end to end, excluding end treatments and anchors, on the construction centerline. The amount of Guide Rail from center to center of the outermost posts on each end of the structure to which it is attached is included in the structure quantities. The remaining quantity is a roadway item. The total length (roadway plus structure) shall be divisible by the length of the rail sections between the estimated stations.

Guide Rail beginning on the mainline and extending around an intersection to a side road may be stationed on both routes.

Where a concrete slab is required for installation of Guide Rail over an underground structure or utility line, the slab shall be identified in the tabulation of Guide Rail items by listing the need for the slab in the remarks column opposite the appropriate run of Guide Rail.

**6. Inlets.** Provide separate pay items for the Top Unit, Frames, and Inlet Box.

Provide separate pay items for the Inlet Boxes based on the type (size) and installation depth. Determine the type (size) of inlet box based on the maximum pipe size (outside diameter) and pipe opening required. Determine the height range based on the installation depth, where the height is determined by subtracting the bottom slab elevation from the finished grade elevation.

Only provide one inlet box type (size) per installation. The contractor/fabricator is responsible to determine if two box types (sizes) with a transition slab can be utilized based on the requirements of the Standard Drawings.

## 2.6 PLAN SHEETS

**A. List of Items for Plan Sheets.** The Plan Sheets shall show the following items:

1. Construction and Survey Centerline (Baseline).
2. Structure Data.
3. Profile.
4. Plan.
5. Survey Book Numbers.
6. "Limit of Work" stations, "Start Work" and "Stop Work" stations, etc.
7. Topography.
8. Curve Data.
9. Intersection Ties Between Baselines and Intersection Radii.
10. Proposed work.
11. Utilities.
12. Right-of-Way Lines and Easements.
13. Property Lines and Ownership (only if Right-of-Way Plans prepared).
14. Reference Circles, Bench Marks, Bearings and Equalities.
15. North Arrow.
16. Identification Block (Route and Section Number).
17. Appropriate professional engineer's seal.
18. Areas to be abandoned or vacated shall be labeled (see [Section 2.6.K](#) for Abandonment and Vacations).
19. Location of existing or proposed bicycle facilities.

The accuracy and completeness of the Plan Sheets are prerequisites for enabling the Contractor to submit a sound, equitable bid for construction and to preclude to the greatest extent misinterpretation of the plans. The plans, as presented, should be concise, complete and contain all design data necessary for construction.

**B. Bar Scales.** Indicate the appropriate Bar Scales (see [Section 2.1.F](#)). Circumstances may dictate other Bar Scales in which case special permission should be secured from the Field Liaison Engineer, Bureau of Design and Delivery, before commencing plan preparations.

**C. Profile Reference Block.** To insure a balanced tracing, first determine whether the plan and profile can be shown on the same sheet or whether a separate sheet shall be required for the profile. The space required for and the arrangement of reference circles, bench marks, Notes and other descriptive data shall be considered when laying out the tracing. Where space permits, it is preferable to show the plan and profile on the same sheet. In laying out the Plan Sheets, the maximum use of the sheet area should be achieved.

All equalities in stationing shall be shown on the plan for both equations occurring on the survey centerline and on the construction centerline. Leader lines shall be used to carry the station equality away from the centerline to a location where space permits.

When the plan and profile are on separate sheets, they shall be adequately cross referenced and shall be enclosed in a rectangle at the bottom inside border of the sheet as shown below:

|                            |
|----------------------------|
| FOR PROFILE, SEE SHEET 11. |
|----------------------------|

Match lines referenced to other sheets shall be used to reference portions of complex interchanges that cannot be included on a single plan sheet.

**D. Centerlines and Baselines.** The centerline identified by the State Route Number shall be shown horizontally across the sheet with stations increasing from left to right and indicated as follows:

1. Construction Centerline or Construction Baseline.
2. Survey Centerline or Survey Baseline.
3. Construction and Survey Centerline.

Where the construction centerline does not coincide with the survey centerline, the construction centerline shall be indicated with complete alignment data and ties to the survey centerline. If necessary, an enlarged detail of the geometry shall be shown.

When two baselines are used, they shall be adequately tied to each other and, if necessary, an enlarged detail of the geometry shall be shown.

Bearings shall be indicated for all centerline and baseline tangents including ramps. Show at least one bearing for each tangent on each sheet.

The alignment on each sheet shall be located so that the centerline station on the plan falls approximately over the corresponding point on the profile.

The roadway shall be arranged so that the last plan and profile station on the preceding sheet shall also be indicated as the first plan and profile station on the following sheet. This overlap should be, whenever possible, a minimum of 25 ft. The use of match lines without an overlap shall be approved on an individual case basis by the Bureau of Design and Delivery Field Liaison Engineer.

Sheet breaks shall be arranged to avoid curves, important intersections, concentrated topography or other design features at the ends of the sheets when possible. Avoid showing cross pipes, structures, etc., partly on one sheet and the remainder on the following sheet. If this condition is unavoidable, overlap sufficiently so that the entire structure may be placed on the following sheet.

**E. Data for Structures.** Show the following information near the structure on the Plan Sheet (both existing and proposed):

1. Existing Structure.
  - a. Station.
  - b. Type of Structure.
  - c. Span.

- d. Clearance.
  - e. Clear Roadway Width.
2. Proposed Structure.
- a. Station.
  - b. Type of Structure.
  - c. Span - along construction centerline (Indicate c-c bearings, etc.).
  - d. Under clearance - actual minimum.
  - e. Skew - Lt or Rt.
  - f. Roadway width between curbs or clear roadway (Indicate sidewalk width and side, Lt or Rt, if applicable).
  - g. Structure S- \_\_\_\_\_ Recommended \_\_\_\_\_.

**F. Hydraulic Data.** For all waterway structures, when there is a drainage area of 0.5 mi<sup>2</sup> or more, the Construction and Structural Plans to be submitted for PS&E approvals shall show the following data on the Plan Sheet: (1) Drainage Area (in square miles), (2) the magnitude, frequency and water surface elevations for the design flood and the 100-year flood, if different from the design flood, (3) if available, the magnitude, water surface elevations and date of occurrence of the flood of record, if greater than the 100-year flood and (4) if required, the magnitude, frequency and water surface elevations for the overtopping flood.

**G. Profile Information.** On the profile, the existing ground line, existing structures, existing stream beds, existing railroads and existing ground elevations shall be shown. Profile elevations of stream beds and water surfaces shall be indicated at 50 ft intervals and critical points for 500 ft upstream and downstream from the construction centerline. Streams to the left of centerline shall generally be shown back or to the left and streams to the right of centerline generally be shown ahead or to the right. All line work for existing profiles shall be shown as dashed lines except that the existing ground line along the construction centerline shall be a continuous, solid line.

The datum elevation on the profile shall be shown, labeled and selected with due regard for the extremes of elevation which shall occur on each sheet so that the profile shall not crowd the plan if it is on the same sheet. The datum elevation shall preferably be in multiples of 10 ft.

Elevations of the existing ground on the construction centerline shall be slant lettered to the left.

All equalities in stationing shall be shown below the datum line. These include both equations occurring on the survey centerline and those equating survey and construction centerlines.

Stationing:

- 1. Full stations shall be lettered horizontally or vertically below the datum line.
- 2. Plus stations shall be lettered vertically below the datum line.

The following items shall be shown on the profile:

- 1. Proposed Roadway
- 2. Percentage of Grade
- 3. Vertical Curve Data
- 4. Sight Distances
- 5. Pipes
- 6. Inlets and Manholes
- 7. Channel Grade Line
- 8. Structures

9. Datum Elevations
10. Limits of Work and Start/Stop Work Limits

The proposed centerline profile grade shall be shown vertically to the right and shall be indicated as follows: G-214.16. Profile grade elevations shall be shown at all full stations, plus 50 ft stations such as +50 and at the vertical and horizontal control points such as PVC's, PVT's, PC's, PT's, etc., and for every station having a cross section. At critical areas, it may be necessary to show additional elevations. When a profile grade elevation is to be shown at a station where no existing ground elevation has been taken, show the elevation in the normal position.

All graphic grade profiles shall be shown as a long, dashed line.

The Profile Sheet shall indicate PVC's and PVT's using a small, single circle on the profile grade line. PVI's shall be shown using two small, concentric circles at the intersection of the tangent grade lines.

The percent of grade (%) shall be shown for all grade lines on the proposed centerline profile and shall be shown in hundredths of a percent (0.01%). For special cases, where tight controls or when meeting existing pavements dictate, the percent of grade can be indicated in thousandths of a percent (0.001%). For ramps in interchange areas and in other areas, the proposed grade elevations shall be shown at full stations and at plus 50 ft stations such as +50. Additional proposed grade elevations shall be shown on both edges of the pavement, at plus 25 ft stations such as +25, +50, +75 and on entrance and exit gores until the ramp attains the point of constant width with normal superelevation.

Complete profiles are required and shall be shown for adjustments to intersecting roadways and streets (excluding driveways).

**H. Plan Sheet Requirements.** A standard North Arrow shall be placed on every sheet in a clear area near the top center or top right-hand side of the sheet.

All plan sheets shall be numbered. The use of letters after the numbers, such as 12a, 12b, etc., on associated sheets is not permitted, except for plan revisions.

Where an Aerial Easement is required, the horizontal limits shall be shown on the plan and shall be labeled as follows:

LIMIT OF AERIAL EASEMENT, STA \_\_\_\_\_

The plan sheets shall indicate PC's, PT's, TS's, SC's, CS's and ST's using a small, single circle on the centerline. PI's, POT's, POC's and POST's shall be shown using two small, concentric circles on the centerline or on the tangent.

Terminal joints and pavement relief joints shall be shown.

Show the Survey Book Number in the lower right-hand corner of the sheet between the border and the datum line.

The "Limits of Work" stations for the plan and profile shall be shown. Start Work and Stop Work stations for the plan and profile shall be shown for "Also" routes, crossroads, and roadways being rehabilitated for abandonment purposes, temporary crossovers outside the construction area, temporary roadways, temporary connections, service roads, railroad-highway grade crossings and on channel changes.

All existing topography and ground elevations shall be slant lettering; all proposed work shall be lettered vertically. Dithering techniques should be used as described in [Chapter 13, Section 13.2](#).

**I. Topography.** All existing topography shall be shown. Of particular importance are existing roads, streets, driveways, buildings, power and telephone lines, underground pipes and cables of all kinds (see [Section 2.6.T](#)), inlets and manholes, inlet and/or outlet ditches, retaining walls, curbs, sidewalks, curb ramps, fences, railroads, bridges and culverts. Streams, lakes, swamps and other physical features shall also be included.

The type of vegetation or ground cover, together with boundaries or limits of wooded areas, groves, etc., shall be indicated with the standard symbols. Indicate distances to the nearest 0.1 mi at each end of project as indicated in [Section 2.2.A, item 17](#).

Information on the location of leech beds, septic tanks, wells and accessories shall be obtained during the basic survey and shall be shown on the Topographic Plan within the survey area. It is not necessary to perform extensive investigations, such as excavation, to determine the exact locations of these underground facilities. An indication as to the approximate location shall be sufficient if it is made clear on the plans that the location is, in fact, approximate and is not critical to the design. The designer shall be guided by existing Board of Health regulations since the loss or disturbance of sewage disposal facilities often requires the demolition of the dwelling. County, city, borough and township limits shall be indicated and tied to the centerline by station and angle, where possible.

**J. Intersecting Roadways.** The centerlines of all intersecting roadways and streets shall be tied to the construction centerline by station and angle. If the construction centerline is a horizontal curve in the area of the crossroad, the tie shall be made a POC and a point on the subtangent.

Profiles of existing crossroads, driveways, field entrances, etc., shall be shown as dashed lines from the mainline profile at the intersecting stations with the mainline. Do not show elevations of the profile. Driveways to the left of the mainline centerline are generally shown back from the intersection point and driveways to the right are generally shown ahead of the intersection point. Indicate the profile as follows: DRIVE RT OR TWP RD 370 LT, etc.

Indicate the width and type of existing driveways as: 12' STONE DRIVEWAY. Do not dimension.

Indicate the width and length of driveway adjustments in the remarks column in the Tabulation of Quantities Sheet (the width being the same as the existing).

Indicate the radius of major driveway intersections. A 10 ft minimum radius is desirable.

Driveway replacements shall be carried across the shoulder to the pavement when they are of a higher type of construction material than the shoulder itself.

Where driveway adjustments, etc., extend beyond the Legal and/or Required Right-of-Way Line, indicate in tabulation remarks column with this symbol: 

This symbol is commonly referred to as the "knock-out block". Profile change of driveways shall be shown on cross sections.

Show the Legal Right-of-Way Lines for all intersecting roads if they exist. See [Figure 3.12 in Chapter 3, Section 3.5](#) for an example sketch.

When Paved Shoulders are used on the mainline, carry the shoulders from the mainline around the radius to the point of tangency (PT) on the side road and, from that point, use the type of shoulders along the intersecting roadway as required. Indicate on the plans the limits of the mainline shoulders and the beginning of the side road shoulders using a line across the shoulder with the notation STOP TYPE \_\_\_\_\_ PAVED SHLDR and an arrow to the line.

Indicate the radius of paving at intersections. It is not necessary to show the radius of the outside edge of shoulder if a constant width shoulder is carried around the intersection. If a constant width shoulder is not used, indicate paving and shoulder radii with lines leading from the radius point to the shoulder edge and the paving edge.

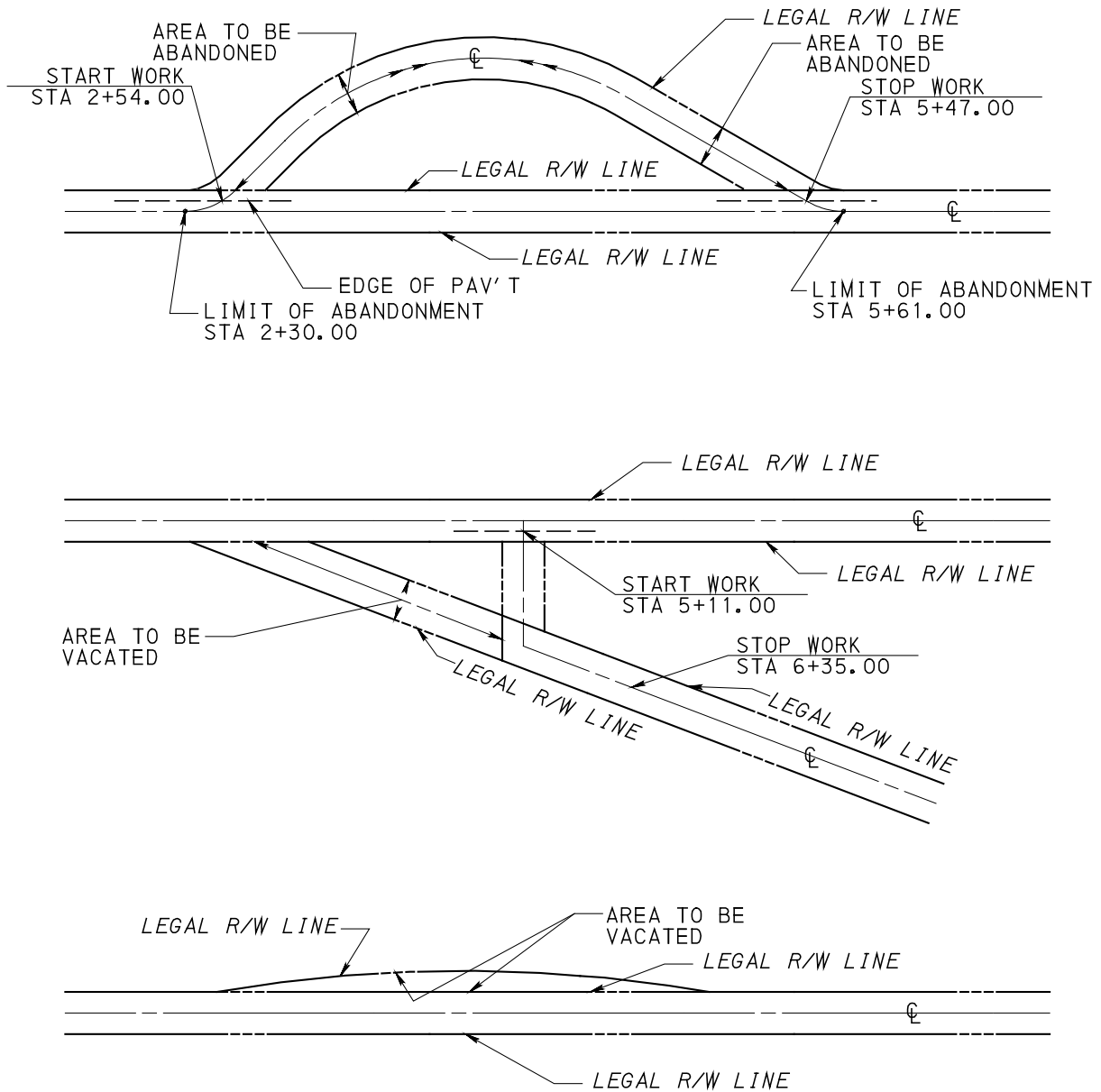
**K. Abandonment and Vacation.** Abandonment and Vacation, as shown on the Right-of-Way Plan, shall also be shown on the Construction Plan. The plan should incorporate all work necessary to bring roadways to be abandoned to an adequate condition for acceptance by the legal political subdivision. See [Figure 2.9](#) for examples of plan presentations for Abandonment and Vacation.

**L. Horizontal Curve Data.** Horizontal curve data, together with leader lines, carrying the PC, the PT (TS, SC, CS and ST for spirals) and equation stationing on the centerline shall be located to the inside of each curve. If the construction and survey centerlines (baselines) do not coincide, label curve data to indicate this condition.

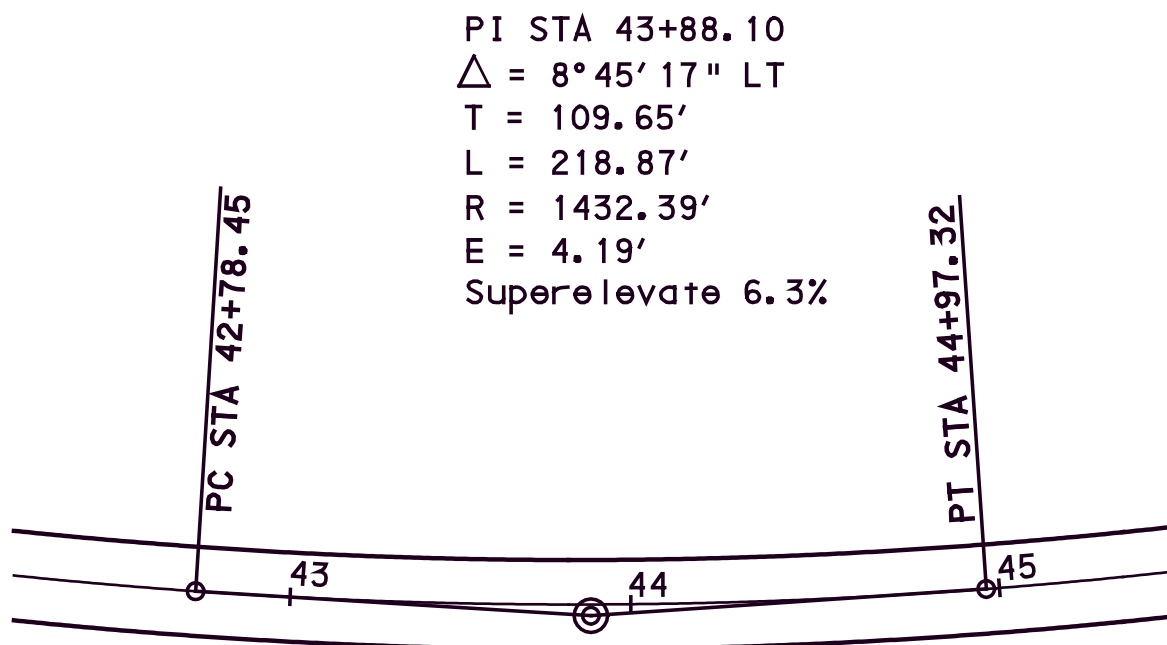
When the curve extends over more than one sheet, the curve data shall be repeated on each sheet showing a control point. The arc definition shall be used for all curves. Horizontal curve data shall be presented as indicated in [Figure 2.10](#).

**M. Station Equality on Profile.** In cases where an office line shift is made and has not been run in the field, a sketch should be included on the plan tying the construction centerline to the survey centerline. Stationing and offset distances 90° from the survey centerline shall be included on the plans. [Figure 2.11](#) indicates the method of showing equivalent stations and elevations on a profile for an office line shift from the survey centerline. When a horizontal line shift is greater than 6 ft, usually new cross sections shall be taken in the field on the construction centerline.

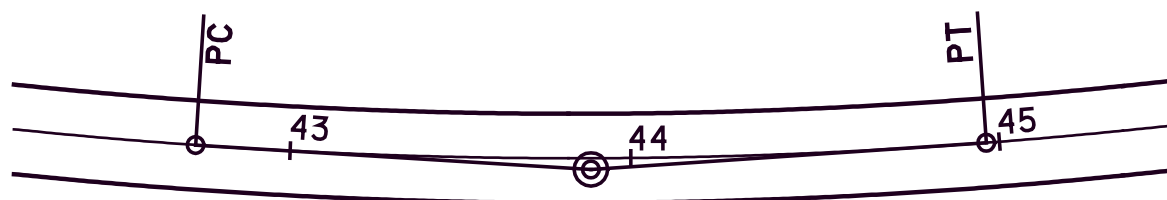
INTENTIONALLY BLANK



**FIGURE 2.9**  
**EXAMPLES OF PLAN PRESENTATION FOR**  
**ABANDONMENTS AND VACATIONS**

**ALTERNATE METHOD:**

PI STA 43+88.10  
 $\Delta = 8^{\circ}45'17''$  LT  
 T = 109.65'  
 L = 218.87'  
 R = 1432.39'  
 E = 4.19'  
 PC STA 42+78.45  
 PT STA 44+97.32  
 Superelevate 6.3%



**FIGURE 2.10**  
**HORIZONTAL CURVE DATA PRESENTATION**

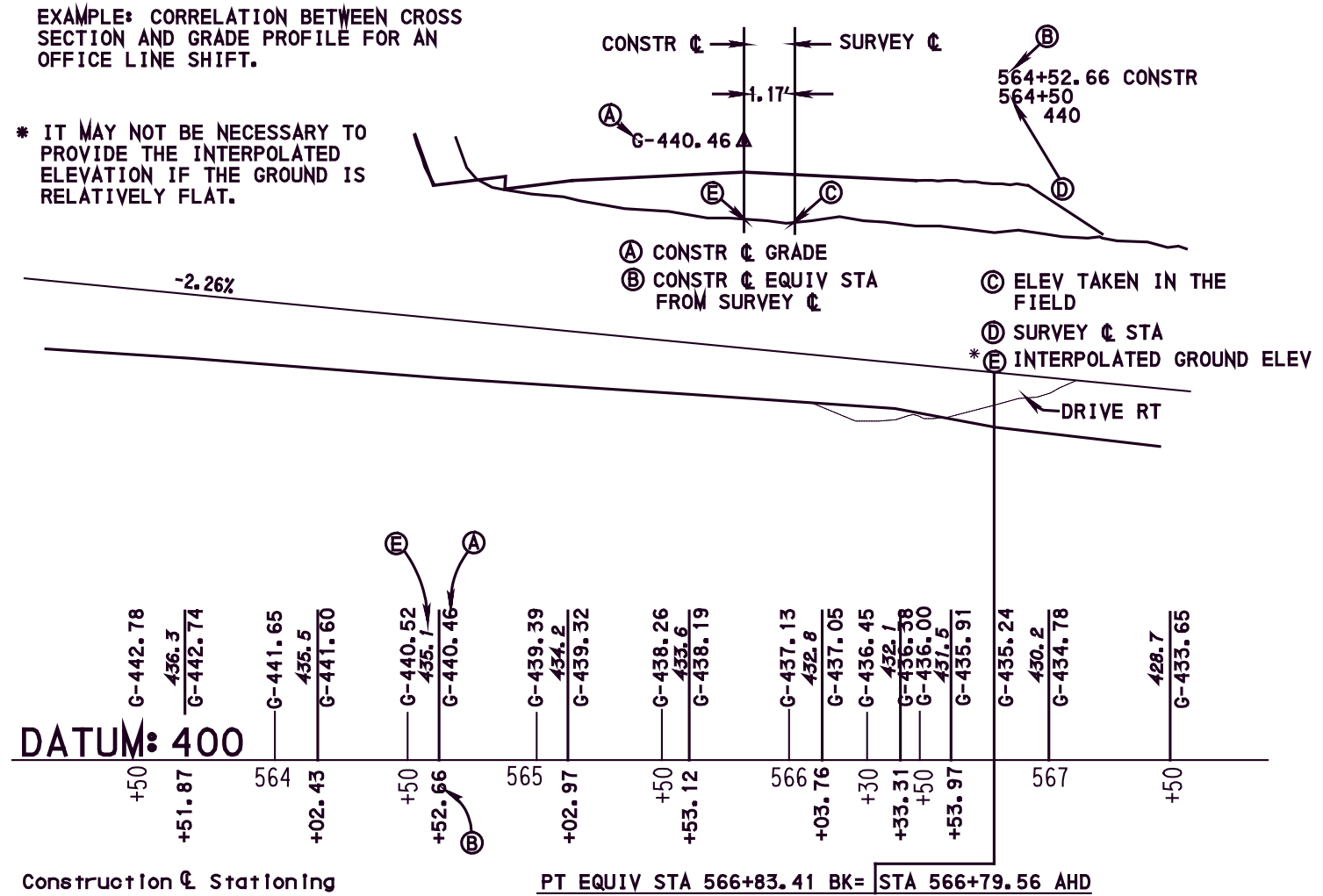


FIGURE 2.11  
METHOD FOR INDICATING EQUIVALENT  
STATIONS AND ELEVATIONS ON A PROFILE

**N. Spiral Curve Data.** The following horizontal curve data symbols shall be indicated on the plans for spiraled curves (see Publication 13M, Design Manual, Part 2, *Highway Design*, Chapter 2). Only abbreviations and appropriate distances are to be shown on the plan:

- PI Station
- Delta Angle ( $\Delta$ )
- Delta, Simple Curve ( $\Delta_c$ )
- Radius, Simple Curve ( $R_c$ )
- Length, Simple Curve ( $L_c$ )
- Spiral Angle ( $\theta_s$ )
- Spiral Length ( $L_s$ )
- Spiral Tangent ( $T_s$ )
- Spiral External ( $E_s$ )
- Tangent Distance to PC ( $k$ )
- Tangent Offset to PC ( $p$ )
- Tangent Distance to SC ( $x_c$ )
- Tangent Offset to SC ( $y_c$ )
- Long Tangent (LT)
- Short Tangent (ST)
- Long Chord (LC)
- Superelevation Rate

**O. Vertical Curve Data.** Vertical Curve Data shall be indicated directly over the PVI, written horizontally, and shall contain the following information. See [Figure 2.12](#) for an example of vertical curve data presentation:

- PVI Station
- Elevation
- VC
- MO
- SSD or HLSD

**P. Guide Rail.** The location of Guide Rail shall be shown on the plans using the symbol specified in [Chapter 13, Section 13.5](#).

**Q. Pipes and Inlets.** Parallel pipes shall be shown as dashed, solid blocks and circles at appropriate locations and elevations on the plan and profile respectively. Invert elevations and stations at breaks in grade, inlet and outlet ends of pipe shall be shown on the profile. Also indicate, on the profile, the percent of grade (%) for parallel pipes with an arrow showing the direction of flow.

Cross pipes shall be indicated in the plan as dashed, solid blocks and on the profile as a circle at the station where it crosses the construction centerline.

Inlet locations shall be plotted on the plan. Indicate the station and offset for inlets and identify inlets (e.g., I-1, I-2, I-3, etc.). Determine the station based on where the centerline of the grate crosses the construction centerline or baseline. Determine the offset (LT or RT) based on the distance measured from the construction centerline or baseline to the centerline of the grate.

Manhole locations shall be plotted on the plan. Indicate the station and offset for manholes and identify manholes (e.g., MH-1, MH-2, MH-3, etc.). Determine the station based on where the centerline of the manhole cover crosses the construction centerline or baseline. Determine the offset (LT or RT) based on the distance measured from the construction centerline or baseline to the centerline of the manhole cover.

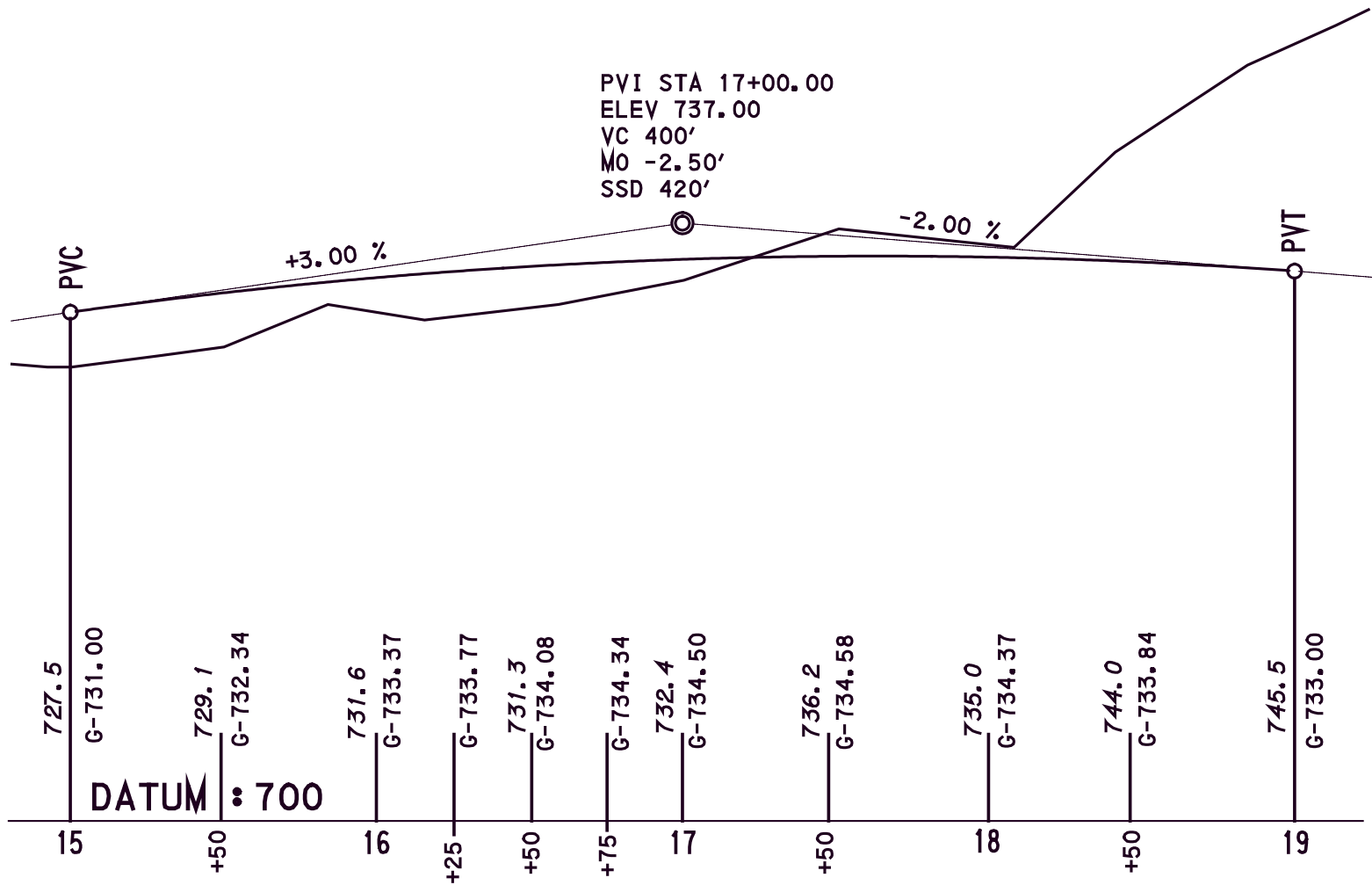


FIGURE 2.12  
PRESENTATION OF  
VERTICAL CURVE DATA

**R. Sidewalk and Curb Ramps.** Sidewalks should be considered wherever roadside and land development conditions affect regular pedestrian movement along a highway. If constructed without a legal agreement with the local municipality or property owner, the Department will be responsible for maintaining the sidewalk if located within a township and may be responsible in other communities. Department policy is that the municipality or property owner contributes a fair share of the total sidewalk and incidental curbing costs, is responsible for any right-of-way costs, and agrees to operate and maintain the sidewalk. A written agreement between the municipality and the Department specifying these conditions must be executed before construction.

The width of a new sidewalk should conform to that of the existing sidewalk. The approximate limits of sidewalk removal and replacement may be indicated by field inspection, but the final limits shall be determined by the designer during final design. Federal funding may be used to match local funding for sidewalk construction. Sidewalks should be suggested, where required, for safety reasons and where the municipality can provide the non-Federal share of the expenditures.

Where a minimum amount of existing sidewalk is to be replaced, the top of curb grade shall fit the sidewalk very closely and be designed so that the sidewalk shall drain over the curb at all points. Where the entire sidewalk is to be replaced to the building line, the floor elevations and entrances shall control the grade. Drainage shall be away from the building at all points on the sidewalk.

The designer shall refer to Publication 13M, Design Manual, Part 2, *Highway Design*, Chapter 6 for complete Department policy regarding sidewalks and curb cut ramps.

**S. Channel Change.** The extent and width of a channel change shall be indicated from a channel baseline which shall be tied to the construction centerline by angle and station at the intersection with the construction centerline. Stations and offsets shall be shown on the plans which permit the extent of the channel area to be laid out in the field.

The top of the channel change shall be indicated with a dashed line. The area utilized for the channel change shall be indicated as a continuous line and shall be clearly labeled on the plan portion as TEMPORARY CONSTRUCTION EASEMENT (CHANNEL) OR (DRAINAGE) with dimension lines.

Tie Temporary Construction Easements to the Legal or Required Right-of-Way Line, as the case may be, with pluses and offsets. Wingwalls of structures shall be indicated within the Legal or Required Right-of-Way Line.

When a channel change baseline is used, indicate the horizontal limits of Temporary Construction Easements as CHANNEL - STOP WORK STA \_\_\_\_\_ or START WORK STA \_\_\_\_\_ (See [Chapter 15, Section 15.1, Plate A-III](#)).

Include a typical section of the proposed stream channel on the corresponding Plan Sheet with typical dimensions and indicate if width is variable. Show fish channels where required. Show a profile for long channel changes.

**T. Utilities.** The location of all existing and proposed surface, subsurface and aerial utility lines shall be clearly shown on the plan, profile, and cross sections. Show overhead clearances at the minimum sag height over the pavement and shoulders for aerial utility lines and the depth below existing ground for subsurface utilities (reference Publication 16, Design Manual, Part 5, *Utility Relocation*, Chapter 6, Section 6.3), when included in the scope. Where utility congestion is significant, a separate Detailed Utilities Plan Sheet may be necessary (reference [Section 2.13](#)). Utilities shall be shown in accordance with [Sections 2.13, 3.7.B, and 13.5](#).

With the exception of the municipally-owned utilities, such as water lines and sanitary sewers, utility construction on rural and most urban projects is rarely incorporated into the proposal as an item of work for the Contractor. In larger cities, however, this item is normally planned under a series of agreements with the various utilities involved with the Department acting as the coordinator.

The appropriate Notes for Utility Easements shall be shown as outlined in [Section 3.7.B](#).

**U. Conduits.** All conduits to be placed under the pavement shall be shown and located on the Plan Sheet.

**V. Right-of-Way.** Show and label the legal Right-of-Way lines for all existing roadways and streets on the plan, including areas beyond the "Limit of Work" stations and "Stop Work". Indicate the width at all breaks and at each end of the sheet.

On projects where a combination Construction and Right-of-Way Plan shall be made, the existing Right-of-Way line shall be indicated as the LEGAL RIGHT-OF-WAY LINE. The proposed Right-of-Way line shall be indicated as the REQUIRED RIGHT-OF-WAY LINE.

Property owner's names and property lines need not be shown within the confines of the Legal Right-of-Way Line as established by a separate Right-of-Way Plan. The names and property lines shall be shown on the Combination Plans. All property owners' names and their property lines abutting the Legal Right-of-Way Line shall be shown with all required information.

**W. Interchanges and Channelized Intersections.** In addition to the normal Plan Sheets, all specified interchanges and intersections shall be drawn to a scale of 1" = 200' or smaller to show the complete interchange on a single sheet. This drawing shall follow the last Plan Sheet for the interchange and shall be included in the total number of sheets in the plan.

The drawing shall include the following data:

1. Construction Centerline or Baseline.
2. Stations identified at a minimum 500 ft interval with "ticks" at 50 ft intervals.
3. All geometrics including curve data (curve data may be tabulated) and equalities.
4. Coordinates for control points shall be shown in tabular form as indicated in [Figure 2.7](#).
5. Existing streams and proposed relocations.
6. Identification of all routes and ramps.
7. Proposed structures.
8. Existing and/or proposed railroads and railroad structures.
9. North Arrow and Bar Scale.
10. Existing and proposed utility facilities. In very congested areas, a separate sheet may be used to show utilities.

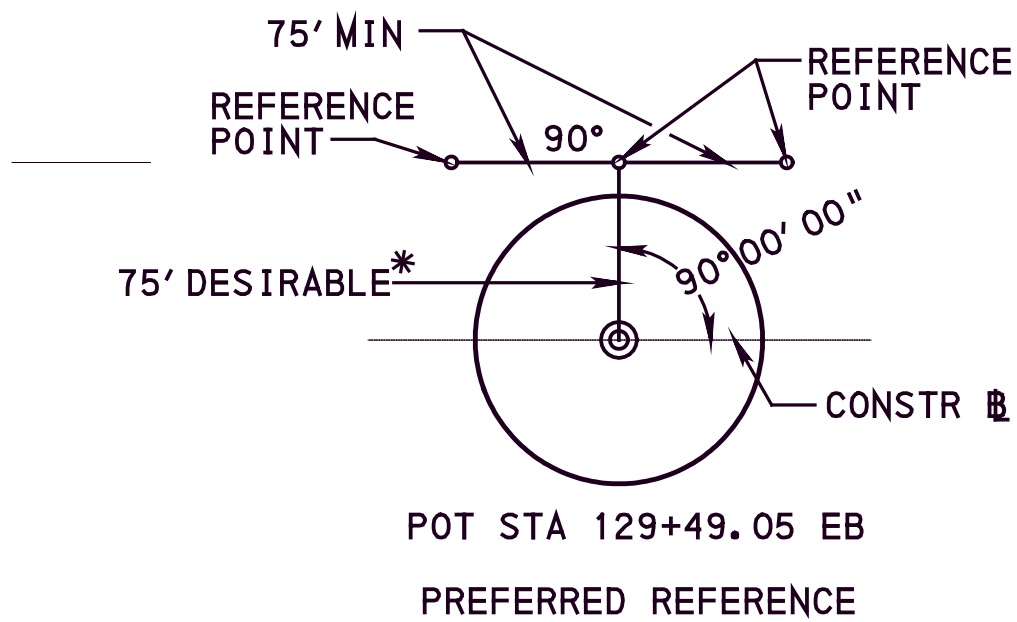
**X. Reference Circles.** Reference circles shall be 1.5 in in diameter and shall be placed vertically over the control point 0.5 in below the top border of the plan sheet, when possible. If space is not available on the plan sheet, the reference circles may be placed on a separate sheet and the location of the reference circles must be indicated on each plan sheet using a note similar to that used for referencing profiles.

Show centerline and/or tangents on circles parallel to the lines on the plan.

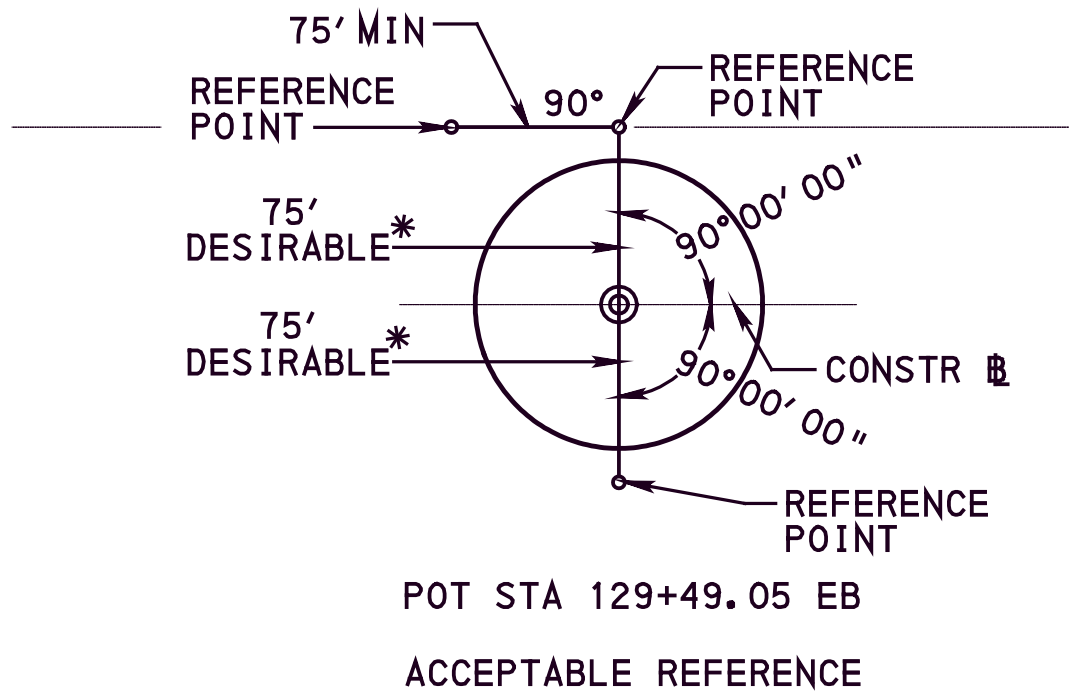
The following information shall be shown in conjunction with the reference circles:

1. Label baseline or centerline (construction or survey).
2. Type of control point (PC, PI, PT, etc.).
3. Station.
4. Azimuth angle (Angle at the PI measured clockwise from the back tangent to the ahead tangent).
5. Indicate PC's and PT's with a single circle and POT's and PI's with two concentric circles.

See [Figure 2.13](#) for preferred and acceptable reference circle details.



\*ACTUAL DISTANCE CONTROLLED BY  
R/W LINES. REFERENCE POINT  
ON OR JUST INSIDE R/W LINE.



**FIGURE 2.13**  
**PREFERRED AND ACCEPTABLE**  
**REFERENCE CIRCLE DETAILS**

**Y. Bench Marks.** All bench mark data shall be shown along the upper edge of the Plan Sheet 0.5 in below the top border and vertically above its location on the drawing. All bench marks used in the survey, even if beyond the "Limit of Work" stations, shall be shown on the drawing. For bench mark data, indicate the following:

1. Elevation.
2. Location (Distance left or right of station).
3. Description (Spike in 24" Oak, etc.).

See [Figure 2.14](#) for a sample presentation for bench mark data.

|                                                                                   |
|-----------------------------------------------------------------------------------|
| BM #25 ELEV 1032.536<br>232' RT STA 253+00 EBL<br>RR SPIKE IN ROOT 8' OAK FLAGGED |
|-----------------------------------------------------------------------------------|

**FIGURE 2.14  
SAMPLE BENCH MARK  
DATA PRESENTATION**

See Publication 122M, *Surveying and Mapping Manual*, for additional information on bench marks.

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## 2.7 FINAL DESIGN CROSS SECTIONS

**A. General Information.** Cross sections shall accurately depict the existing relief and human-made features as sections perpendicular to the respective stations on a survey centerline, a baseline or construction centerline and shall show the proposed cross sectional outline of the new facility complete with all its functional elements.

Cross sections shall be plotted on the standard ANSI D size, 34 in × 22 in Cross Section Sheets, along the length of the sheet, with the stations increasing from the bottom to the top of the sheet. Usually, only one column of cross sections is placed on a sheet; however, when the Right-of-Way is narrow, it is feasible to place two columns on a sheet. In this case, the cross section stationing progresses from left to right as well as from bottom to top.

The standard scale for plotting cross sections shall be 1" = 5' both horizontally and vertically. When the roadway section cannot be plotted on one sheet at this scale, it is permissible to use a scale of 1" = 10'. Where the 1" = 10' scale is used, it shall be clearly identified.

Attention shall be given to properly centering the sections on the Cross Section Sheet. For two-lane construction and new multi-lane construction, sections are normally centered on the sheet using the heavy vertical grid line at the centerline of the sheet as the centerline or baseline.

In cases where additional lanes are to be constructed adjacent to existing lanes, centering of the section shall depend upon the location of the centerline in relation to the roadway template. Locate the centerline as far left or right of the middle of the sheet as necessary to accommodate the width of the section. One of the heavy vertical grid lines shall be selected as the survey centerline so that the complete, ultimate section shall be completely located on the sheet. Revise the numbers at the top and the bottom of the grid to correspond to the location of the heavy vertical grid line chosen as the centerline.

When the complete cross section cannot be shown in its entirety on one sheet, appropriate match lines, with referenced sheet numbers, shall be provided on additional Cross Section Sheets, such as an interchange with adjoining cross sections.

As many sections as practicable shall be placed on each sheet to allow a reasonable amount of latitude for possible grade changes. Prior to any plotting, the soil profile should be checked for possible unsuitable material which may cause overlapping of the plotted sections.

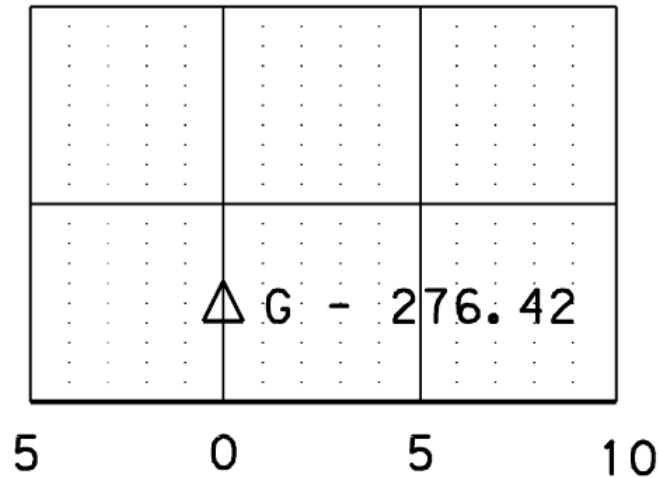
A heavy horizontal grid line shall be selected as an elevation datum line on an even 5 ft elevation (10 ft as required) for each section. Sections shall be spaced with due regard to plotting the proposed template to avoid overlapping adjacent sections.

Cross sections are generally prepared at 50 ft intervals; however, cross sections at 25 ft intervals should be considered in developed areas and where the existing ground is non-uniform. Cross sections at shorter intervals (< 25 ft) could be considered if necessary at strategic locations within the project. Half sections shall be prepared for private driveways to insure proper correlation on the profile or at isolated locations that may present various design issues, such as existing physical features that may impact the construction. After all existing relief and human-made structures have been plotted and checked, the proposed cross section shall be drawn.

Generally, just the location, elevation and description of an item shall be shown on the Computation Sheets which shall be submitted with the plans. The following information shall be shown on the sections:

1. Proposed Grade Line Elevation. Plot elevation as a point and enclose with a triangle on sections as indicated below. Label "G-276.42". This grade will correspond with the profile grade for each station.

Example:



2. Earthwork Templates. Show as indicated below (Template areas consist of the roadway excavation and embankment only).



3. Drainage Facilities. Outline of proposed drainage facilities such as inlets, endwalls, manholes, pipes, subsurface drains, catch basins, ditches, etc. For each structure, include only a plus station, location left or right and a description as shown below:

STA 10+08.25 18.90' LT  
1 EA TYPE S TOP UNIT AND GRATE  
1 EA STANDARD INLET BOX, HEIGHT ≤ 10'  
INVERT ELEV 601.38

Show the invert elevations for all drainage structures and for transverse pipes where they cross the centerline. Show the invert elevations for all parallel pipes. On a single run of pipe, with a straight grade, it is not required to show more than two pluses and two elevations. Indicate, with an arrow, the direction of flow for all pipes. For pipes, indicate size only; no length and do not show limits of the Class 4 Excavation. Show the side slopes on ditches which are not standard.

4. Limits of structures by stationing.
5. End earthwork station and area.

6. Superelevation data shall be indicated as follows and shall be shown near and above the affected edge of pavement:

Four-Lane Highways:  $S = \pm 0.00$  with reference to the profile grade.

Two-Lane Highways:  $S = \pm 0.00$  with reference to the normal edge of pavement.

Superelevation data may also be shown in the form of cross slopes or with reference to the edge of pavement.

7. At the beginning of tangent runout, show this Note:

STATION \_\_\_\_\_ END NORMAL SECTION, BEGIN SUPERELEVATION TRANSITION

At the beginning of the full superelevation, show this Note:

STATION \_\_\_\_\_ END SUPERELEVATION TRANSITION, BEGIN FULL SUPERELEVATION

At the end of the full superelevation, show this Note:

STATION \_\_\_\_\_ END FULL SUPERELEVATION, BEGIN SUPERELEVATION TRANSITION

At the end of the tangent runout, show this Note:

STATION \_\_\_\_\_ END SUPERELEVATION TRANSITION, BEGIN NORMAL SECTION

8. Datum elevation and station of each cross section near the right-hand border of the sheet.
9. Equalities as shown on the plan and profile sheets.
10. Template areas for and stations of ditch excavation, channel change, benching, etc.
11. Areas for cut and fill.

| PRELIMINARY |     |
|-------------|-----|
| C-          | F-  |
| FINAL       |     |
| C-          | F-  |
| TC-         | TF- |

12. Begin and end stations of parallel benches.
13. Subsurface conduits, including utilities (indicate size and elevation).
14. Mine voids and shafts.
15. Private and commercial driveways.
16. Areas requiring rock embankment shall be hatched.
17. Boundaries of unsuitable material. Show cross-hatched with 45° diagonal lines and label as UNSUITABLE MATERIAL on each cross section.

18. Floor elevations of buildings.
19. Guide rail.
20. Curb.
21. Sidewalk.

See [Chapter 15, Section 15.2, Plate B-XI](#) for sample cross section sheet.

The general location of sections plotted on the sheet, if other than mainline sections, shall be indicated in bold print near the upper right-hand side of each sheet.

Each sheet shall be clearly identified by completing the Identification Block in the upper right-hand corner and shall be numbered consecutively.

**B. Assembling Cross Sections.** To facilitate handling, to reduce wear and tear on the sheets, and to promote uniformity and orderliness in the assembling of cross sections, the following guidelines shall be followed:

1. Large Projects. 200 to 800 + sheets.
  - a. No bundle shall contain more than 200 sheets.
  - b. Mainline sections shall be in the first bundle(s).
  - c. Miscellaneous sections - cross roads, side roads, channels, ditches, etc., shall be in the last bundle(s) in sequential order with the mainline stationing.
2. Small Projects. Less than 200 sheets.
  - a. Mainline sections shall be placed at the beginning of the bundle and the miscellaneous sections shall be placed at the end.

The contents of each bundle of cross sections shall be clearly identified on the cover. The first bundle shall have a reproducible Title Sheet with an index of the contents of the bundles and it shall be sheet number 1 of the cross sections. Place the Professional Engineer's seal and signature on the Title Sheet.

**Examples:**

Cumberland County  
SR 1023 Section A04  
Station 0+00 to Station 165+15 (Limits of Work)  
Total Sheets 353

Cross Sections  
Main Line  
Station 0+00 to Station 90+50  
Sheets 2 thru 200  
Bundle 1 of 2

Cumberland County  
SR 1023 Section A04  
Station 0+00 to Station 465+15 (Limits of Work)  
Total Sheets 353

Cross Sections

Miscellaneous

Cherry Land - Station 10+00 to Station 16+40

Township Road 510 - Station 0+00 to Station 3+40

Ball Run Relocated - Station 5+00 to Station 16+20

Sheets 201 thru 353

Bundle 2 of 2

**Examples:**

Westmoreland County

SR 0030 Section 02R

Station 0+00 to 165+15 (Limits of Work)

Total sheets 80

SR 0030 Station 0+50 to Station 164+85 2 thru 70

SR 1020 Station 0+00 to 25+00 71 thru 75

Township Road 510 Station 5+10 to Station 12+35 76 thru 80

Each bundle of sections shall be punched with three holes 0.75 in from the left hand side and reinforced. Holes shall be located at the center and at 2 in from the top and bottom.

The front and back covers for each bundle shall be of heavy brown wrapping paper of adequate size to cover the entire bundle. A 22 in × 1.5 in wide heavy cardboard strip shall be placed on the outside of the front and back covers and fastened through all sheets with three brass fasteners or equivalent.

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## 2.8 RIGHT-OF-WAY TERMINOLOGY ON CONSTRUCTION PLANS

1. "LEGAL RIGHT-OF-WAY LINE"
2. "LEGAL RIGHT-OF-WAY LINE FOR -----" (insert the proper type of local road or street; e.g. township road, borough street, city street)
3. "LEGAL LIMIT OF SLOPE EASEMENT"
4. "TEMPORARY CONSTRUCTION EASEMENT" (See [Chapter 3, Section 3.1.R](#) for details)
5. "ENTIRE AREA INCLUDED IN LEGAL RIGHT-OF-WAY FOR LIMITED ACCESS"
6. "EXTENT OF LIMITED ACCESS"
7. "LEGAL RIGHT-OF-WAY LINE FOR LIMITED ACCESS"
8. "LEGAL RIGHT-OF-WAY LINE FOR SERVICE ROAD"
9. "LEGAL PRIVATE ACCESS (\_\_\_\_\_, \_\_\_\_\_)" [The parcel number or numbers of the property or properties for which the access was acquired and the interest taken (fee simple or easement for driveway purposes, not both) should be designated within the parenthesis.]
10. "LEGAL OCCASIONAL FLOWAGE EASEMENT"
11. "ENTIRE AREA INCLUDED IN LEGAL RIGHT-OF-WAY"
12. "AREA TO BE ABANDONED"
13. "AREA TO BE VACATED"
14. "LEGAL SIDEWALK EASEMENT"
15. "LEGAL AERIAL EASEMENT"
16. "LEGAL WETLAND MITIGATION (FEE SIMPLE or EASEMENT)"
17. "LEGAL STREAM MITIGATION (FEE SIMPLE or EASEMENT)"
18. "LEGAL TERRESTRIAL MITIGATION (FEE SIMPLE or EASEMENT)"
19. "LEGAL REPLACEMENT \_\_\_\_\_ [insert proper type of land, e.g. parkland or game land] (\_\_\_\_\_, \_\_\_\_\_) [The public entity for which the lands were acquired and the interest taken (fee simple or easement for xxx land purposes, not both) should be designated within the parenthesis.]"
20. "LEGAL CHANNEL EASEMENT"
21. "LEGAL DRAINAGE EASEMENT"
22. "LEGAL UNDERGROUND STRUCTURE SUPPORT EASEMENT"
23. "LEGAL DITCH EASEMENT"
24. "LEGAL UNDERGROUND DRAINPIPE EASEMENT"
25. "LEGAL UNDERGROUND ANCHOR EASEMENT"

- 26.** "LEGAL SOUND BARRIER EASEMENT"
- 27.** "LEGAL RIGHT OF WAY CONVERTED TO AERIAL EASEMENT"
- 28.** "LEGAL SIGHT DISTANCE EASEMENT"
- 29.** "LEGAL ITS CONDUIT EASEMENT"
- 30.** "LEGAL TRAFFIC SIGNAL EASEMENT"

All "Easement" or "Area" Notes shown on the Right-of-Way Plan shall be shown on the Construction Plan.

For Utility Terminology, see [Chapter 3, Section 3.7.B](#).

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## 2.9 ABBREVIATED PLANS

The use of an abbreviated format Construction Plan is encouraged for rehabilitation-type projects. These plans may be 11 in × 8.5 in or full-sized standard ANSI D size, 34 in × 22 in. The originals shall be of high-quality so that reproductions are legible. The 11 in × 8.5 in plans shall be included directly in the proposal.

Permanent records shall be maintained in the Central Office of all plans whether they are full-size or 11 in × 8.5 in plans. Normally, 11 in × 8.5 in plans can be used for projects such as resurfacing, widening, shoulder reconstruction, guide rail replacement, minor bridge repairs, etc. The maximum number of sheets for an abbreviated plan shall be 50 sheets.

When utility relocation or adjustments are required, a minimum plan for use with the utility company shall be provided in accordance with Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Chapter 4, Section 4.6 and Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 3.8.

The following format is to be utilized when abbreviated plans are used:

1. **Title Sheet.** The Title Sheet shall contain the following information (Refer to [Figure 2.15](#) for a sample of an 11 in × 8.5 in Construction Plan Title Sheet.):
  - a. State Route and Section.
  - b. County.
  - c. Township, Borough or City.
  - d. Stationing Limits.
  - e. ECMS Number.
  - f. Total Number of Sheets.
  - g. Design Designation.
  - h. Traffic Data.
  - i. Prepared by \_\_\_\_\_ (Assistant District Executive or Consultant)
  - j. Recommended by \_\_\_\_\_ (District Executive)
  - k. Recommended by \_\_\_\_\_ (Deputy Secretary)
  - l. Approved by \_\_\_\_\_ (Secretary of Transportation)
2. **Location Map.** The Location Map shall contain all standard information (Refer to [Section 2.3.C](#)).
3. **General Project Data.**
  - a. General Notes (Refer to [Section 2.3.A](#)).
  - b. List of Equalities.
  - c. List of Public Utilities.
  - d. List of Existing Types of Roadway Pavement.
  - e. Earthwork Summary.
4. **Required Typical Sections.**
5. **Special Details (Drawings).**
6. **Summary of Quantities Sheet.**
7. **Tabulation of Quantities Sheet.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| SHEET 1 OF _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                            |
| <p><b>COMMONWEALTH OF PENNSYLVANIA</b><br/> <b>DEPARTMENT OF TRANSPORTATION</b></p> <p><b>DRAWINGS</b><br/> <b>FOR</b><br/> <b>CONSTRUCTION</b><br/> <b>OF</b></p> <p>STATE ROUTE _____ SECTION _____<br/>         _____ COUNTY _____</p> <p>_____<br/>         (TOWNSHIP, BOROUGH OR CITY)</p> <p>FROM STA _____ TO STA _____ LENGTH _____ FT<br/>         FROM SEG _____ OFFSET _____ TO SEG _____ OFFSET _____</p> <p>ECMS NO. _____</p> <p style="text-align: center;"><u>DESIGN DESIGNATION</u></p> <p>HIGHWAY CLASSIFICATION _____<br/>         DESIGN SPEED _____<br/>         PAVEMENT WIDTH _____<br/>         SHOULDER WIDTH _____</p> <p style="text-align: center;"><u>TRAFFIC DATA</u></p> <p>CURRENT ADT _____<br/>         DESIGN YEAR ADT _____<br/>         DHV _____<br/>         D _____<br/>         T _____</p> |                                                                                                                                            |
| <p>RECOMMENDED _____ DATE _____</p> <p>_____<br/>         DEPUTY SECRETARY</p> <p>APPROVED _____ DATE _____</p> <p>_____<br/>         SECRETARY OF TRANSPORTATION</p> <p>(ON BEHALF OF THE GOVERNOR AS WELL AS THE SECRETARY)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>DATE _____</p> <p>_____<br/>         ASST DIST EXECUTIVE</p> <p>RECOMMENDED DATE _____</p> <p>_____<br/>         DISTRICT EXECUTIVE</p> |

**FIGURE 2.15**  
**SAMPLE OF 11 in x 8.5 in**  
**CONSTRUCTION PLAN TITLE SHEET**

**8. Plan Sheets.** Plan sheets shall be of the straight-line format showing all items of construction included in the project. Plan sheets may be omitted for simple projects which include limited items such as resurfacing with shoulder reconstruction and are uniform throughout the project. For projects with multiple items such as drainage, pavement patching, guide rail, pavement widening and similar construction, plan sheets should be provided so that the Contractor can fully comprehend the scope of work and submit an accurate bid to the Department.

The 11 in × 8.5 in plans shall be of a high-quality to allow legible reproductions and shall contain all the data necessary for a Contractor to construct the facility to Department Standards. Readability is important and the minimum lettering size shall conform to that required on standard plans. To ensure that data is not lost in reproduction, all sheets shall have border lines approximately 0.5 in in from the top, bottom and sides of the page. Each sheet shall have the page number and contract number located within the border lines. The originals or acceptable first-generation prints should be submitted to the Central Office to assure that satisfactory reproductions can be made for the proposal. All line work within a plan should be of approximately the same density to facilitate microfilming. The mixing of 11 in × 8.5 in plans and full-size plans for one project is not permitted.

**9. Control of Work Location.** Normally, the work shall be controlled using the standard stationing method. However, some types of work, such as resurfacing, can be controlled using segments and offsets to identify work areas.

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**2.10 CONSTRUCTION PLAN REVISIONS**

A revision is defined as a change in the original Construction Plan. Construction Plan revisions are applicable to plans that have been advertised to the public through ECMS or a legal newspaper advertisement.

Procedures and projects for which to apply these revision requirements are presented in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Chapter 4, Section 4.13.J.

The proposed plan revisions shall be highlighted on prints of the appropriate plan sheets. Do not make the changes to the original plan sheets at this time. Changes are made to the originals only after the prints have been approved.

Since no erasure of original information is permitted, the changes for minor revisions should be made on the prints by adding the new information with a cloud circling the changes and crossing out the data being revised. For extensive revisions, the original sheet shall be marked with a large "X" and a supplemental sheet added to the plan.

When making plan revisions on the prints, the plan revision block must be added and completed for each affected plan sheet as shown in [Figure 2.16](#). The Engineer stamping the original plan must initial the plan revision block approving the revisions prior to the plan revisions being published in an addenda, if applicable.

After the prints are approved, changes are made to the original plans. In addition, an approval block to be included on the original Title Sheet shall contain the general description of all the proposed changes and a list of the sheets and parcel numbers affected by the revisions. Lines for the signatures of the District Executive, ADE- Design/ADE- Construction and the District Plans Engineer or the Assistant Construction Engineer shall be included in the block as shown in [Figure 2.17](#). The new total number of sheets shall be shown by crossing out the original and showing the new. The revised original Title Sheet along with the other revised original sheets must be included with the final plan set provided to the contractor prior to Notice to Proceed.

Construction Plan revisions that also require changes to the Right-of-Way Plan shall also follow the requirements presented in [Chapter 3, Section 3.11](#).

| REVISION<br>NUMBER | REVISIONS | DATE | BY | APPROVED |
|--------------------|-----------|------|----|----------|
|                    |           |      |    |          |
|                    |           |      |    |          |

**FIGURE 2.16**  
**EXAMPLE OF PLAN REVISION BLOCK**

REVISED TO DELETE TEMPORARY CONNECTION AND SERVICE ROAD, AND UNKNOWN OWNERS, REVISE RAMP B CURVE DATA, ADD AND REVISE PROPERTY OWNERS, ADD TEMPORARY AREAS FOR CONSTRUCTION, REVISE PROPERTY LINES AND OFFSET DIMENSIONS, REVISE RIGHT-OF-WAY LINES, ADD FLOWAGE EASEMENTS, REVISE OWNER'S NAME, REVISE AREA OF CHANNEL NOTE AND REVISE RIGHT-OF-WAY LINE FOR LIMITED ACCESS.

PARCELS INVOLVED: 7, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37 AND 38.

REVISIONS ON SHEETS: 2, 4, 5, 16, 26, 27, 28, 31, 32, 34, 35, 36, 37, 38, 39, 40, 41, 45, 49, 51, 57, 58, 61, 64, 68, 69, 71, 72, 73, 75, 76, 77, 80, 81, 82, 83 AND 85.

RECOMMENDED \_\_\_\_\_ 20 \_\_\_\_\_

\_\_\_\_\_  
DISTRICT PLANS ENGINEER/ASSISTANT CONSTRUCTION ENGINEER

RECOMMENDED \_\_\_\_\_ 20 \_\_\_\_\_

\_\_\_\_\_  
ADE DESIGN/ADE CONSTRUCTION

APPROVED \_\_\_\_\_ 20 \_\_\_\_\_

\_\_\_\_\_  
DISTRICT EXECUTIVE

**FIGURE 2.17**  
**EXAMPLE OF APPROVAL BLOCK WITH SIGNATURES**

## 2.11 DESIGN-BUILD MODIFIED TURNKEY

A Design-Build Modified Turnkey project is one in which the Department establishes the preliminary engineering information and the Design-Build team completes the design and constructs the project based on information provided. The procedures and information on developing Design-Build projects are contained in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures* and Publication 448, *Innovative Bidding Toolkit*.

PennDOT will provide the contractor with contract drawings (30% Design Stage) which is the approved conceptual drawings developed by the Department for use in bidding and awarding Design-Build Modified Turnkey contracts.

These conceptual Drawings may include but are not limited to the following:

1. Title Sheet (An example of a typical Title Sheet is shown in [Chapter 15, Section 15.2, Plate B-IX](#))
2. Index Sheet
3. Typical Section Sheet
4. Summary of Quantities Sheets (Items as shown in Bid Proposal)
5. Plan Sheets (Existing and Relocated Utilities, Right of Way location and cut/fill limits, Roadway Design and etc.)
6. Conceptual Traffic Control Plan
7. Conceptual TS&L (General Plan Sheet)
8. Conceptual General Notes (Bridge)
9. Structure Boring Plan (if available)
10. Conceptual Erosion and Sediment Pollution Control Plan
11. Conceptual Traffic Signal Plans
12. Foundation Design Parameters (as applicable)
13. H&H Report including Permits

The conceptual Construction Drawings must have a Professional Engineer's Seal Block in accordance with [Section 2.1.K](#) and [Figure 2.1](#).

The Contractor will be required to submit a Preliminary and Final Construction Plan with a Design Engineer's PE Seal in accordance with [Section 2.1.K](#) and [Figure 2.1](#).

The Preliminary Roadway Construction Plan or partially developed milestone plans (e.g. 60% to 90%) submitted by the Contractor for review and approval by the Department prior to plan completion will require the following minimum information:

1. Existing Topography
2. Horizontal & Vertical Alignment (detailed plan sheets)
3. Survey References
4. Typical Sections
5. Proposed Guide Rail
6. Proposed Utility Relocation
7. Right of Way location & cut/fill limits

8. Proposed limits of Roadway Construction
9. Final TS&L (in accordance with Publication 15M, Design Manual, Part 4, *Structures*)
10. Structure Boring Plan and Foundation Design Parameters (as applicable)
11. Proposed Drainage Items and location
12. Erosion & Sediment Pollution Control Plan (approved by DEP or County Conservation District)
13. Cross Sections as required

Preliminary Traffic Control Plan with the following information:

1. Plans for each required stage
2. Proposed Signing & Pavement Markings
3. Traffic Control Details as required

Partial Construction Plans shall require sealed drawings and specifications prior to beginning construction of a specific phase.

Final Roadway Construction Plan deliverable shall be prepared in accordance with the procedures discussed in [Section 1.5](#) and are applicable to both Department and consultant prepared plans. The naming convention for standard ANSI D size, 34 in × 22 in plan sheets, which has been established for the Department's Electronic Document Management System (EDMS), is outlined in [Appendix A](#) and shall be followed. Final Roadway Construction Plans provided by the Contractor will include but not limited to the following:

1. Title Sheet
2. Index Sheet
3. Typical Section Sheet
4. Summary of Quantities Sheets
5. Tabulation of Quantities Sheets
6. Plan Sheets
7. Profile Sheets
8. Final Structure Plans (in accordance with Publication 15M, Design Manual, Part 4, *Structures*)
9. Cross Sections as required
10. Permanent Pavement Markings and Signing

The above requirements will be in accordance with the appropriate Sections of this Manual and Publication 15M, Design Manual, Part 4, *Structures*. Although Design-Build projects are bid lump sum, it will be necessary to show a breakdown of quantities by station/location on the Tabulation of Quantities sheet for the Preliminary and Final Construction Plan. The format shall follow [Section 2.5](#) and [15.2](#). The Final Roadway Construction Plans may not be the same as the Final "As Built" Roadway Plans.

Design Plan Reviews shall be in accordance with Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Sections 4.13.B and 4.13.C. Structure Reviews shall be in accordance with Publication 15M, Design Manual, Part 4, *Structures*.

Final "As Built" Roadway Plans will include all Contract Drawings including Roadway Plans, Quantity Tabulations, Erosion and Sediment Pollution Control Plans, Traffic Control Plans and Structure Plans. The "As Built" drawings shall conform to the procedures as outlined in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Chapter 5, Section 5.7 and shall be prepared per plan presentation procedures as stated in this Manual and Publication 15M, Design Manual, Part 4, *Structures*.

Final "As Built" Cross Sections should be taken at critical locations and at least 50 ft intervals on the Main Line and Side Roads. Cross Sections are to be template to reflect "As Built" details and prepared in accordance with [Section 2.7](#).

## 2.12 DESIGN-BUILD REQUEST FOR PROPOSAL

In the Request for Proposal (RFP) process the Department provides general technical criteria to which the D-B team responds with separately sealed technical proposal and price proposal. The D-B team completes the design and constructs the project based on information provided in the detailed scope of work as outlined in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures* and Publication 448, *Innovative Bidding Toolkit*.

The highway submission process and plan development process shall be established on a project-by-project basis.

It is anticipated that most of the plan preparation will follow our traditional methods; however the requirements listed under [Section 2.11](#) may be applied to RFP projects if clearly defined in the scope of work for the project.

## 2.13 DETAILED UTILITIES PLAN SHEETS

When utility congestion is significant, or when subsurface utility engineering (SUE) is used for utility data collection and depiction for any portion of the project, Detailed Utilities Plan Sheets should be considered. Detailed Utilities Plan Sheets will require the following minimum information and must be shown in accordance with [Section 2.6.T](#):

1. Existing Topography
2. Survey References
3. Proposed Utility Relocations
4. Proposed Structures
5. Proposed Utility Easements
6. Right of Way location & cut/fill limits
7. Existing aerial utilities and poles
8. Existing underground utilities and associated structures.
  - a. Utility ownership
  - b. Function or type
  - c. Size
  - d. Utility Quality Level
  - e. Geographical limits of the Subsurface Utility Investigation
  - f. Encasement status
  - g. Existing utilities to be abandoned

In order to organize multiple utility companies of the same type that are depicted at various SUE quality levels on the Detailed Utilities Plan Sheets, a Utility Tabulation Sheet may be included. The Utility Tabulation sheet should list the utility contact information, utility characteristics, and the beginning and ending stations or other location information of the impacted utility with respect to its SUE quality levels.

A general note may be added to the detailed utilities plan sheet to indicate the date that the SUE data was collected, in the event that relocations may have already occurred after the SUE data was collected.

Example general note for SUE data date: "SUE information provided by {list SUE provider} was collected on {insert date of SUE plans}. Utility relocations may have occurred since the date of SUE data was collected."

Additional information will be included as per the utility investigation scope. This may include:

1. Depth of utilities
2. Spatial limits of vaults
3. Material Type
4. Elevations and other pertinent data obtained through a QLA test hole.
5. Number of cables (direct-buried) or conduits (direct-buried or encased)

Existing utilities information shall be collected and depicted in accordance with Publication 16, Design Manual, Part 5, *Utility Relocation*, Chapter 6.

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## CHAPTER 3

### RIGHT-OF-WAY PLANS

#### 3.0 INTRODUCTION

**A. Standard Right-of-Way Plans.** Right-of-Way Plans are the end result of preliminary design phase studies and are prepared either by Department forces or by Consultants. In either case, the Designer shall be responsible for obtaining completed plans. Prior to the submission of the Right-of-Way Plans to the Central Office for approval, they shall be reviewed by the District Chief-of-Surveys and the District Right-of-Way personnel. The Right-of-Way Unit shall make recommendations regarding the right-of-way limits. All recommended changes shall be discussed fully with the Design Engineer and with the Professional Land Surveyor in control of the plan. The Professional Land Surveyor shall verify that the land surveying aspects of the plan are satisfactory. Any problems shall be resolved prior to the submission of the Right-of-Way Plans to the Central Office.

In order to acquire land, a description or plan thereof shall be prepared, containing the names of the owners or reputed owners, an indication of the estate or interest to be acquired and such other information as the Department shall deem necessary. Execution by the Secretary of such description or plan shall constitute authority for the filing of a declaration of taking in accordance with the Eminent Domain Code, 26 Pa.C.S. The description or plan shall be filed as a public record in the Department and as necessary in the County Courthouse.

Right-of-Way Plans, including Property Plots, are the basis for determining all property damages which may be involved in the construction of a highway. They are also the legal record indicating the location, the extent and the character of any acquisition of right-of-way and shall be of accuracy commensurate with the Construction Plan data.

Section 2003(e)(6) of the Administrative Code 71 P. S., Section 513(e)(6) requires that all Right-of-Way Plans define the type of interest to be acquired. The Department's policy is that all required right-of-way shall be acquired in fee simple title. However, there are exceptions to this policy such as "Free Releases" and minor partial takings on existing highways (Refer to [Section 3.1](#) and Publication 378, *Right-of-Way Manual* for procedures for the exceptions.).

The only interests that may be acquired are those set forth in this Chapter unless otherwise approved by the Office of Chief Counsel, Real Property Division, which will coordinate with the Bureau of Design and Delivery, Right-of-Way, Utilities and Grade Crossing Division. Plan reviewers shall not approve plans with acquisitions for interests other than those designated and as defined in this Chapter without the required approval. See [Section 3.1](#) on the nature of interest to be acquired.

The Right-of-Way Plans for each section of a highway facility shall be checked and coordinated for accuracy with the Construction Plans for the same section. The right-of-way information indicated on the plans for each section shall be consistent with right-of-way information shown on plans for adjacent sections.

Right-of-Way Plans shall contain only such construction Notes or information necessary to establish limits for right-of-way acquisition and to accurately estimate the right-of-way costs.

Pennsylvania law provides that the establishment of a limited access highway facility in a City is subject to the approval of the City. This approval shall be evidenced by an ordinance duly passed in accordance with the law.

A Signature Block shall be provided for the City Official as presented in [Figure 3.1](#).

Right-of-Way Plans shall be developed using the engineering graphic standards for microfilming as presented in [Chapter 13](#).

|                                                                                           |
|-------------------------------------------------------------------------------------------|
| APPROVAL _____ (DATE) _____<br>_____ (SIGNATURE) _____<br>(TITLE OF RESPONSIBLE OFFICIAL) |
| ATTESTED _____ (DATE) _____<br>_____ (SIGNATURE) _____<br>(TITLE OF RESPONSIBLE OFFICIAL) |

**FIGURE 3.1**  
**EXAMPLE OF SIGNATURE BLOCK**  
**FOR CITY OFFICIAL**

**B. Gap Plans and Final Plans.** In some cases, it may be desirable to stage the preparation of Right-of-Way Plans to expedite the acquisition of certain properties. In these cases, an initial "Gap Plan" should be prepared, followed by the "Final Plan".

1. **Gap Plan.** Authorizes right-of-way takes in selected areas within a project, no right-of-way lines to be shown in gap areas.
2. **Final Plan.** Reestablishes and/or authorizes Gap Plan Right-of-Way, if necessary, and establishes right-of-way in gap areas.

Either plan may be prepared to satisfy the requirements in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Sections 4.7 and 4.13. Plans shall be prepared at 1" = 200' or larger scales depending on the available mapping. The Gap Plan leaves gaps in the areas where sufficient data is not available to complete the plan. The gaps should start and stop at property lines if possible. The Final Plan to fill the gaps should be prepared as early in final design as possible. It shall be necessary to reference both plans in the Construction Plan under the General Notes.

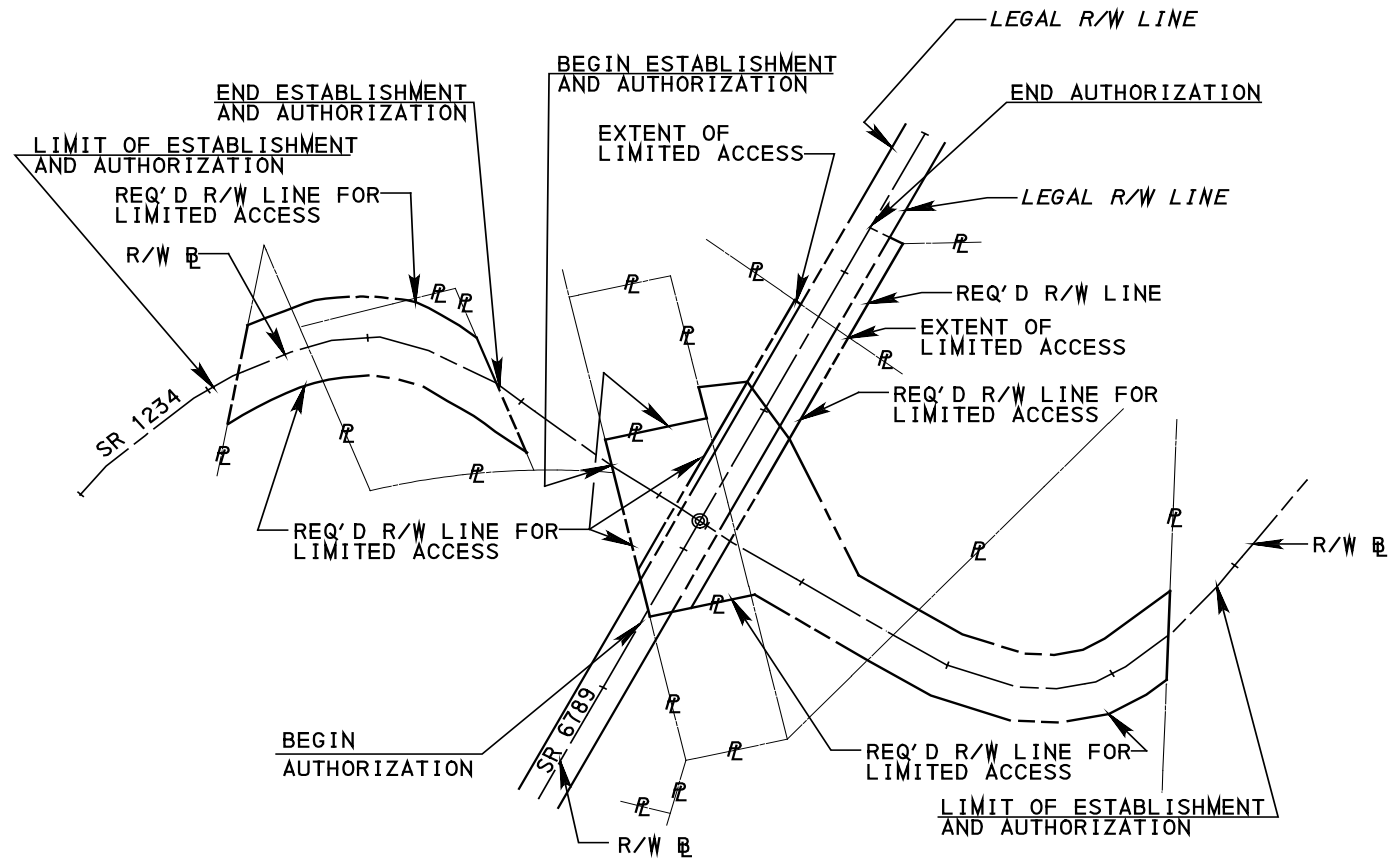
In the preparation of Gap Plans, it is permissible to omit sheets where no acquisition is involved; however, the Index Map should show the entire project. Examples of a Gap Plan and a Final Plan on a project are presented in [Figures 3.2](#) and [3.3](#), respectively.

The authorization to acquire right-of-way is provided by the signature of the Secretary of Transportation. Right-of-Way Plans should not be recorded in the County Courthouse until absolutely necessary. The Right-of-Way Plans shall be recorded in the County Courthouse prior to filing Deeds or declarations of takings.

In order to establish limited access, all limited access Right-of-Way Plans shall be recorded in the County Courthouse.

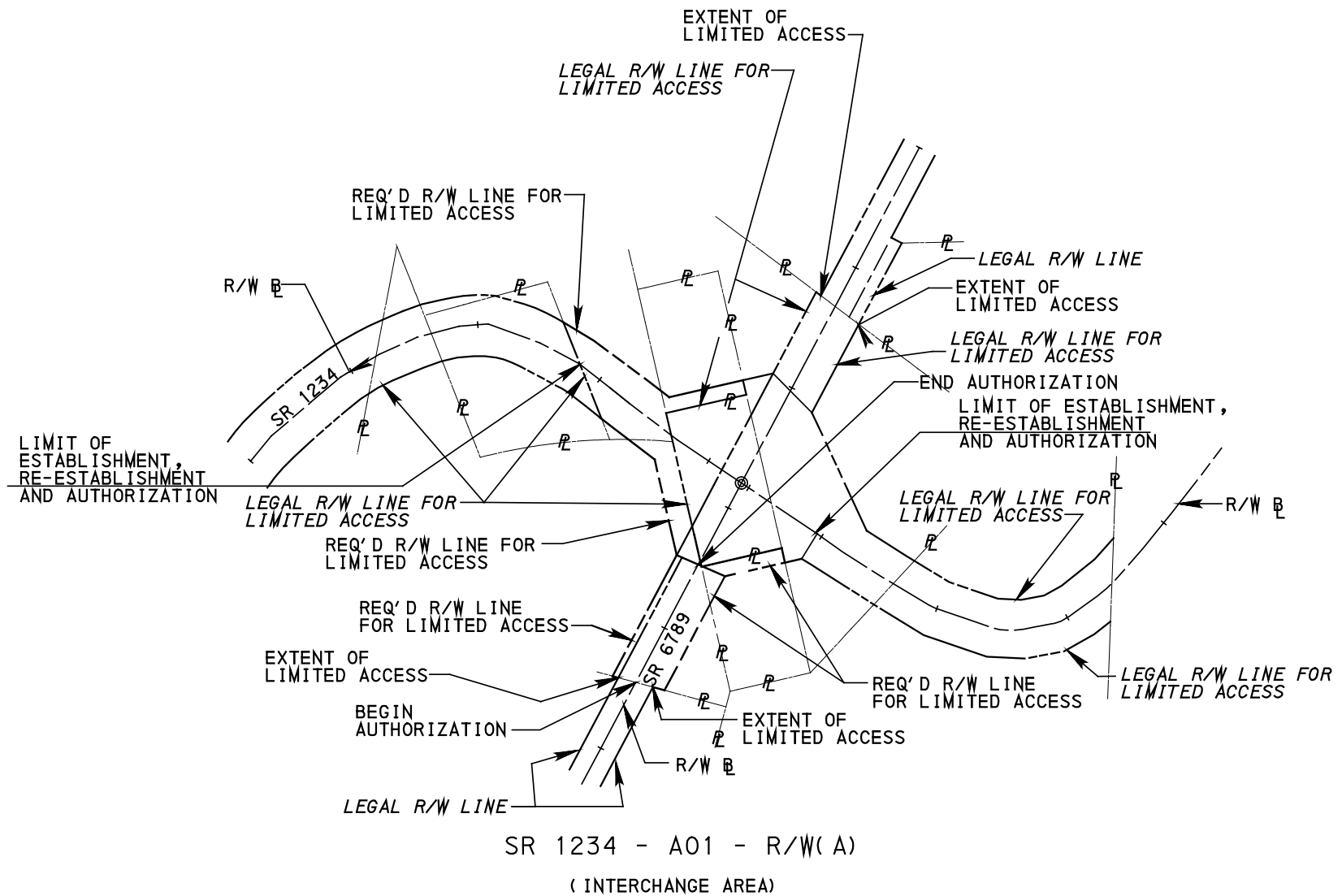
**C. Combination Plans.** Prior approval shall be obtained from the District Chief of Surveys and District Right-of-Way Administrator in consultation with the Field Liaison Engineer, Bureau of Design and Delivery. No Combination Plans shall be accepted without the required approval of the Field Liaison Engineer.

**D. Property Plot Plans.** Property Plot Plans shall be required and prepared as specified in [Section 3.6](#).



SR 1234 - A01 - R/W(A)  
( INTERCHANGE AREA)

**FIGURE 3.2  
EXAMPLE OF GAP PLAN**



**FIGURE 3.3**  
**EXAMPLE OF FINAL PLAN**

**E. Policies for Expediting Plans Preparations.** Adherence to the following policies can expedite the preparation of the Right-of-Way Plans:

1. Profile grades should be refined to the point where it is unlikely that any additional land shall be required and that the grade near buildings shall be substantially unchanged.
2. All drainage that affects property damage or underground utilities shall be shown. Pipe and ditch sizes may be determined from preliminary drainage computations.
3. Approval of Service Roads is required prior to including them in the Right-of-Way Plan.
4. Property line surveying of individual properties shall be performed only when deemed necessary by the Professional Land Surveyor in order to adequately define the property boundaries affected by the area of take.

The horizontal geometry and the right-of-way lines shall be the same on all Construction and Right-of-Way Plans.

**F. Demolition Contract.** If it is necessary to prepare a Demolition Contract for the demolition of buildings, refer to Publication 378, *Right-of-Way Manual* for procedures to be used for Demolition.

**G. Simplified Right-of-Way Plans.** On small projects, primarily within the existing right-of-way, where only a few properties are involved and the area to be taken is minor, a simplified Right-of-Way Plan should be used.

A simple, one or two sheet Right-of-Way Plan is available and shall require the following items, as applicable:

1. Title Sheet information.
2. General Notes.
3. Location Map.
4. Utility Notes.
5. Drawing which provides the standard Property Plot Plan and Deed information.
6. Overall and Authorization Length.
7. References.
8. Equalities.
9. Beginning and ending segments.
10. Structure data.
11. Hydraulic data.
12. Curve data.
13. Coordinates.

**H. Highway Occupancy Permit Plans.** There are three types of plans related to the highway occupancy permit process: drawings depicting right-of-way to be deeded to the Department; drawings authorizing acquisition by local governments; and drawings accepting dedications. These plans must conform to the requirements of this Chapter and be reviewed by a Plan Reviewer.

1. Drawings Depicting Right-of-Way to Be Deeded to the Department. The most common HOP-related plan is that developed to document right-of-way deeded to the Department as part of the HOP process. See [Section 3.2.I.6](#) on the appropriate title page and [Section 3.1.EE](#) on the interest to be acquired. These deed plans do not transfer title. The permittee must transfer title to the Department by deed. The deed plan only documents the State highway right-of-way for future reference.

Deed plans must be filed with the District plans unit and forwarded to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction, for appropriate filing. Deed plans must also be recorded at the appropriate county courthouse to document the highway right-of-way.

2. Plans Authorizing a Local Government to Acquire Land for a State Highway. This type of plan is also sometimes required in the HOP process. See [Section 3.2.I.7](#) on the appropriate title page. Local authorization plans also do not transfer title. They only authorize the local government to acquire interests in land for a State highway and document the State highway right-of-way for future reference.

Local authorization plans must be filed with the District plans unit and forwarded to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction, for appropriate filing. Local authorization plans must also be recorded at the appropriate county courthouse to document the highway right-of-way.

**3. Plans Accepting the Dedication of Right-of-Way.** This type of plan is available in the HOP process, but is typically not appropriate. See [Section 3.2.I.8](#) on the appropriate title page. The best practice is to have the land deeded to the Department and documented with a plan depicting right-of-way to be deeded to the Department.

A deed and deed plan should always be used for land owned by the permittee. For land owned by a neighboring owner, but previously dedicated to public use for a State highway, the best practice is to have the local government accept the dedication and then deed it to the Department. Whether the land is being deeded by a private permittee or a local government, the normal permit deed (either fee simple or easement for highway purposes) should be used, not a deed of dedication.

The acceptance of dedication plan may only be used if the offer of dedication is general or to the Commonwealth. It may not be used if the dedication is to the local municipality or, even if general, the local municipality has already accepted the dedication. Use of this plan is not encouraged. The deed process should be used if at all possible.

If the acceptance of dedication plan is used, it must be filed with the District plans unit and forwarded to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction, for appropriate execution by the Secretary and then filing. The acceptance of dedication plan must also be recorded at the appropriate county courthouse because it is evidence of an actual title transfer. Designation of the dedication on the subdivision or land development plan is the offer of dedication and execution of the plan by the Department is acceptance of the dedication; there is no need for a separate deed of dedication.

**4. General Guidance.** These special highway occupancy permit plans may not be used for other functions. For example, the Department may not designate areas to be vacated or abandoned on them or attempt to authorize acquisition by the Department through them. Separate procedures must be used for these purposes. By the same token, a regular title sheet authorizing the Department to acquire property may not be used for plans reflecting land to be deeded to the Department during the HOP process or authorizing another government entity to condemn for a State highway.

**I. Vacation and Confirmation of Disposition Plans.** This is a plan created following the disposition of rights of ways owned in easement and fee simple. Such a plan for a highway section is the preferred method to affect formal vacations of highway easements and confirm the sale of fee-owned parcels that have been the subject of quit claim deeds in the disposition process. See Publication 378, *Right-of-Way Manual*, Chapter 7, "Excess Land." The less preferred method to document dispositions is to merely revise the right-of-way lines on the existing right-of-way acquisition plan. See [Sections 3.2.I.5](#) and [3.4.H.5](#) for further guidance on vacation and confirmation plans.

This type of plan is only appropriate after disposition of right-of-way under the Publication 378, *Right-of-Way Manual* procedures. It may not be used to vacate right-of-way that has not been disposed of as part of a right-of-way disposition. See [Section 3.9](#) for procedures relating to the presentation of vacations as part of a highway project. The current procedure for vacating road segments outside the right-of-way disposition process, by execution and filing of a plan designating the segment as "to be vacated," followed by execution and filing of an order of vacation, is not altered by the availability of this type of plan. A separate plan for vacating right-of-way (and confirming dispositions of fee title) is applicable only where the right-of-way disposition process has been used.

Vacation and confirmation of disposition plans must be filed with the District plans unit and forwarded to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction, for appropriate filing. They must also be filed in the county courthouse to document the highway right-of-way. The plan should be indexed to the persons to whom the Department quit claimed the parcels.

**J. Right-of-Way Acquisition for State-Owned Bridges on "Turnback" Local Roads.** There are numerous instances throughout the Commonwealth with State-owned bridges on local roads. These situations arose when local municipalities agreed to accept ownership of a state highway under the Turnback Program but did not accept the bridge(s).

1. Acquisition of Right-of-Way. A review of the language in the standard state-wide Turnback Agreement indicates that:

- a. The existing Legal Right-of-Way is owned by the municipality.
- b. The Department owns the bridge.
- c. The Department retains the authority to enter upon and utilize bridge approaches and right-of-way areas necessary for purposes of constructing, reconstructing, or maintaining the bridge structure and/or attached guide rail.

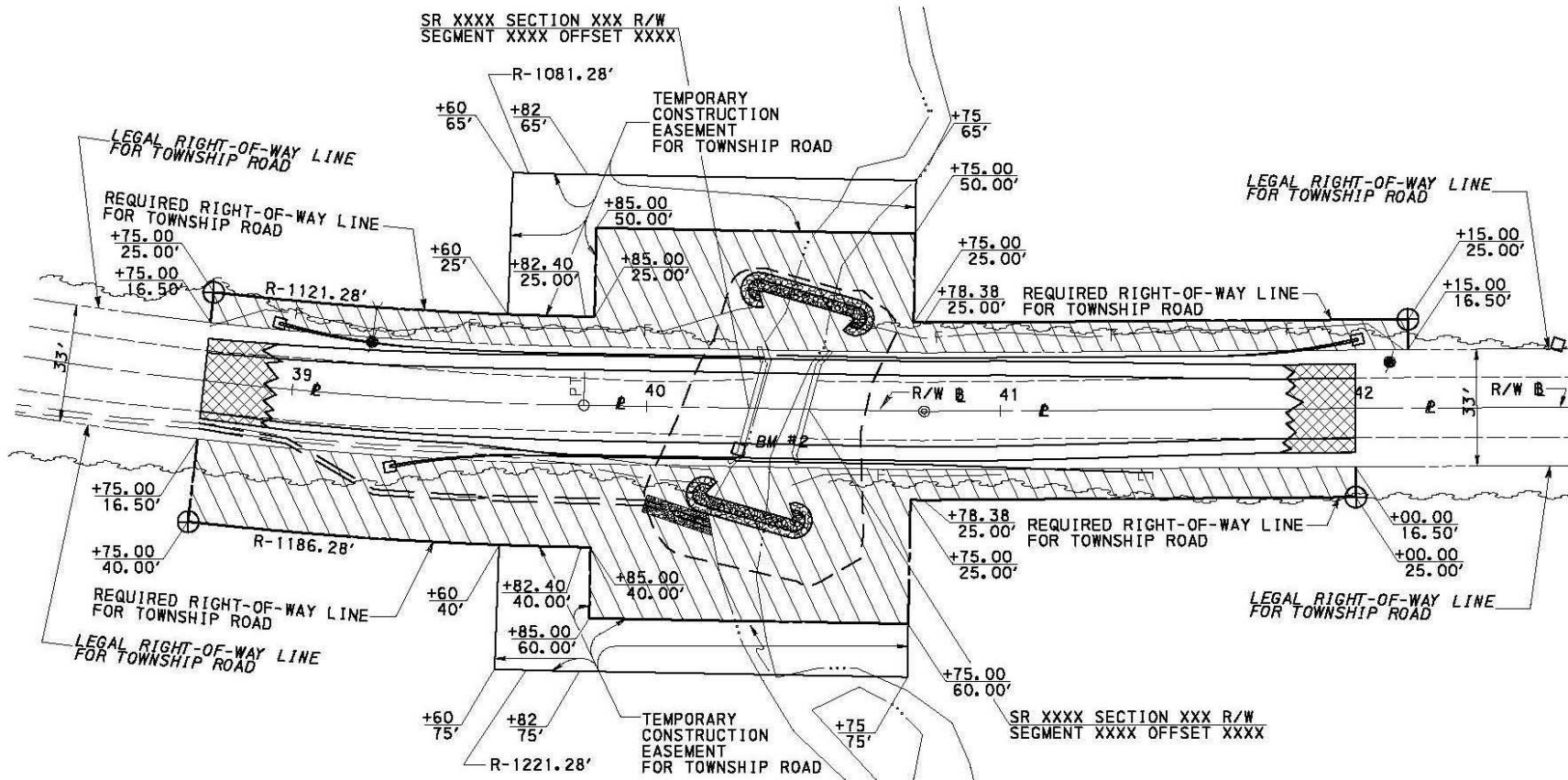
Consequently, any required Right-of-Way for these projects should be acquired as Required Right-of-Way for Township Road (or City/Borough/Town Street).

2. Title Sheet Presentation. Make reference to both the state route and the local road/street to help reference the Right-of-Way acquisition in the future for both the Department and the municipality. Title the plan SR\_\_\_\_, Section \_\_\_\_ R/W and Township Road T-\_\_\_\_(or City/Borough/Town Street name) R/W. Limits of authorization should only be tied to the local road/street stations with no authorization limits or lengths associated with the state route.

3. Plan Sheet Presentation. Label "Required Right-of-Way Line for Township Road (or City/Borough/Town Street)". Label Limits of Authorization on the local road/street and label "SR\_\_\_\_, Section \_\_\_\_ R/W, Segment\_\_\_\_, Offset \_\_\_\_." at each end of the bridge. Provide the note "The Department retains the authority to enter upon and utilize bridge approaches and right-of-way areas necessary for purposes of constructing, reconstructing or maintaining the bridge structure and/or attached guide rail. The municipality is responsible for performance of winter traffic services (including snow removal and application of anti-skid and de-icing materials) and cleaning. If the municipality desires to resurface the structure or mark the centerline, written approval must be obtained from the Department prior to the start of work." See [Figure 3.3.A](#).

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3-8



NOTE: THE DEPARTMENT RETAINS THE AUTHORITY TO ENTER UPON AND UTILIZE BRIDGE APPROACHES AND RIGHT-OF-WAY AREAS NECESSARY FOR PURPOSES OF CONSTRUCTING, RECONSTRUCTING OR MAINTAINING THE BRIDGE STRUCTURE AND/OR ATTACHED GUIDE RAIL. THE MUNICIPALITY IS RESPONSIBLE FOR PERFORMANCE OF WINTER TRAFFIC SERVICES (INCLUDING SNOW REMOVAL AND APPLICATION OF ANTI-SKID AND DE-ICING MATERIALS) AND CLEANING. IF THE MUNICIPALITY DESIRES TO RESURFACE THE STRUCTURE OR MARK THE CENTERLINE, WRITTEN APPROVAL MUST BE OBTAINED FROM THE DEPARTMENT PRIOR TO THE START OF WORK.

**FIGURE 3.3.A**  
**EXAMPLE OF RIGHT-OF-WAY PLAN**  
**FOR STATE BRIDGES ON LOCAL ROADS**

### 3.1 INTEREST TO BE ACQUIRED

**A. General Policy to Acquire in Fee Simple.** The general policy is to acquire required right-of-way in fee simple. See [Section 3.4.H.2.a](#) for the applicable general note. The Department is authorized to acquire, by gift, purchase, condemnation or otherwise, land in fee simple or such lesser interest as it shall determine, in the name of the Commonwealth, for all transportation purposes (Section 2003 of the Administrative Code of 1929, 71 P.S. Section 513(e)(1)).

**B. Lesser Interests.** When deemed appropriate, a lesser interest may be acquired as discussed below. An easement is generally defined as an interest in land owned by another person, consisting of the right to use or control the land for a specific limited purpose. Acquisitions designated on prior highway plans as required for areas, e.g. required ditch area, were acquired as easements for the designated use. Likewise, land acquired as limit of slope was acquired as a slope easement.

**C. Legal Designation.** Designating an area as "legal" denotes the Department holds an existing estate or interest in the land as designated, e.g. legal right-of-way or legal drainage easement.

**D. Highway Easement.** This is the interest historically acquired in required right-of-way under Section 210 of the State Highway Law (36 P.S. Section 670-210). It has been defined in case law as follows. While not a fee, a highway easement is not a mere easement or right-of-way. It is more. It is the right to the actual and exclusive possession of the property at all times and for all purposes, and includes the right to build on the land, fence it in, and exclude other uses. It is comparable to a fee in the surface and so much beneath as may be necessary for support. This estate, taken from an owner under the right of eminent domain, has no further practical value to the owner in view of the rights of the state in it, unless the easement is formally abandoned. See [Section 3.4.H.2.a](#) for the applicable general note. Other interests less than fee title are defined below.

**E. Minor Strip Takings.** When the area to be acquired as required right-of-way is a minor strip taking of unimproved land, such as an area abutting a previously acquired easement, the required right-of-way may be taken as an easement for highway purposes with approval of the District Right-of-Way Administrator. See [Section 3.4.H.2.b](#) for the applicable general note.

**F. Takings in Mining Areas.** When the highway facility is located on land which is being or is likely to be deep-mined, including removal of gas and oil, by means of wells located off the right-of-way, the Department may acquire only a highway easement with approval of the District Right-of-Way Administrator. The limited depth beneath the surface needed for support shall be shown on the plan. The depth of permissible mining operations by the owner of the coal or other mineral is to be based on the type of rock, possible voids, etc., and shall be indicated on the appropriate plan sheet. The depth of 300 ft may, but need not, be used. Approval of the State Mining Commission is generally required for all mining under the highway. See [Sections 3.4.H.5.s](#) and [3.6.A.2.e.\(12\).\(h\)](#) for applicable general notes.

**G. Takings of Contaminated Areas.** When the Department knows that land being acquired is contaminated, an easement for highway purposes only should be acquired with approval of the District Right-of-Way Administrator. This may help reduce the Department's liability. Condemning the land rather than acquiring it amicably in lieu of condemnation will also help reduce the Department's liability.

**H. Inclusion of Highway Features in Right-of-Way.** The general policy is to include all highway features within required right-of-way, whether acquired in fee simple or as an easement for highway purposes.

**I. Surveying Property Lines.** Private property lines are typically not surveyed for strip takes along existing highways or new construction when only partial takes are required. Some property lines are typically surveyed when the right-of-way breaks on property lines or when there are both entire property takes and partial takes along an existing highway and/or new construction. Drawings of individual properties should typically be designated plot plans rather than plat plans to be consistent with language in the Eminent Domain Code. Plat plan should only be used when a property survey is actually performed because the accepted definition of plat provides that a plat is based on an actual field survey of the property and is a representation of that survey.

**J. Access Control.** The Department is authorized by the Limited Access Highway Act to designate existing or new right-of-way as limited access (36 P.S. Section 2391.1 et seq.). A limited access highway is defined as a public

highway to which owners or occupants of abutting property or the traveling public have no right of ingress or egress to, from or across except as may be provided by the Department (36 P.S. Section 2391.1). Abutting landowners have a constitutional right of reasonable access to and from highways that are not limited access (sometimes called free access highways). This right of access is, however, subject to the Department's police powers to control the use of all State highways and the flow of traffic thereon (36 P.S. Section 670-420).

**K. Interests Other than Those Designated in this Manual.** The only interests that may be acquired are those set forth in this Chapter unless otherwise approved by the Office of Chief Counsel, Real Property Division, who will coordinate with the Chief, Right-of-Way, Utilities and Grade Crossing Division. Plan reviewers shall not approve plans with acquisitions for interests other than those designated and as defined in this Chapter without the required approval.

**L. Aerial Easements.** Aerial easements should be utilized regardless of financing when the highway facility is on structure and crosses over a railroad, the Pennsylvania Turnpike or any other property in which substantial right-of-way damage savings can be affected. An aerial easement includes the right to occupy the surface of the land for the accommodation of piers and other appurtenances and a temporary easement for construction in the entire surface area, as well as the right to use the airspace above for the structure. In addition, the easement restricts the landowner's use of the surface and allows future use of the surface for purposes of inspection, maintenance, repair, painting, reconstruction or alteration of the structure. All of these uses and restrictions are part of the aerial easement. See [Sections 3.4.H.5.r](#) and [3.6.A.2.e.\(12\).\(b\)](#) for applicable general notes.

**M. Takings Contemplating Use of Airspace by Others.** When it is proposed to allow the use of airspace within required right-of-way for other than highway purposes or to acquire right-of-way of limited dimensions, see 23 CFR 710.405 for requirements.

**N. Slope Easements.** Land necessary for slopes is normally included within the required right-of-way on all limited access highway facilities and free access highway facilities in other than built up areas. When designated on the plan as required slope easement, the Department acquires the lesser interest for support and protection (see 36 P.S. Section 670-210) as defined on the plan. The easement allows the Department to contour the area for necessary support of the highway and to construct and maintain drainage facilities as necessary to protect the highway. See [Section 3.6.A.2.e.\(12\).\(a\)](#) for the applicable general note.

**O. Drainage Easements.** The Department has authority to acquire drainage easements as a lesser estate under Section 2003 of the Administrative Code. In addition, under Section 417 of the State Highway Law (36 P.S. Section 670-417), the Department is authorized to enter upon any land to "cut, open, maintain and repair such drains or ditches, inlets or outlets as are necessary to carry waters from roadways (and) highways . . ." This section (commonly referred to as the Ditch and Drainage Act) also makes it a criminal offense for any person to "stop, fill up or injure any such drain or ditch, or . . . divert or change the course thereof without authority from the Department . . ."

Although it provides broad authority for the Department to enter lands beyond the highway right-of-way to protect State highways, Section 417 does not allow entry without payment where existing drainage rights do not exist. If the Department is re-establishing or maintaining an existing drainage facility, then the property owner is not entitled to compensation. However, if the Department substantially alters the natural flow of water in the area by creating a new facility, compensation is due.

Drainage easements shall be acquired for a drain or ditch regardless of how far the drain or ditch extends from the highway. Drains and ditches shall be delineated in the same manner as channel changes and may include temporary construction easements. See paragraph on channel easements below. See also [Section 3.6.A.2.e.\(12\).\(c\)](#) for the applicable general note. Parallel ditches shall be included in the required right-of-way or slope easement.

Acquiring a general drainage easement allows the Department more flexibility to use either pipes or ditches, depending on the Department's needs as they arise. Designation of land as required for drainage easement does not prevent the property owner from making any legal use of the land which is not detrimental to the necessary flow of water. However, no structure of any kind may be erected within the easement, nor may any pipe or ditch be connected to the Department's pipe or ditch without advanced written approval by the Department.

Existing drainage easements can be shown on plans. The extent of the existing easement may be difficult to ascertain because the procedures used by the Department to show drainage features have not always been consistent. Many old plans merely show arrows leading from the highway where the water would flow in or to a natural drainage course. Other old plans do not even show the arrows, although it is apparent water must flow from a pipe outlet.

Where a defined area was acquired, that area can be designated on plans as legal drainage easement, ditch easement or underground drainpipe easement, as the case may be. Where the area is not defined, a drainage easement can still be designated based on an existing plan, field observation, aerial photography, and/or engineering expertise. For example, the extent of a ditch required to outflow a pipe can be ascertained based on the invert of the pipe and the topography of the land. Also, old aerial photographs can show the extent of ditches that led from pipe outlets at relevant times in the past.

Determination of the extent of ditches and pipe outflow in the past is important because if a public facility has existed for 20 years, there is a legal presumption that the government established it in accordance with the law and that payment was made. Moreover, the person entitled to compensation for the taking of a legal interest is the owner at the time of the entry, not a subsequent owner. These principles have been specifically applied to Department drainage facilities.

**P. Channel Easements.** The Department has authority to acquire easements to change water channels as a lesser estate under Section 2003 of the Administrative Code. In addition, Section 418 of the State Highway Law (36 P.S. Section 670-418) specifically authorizes the Department to enter upon private property to change or protect existing stream channels where deemed advisable to protect a highway or bridge. The Department retains a permanent interest in the channel easement following relocation of the stream to insure the necessary flow of water for safety of the highway or bridge.

The location of the bottom of the stream shall be delineated by the standard water course symbol for streams. Use a solid line approximating the top of stream bank to denote the Required Channel Easement. Land adjacent to the channel easement needed during construction for relocation of the stream shall be delineated by a solid line and designated temporary construction easement. These areas shall be geometrically tied to the right-of-way baseline. See [Section 3.6.A.2.e.\(12\).\(d\)](#) for the applicable general note. See also [Chapter 15, Section 15.1, Plate A-II](#).

When dealing with a navigable stream, the streambed is considered a public easement and shall be designated as legal right-of-way. Any part of the existing streambed utilized permanently to change the channel or temporarily during construction shall not be designated as required. Non-navigable streams, however, are not in public ownership. When dealing with a non-navigable stream, the entire channel easement and temporary construction easement is to be included as required. A listing of navigable streams in Pennsylvania (which may differ from navigable waters of the United States administered by the U.S. Coast Guard and the Corps of Engineers) may be obtained from the Department of Environmental Protection. See [Section 3.6.A.2.e.\(12\).\(o\)](#) on the applicable general note for streams.

**Q. Occasional Flowage Easements.** In some situations it is desirable or necessary for the Department to acquire an easement to allow periodic flooding. This is necessary when the structure size adopted may result in significant flood damage beyond that which existed or when required by a regulatory agency. See Publication 13M, Design Manual, Part 2, *Highway Design*, Chapter 10, for additional information.

The land needed for potential flooding outside the legal and required right-of-way for the highway shall be delineated by a solid line and labeled as required occasional flowage easement. In addition, the 100-year flood or other flood frequency used for acquiring the occasional flowage easement as well as the part within the existing 100-year flood line shall be shown. See [Section 3.6.A.2.e.\(12\).\(e\)](#) for the applicable general note.

**R. Temporary Construction Easements.** Areas needed for temporary roadways, temporary bridges, demolition of the balance of a building which is partially in the right-of-way, etc., shall be acquired as temporary construction easements.

The general rule is that no parenthetical should be placed after the designation of a temporary construction easement. Placing a parenthetical such as (demolition) or (erosion control) will limit the Department's use of the easement to that specific activity. Not placing a parenthetical allows the Department to use the easement for any construction

related activity. If the Department is sure the easement is only needed for a limited purpose, that purpose (e.g. channel, drainage, demolition, erosion control, access, temporary roadway, staging, driveway adjustment, etc.) can be designated. This may assist in negotiation of the right-of-way claim, but will legally limit the Department's use of the easement to that specific activity. That is, the land could not be used for general staging purposes.

The District is responsible to see that the premises are restored to a condition commensurate with that of the balance of the property of the landowner, such restoration to include removal of debris, filling of holes left by the removal of buildings or structures, draining, filling and/or capping of wells, cesspools and septic tanks; grading and sowing of grass. If it is determined, prior to the letting of bids for construction or demolition, that a temporary area is to be utilized, the plans, bid documents and the contract shall indicate the restoration requirements.

A temporary construction easement should be acquired for driveway adjustments where the entry onto private property necessary for the adjustment is substantial or the driveway would not function if the landowner does not allow entry. Without the acquisition of a temporary construction easement, entry cannot be made onto private property to make the adjustment without the permission of the landowner. Not adjusting the driveway may subject the Department to damages for change of grade and interference with access.

See [Section 3.6.A.2.e.\(12\).\(f\)](#) for applicable general note.

**S. Legal Right-of-Way Converted to Aerial Easement.** There are instances where the reconstruction of a structure causes land previously occupied on the surface to be required only for an aerial structure and its piers and other appurtenances. In this situation, the Department may convert the legal right-of-way to an aerial easement by use of the appropriate note. See [Section 3.6.A.2.e.\(12\).\(l\)](#) for applicable general note. There is no right-of-way claim in this situation because the Department is reducing the extent of its property interest. Conversely, however, if the Department intends to convert an aerial easement to a surface taking in fee simple or as an easement for highway purposes, the area should be designated as required right-of-way and a right-of-way claim established for acquisition of the increased property interest.

**T. Underground Structure Support Easements.** When a highway facility requires substructure support elements to either hold the facility back or up, such as anchors, MSE wall straps, batters, or other subsurface elements outside the right-of-way, an underground structure support easement may be acquired. This area shall be of sufficient size to provide for the installation and maintenance of the structure support elements. See [Section 3.6.A.2.e.\(12\).\(g\)](#) for applicable general note.

**U. Sound Barrier Easements.** When a highway facility requires construction of a sound barrier, the best practice is to acquire the entire area needed for the barrier and maintenance purposes as required right-of-way in fee simple. If deemed appropriate to mitigate damages, however, a sound barrier easement may be acquired. This area shall be sufficient in size to provide for the installation and maintenance of the sound barrier. See [Section 3.6.A.2.e.\(12\).\(k\)](#) for applicable general note.

**V. Sight Distance Easements.** In very limited circumstances, acquisition of a sight distance easement over property abutting a highway may be appropriate to remove obstructions to the sight distance of those using the highways across and over lands of another. The acquisition includes restrictions on the land owner from allowing future obstructions in the easement. This is a lesser interest that the Department may acquire under the Administrative Code, but is also authorized by Section 413 of the State Highway Law (36 P.S. Section 670-413). See [Section 3.6.A.2.e.\(12\).\(m\)](#) for applicable general note.

**W. ITS Conduit Easements.** When a highway facility requires an Intelligent Transportation Systems communication line, the best practice is to include them within legal or required right-of-way. However, if deemed appropriate to be located outside legal or required right-of-way, an ITS conduit easement may be acquired. This area shall be of sufficient size to provide for the installation and maintenance of the ITS facilities. See [Section 3.6.A.2.e.\(12\).\(q\)](#) for applicable general note.

**X. Sidewalk Easements.** The best practice is to include areas needed for sidewalks within legal or required right-of-way for the State highway. However, if deemed appropriate to be located outside legal or required right-of-way, a required sidewalk easement may be used to designate areas necessary for sidewalk construction. This area shall be sufficient in size to provide for the installation and maintenance of the sidewalk. See [Section 3.6.A.2.e.\(12\).\(r\)](#) for

applicable general note. Whether acquired as required right-of-way or as a sidewalk easement, the area where the sidewalk is located is part of the State highway owned by the Department.

The acquisition cost, construction and maintenance of sidewalk areas have historically been the responsibility of the municipality within which the sidewalk is located. This is accomplished by an agreement or permit, depending on the circumstances, and cannot be accomplished by designation through a plan note. Unless a legal agreement or permit provides otherwise, the Department may be required to maintain sidewalk that it constructs.

A sidewalk maintenance agreement requires the municipality to assume all maintenance related to the sidewalk and to indemnify the Department against liability arising from the obligations assumed under the agreement. Ownership of the right-of-way on which the sidewalk is located remains with the Department whether an agreement is executed or a permit issued; with repair and maintenance responsibility for the sidewalk transferred to the municipality under the agreement or permit.

**Y. Traffic Signal Easements.** The best practice is to include areas needed for traffic signals and their appurtenances within legal or required right-of-way for the State highway. However, if deemed appropriate to be located outside legal or required right-of-way, a required traffic signal easement may be used to designate areas necessary for the installation, operation, and maintenance of a traffic signal. This area shall be sufficient in size to provide for the installation and future operation and maintenance of the signal and any appurtenances. See [Section 3.6.A.2.e.\(12\).\(s\)](#) for applicable general note.

Whether acquired as required right-of-way or as a traffic signal easement, the area where the signal is located is part of the State highway owned by the Department. However, ownership and maintenance of traffic signals are the responsibility of the municipality. This is accomplished by an agreement and/or permit, and cannot be accomplished by designation through a plan note. Unless a legal agreement provides otherwise, the Department may be required to maintain a traffic signal that it constructs.

A traffic signal maintenance agreement requires the municipality to assume ownership of the traffic signal and appurtenances, to assume all maintenance related to the signal, and to indemnify the Department against liability arising from the obligations assumed under the agreement. Ownership of the right-of-way on which the signal and appurtenances are located remains with the Department whether an agreement is executed or a permit issued; with ownership and maintenance of the signal and appurtenances transferred to the municipality under the agreement. Department ownership of the area on which the signal is located (whether in fee or easement) is consistent with its location adjacent to the State highway and the many situations where traffic signals are constructed within existing legal right-of-way of the Department.

**Z. Service Roads.** A service road is a public highway, either existing or new or a combination thereof, parallel or approximately parallel to a limited access highway, which will provide ingress or egress to or from highway or areas which would otherwise be isolated by the construction or establishment of a limited access highway. Upon completion of construction, service roads must be maintained by and at the expense of the municipality in which they are located. Title therefore lies with the local government after construction. The Department may, upon request, provide the local government with a confirmatory quit claim deed reflecting that title to the land vested in the local government upon the completion of construction. See [Section 3.4.H.5.h](#) for applicable general note.

Service roads will generally be acquired in fee simple. An easement for highway purposes may be taken under those circumstances applicable to acquisitions of required right-of-way for State highways. See [Section 3.1.A.](#)

**AA. Local Roads and Streets.** The Department's ability to deed land or easements to public entities is restricted. For this reason, when it must acquire local road right-of-way in connection with a project, the Department acquires the right-of-way for the benefit of the local government. This allows the Department to possess the lands for construction purposes, but provide that title is being acquired for the benefit of the local government. The Department may, upon request, provide the local government with a confirmatory quit claim deed reflecting that title to the land vested in the local government upon acquisition as set forth in the plan authorizing the acquisition. See [Section 3.4.H.5.n](#) for applicable general note.

Right-of-way for local roads and streets will generally be acquired in fee simple. An easement for highway purposes may be taken under those circumstances applicable to acquisitions of required right-of-way for State highways. See [Section 3.1.A.](#)

**BB. Private Access.** The Department's ability to deed land or easements to private individuals or entities is restricted. For this reason, the best practice when the Department is required to provide private access to a property in order to mitigate damages to remaining property is to acquire the land for the benefit of the affected private individuals or entities. This allows the Department to possess the lands if necessary for construction purposes, but provide that title is being acquired for the benefit of the private individuals or entities. The Department may, upon request, provide the private individuals or entities with a confirmatory quit claim deed reflecting that title to the land vested in the private individuals or entities upon acquisition as set forth in the plan authorizing the acquisition. See [Section 3.4.H.5.o](#) for applicable general note.

Private accesses should normally be taken in fee simple. This provides the property or properties being provided access full control over the area acquired for their benefit and eliminate any responsibility of the property owner from whom it is acquired. If, however, the property owner from whom the area is being acquired should also maintain use of the area, only an easement for driveway purposes should be acquired for the benefit of the other property or properties. This would be appropriate where the property owner from whom the area is being acquired must also have use of the area for access or where a fee simple taking would sever the remaining lands of the property owner from whom the area is being acquired.

**CC. Acquisition for Replacement Lands.** The Department's ability to deed land to other public entities is restricted. For this reason, the best practice when the Department is required to replace lands acquired from a public entity (for example public parklands or Game Commission lands) is to acquire the land for the benefit of the public entity from which lands are being acquired. This allows the Department to possess the lands if necessary for construction purposes, but provide that title is being acquired for the benefit of the other public entity. The Department may, upon request, provide the public entity with a confirmatory quit claim deed reflecting that title to the land vested in the public entity upon acquisition as set forth in the plan authorizing the acquisition. See [Section 3.4.H.5.p](#) for applicable general note.

Replacement lands should normally be taken in fee simple. This provides the government entity for which the lands are being acquired full control over the area acquired and eliminates any responsibility of the property owner from whom it is acquired. It is also consistent with the nature of the title normally acquired for parks and game lands. If, however, the entity for which the lands are being acquired requests that only an easement be acquired, then an easement for parklands or an easement for game lands should be acquired. This may be appropriate, for example, if existing parklands of the government entity are held only in easement.

**DD. Environmental Mitigation Takes.** Acquisitions for environmental mitigation purposes must be included in the environmental document for the project. If required for wetland or terrestrial mitigation, the preferred approach is to acquire such sites in fee simple, with the subsequent recording of restrictive covenants. If required for stream mitigation, an easement acquisition is normally appropriate. Easements can also be acquired for terrestrial or wetland sites if deemed appropriate by the District Executive and approved by the Corps of Engineers. See [Sections 3.4.H.5.q](#), [Section 3.6.A.2.e.\(12\).\(n\)](#), [Section 3.6.A.2.e.\(12\).\(o\)](#), and [Section 3.6.A.2.e.\(12\).\(p\)](#) for applicable general notes.

**EE. Highway Occupancy Permit Plans.** The general policy is to have the permittee include all highway features within Required Right-of-Way and to have the right-of-way acquired in fee simple. If appropriate, right-of-way can be acquired as an easement for transportation purposes. See [Sections 3.0.H](#), [3.2.I.8](#), [3.4.H.5.m](#), and [3.5.X](#) on HOP plans. The acquisition of traffic signal easements on behalf of the local municipality is permitted on HOP projects, if the municipality has agreed to accept the easement and to apply for a signal permit. This exception does not apply to Department projects. See [Section 3.1.Y](#).

**FF. Vacation and Abandonment.** See [Section 3.9](#).

## 3.2 TITLE SHEET

The information presented in this Section shall be shown on the Title Sheet, in the appropriate location, for all Right-of-Way Plans. An example of a typical Title Sheet is shown in [Chapter 15, Section 15.2, Plate B-VIII](#).

**A. Title Block Identification Data.** The following data shall constitute the Title Block on the Title Sheet:

1. Headings and Title of Plan.
2. State Route.
3. Section Number with Suffix "R/W".
4. County or Counties.
5. Township, Borough or City.
6. Stationing Limits.

**B. Identification Block.** The following information shall be provided in the Identification Block in the upper right-hand corner. Refer to [Chapter 15, Section 15.2, Plate B-VIII](#) for an example of an Identification Block for Right-of-Way Plans:

1. State Route.
2. Section Number with Suffix "R/W".
3. Engineering District.
4. County or Counties.
5. Township, Borough or City.
6. Total Number of Sheets.
7. MPMS Number.

**C. "Also" Routes.** Interchange, rest area and escape ramp route numbers shall be included as an "Also" route if they are part of the route appearing in the Title Block (show State Route Numbers only, do not show stations).

**D. Stationing Limits.** When the project consists of two or more routes, the Stationing Limits of each shall be shown with their individual lengths and the total overall length of acquisition.

If a project is located in two counties, a break in the station should begin at the county line and should be stationed ahead starting with Station 0+00.00. Stationing should be from South to North and from West to East. If recorded, the project should be recorded in the Courthouse of each county, with two recording blocks provided accordingly.

Stationing Limits shall be extended to include a full take on a property to prevent the need for a second claim on an adjacent project. When the length of the right-of-way acquisition is different on left and right, the longer length shall govern. See [Chapter 15, Section 15.1, Plates A-V and A-VII](#) for examples.

**E. Limited Access Highway Facility Note.** If limited access has been established for any portion of the project, a Note to that effect and a reference to the establishment plan shall be required and placed below the Identification Block as indicated below:

ESTABLISHED AS A LIMITED ACCESS HIGHWAY FROM  
STATION \_\_\_\_\_ TO STATION \_\_\_\_\_ BY PLAN OF STATE ROUTE  
\_\_\_\_\_ SECTION \_\_\_\_\_ RIGHT-OF-WAY  
(Where Applicable)

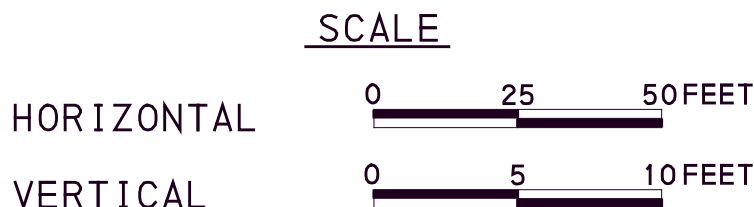
APPROVED \_\_\_\_\_ (Date) \_\_\_\_\_

Note: The stations should be the Stationing Limits shown on the referenced Right-of-Way Plan.

**F. Bar Scales.** Normally, a horizontal scale of 1" = 25' shall be used on all projects, particularly in built-up areas, where considerable topographic detail is necessary. Horizontal scales of 1" = 50' or 1" = 20' may be used if conditions dictate, at the discretion of the District Executive.

The vertical scale of the profile shall be one-fifth of the horizontal scale. Circumstances may dictate other scales in which case special permission should be secured from the District Executive before commencing plan preparations.

A Bar Scale shall be used to represent the horizontal and vertical dimensional values as indicated below. A script representation, i.e., 1" = 25', etc., shall not be used to indicate these values:



**G. Design Designation Block.** Complete the Design Designation Block, in the lower left-hand corner, under the heading DESIGN DESIGNATION. The following items shall be included: Highway Functional Classification including designation of "Urban", "Rural", etc., Design Speed, Pavement Width, Shoulder Width, Median Width (Maximum and Minimum), Traffic Data Including letting year ADT, design year ADT and DHV, D (%) and T (%). Refer to [Chapter 15, Section 15.2, Plate B-VIII](#) for an example of a Design Designation Block for Right-of-Way Plans.

**H. Professional Seal Block.** If the plans are prepared in the District Office the signature, title and seal of the appropriate Assistant District Executive responsible for the preparation of the plan shall be provided in a small block at the bottom of the sheet. In addition, the Plans Engineer's signature shall be placed above the District Executive's signature, see [Chapter 15, Section 15.2, Plate B-VIII](#).

Plans prepared by Consultants shall have a small block at the bottom of the Title Sheet indicating the name and address of the Consultant, the signature, title and seal of the person responsible for the preparation of the plans and the date.

For all Right-of-Way Plans, the title sheet shall be sealed and signed by a Professional Land Surveyor, PLS, who has direction and control of the land surveying aspects of the plan. The layout of the seal and signature block shall be as shown in [Figure 3.4, Typical Signature Blocks](#). For projects designed in house, the Chief-of-Surveys shall be the PLS.

The responsible registrants shall place a black ink rubber stamp seal on the Title Sheet. The registrants shall also place either a black ink rubber stamp seal or a facsimile seal on all subsequent sheets. Impression seals are not permitted.

Examples of typical Signature Blocks are indicated in [Figure 3.4](#).

**INTENTIONALLY BLANK**

|                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>PREPARED BY:<br/>(NAME AND ADDRESS)<br/>OF CONSULTANT)</p> <p>(SEAL)</p> <p>_____<br/>(SIGNATURE)<br/>_____<br/>(TITLE)</p> <p>_____<br/>(DATE)</p> |
| <p><u>CONSULTANT'S SIGNATURE BLOCK</u></p>                                                                                                             |
| <p>(SEAL)</p> <p>_____<br/>(SIGNATURE)<br/>_____<br/>(TITLE)</p> <p>_____<br/>(DATE)</p>                                                               |
| <p><u>DISTRICT UNIT'S SIGNATURE BLOCK</u></p>                                                                                                          |

**FIGURE 3.4**  
**EXAMPLES OF**  
**TYPICAL SIGNATURE BLOCKS**

**I. Titles and Corresponding Laws.** The Titles on all plans shall be prepared according to the following examples:

**1. Free Access Highway:**

**a. Authorization to Acquire Right-of-Way:**

DRAWINGS AUTHORIZING ACQUISITION OF RIGHT-OF-WAY FOR SR 1033, SECTION A04, RIGHT-OF-WAY, IN ADAMS COUNTY.

THIS PLAN PREPARED PURSUANT TO SECTION 2003(e) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e), AND SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S., SECTION 302(b)(3).

**b. Authorization to Acquire Right-of-Way Combined with Construction Plan:**

DRAWINGS AUTHORIZING ACQUISITION OF RIGHT-OF-WAY AND CONSTRUCTION OF SR 1033, SECTION A04, RIGHT-OF-WAY, IN ADAMS COUNTY.

THIS PLAN PREPARED PURSUANT TO SECTION 2003(e) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e), AND SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S. SECTION 302(b)(3).

**2. Limited Access Highway:**

**a. Establishment of Limited Access Highway and Authorization to Acquire Right-of-Way:**

DRAWINGS ESTABLISHING LIMITED ACCESS HIGHWAY AND AUTHORIZING ACQUISITION OF RIGHT-OF-WAY FOR SR 1033, SECTION A04, RIGHT-OF-WAY, IN ADAMS COUNTY.

THIS PLAN PREPARED PURSUANT TO SECTION 2 OF THE ACT OF MAY 29, 1945, P.L. 1108, AS AMENDED\*, 36 P.S. SECTION 2391.2\* SECTION 2003(e) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e) AND SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S., SECTION 302(b)(3).

\*See Note on This Page.

**b. Reestablishment of Limited Access Highway and Authorization to Acquire Right-of-Way:**

DRAWINGS REESTABLISHING LIMITED ACCESS HIGHWAY AND AUTHORIZING ACQUISITION OF RIGHT-OF-WAY FOR SR 1033, SECTION A04, RIGHT-OF-WAY, IN ADAMS COUNTY.

THIS PLAN PREPARED PURSUANT TO SECTION 2 OF THE ACT OF MAY 29, 1945, P.L. 1108, AS AMENDED, 36 P.S. SECTION 2391.2\* SECTION 2003(e) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e), AND SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S., SECTION 302(b)(3).

\*Note: If a highway is a NHS Route, the titles in examples 2a and 2b shall also contain the standard reference to Section 4 of the Outdoor Advertising Control Act of 1971, as amended, 36 P.S. Section 2718.104. Also, a plan which includes any Safety Rest Areas shall contain the following standard reference:

THIS PLAN PREPARED PURSUANT TO SECTION 3 OF THE ACT OF JUNE 7, 1961, P.L. 257, AS AMENDED, 36 P.S. SECTION 478.13, AND SECTION 302(b)(3) OF THE EMINENT DOMAIN, 26 Pa.C.S., SECTION 302(b)(3).

**3. Substitute Right-of-Way.** Plans which show Required Substitute right-of-way shall, in the "authorization" paragraph of the Title Sheet, refer to Section 412 of the Highway Law by revising the normal paragraph or adding a separate paragraph, e.g.:

412 Added to Normal Paragraph:

THIS PLAN PREPARED PURSUANT TO SECTION 2003(e) . . . AND SECTION 412 OF THE STATE HIGHWAY LAW, AS AMENDED, 36 P.S. SECTION 670-412.

Or as a Separate Paragraph:

PORTIONS OF THIS PLAN PREPARED PURSUANT TO SECTION 412 OF THE STATE HIGHWAY LAW, AS AMENDED, 36 P.S. 670-412.

For plans revised to add required substitute right-of-way after the governor's signature, and the original title sheet did not refer to Section 412, the above described separate authorization paragraph must be added.

The limits of authorization shown on the title sheet are for acquisition of required right-of-way for highway construction. These limits need not include, nor are they to be revised to include, areas or additional routes, segments, and longitudinal roadway offset distances where required substitute right-of-way is to be acquired.

**4. Project Subject to PUC Appropriation of Property.** The Public Utility Commission (PUC) has jurisdiction over railroad-highway grade crossings and shall appropriate certain property within their jurisdictional area.

For most projects involving PUC jurisdiction, the PUC shall only appropriate the railroad operating right-of-way; therefore, the Stationing Limits to be used on the Title Sheet shall only cover this railroad operating right-of-way. Special cases may arise for which the wording indicated below may not be acceptable. In such cases, the Bureau of Design and Delivery, Right-of-Way, Utilities and Grade Crossing Division, in coordination with the Office of Chief Counsel, shall establish the proper wording.

In any case, the Grade Crossing Engineer in the Grade Crossing Unit assigned to the project should be contacted concerning the proper Note and Stationing Limits to use on any specific project.

Listed below are specific Notes to be used where the PUC appropriates some of the property:

DRAWINGS (ESTABLISHING LIMITED ACCESS HIGHWAY AND)\*\* AUTHORIZING ACQUISITION OF RIGHT-OF-WAY (AND CONSTRUCTION)\* FOR

SR \_\_\_\_\_ SECTION \_\_\_\_\_ COUNTY \_\_\_\_\_

THE PUBLIC UTILITY COMMISSION SHALL APPROPRIATE PROPERTY IN (APPLICATION) (COMPLAINT) (INVESTIGATION) DOCKET NO. \_\_\_\_\_ BETWEEN STATION \_\_\_\_\_ AND STATION \_\_\_\_\_ PURSUANT TO THE PROVISIONS OF SECTION 2702(b) OF THE ACT OF JULY 1, 1978, P.L. 598, NO. 116 (66 P.S. SECTION 2702). THIS PLAN PREPARED PURSUANT TO (SECTION 2 OF THE ACT OF MAY 29, 1945, P.L. 1108, 36 P.S. SECTION 2391.2)\*\* SECTION 2003(e) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e)), AND SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S., SECTION 302(b)(3).

\*When a Combination Plan is prepared.

\*\*In cases of limited access highway facilities.

**5. Drawings Vacating and Confirming Disposition of Right-of-Way:**

DRAWINGS VACATING RIGHT-OF-WAY AND CONFIRMING DISPOSITION OF RIGHT-OF-WAY FOR SR 1033, SECTION A04 IN ADAMS COUNTY.

THIS PLAN FILED PURSUANT TO SECTION 210 OF THE STATE HIGHWAY LAW, AS AMENDED, 36 P.S. SECTION 670-210, AND SECTION 2003(e)(7) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTION 513(e)(7).

This title sheet is to be used for plans filed following the disposition of rights of ways owned in easement and fee simple. See [Section 3.0.I](#) for general discussion on this type of plan.

The plan must contain an approval block for the Secretary of Transportation to approve the plan for the Secretary and the Governor, as well as a District Executive approval and recording block.

See [Sections 3.0.I](#), [3.4.H.5.j](#), and [3.4.H.5.k](#) discussing plans vacating and confirming disposition of right-of-way.

#### 6. Drawings Depicting Right-of-Way to Be Deeded for State Highways:

DRAWINGS DEPICTING RIGHT-OF-WAY  
TO BE DEEDED TO THE  
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
UNDER HOP APPLICATION NO. \_\_\_\_\_  
BY \_\_\_\_\_ (NAME OF APPLICANT) \_\_\_\_\_  
FOR  
STATE ROUTE \_\_\_\_\_  
IN \_\_\_\_\_ COUNTY  
FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_  
FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

THIS PLAN PREPARED TO DOCUMENT THE RIGHT-OF-WAY FOR STATE HIGHWAY PURPOSES THAT WILL BE DEEDED TO THE COMMONWEALTH AS REQUIRED BY THE PROVISIONS OF 67 PA. CODE CHAPTER 441, ENTITLED "ACCESS TO AND OCCUPANCY OF HIGHWAYS BY DRIVEWAYS AND LOCAL ROADS."

The plan must contain an approval block for the Secretary of Transportation to approve the plan for the Secretary and the Governor, as well as a District Executive approval and recording block. Appropriate personnel, such as the District Plans Engineer, District Chief of Surveys, District Permit Manager and/or District Right-of-Way Administrator, should review the plan prior to signature.

See [Sections 3.0.H](#) and [3.5.X](#) discussing deeding of right-of-way to the Department as part of the HOP process. See [Chapter 15, Section 15.2, Plate B-XV](#) for a sample title sheet.

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**7. Drawings Authorizing Acquisition by Local Governments on State Highways:**

DRAWINGS AUTHORIZING ACQUISITION  
OF  
RIGHT-OF-WAY  
FOR  
STATE ROUTE \_\_\_\_\_, SECTION \_\_\_\_ (IF APPLICABLE) \_\_\_\_\_  
IN \_\_\_\_\_ COUNTY  
BY \_\_\_\_\_ TOWNSHIP  
ON BEHALF OF  
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_  
FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

THIS PLAN PREPARED PURSUANT TO SECTIONS 2003(e) AND 2002(a)(6) AND (7) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTIONS 513(e) AND 512(a)(6) AND (7), SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa. C.S., SECTION 302(b)(3), AND APPROPRIATE MUNICIPAL AUTHORITY FOR THE PURPOSE OF AUTHORIZING AND APPROVING THE LOCAL MUNICIPALITY TO ACQUIRE RIGHT-OF-WAY FOR STATE HIGHWAY PURPOSES ON BEHALF OF THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION.

The plan must contain an approval block for the Secretary of Transportation to approve the plan for the Secretary and the Governor, as well as a District Executive approval and recording block. Appropriate personnel, such as the District Plans Engineer, District Chief of Surveys, District Permit Manager and/or District Right-of-Way Administrator, should review the plan prior to signature.

A signature block should be added to show the approval of the appropriate local government. It should contain a line to indicate the municipal resolution number.

See [Sections 3.0.H](#), [3.4.H.5.m](#), and [3.5.Y](#) discussing acquisitions of State highway right-of-way by local governments as part of the HOP process. See [Chapter 15](#), [Section 15.2](#), [Plate B-XIV](#) for a sample title sheet.

**8. Right-of-Way Dedicated in Highway Occupancy Permit Process:**

DRAWINGS ACCEPTING DEDICATION OF RIGHT-OF-WAY FOR SR 1033, SECTION A04 IN ADAMS COUNTY.

THIS PLAN PREPARED PURSUANT TO SECTION 2003(e) OF THE ADMINISTRATIVE CODE, 71 P.S. SECTION 513(e), AND 67 PA CODE CHAPTER 441. HIGHWAY OCCUPANCY PERMIT NO. \_\_\_\_\_.

See [Section 3.0.H.3](#) discussing the limited use of this type of plan.

**J. MPMS Number.** Beneath the title block, add the MPMS number.

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### 3.3 INDEX SHEET

The following general information shall be shown on the Index Sheet for all Right-of-Way Plans.

1. Index Map.
2. Location of Project on State Map.
3. Sheet Index Block.
4. Tabulation of Equalities between Segment End Points and the right-of-way Baseline (if available).
5. The Appropriate Professional Seals.

**A. Index Map.** The Index Map shall be placed on the sheet to best advantage, using a scale no smaller than 1" = 500' and shall show the following data, where applicable.

1. Survey and right-of-way Baseline or Survey and right-of-way Centerline and stations identified at maximum 500 ft intervals and radius (PC, PT, TS, SC, CS and ST circles only).
2. Edge of existing roadways.
3. State Routes and Township Roads (Show posted Traffic Route numbers).
4. Local road names.
5. Railroads.
6. Edge of streams (Identify major streams).
7. Outline of proposed and existing bridges.
8. Political subdivisions.
9. Begin and End Authorization Stations on all crossroads, temporary connections and service roads.
10. Equality stations.
11. North Arrow and Bar Scale.
12. Temporary roadways.
13. Distances to the nearest 0.1 mi to the nearest community at each end of project. Also give similar distances from project limits at crossroads to nearest community in each direction. If no towns are nearby, indicate mileages to intersecting Traffic Routes or State Routes.

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14. Limits of project covered within each sheet with the sheets identified using the following appropriate symbols on the sheet and identified in the Legend:

## LEGEND



**PLAN**



**PROFILE**



**PLAN AND PROFILE**



**PARCEL IDENTIFICATION NUMBER**



**PARCEL IDENTIFICATION NUMBER-NO TAKE**

For HOP plans, the designation should be "Parcel Identification Number – No Acquisition".

15. Property lines. Property owner's names shall be spelled out and appear exactly as shown on Deeds and the Plan Sheets. Where space permits, property owner's names and parcel numbers shall be shown parallel and equidistant to the right or left of the centerline. A parcel number shall be used for every piece of property for which there is a separate owner. Where one owner owns contiguous property, only one parcel number shall be shown. Parcels separated by a road or railroad are not contiguous; however, when two or more non-contiguous parcels in the same ownership are being used together, e.g., as a single farming or manufacturing operation (but not as a real estate development), they shall be treated as a single property. When the scale is small and/or the properties are too numerous, code the properties with a small, circled number and tabulate the property owners elsewhere on the sheet. Property owners which are numbered but have no right-of-way take shall be indicated as NO TAKE. Questions of unity of use shall be considered with the Bureau of Design and Delivery, Right-of-Way, Utilities and Grade Crossing Division and the Office of Chief Counsel.

16. Project Limits:

- a. On limited access highway facility projects, at the beginning and the ending of the project, the terminology shall read: LIMIT OF ESTABLISHMENT AND AUTHORIZATION. (Note: The Limit of Authorization is not always coincidental to the Limit of Establishment. In such a case, a separate notation shall be made.)
- b. On free access highway facility projects, the terminology for the designation of termini shall read: LIMIT OF AUTHORIZATION.
- c. On intersecting roads and "Also" routes incidental to the main project, the terminology shall read: BEGIN AUTHORIZATION and END AUTHORIZATION.
- d. On plans common to both right-of-way and Construction, the terminology shall read: LIMIT OF WORK AND AUTHORIZATION or any combination of the above that may be applicable.

**Example:**

LIMIT OF ESTABLISHMENT AND/OR AUTHORIZATION  
STA 675+00.00  
SEGMENT \_\_\_\_\_ OFFSET \_\_\_\_\_ (if applicable)  
SR 1033 SEC C04 R/W  
GREENWOOD TOWNSHIP  
PERRY COUNTY

e. Project limits shall be indicated at county lines and breaks in the State Route designations, except when a structure spans the county line. When a structure is present, the Limiting Stations shall shift to the beginning or end of the structure in accordance with segment breaks as shown in [Figure 3.5](#).

17. Channel Changes. When a baseline has been established, channel changes shall be shown with BEGIN CHANNEL CHANGE and END CHANNEL CHANGE Notes, as applicable.

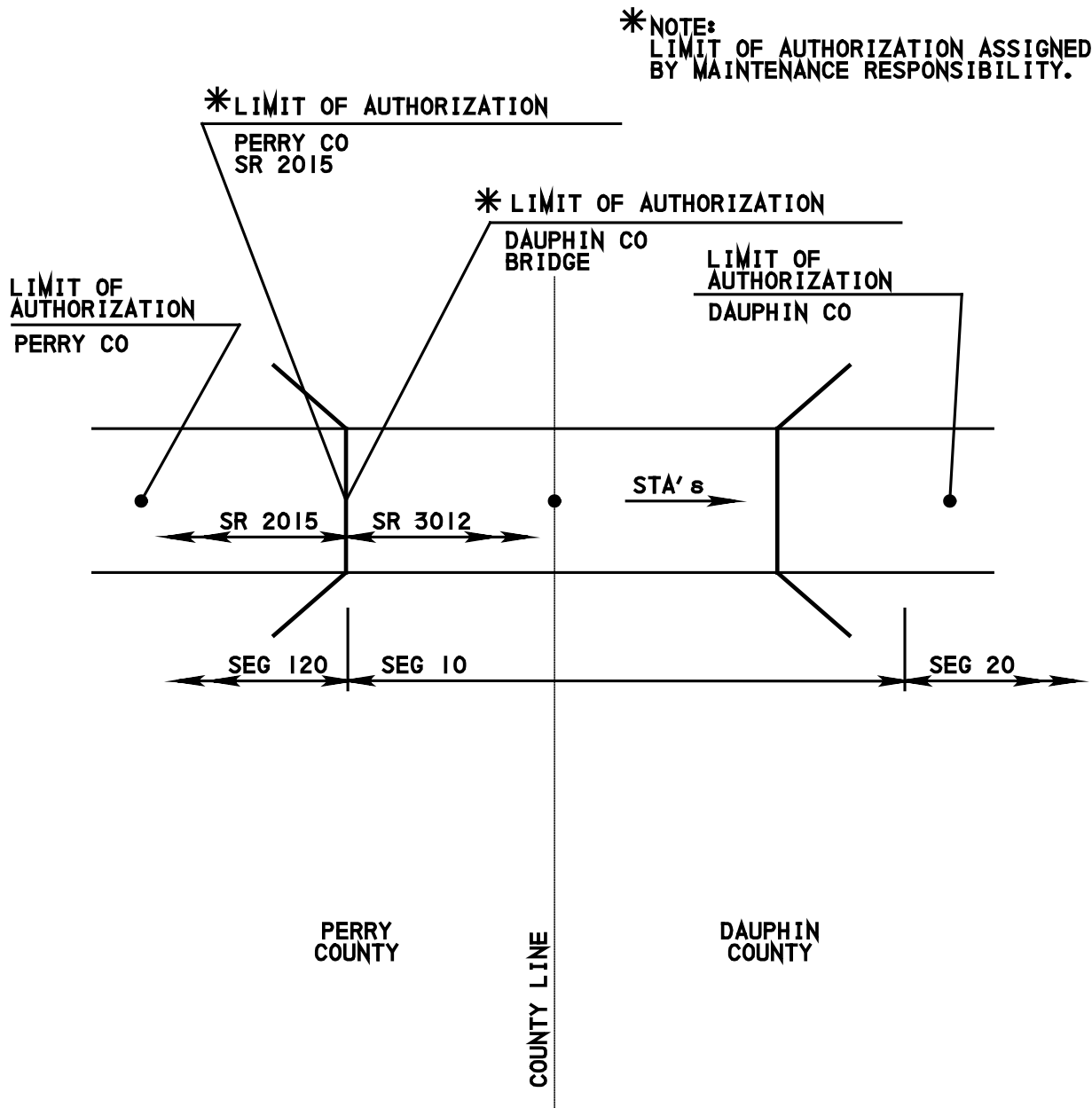
18. Abandonment Notes (See [Section 3.9](#)).

19. Allow space for an appropriate Note regarding the type of acquisition (See [Section 3.4.H.2](#)).

**B. Sheet Index Block.** On projects involving many sheets, a Sheet Index Block is suggested. Small projects may also require a Sheet Index Block when there is more than one Supplemental Plan. A sample Sheet Index Block is shown in [Figure 3.6](#).

**C. Tabulation of Segment Equalities.** See [Chapter 2, Section 2.2.F](#).

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**FIGURE 3.5**  
**LIMIT OF AUTHORIZATION DESIGNATION**

| DESCRIPTION      | SHEET |
|------------------|-------|
| TITLE SHEET      |       |
| INDEX MAP        |       |
| LOCATION MAP     |       |
| TYPICAL SECTIONS |       |
| PLAN SHEETS      |       |
|                  |       |
|                  |       |
|                  |       |
|                  |       |
|                  |       |

**FIGURE 3.6  
SAMPLE OF  
SHEET INDEX BLOCK**

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### 3.4 TYPICAL SECTION SHEET

The following general information shall be shown on the Typical Section Sheet for all Right-of-Way Plans:

1. Tabulation of Overall Length and Authorization Length.
2. List of Stationing Equalities.
3. Location Map.
4. List of Public Utilities.
5. Tabulation of Project Coordinates (Alignment control points and R/W line break points).
6. General Notes.
7. Typical Sections.
8. The Appropriate Professional Seals.

**A. Tabulation of Overall Length.** The Overall Length is the longest length between the Limit of Establishment stations, the Limit of Reestablishment stations or the Limit of Authorization stations. On plans common to both right-of-way and Construction, the "Limit of Work" station lengths, the Limit of Authorization lengths and the Limit of Establishment or Reestablishment lengths shall be tabulated.

The Overall Lengths shall be shown to the nearest 0.01 ft or 0.001 mi. The authorization length will reflect the overall length minus any breaks where right-of-way is not being acquired.

**B. List of All Equalities.** All equalities occurring on the major routes shall be listed on the first Typical Section Sheet. If there are no equalities, indicate as such.

**C. Location Map.** The Location Map shall be placed in the lower left-hand corner on the first Typical Section Sheet and may be reproduced from County or City maps. This map shall be orientated so that the North Arrow is vertical toward the top of the sheet with a Bar Scale, indicated in miles, and placed below the map. Also indicate the following data on the Location Map:

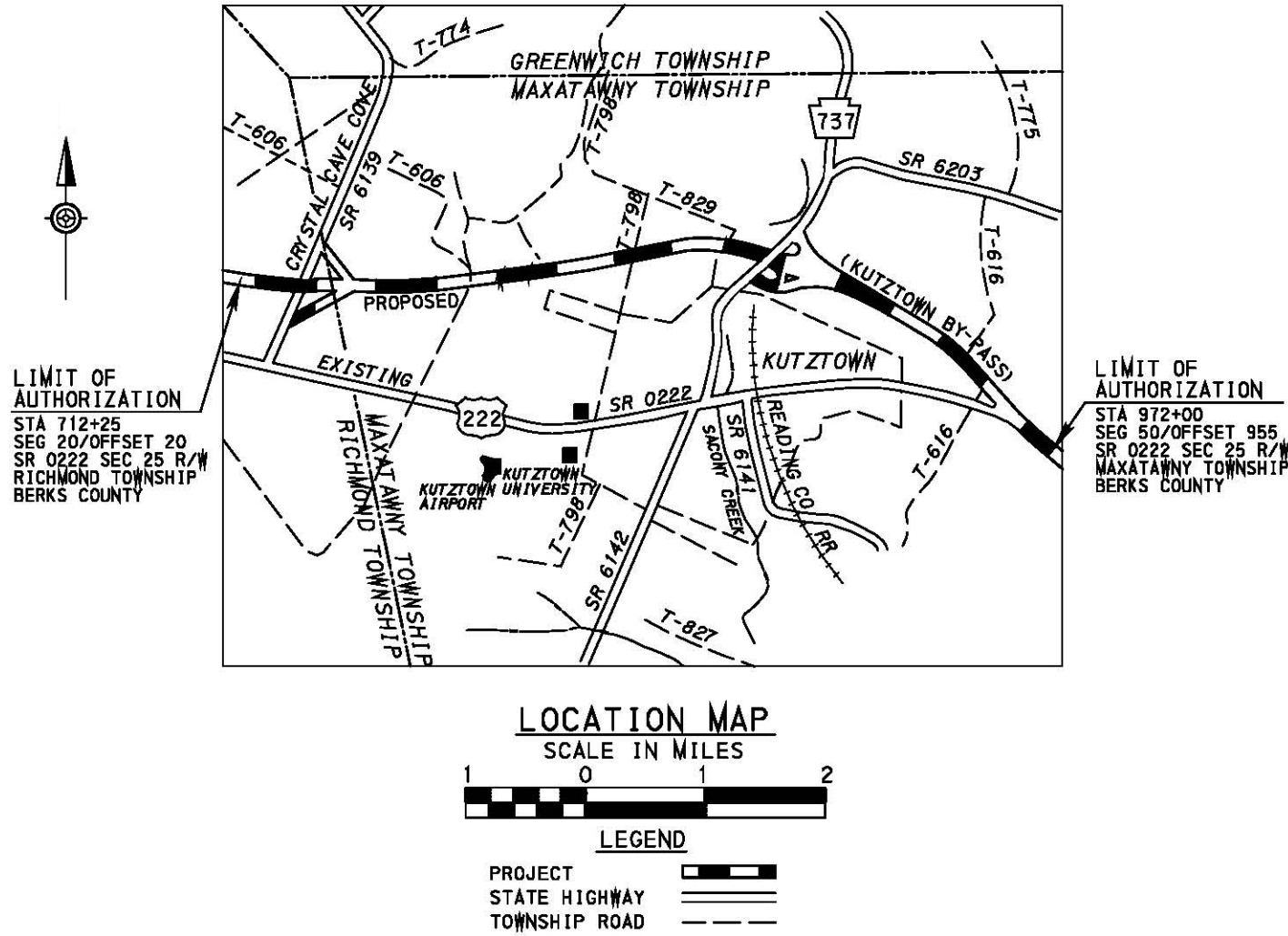
1. Label and place a Legend below the Location Map as shown in [Chapter 15, Section 15.2, Plate B-XIII](#).
2. All adjacent and intersecting State Routes, Traffic Routes and Township Roads by number.
3. If a City map is used, streets should be shown and named.
4. Cities, towns and physical features such as lakes, streams, canals, railroads, etc.
5. City limits, Township Lines and urban limits, where applicable.
6. Show project Limits of Authorization (Do not show for "Also" routes).
7. Bar Scale.

For an example of a typical Location Map, refer to [Figure 3.7](#).

**D. Special Details.** Indicate special design features including curb and sidewalks which may influence the right-of-way acquisition. An appropriate scale shall be used for these sketches.

**E. Identification Block.** Complete the Identification Block in the upper right-hand corner. A sample of an Identification Block is shown in [Figure 3.8](#).

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**FIGURE 3.7**  
**TYPICAL LOCATION MAP**

|  |                    |           |       |         |       |    |
|--|--------------------|-----------|-------|---------|-------|----|
|  | DISTRICT           | COUNTY    | ROUTE | SECTION | SHEET |    |
|  |                    |           |       |         | OF    |    |
|  |                    |           |       |         |       |    |
|  | REVISION<br>NUMBER | REVISIONS |       |         | DATE  | BY |
|  |                    |           |       |         |       |    |
|  |                    |           |       |         |       |    |
|  |                    |           |       |         |       |    |

**FIGURE 3.8**  
**SAMPLE OF IDENTIFICATION BLOCK**

**F. Listing of Public Utilities.** List all Public Utilities known to be located within the scope and extent of work activity defined for this construction area in accordance with Act 287-1974, as amended. List the name of the Public Utility, their address with Zip Code, the telephone number, title and the name of the utility representative responsible for the project, and show the unique acronym to indicate ownership that accompanies the utility line depictions on the plans.

List the Pennsylvania One Call System telephone number and the appropriate serial numbers, dates and municipalities completed for the project.

**G. Tabulation of Project and Required Right-of-Way Break Point Coordinates.** Provide a tabulation of project coordinates as required in [Chapter 2, Section 2.3.H](#).

**H. General Notes.** The wording of General Notes on Right-of-Way Plans shall be as follows:

1. The first Note shall refer to the Legal right-of-way and shall include the following for all roadways within the limits of authorization:
  - a. State Route, Township Road or the names of roads which are shown on the Right-of-Way Plan.
  - b. Identifying stations.
  - c. Legal width of all roads within the area of taking.
  - d. Basis of legal width, including dates of plans, ordinances, etc., and places and dates of record.

**Examples:**

- a. THE LEGAL RIGHT-OF-WAY ON SR 1524 FROM THE WEST CHESTER BOROUGH LINE (STATION 0+00) TO THE INTERSECTION OF SR 1059 (STATION 9+35) IS 60 FEET, BASED ON PLAN OF LR 21524, SECTION 1, SIGNED ON JULY 2, 1949, AND RECORDED ON AUGUST 5, 1949, IN THE CHESTER COUNTY RECORDER'S OFFICE IN PLAN BOOK 3, PAGE 17.
- b. THE LEGAL RIGHT-OF-WAY ON SR 1524, FORMERLY LR 17, FROM THE WEST CHESTER BOROUGH LINE TO THE INTERSECTION OF SR 1059, FROM STATION 0+00 TO STATION 9+35 IS 50 FEET BASED ON REPORT OF VIEWERS, CONFIRMED ON APRIL 26, 1846, FILED IN CHESTER COUNTY COURT OF QUARTER SESSIONS.

c. THE LEGAL RIGHT-OF-WAY ON SR 6046, FORMERLY LR 359, FROM STATION 201+02 TO STATION 216+50 IS 50 FEET, BASED ON POTTSTOWN BOROUGH ORDINANCE DATED MAY 1, 1929, RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE ON JUNE 15, 1929, IN DEED BOOK 21, PAGE 171.

d. THE LEGAL RIGHT-OF-WAY ON SR 3021, FORMERLY LR 15039 IS 33 FEET, BASED ON THE ACT OF MAY 1, 1933, P.L. 103, SECTION 1105, AS AMENDED. PRIOR TO THE ADOPTION OF LR 15039 AS A STATE HIGHWAY IN 1942, IT HAD BEEN OPENED AND MAINTAINED FOR TWENTY-ONE (21) YEARS OR MORE BY GREEN TOWNSHIP, A SECOND-CLASS TOWNSHIP. THERE IS NO PUBLIC RECORD OF ANY OTHER WIDTH.

e. THE LEGAL RIGHT-OF-WAY ON SR 6114, FORMERLY LR 19054, FROM STATION 0+00 TO STATION 9+17 IS 50 FEET BASED ON DEED OF DEDICATION DATED MAY 29, 1856, AND RECORDED IN DEED BOOK 311, PAGE 47, IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE. BY THIS PLAN, THE COMMONWEALTH HEREBY ACCEPTS THE AREAS DEDICATED FOR STATE HIGHWAY PURPOSES.

f. THE LEGAL RIGHT-OF-WAY ON SR 6032 FROM STATION 201+02 TO STATION 216+50, IS 30 FEET ON THE LEFT AND IS BASED ON A PLAN OF LOTS OF BROOKFORD MANOR RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE ON MAY 27, 1948, IN PLAN BOOK Q, PAGE 27. BY THIS PLAN, THE COMMONWEALTH HEREBY ACCEPTS THE AREAS DEDICATED FOR STATE HIGHWAY PURPOSES.

g. THE LEGAL RIGHT OF WAY ON S.R. 6114, FORMERLY LEGISLATIVE ROUTE 19054 FROM STA. 0+27 TO STA. 1+12 IS VARIABLE BASED ON THE ACTUAL WIDTH OCCUPIED BY PAVEMENT AND SHOULDERS AS MEASURED IN THE FIELD. THERE IS NO PUBLIC RECORD OF OTHER WIDTH.

2. The second Note shall refer to the terms of acquisition.

a. When required right-of-way will be acquired in fee simple, the Note shall be stated as follows:

ALL REQUIRED RIGHT-OF-WAY FOR THIS PROJECT SHALL BE ACQUIRED IN FEE SIMPLE UNLESS OTHERWISE NOTED. AREAS, IF ANY, NOT TO BE ACQUIRED IN FEE SIMPLE SHALL BE ACQUIRED IN THE LESSER ESTATE OR INTEREST NOTED ON THE PLAN SHEET.

b. When required right-of-way will be acquired in easement for highway purposes only, the Note shall be stated as follows:

ALL REQUIRED RIGHT-OF-WAY FOR THIS PROJECT SHALL BE ACQUIRED AS EASEMENT FOR HIGHWAY PURPOSES. AREAS, IF ANY, NOT TO BE ACQUIRED AS EASEMENT FOR HIGHWAY PURPOSES SHALL BE ACQUIRED IN THE LESSER ESTATE OR INTEREST NOTED ON THE PLAN SHEET.

c. When most of the required right-of-way will be acquired in fee, but certain right-of-way will be acquired in easement for highway purposes, the note set forth in a. above should be used with the specific highway easement areas designated "Required Right-of-way (Easement for Highway Purposes)."

See [Section 3.1](#) on interest to be acquired.

**3. A note shall be added concerning the plotting of the property lines:**

When no private property lines are surveyed, a note shall be added concerning the plotting of the property lines as follows:

PRIVATE PROPERTY LINES ARE PLOTTED FROM THE DEED OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA. PRIVATE PROPERTY LINES WERE NOT SURVEYED BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT.

When some of the property lines are surveyed during project development, a note shall be added concerning the plotting of the property lines as follows:

ALL PROPERTIES ARE PLOTTED FROM DEEDS OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, OR FROM FIELD SURVEY. PROPERTY LINES WERE SURVEYED ONLY WHEN DETERMINED NECESSARY BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT. PROPERTY LINES NOT ESTABLISHED BY FIELD SURVEY WERE PLOTTED BASED ON EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA.

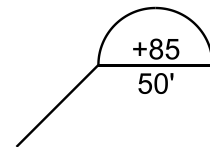
See [Section 3.1.I](#) discussing when it is appropriate to survey property lines.

**4. A General Note may be added, if desired, to cross reference the State Route numbers to their previous Legislative Route numbers.**

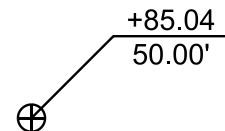
**5. Other Notes, Where Applicable:**

- a. BUILDINGS AND STRUCTURES MARKED  HAVE BEEN OR ARE TO BE REMOVED OR ALTERED BY THE DEPARTMENT OR OTHER AUTHORITY RESPONSIBLE FOR THE PAYMENT OF PROPERTY DAMAGES.
- b. BUILDINGS AND STRUCTURES MARKED  ARE ENCROACHMENTS WHICH ARE THE RESPONSIBILITY OF THE PROPERTY OWNERS TO REMOVE.

THE HALF CIRCLED NUMBER INDICATES  
A SCALED DIMENSION.



INDICATES MONUMENTED DIMENSIONS.



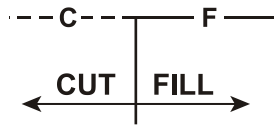
Note: Monumented dimensions indicate that a monument has been set at the designated values.

- d. The General Notes shall indicate if the horizontal survey information is based on the Pennsylvania State Plane Coordinate System (SPCS 83), or an independent arbitrary coordinate system. The notes for vertical control shall state if the elevations are based upon the North American Vertical Datum of 1988 (NAVD 88) or an independent arbitrary datum. Also include the definition of the curve data.

**e. All NHS routes shall be identified in the General Notes as follows:**

SR 0076 IS A NHS ROUTE FROM STATION 0+00 TO STATION 12+76.

- f. Indicate the following key for the Slope Limit in the General Notes:



- g. A Note shall be provided to indicate which streams within the project are classified as "Navigable Streams" because as such, they are public highways. If no streams are so classified, the Note shall so state.

- h. When service roads are designated on a Right-of-Way Plan, one of the following Notes is to be used:

(1) MAINTENANCE RESPONSIBILITY AND TITLE TO THE LOCAL SERVICE ROADS DESIGNATED ON THIS PLAN VESTS IN THE MUNICIPALITY IN WHICH THEY ARE LOCATED UPON COMPLETION OF CONSTRUCTION THEREOF.

(2) FORMER STATE ROUTE \_\_\_\_\_ IS HEREBY DESIGNATED A LOCAL SERVICE ROAD FROM STATION \_\_\_\_\_ TO STATION \_\_\_\_\_. MAINTENANCE RESPONSIBILITY AND TITLE TO SAID ROADWAY VESTS IN THE MUNICIPALITY IN WHICH IT IS LOCATED UPON COMPLETION OF CONSTRUCTION THEREOF.

See [Section 3.1.Z](#) for general discussion of acquisitions for service roads.

- i. When a Temporary Construction Easement is required, the expiration shall be indicated in the General Notes as follows:

TEMPORARY CONSTRUCTION EASEMENT. AN EASEMENT TO USE THE LAND AS NECESSARY DURING CONSTRUCTION OF THE PROJECT. THE EASEMENT IS REQUIRED ONLY UNTIL THE CONSTRUCTION OR WORK INDICATED BY THE PLAN IS COMPLETED, UNLESS SOONER RELINQUISHED IN WRITING BY THE DEPARTMENT.

The expiration date shall be at the discretion of the District Executive.

Temporary easements are not to be shown on HOP plans reflecting property to be deeded to the Department. They are not deeded to the Department, but rather used by the permittee during construction.

See [Section 3.1.R](#) and [Section 3.6.A.2.e.\(12\).\(f\)](#) for further discussion of temporary construction easements.

- j. Plans that include vacations and abandonment.

When abandonment or vacations are part of a right-of-way acquisition plan, the following General Notes must be included:

ABANDONMENTS AS SHOWN ON THIS PLAN ARE EFFECTIVE ONLY AFTER THE ROAD HAS BEEN OPENED TO TRAFFIC AND PROPER NOTICE HAS BEEN GIVEN TO THE LOCAL AUTHORITIES.

VACATIONS AS SHOWN ON THIS PLAN ARE EFFECTIVE ONLY AFTER AN ORDER OF VACATION HAS BEEN EXECUTED BY THE DEPARTMENT AND FILED IN THE APPROPRIATE COUNTY COURTHOUSE.

**k. Drawings Vacating Right-of-Way and Confirming Disposition of Right-of-Way.**

When a plan is filed to vacate right-of-way and confirm the disposition of rights of way after the disposition process, the following General Note must be included:

THIS PLAN SHALL CONSTITUTE A WRITTEN ORDER AND DECLARATION UNDER SECTION 210 OF THE STATE HIGHWAY LAW, 36 P.S. SECTION 670-210, THAT THE RIGHT-OF-WAY SHOWN AS VACATED IS VACATED IMMEDIATELY UPON THE RECORDING OF THE PLAN.

A general note must also be included designating the plan under which the right-of-way was originally acquired. See also [Section 3.0.I](#) on plans vacating right-of-way and confirming the disposition of rights after the disposition process. This note and type of plan may only be used when the right-of-way disposition process has been followed. See Publication 378, *Right-of-Way Manual*, Chapter 7, "Excess Land".

A general note specifying that the vacation is made subject to the rights of existing public utility facilities to remain unadjusted within the area vacated is not appropriate if the utilities occupy the right-of-way by permit only. The Department cannot reserve an easement for a utility when it vacates public right-of-way.

**l. De Facto Takings.** The following General Note shall be placed on all partial take Right-of-Way Plans:

THE FILING OF THIS PLAN IS NOT A CONDEMNATION OF THE PROPERTIES DESIGNATED THEREIN AND DOES NOT IN ANY MANNER WHATSOEVER RESTRICT THE USE OR DISPOSAL THEREOF. AUTHORIZATION TO CONDEMN UNDER THIS PLAN EXTENDS FOR ONLY ONE YEAR FROM THE DATE OF THE SECRETARY'S SIGNATURE INITIALLY AUTHORIZING ACQUISITION OR SUBSEQUENTLY REVISING THE PLAN OR REAUTHORIZING ACQUISITION THEREUNDER.

The following General Note shall be placed on all total take Right-of-Way Plans:

THE FILING OF THIS PLAN IS NOT A CONDEMNATION OF THE PROPERTIES DESIGNATED THEREIN OR ANY OTHER PROPERTIES WITHIN THE PROPOSED HIGHWAY PATH AND DOES NOT IN ANY MANNER WHATSOEVER RESTRICT THE USE OR DISPOSAL THEREOF. AUTHORIZATION TO CONDEMN UNDER THIS PLAN EXTENDS FOR ONLY ONE YEAR FROM THE DATE OF THE SECRETARY'S SIGNATURE INITIALLY AUTHORIZING ACQUISITION OR SUBSEQUENTLY REVISING THE PLAN OR REAUTHORIZING ACQUISITION THEREUNDER.

Where the Right-of-Way Plans have been filed and contain neither of the prior General Notes and the project involved has been delayed for any reason, e.g., lack of funding, etc., the Right-of-Way Plans shall be revised to show the following General Note:

REVISED TO INDICATE THAT ACQUISITION FOR THIS PROJECT HAS BEEN DISCONTINUED, AND TO CLARIFY THAT THIS PLAN IS NOT A CONDEMNATION OF THE PROPERTIES DESIGNATED THEREON OR ANY OTHERS, AND DOES NOT IN ANY MANNER WHATSOEVER RESTRICT THE USE OR DISPOSAL THEREOF. AUTHORIZATION TO CONDEMN UNDER THIS PLAN CAN ONLY BE REVIVED BY THE SECRETARY'S REAUTHORIZATION OF CONDEMNATION HEREUNDER.

**m. Drawings Authorizing Acquisition by Local Governments on State Highways.** A general note should be added to the plan stating:

THIS PLAN AND ANY RELATED HIGHWAY OCCUPANCY PERMIT AUTHORIZE WORK ONLY IN DEPARTMENT HIGHWAY RIGHT-OF-WAY.

See [Sections 3.0.H, 3.5.X, and 3.5.Y](#) also relating to acquisitions of State highway right-of-way by local governments as part of the HOP process.

- n. When right-of-way for a local road or street is required, the following Note is to be used:

REQUIRED RIGHT-OF-WAY FOR LOCAL ROADS OR STREETS IS ACQUIRED FOR THE BENEFIT OF THE APPLICABLE MUNICIPALITY IN THE SAME ESTATE OR INTEREST AS DESIGNATED HEREIN FOR REQUIRED RIGHT-OF-WAY FOR STATE HIGHWAY PURPOSES, ALONG WITH A TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT AND USE OF THE COMMONWEALTH. TITLE SHALL VEST IN THE APPLICABLE LOCAL MUNICIPALITY UPON ACQUISITION AND MAINTENANCE RESPONSIBILITY SHALL TRANSFER UPON THE COMPLETION OF CONSTRUCTION.

See [Section 3.1.AA](#) for general discussion of acquisitions for local roads and streets.

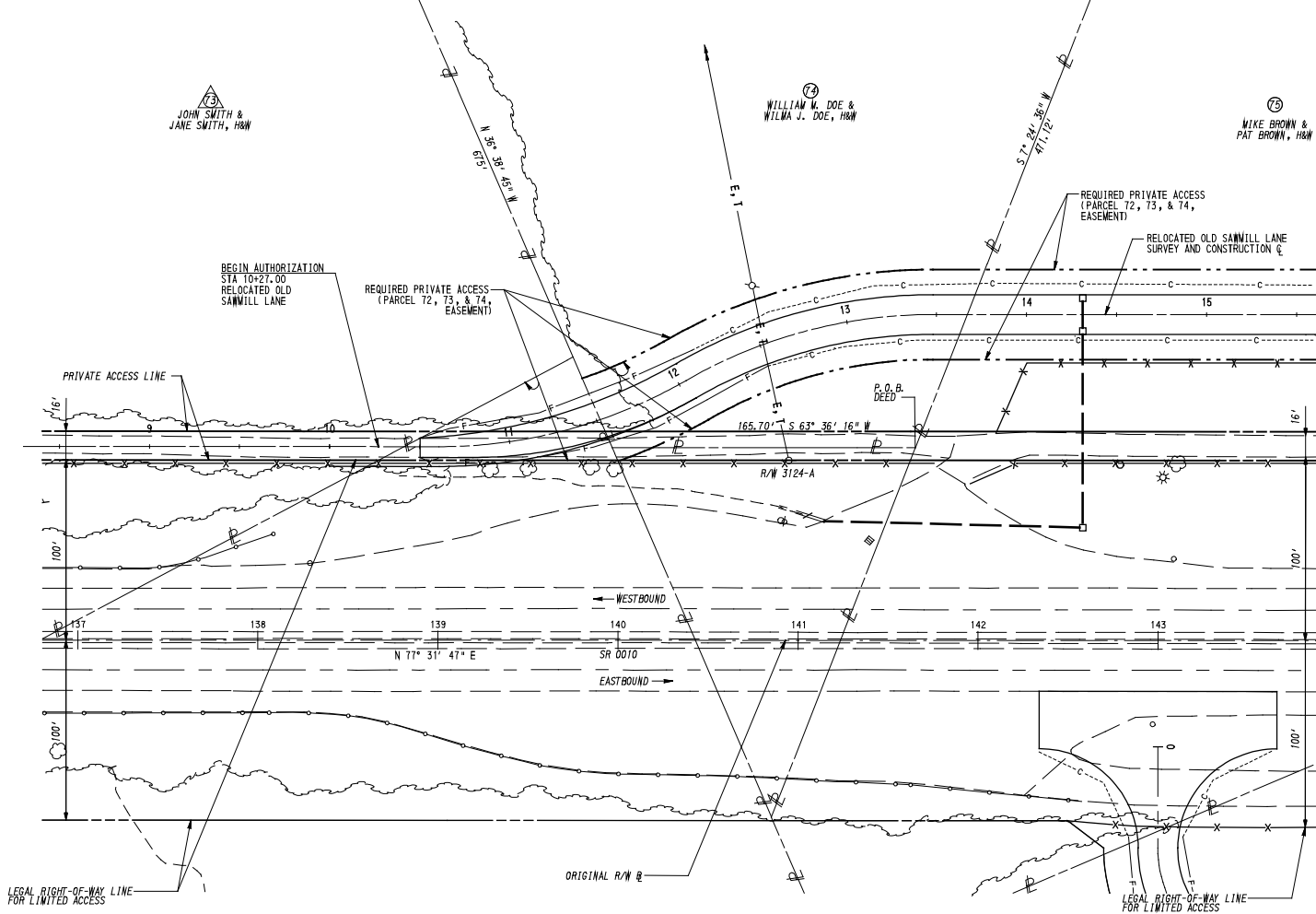
- o. When a private access is required, the following Note is to be used:

LAND REQUIRED FOR PRIVATE ACCESS IS ACQUIRED IN THE SAME ESTATE OR INTEREST DESIGNATED (EITHER FEE SIMPLE OR EASEMENT FOR DRIVEWAY PURPOSES) FOR THE BENEFIT AND USE OF THE PROPERTY OR PROPERTIES DESIGNATED, ALONG WITH A TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT AND USE OF THE COMMONWEALTH, IF NECESSARY. TITLE SHALL VEST IN THE OWNERS OF THE DESIGNATED PROPERTIES UPON ACQUISITION AND MAINTENANCE RESPONSIBILITY SHALL TRANSFER UPON THE COMPLETION OF CONSTRUCTION, IF ANY.

This General Note should not change. The individual information for the specific acquisition will be shown on the line leaders to the area acquired on the applicable Plan sheets and property plot, if any.

See [Section 3.1.BB](#) for general discussion of acquisitions for private access.

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**FIGURE 3.9**  
**EXAMPLE FOR PRIVATE ACCESS**

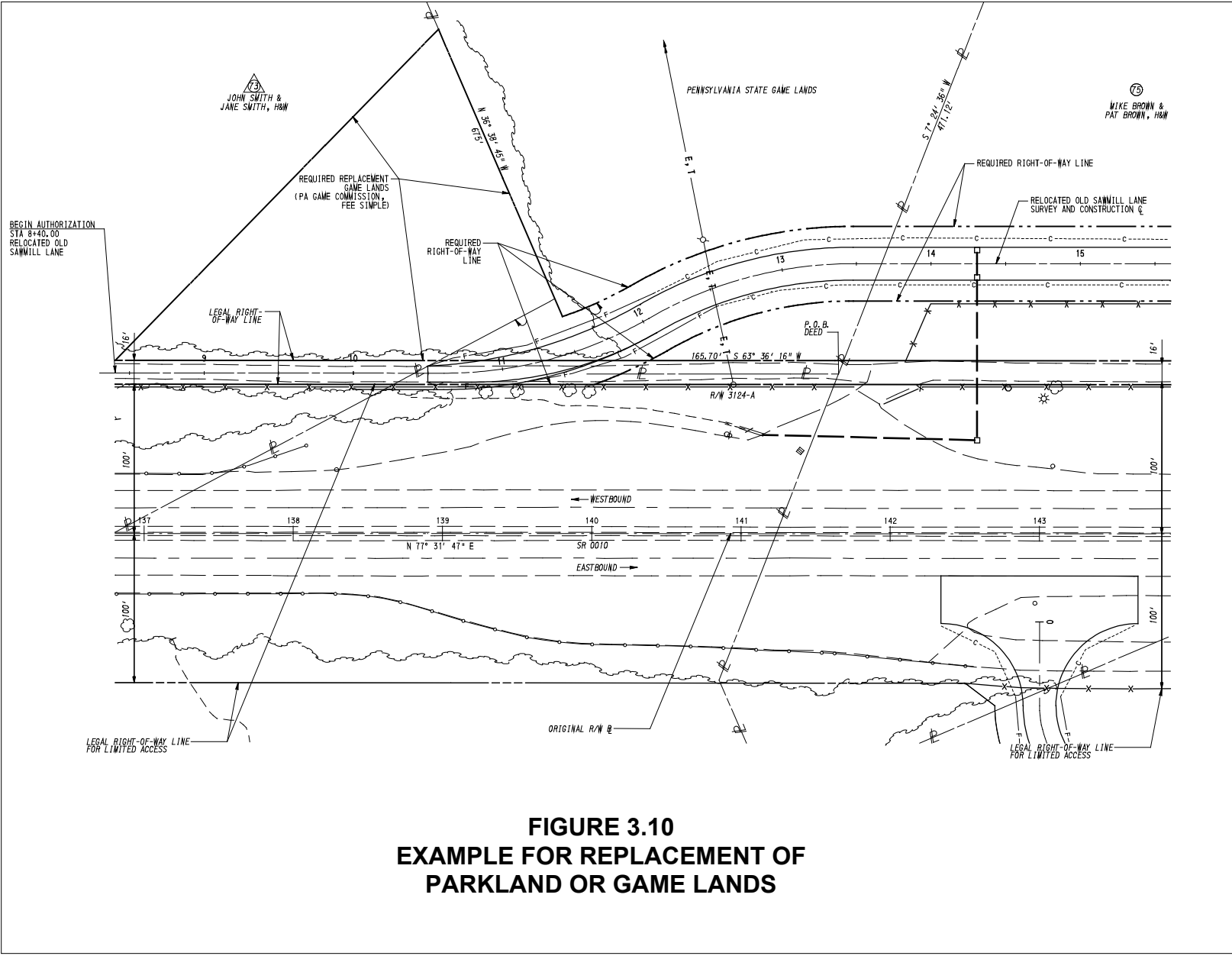
- p. When lands are required for the **replacement of parkland or game lands**, the following Note is to be used:

LAND REQUIRED FOR REPLACEMENT [insert proper type of land, e.g. PARKLAND, GAME LAND] IS ACQUIRED IN THE SAME ESTATE OR INTEREST DESIGNATED (EITHER FEE SIMPLE OR EASEMENT FOR [insert proper type of land] PURPOSES) FOR THE BENEFIT AND USE OF THE PUBLIC ENTITY DESIGNATED, ALONG WITH A TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT AND USE OF THE COMMONWEALTH, IF NECESSARY. TITLE SHALL VEST IN THE PUBLIC ENTITY UPON ACQUISITION AND MAINTENANCE RESPONSIBILITY SHALL TRANSFER UPON THE COMPLETION OF CONSTRUCTION, IF ANY.

This General Note should remain the same except for the designation of the type of land being replaced. The nature of the title being acquired will be shown on the line leaders to the area acquired on the applicable plan sheets and property plot, if any.

See [Section 3.1.CC](#) for general discussion of acquisitions for replacement lands.

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**FIGURE 3.10**  
**EXAMPLE FOR REPLACEMENT OF**  
**PARKLAND OR GAME LANDS**

- q. When land required for environmental mitigation purposes is to be taken in fee simple, the following Note is to be included:

LAND REQUIRED FOR ENVIRONMENTAL MITIGATION PURPOSES (WETLAND, STREAM OR TERRESTRIAL) SHALL BE ACQUIRED IN FEE SIMPLE UNLESS OTHERWISE NOTED. FOLLOWING ACQUISITION, RESTRICTIVE COVENANTS WILL BE FILED OF RECORD LIMITING USE OF THE LAND.

When land required for environmental mitigation purposes is to be taken in easement, no Note is required on the Typical Section Sheet. See [Section 3.6.A.2](#) on wetland, stream and terrestrial mitigation easements.

See [Section 3.1.DD](#) for general discussion of acquisitions for environmental mitigation.

**r. Aerial Easement Notes.**

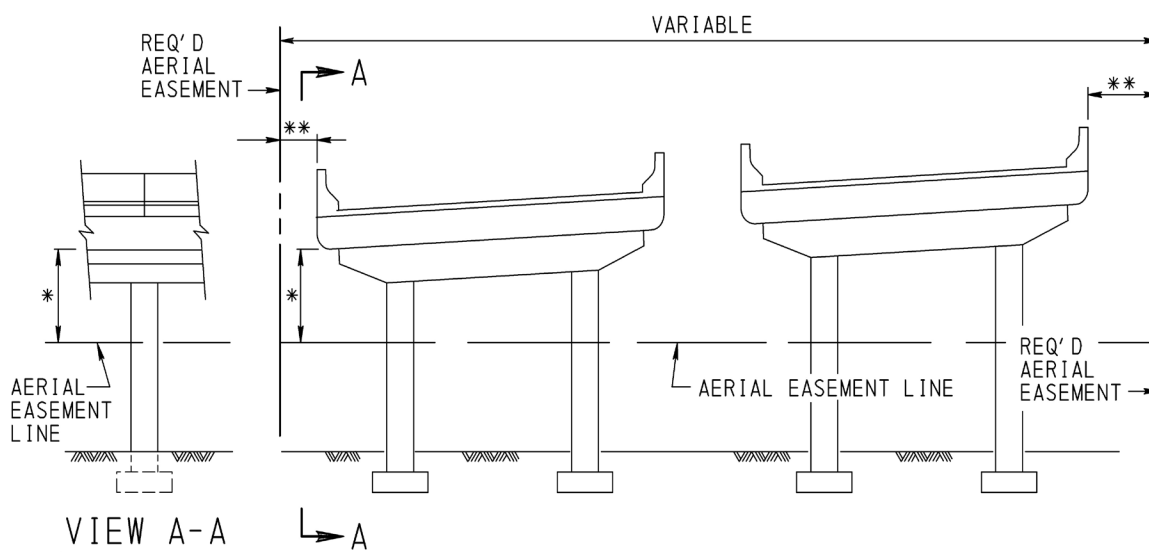
- 1) When an aerial easement is to be acquired, the following notes shall be used:

WHERE AN AERIAL EASEMENT IS ACQUIRED, IT SHALL INCLUDE AN EASEMENT IN THE AIR FOR THE ACCOMMODATION OF THE ELEVATED HIGHWAY STRUCTURE UNLIMITED IN VERTICAL DIMENSION ABOVE THE STRUCTURE, A SURFACE EASEMENT UNLIMITED IN VERTICAL DIMENSION FOR THE ACCOMMODATION OF PIERS AND OTHER APPURTENANCES AND A TEMPORARY EASEMENT FOR CONSTRUCTION PURPOSES INCLUDING THE STORAGE OF MATERIALS DURING CONSTRUCTION FOR THE ENTIRE AREA. THE FOLLOWING LIMITATIONS SHALL BE IMPOSED ON THE PROPERTY BENEATH THE AREA AFFECTED BY THE AERIAL EASEMENT.

- 2) NO USE SHALL BE MADE OF THE PROPERTY WHICH SHALL ENDANGER THE STRUCTURE OR THE HEALTH, SAFETY OR WELFARE OF THE TRAVELING PUBLIC.
- 3) NO FLAMMABLE, EXPLOSIVE, DANGEROUS OR HAZARDOUS MATERIAL SHALL BE USED, PLACED OR STORED ON THE PROPERTY.
- 4) NO BUILDING OR OTHER FACILITY SHALL BE CONSTRUCTED ON THE PROPERTY WITHOUT PRIOR AUTHORITY OF THE DEPARTMENT OF TRANSPORTATION. IF AND WHEN SUCH AUTHORITY IS GRANTED, THE PLANS FOR THE BUILDING OR FACILITY AND CONSTRUCTION METHODS SHALL BE SUBJECT TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION.
- 5) NO INTERFERENCE SHALL BE MADE WITH THE RIGHT OF THE DEPARTMENT OF TRANSPORTATION TO ENTER UPON THE PROPERTY FOR THE PURPOSES OF INSPECTION, MAINTENANCE, REPAIR, PAINTING, RECONSTRUCTION OR ALTERATION OF THE STRUCTURE OR APPURTENANCES. MOVEABLE ITEMS MAY HAVE TO BE REMOVED BY THE OWNER DURING SOME OR ALL OF THE ABOVE OPERATIONS.
- 6) ANY SUBSTANTIAL CHANGE IN PROPERTY USE TO BE MADE SUBSEQUENT TO THE ACQUISITION OF THE EASEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION.
- 7) Add the following Note when a railroad is involved:

THE NOTES ON THESE DRAWINGS SHALL NOT BE CONSTRUED AS LIMITING OR INTERFERING IN ANY WAY WITH THE PRESENT AND FUTURE OPERATION, USE, MAINTENANCE, REPAIR, RENEWAL, CHANGE, ADDITION, BETTERMENT OR ALTERATION OF THE RAILROAD AND ITS SUPPORTING FACILITIES.

See [Section 3.1.L](#) for general discussion of aerial easement acquisitions. A separate sketch shall be included for each aerial easement condition. See [Figure 3.11](#), Aerial Easement Sketch.

**FIGURE 3.11**AERIAL EASEMENT SKETCH

SKETCH SHOWING ESTATE TO BE ACQUIRED FOR A LIMITED AERIAL EASEMENT

FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_

(The above sketch, modified to fit the project, with applicable dimensions, is added to the General Notes.)

\* ACTUAL DIMENSION (2 ft MINIMUM)

\*\* ACTUAL DIMENSION (15 ft DESIRABLE).

USE OF AIRSPACE BENEATH THE ESTABLISHED GRADELINE OF THE HIGHWAY SHALL PROVIDE SUFFICIENT VERTICAL AND HORIZONTAL CLEARANCES FOR THE CONSTRUCTION, OPERATION, MAINTENANCE, VENTILATION AND SAFETY OF THE HIGHWAY FACILITY. THE ESTATE ACQUIRED ABOVE THE AERIAL EASEMENT LINE MAY BE ENTERED ON BY MOVING VEHICLES SUCH AS TRUCKS OR RAILROAD ROLLING STOCK.

**s. Mining Reservations.** Add the following Note to each Plan Sheet on which the estate to be acquired (whether fee simple or easement) should be limited in vertical dimension to avoid interference with deep mining, including removal of gas and oil by means of wells located off the right-of-way:

THE ESTATE TO BE ACQUIRED IS LIMITED IN VERTICAL DIMENSION SO AS NOT TO INTERFERE WITH DEEP MINING OF MATERIALS, INCLUDING REMOVAL OF GAS AND OIL BY MEANS OF WELLS LOCATED OFF THE RIGHT-OF-WAY. THE OWNER OF THE MINERALS MAY REMOVE ANY OR ALL OF SAME LOCATED BENEATH THE MINIMUM DEPTH INDICATED.

Note: The depth of permissible mining operations is to be based on the type of rock, possible voids, etc., and shall be indicated on the appropriate Plan Sheet.

**t.** All existing easements shall be indicated in the general notes. Use the description of the easement from the existing Right-of-Way Plan or see the previous listed notes for the appropriate wording.

**u. Typical Sections.** One Typical Section shall be shown for each roadway listed on the Title Sheet. Typical Sections are also desirable for ramps, unlisted side roads, etc. The Typical Sections may be shown on as many additional sheets as necessary.

The minimum data required on each Typical Section shall include the following:

1. Profile grade point.
2. Pavement width.
3. Shoulder width.
4. Median width.
5. Embankment and cut slopes.
6. Applicable station limits.

The type and depth of pavement, subbase and shoulders, etc., are not required.

### 3.5 PLAN SHEETS

**A. List of Items for Plan Sheets.** The Plan Sheets shall show the following items:

1. Required and Legal Right-of-Way Lines.
2. Survey and Right-of-Way Baselines or Survey and Right-of-Way Centerlines.
3. Railroads and Utilities.
4. Easements (For permanent utility easement, see Publication 16, Design Manual, Part 5, *Utility Relocation*) and associated Easement Notes (See [Section 3.6.A.2.e](#)).
5. Topography.
6. Property Lines and Ownership (Use parcel numbers enclosed with one heavy circle). See [Section 3.6.A.2.e\(3\)](#) for the data required.
7. Limit of Slope Lines.
8. Edge of existing and proposed pavement, curb and new depressed curb, for free access facilities.
9. Tabulation of areas (if no separate property plot is prepared).

10. Survey references and survey book numbers.
11. All drainage that affects property damage shall be shown. Of particular interest are inlet and outlet drainage onto or from properties. Pipe and ditch sizes may be determined from preliminary drainage computations.
12. Right-of-Way Fence. Generally placed 2 ft inside the right-of-way line. Breaks of 90° should be avoided.
13. Structure Data.
14. Curve Data, North Arrow, Profile, Limits.
15. Location of existing or proposed bicycle facilities and trails.
16. Seal of the professional land surveyor and professional engineer who are in responsible direction and control of the work shall be shown.
17. Driveway Adjustments.
18. Intersection ties between baselines (by station and angle).

**B. Metes and Bounds and Tabulation of Properties.** When directed by the District Right-of-Way Administrator, the total ownership (entire perimeter with metes and bounds) of each parcel shall be shown either directly on the Plan Sheet or on an appropriately-referenced Property Plot. In either case, the same property data that is on the plots is required.

Metes shall be indicated on Right-of-Way Plans as follows:

Units in feet

The data may be tabulated or shown in a block similar to that used on a Property Plot. For information on areas, see [Section 3.6](#).

**C. Data Affecting Right-of-Way.** All pertinent data affecting the cost of the right-of-way, such as structures outside the right-of-way line affected by the taking, access roads, improvements and fences shall be shown. The means of access to the property, both before and after construction, including the services or access roads, shall be shown. This data shall be shown on both the Plan Sheet and on the Property Plots.

**D. Steps, Walls and Sidewalks.** All Right-of-Way Plans, including Property Plots, shall clearly indicate whether steps, walls, sidewalks, etc., are included as construction items or are included as items of property damage. Where one or more of the aforementioned items occur on the Right-of-Way Plan, the following Note shall be placed on the plan:

STEPS (or others) SHALL BE INCLUDED AS AN ITEM OF PROPERTY DAMAGE (or CONSTRUCTION).

**E. Water Supply Sources, Gas and Oil Wells.** The location of all water supplies, i.e., water well casings, dug wells and springs, shall be shown. All gas and oil wells, which may be affected by the highway construction, shall also be shown.

**F. Entry or Exit from Traffic Lanes.** On projects where the access has been or is to be affected, the Extent of Limited Access and all approved points of entry to or exit from the traffic lanes shall also be shown.

Wherever possible, the Extent of Limited Access should stop short of the nearest property line to allow for present or future construction of a driveway or street, within a regulated distance, into the property, thus avoiding the necessity of paying right-of-way damages for a landlocked property.

On interchange designs, the control of access should extend along the cross road beyond the ramp terminals about 300 ft or more in rural areas and 100 ft or more in urban areas.

**G. Correlation with Legal Descriptions.** The arrangement of Acquisition of Right-of-Way Plans shall conform to the general requirements for the Construction Plans and shall contain sufficient dimensional and angular data to permit ready identification and correlation with the legal descriptions of all parcels and easement areas that are required by the associated highway project.

**H. Right-of-Way Widths.** The required right-of-way widths shall be sufficient to contain the highway construction and provide a reasonable border to permit normal maintenance. When replacing an existing utility access road, the minimum width of required right-of-way shall be that of the existing access road. When providing an access road for a utility where none previously existed, the width of required right-of-way shall be held to a minimum as determined by terrain and by the needs of the utility.

**I. Location of Required Right-of-Way Lines:**

1. On all limited access highway facilities and on free access highway facilities in other than built-up areas, the required right-of-way lines shall be placed to include the construction slope.
2. On free access highway facilities in built-up areas, the required right-of-way lines may be maintained at a uniform width and the construction slope areas designated as required limit of slope line.

On curbed highways, the Department normally limits its right-of-way acquisition to the area from face-of-curb to face-of-curb plus a minimal strip (usually 3 ft to 5 ft) beyond the face-of-curb where signs or traffic signal supports require additional right-of-way. The Department shall not reduce the right-of-way where the legal right-of-way exceeds these requirements.

3. Angle points should be used to transition between parallel segments of right-of-way lines. Every break in the right-of-way line shall be tied to the right-of-way centerline by providing the station and offset on the plan. See [Figure 3.13a](#). For major relocation projects or projects on new location, a list of the station and offset point coordinates for proposed monument locations shall be provided on the Typical Section sheet. For these projects, it shall be necessary to provide proposed monument points on the right-of-way lines. See [Figure 3.13b](#). Monument symbols (proposed and existing) shall be shown on the plan sheets and placed in accordance with Publication 122M, *Surveying and Mapping Manual*.

**J. Combining Right-of-Way Damages into One Claim.** When a Right-of-Way Plan for a project ends at other than a property line and it is anticipated additional acquisition is necessary on that property for the next construction sections, the plan shall be extended to complete the acquisition with the first project. This eliminates the need for two claims on the same project.

**K. Geometrically Defined Area.** The required right-of-way shall be a geometrically-defined area noted by dimensions and pluses or pluses and offsets and coordinates. Coordinates shall not be shown on the plan sheets. For minimum right-of-way take areas adjacent to existing right-of-way only the centerline geometry will be established by coordinates with pluses and offsets provided for the right-of-way control. See [Figure 3.13a](#). The horizontal Construction Plan data and the Right-of-Way Plan geometrics shall be identical.

**L. Intersecting Right-of-Way Lines.** The required right-of-way lines for a limited access mainline facility shall be carried through the legal or required right-of-way lines for the intersecting side road in interchange areas (See [Figure 3.12](#)). The right-of-way lines for the proposed intersecting side roads shall be carried through the right-of-way lines of the mainline.

**M. Breaks in Right-of-Way.** Show pluses and offsets at each break point in the required right-of-way line. Breaks in the required right-of-way lines shall not be established on property lines unless approved by the District Executive. If a right-of-way line break at a property line is required, it should be based on a field located property line and shown as per [Figure 3.13b](#). These property line pluses may be shown on the Property Plot in lieu of the plan sheet. See [Figures 3.13a](#) and [3.13b](#) for an example of breaks in the required right-of-way.

**N. Legal Right-of-Way.** It is required that the legal right-of-way line appear on the plans. The width of the legal right-of-way shall be shown and it shall be tied at points where it intersects the required right-of-way line. The legal right-of-way line should be tied to the centerline or baseline at the beginning and end of projects. Regardless of whether the legal right-of-way has been established by a previous plan or in some other way, the legal right-of-way lines shall be shown on the Right-of-Way Plan and designated as legal right-of-way line. At a minimum, the legal right-of-way shall be indicated near the left and right side of each plan sheet and at every break.

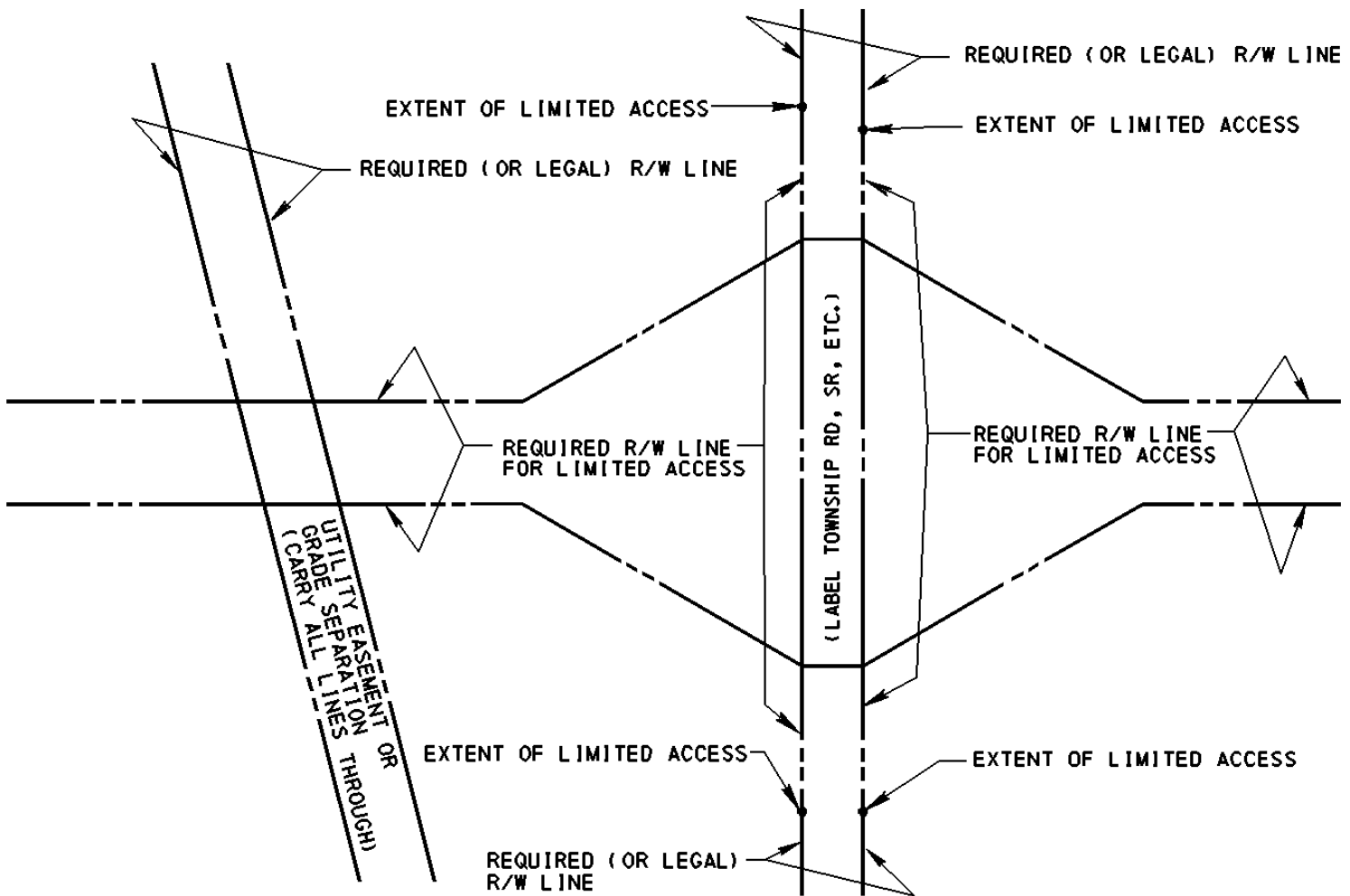
**O. Utilities.** The location of all existing surface, subsurface, and aerial utility lines shall be clearly shown on the plan and profile. Show overhead clearances at the minimum sag height over the pavement and shoulders for aerial utility lines and the depth below existing ground for subsurface utilities (reference Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 6.3), when included in the scope. Where utility congestion is significant, a separate Detailed Utilities Plan Sheet may be necessary (reference [Chapter 2, Section 2.13](#)). Utilities shall be shown in accordance with [Sections 2.13, 3.7.B, and 13.5](#).

**P. Profile Data.** For plans at a scale of 1" = 200', profile elevations shall be shown at intervals of not more than 200 ft. Profiles shall show existing ground lines, datum lines, stations, lengths of vertical curves, vertical curve data and percentages of gradients. For existing bridges and structures, the clearance and the cross section of the stream bed, type, size, skew, span length, high water elevation and date of occurrence shall be shown. The approximate minimum clearance of proposed structures shall be shown. Profiles of existing streams shall also be provided.

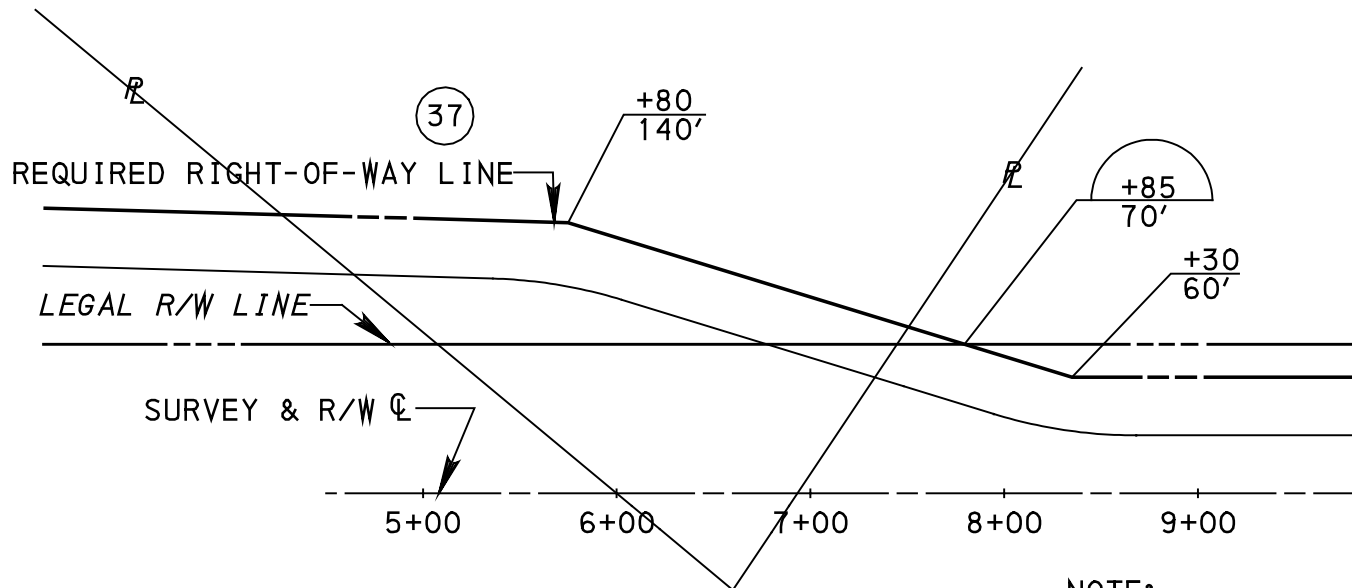
**Q. Required and Legal Right-of-Way Lines.** The required right-of-way line shall be a heavy, solid line broken at intervals by two dashes and designated as Required Right-of-Way line. If the highway facility has been designated as a limited access highway facility, the required right-of-way line shall be designated as Required Right-of-Way line for limited access. On all such limited access plans, the beginning and ending of the limited access feature should be indicated very clearly, especially on ramps and interchanges. The Legal Right-of-Way line, regardless of how established, shall be shown by a solid line broken at intervals by three dashes and designated as LEGAL RIGHT-OF-WAY LINE. Right-of-Way line labels shall have leader lines with arrows from the outside of the right-of-way line. Area labels shall have leader lines with arrows from the inside of the designated area.

**R. Safety Rest Areas.** The area required for Safety Rest Areas may be included in the roadway Right-of-Way Plans or may be a separate plan. The required area shall be delineated as required Right-of-Way line or Required Right-of-Way line for limited access.

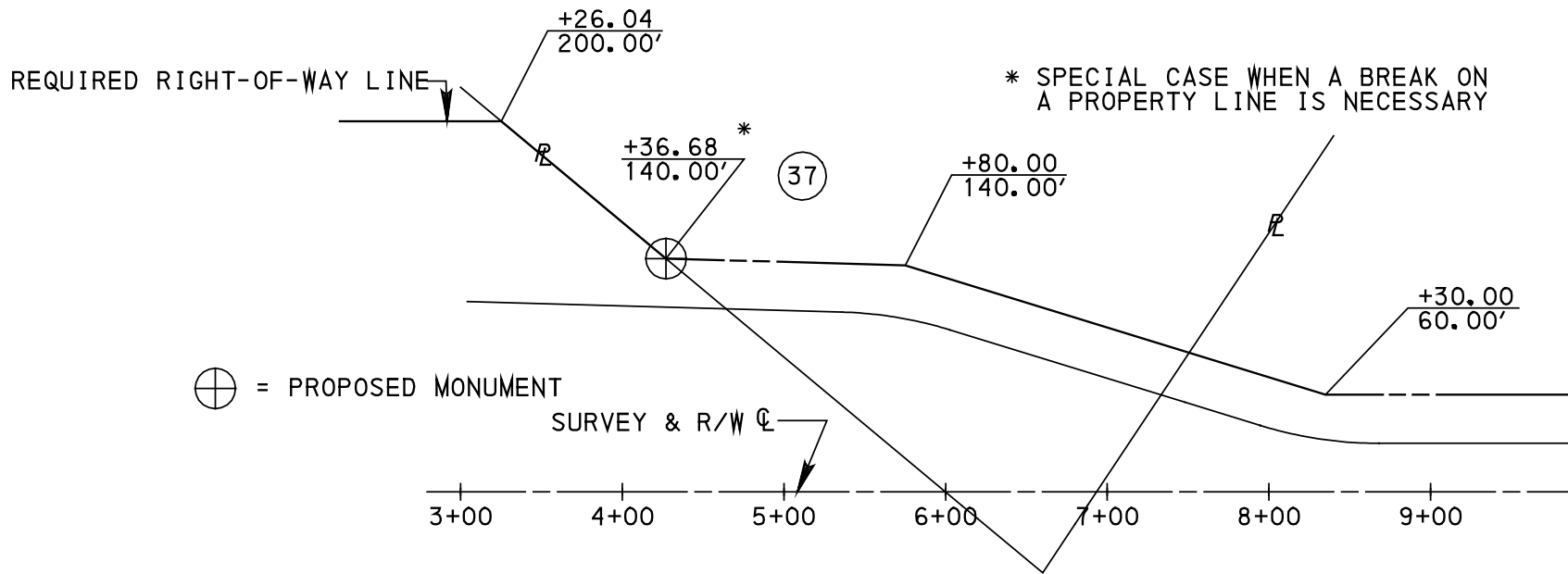
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**FIGURE 3.12  
EXAMPLE OF INTERSECTING  
RIGHT-OF-WAY LINES**



**FIGURE 3.13a**  
**EXAMPLE OF BREAKS IN**  
**REQUIRED RIGHT-OF-WAY**  
**WITH ONLY R/W BASELINE MONUMENTED**

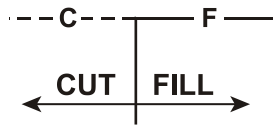


**FIGURE 3.13b**  
**EXAMPLE OF BREAKS IN**  
**REQUIRED RIGHT-OF-WAY**  
**WITH R/W AND BASELINE MONUMENTED**

**S. Ownership Search.** Care shall be used in ascertaining the correct names of property owners and the correct location of property lines and that the names are exactly the same on the Plan Sheets, the Index Sheets and the Property Plots. It is necessary that the correct ownership be determined before any settlement can be made with a property owner for the owner's property damage claim. It is, therefore, important that the court records of ownership be searched not more than 30 days prior to the submission of the Right-of-Way Plan to the District Executive so as to avoid numerous revisions to an approved plan.

When a corporation, limited or general partnership or sole proprietorship business utilizing a fictitious name, is a claimant, a record search should be initiated at the Corporation Search Section, Department of State, North Office Building, Harrisburg, Pennsylvania within the same time frame.

**T. Slope Limits.** Construction Slope Limits (edge of rounding) shall be shown on all Plan Sheets and on all Property Plots. The following symbol shall be used to depict the slope limits. The key to this symbol shall be shown in the General Notes. When parallel ditches are involved, show the mainline slope. The outside cut line for the ditch shall also be shown.



Also indicate changes between cut and fill as shown.

**U. Hatching.** When a total property is shown on the Plan Sheet, thus eliminating the need for a Property Plot, hatching shall be shown on the Plan Sheet and the key to the hatching indicated on the sheet, if needed for plan recording (For additional information on hatching, see [Section 3.6](#)).

**V. Referencing Required Right-of-Way.** The required right-of-way shall be referenced to tangents and simple curves and tied to the centerline or baseline of the roadway it is serving. The reference lines shall be indicated as either survey and right-of-way baselines or survey and right-of-way centerlines. When the new right-of-way baseline differs from the existing right-of-way centerline, it is recommended that the right-of-way break points be re-identified.

**W. Interchanges and Channelized Intersections.** In addition to the normal Plan Sheets, all specified interchanges and involved intersections shall be drawn to a scale of 1" = 200' or smaller to show the complete interchange on a single sheet. This drawing shall follow the last Plan Sheet for the interchange and shall be included in the total number of sheets in the plan.

The drawings shall include the following data:

1. Right-of-Way Centerline or Baseline.
2. Stations identified at a maximum 500 ft interval with "ticks" at 100 ft intervals.
3. All geometrics including curve data (curve data may be tabulated) and equalities.
4. Coordinates for control points shall be shown in a tabular form (See [Figure 2.7](#) in Chapter 2, Section 2.3).
5. Existing streams and proposed relocations.
6. Identification of all routes and ramps.
7. Proposed structures.
8. Existing and/or proposed railroads and railroad structures.
9. North Arrow and Bar Scale.
10. Existing and proposed utility transmission lines and pipes.

**X. Drawings Depicting Right-of-Way to Be Deeded for State Highways.** The preparation of the plans shall follow the procedures of the normal Right-of-Way Plan. However, instead of the normal designation of Required Right-of-Way, the areas on the sheets of the plan depicting the areas that will be deeded to the Department should be designated as Required Right-of-Way to be deeded to the Commonwealth. If it is for other than right-of-way, the area should be marked in a similar manner for the nature of the interest that will be transferred to the Department (e.g., REQUIRED LIMIT OF SLOPE to be deeded to the Commonwealth and REQUIRED DRAINAGE

EASEMENT to be deeded to the Commonwealth). Include a tabulation of areas block identifying the deed information.

For a sample title sheet, see [Section 3.2.I.6](#) and [Chapter 15, Section 15.2, Plate B-XV](#). Also, see [Sections 3.0.H](#) and [3.1.EE](#), discussing deeding of right-of-way to the Department as part of the HOP process.

**Y. Drawings Authorizing Acquisition by Local Governments on State Highways.** The right-of-way that will be acquired by the local government should be designated in the normal manner as required right-of-way. However, if there are areas on the plan that will not need to be acquired by the local government because they are owned by the permittee, these areas should be designated as required right-of-way to be deeded to the Commonwealth. A separate plan to document this new right-of-way to be deeded to the Commonwealth will then not be necessary.

Certain types of municipalities have specific statutory authority to acquire land for the State highway purpose. For example, Townships of the second class can do so with the approval of the Department [53 P.S. Section 67304(b)]. Other types of municipalities do not have specific authority to do so, but can be granted that authority by virtue of the Department's statutory mandate to coordinate its transportation activities and cooperate with other public agencies such as political subdivisions of the Commonwealth [71 P.S. Sections 512(a)(6) and (7)].

Plans authorizing the acquisition of right-of-way for State highways by local governments should follow the procedures set forth in this manual for generating drawings authorizing the acquisition of right-of-way for Department projects, with the following differences:

1. A signature block should be added to show the approval of the appropriate local government. It should contain a line to indicate the municipal resolution number.
2. A general note should be added to the plan stating: "THIS PLAN AND ANY RELATED HIGHWAY OCCUPANCY PERMIT AUTHORIZE WORK ONLY IN DEPARTMENT HIGHWAY RIGHT-OF-WAY".

See [Sections 3.0.H](#), [3.2.I.7](#), and [3.4.H.5.m](#), also relating to acquisitions of State highway right-of-way by local governments as part of the HOP process.

**Z. Drawings Vacating and Confirming Disposition of Right-of-Way.** Existing legal right-of-way lines should be shown on the plan, with the new right-of-way lines designated as required right-of-way lines. Areas that have been disposed (between the legal and required lines) should be designated as either "Area Vacated" (if the Department owned only a highway easement) or "Area Sold" (if the Department owned fee simple title). The owners of the fees underlying the highway easements at the time of disposition and the persons to whom fee land was sold should be shown on the plan.

### 3.6 PREPARATION OF PROPERTY PLOTS AND BOARD OF VIEW PLANS

#### A. Property Plots.

1. **Exceptions to Property Plot Requirements.** Unless the District Executive directs otherwise, Property Plots are not required for the following:
  - a. On projects primarily on existing right-of-way where only minor property take is involved. In such cases, the District Right-of-Way personnel should view the project in the field to determine if the right-of-way take can be appraised without Property Plots.
  - b. Total takes.
  - c. The total property and data are shown on the Right-of-Way Plan (even though only a partial take).
  - d. See [Section 3.1.I](#) discussing the terms property plot and property plat.

**2. Identification Data.** In all other cases not indicated in [Section 3.6.A.1](#), above, a Property Plot shall be required. The Property Plot should include the following items:

- a. Title Block (as shown in [Chapter 15, Section 15.1, Plate A-I](#) or on the preprinted Property Plot Sheets).
- b. Deed Information:
  - (1) Deed Book and Page Number.
  - (2) Date of Deed.
  - (3) Date of Recording.
  - (4) Consideration.
  - (5) Amount of State Reality Transfer Tax Stamps.
  - (6) Name of Grantor.
  - (7) Date of Verification of foregoing information (shall be not more than 30 days prior to date of submission of plan).
  - (8) Name of Owner (exactly as it appears on the Deed).
- c. Accuracy of Plot. The Designer shall prepare Property Plot Plans from the Deed of Record or Recorded Subdivision Plans or related documents, and from the property lines established in the field survey. These plots shall be initially plotted without adjustment. Upon completion of the plotting, the responsible Professional Land Surveyor will determine the accuracy or necessary adjustments of the plots. When the responsible Professional Land Surveyor has established that the property lines affected by the right-of-way take are shown properly, no further adjustments will be required. The original plots and a narrative report of all the adjustments will be kept as part of the right-of-way records and will not be shown on the Right-of-Way Plan or plot.

Where a large property is involved, i.e., an industrial plant, an industrial complex or public lands, the owner should be contacted for a copy of the owner's Property Plot for possible use in preparation of the Right-of-Way Plan and the Property Plot.

The Designer shall place, on all individual Property Plot Plans, the following notes concerning the plotting of property lines:

- (1) Use the following note when some of the property lines were surveyed during project development. Example: right-of-way breaks on property lines of full property takes along existing highway and/or new construction and also partial takes are shown on the plan.

ALL PROPERTIES ARE PLOTTED FROM DEEDS OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, OR FROM FIELD SURVEY. PROPERTY LINES WERE SURVEYED ONLY WHEN DETERMINED NECESSARY BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT. PROPERTY LINES NOT ESTABLISHED BY FIELD SURVEY WERE PLOTTED BASED ON EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA.

- (2) Use the following note when no private property lines were surveyed. Example: Strip takes along existing highways or new construction when only partial takes are required.

PRIVATE PROPERTY LINES ARE PLOTTED FROM THE DEED OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA. PRIVATE PROPERTY LINES WERE NOT

SURVEYED BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT.

**(3) THIS PROPERTY PLOT PLAN IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.**

Where no Property Plot Plan is provided, note (1) or (2) above shall appear on the appropriate Right-of-Way Plan Claim Information Block.

**d. Closures and Areas.** When property closure errors are present in the Deed, the Department will follow reasonable survey procedures to determine the correct location of property lines which are affected by the right-of-way take. This procedure may include additional deed research, contacts with property owners and field survey of property lines when determined necessary by the responsible Professional Land Surveyor. However, it is not the policy of the Department to correct erroneous property line calls in the deeds when it does not affect the take area, resolve property line disputes or to do boundary surveys in all circumstances.

The area of taking and the residual area shall be calculated. The calculations will be kept as part of the right-of-way records. The accuracy of the planimeter method or the use of CADD graphics software shall not be acceptable.

In the cases where there is an overlapping of properties within the right-of-way, the Designer should refer these situations to the responsible Professional Land Surveyor who may consult with the District Right-of-Way Administrator. A possible solution is to label as disputed land then proceed to condemn in both names.

**e. The Drawing:**

**(1) The entire property of the claimant shall be shown:**

**(a)** If the claimant owns two or more contiguous parcels, all such parcels shall be shown even if only one or a part of one is to be acquired. Where one owner owns contiguous property, only one parcel number shall be shown. Parcels separated by a road or a railroad are not contiguous; however, where two or more noncontiguous parcels in the same ownership are being used together, e.g., as a single farming or manufacturing operation (but not as a real estate development), they shall be treated as a single property. Questions of unity of use shall be discussed with the Department's Bureau of Design and Delivery, Right-of-Way, Utilities and Grade Crossing Division and the Office of Chief Counsel.

**(b)** If some of the property described in the Deed has been sold, the parcel or parcels sold shall be shown as adverse or exceptions. If adverses or exceptions plus roads and railroads have the effect of breaking contiguity, show only the land contiguous to the taking. See [Chapter 15, Section 15.1, Plate A-I](#) for definitions.

**(c)** If there is a private right-of-way across the claimant's land (e.g., a utility transmission easement), it shall be shown with the name of the owner of the easement.

**(2) Show the location of proposed right-of-way monumentation as required by [Section 3.5.I.3](#).**

**(3) Tabulation of Areas:**

**(a)** Show the area of the parcel(s) as recorded in the Deed unless a lesser area is used because of a lack of contiguity.

**(b)** List the total area of adverse(s) and/or exception(s) within the area shown above.

**(c)** List the total area of any legal right-of-way within the metes and bounds of the property or that portion shown above.

**(d)** Show the effective area by subtracting the total area of adverse(s) and/or exception(s) and the total area of legal right-of-way from the area shown in Item (3)(a) above.

**(e)** List the area within the required right-of-way line.

**(f)** List any other required area if it is to be taken as right-of-way in fee (utilities, safety rest areas, etc.).

**(g)** Show the total residue by subtracting the area of required right-of-way and the area of right-of-way in fee from the effective area.

**(h)** If the property is severed by the new construction, the total residue shall be distributed as the areas left and right of the required right-of-way, when looking to the ahead stationing, and indicated as RESIDUE LEFT and RESIDUE RIGHT.

**(i)** Any area required to be reserved for use during construction or after construction, but remaining in the possession of the property owner(s), such as the area required for slopes, aerial easements, drainage easements, temporary construction and substitute utility easements, should be shown on the plot but included in the residue. For aerial easements, the area required for piers shall be noted with the Property Plot Block.

**(j)** Areas required for channel changes are normally included in the residue. Where such changes involve large areas of land and extensive diversions, they shall be reviewed with the District Right-of-Way Administrator for determination whether they shall be included in the residue or not.

**(k)** The unit of measurement, when computing areas, should be selected on the following basis:

**(i)** Use square feet when the area of the parcel is less than 2 acres.

**(ii)** Use acres when the area of the parcel is 2 acres or greater, but show the take areas in both acres and square feet if the take is 500 ft<sup>2</sup> or less.

In any case, the selection of the unit of measurement should be influenced by the need for clarity, accuracy and the real estate value.

**(l)** If any residue left or right is landlocked, it should be noted as such and labeled on the plot.

**(4)** Legal and required right-of-way lines and easement lines shall be designated:

**(a)** Pluses, offsets and radii of required and legal right-of-way and easement lines shall be shown.

**(b)** Required substitute utility easements shall be shown if the location is known when the Property Plot is prepared.

**(5)** All topography and alignment shall agree with the Right-of-Way and Construction Plans. Show centerlines and/or baselines with bearings, roadway shoulder, curb, depressed curbs, curb cut ramps, driveways and driveway slopes, drainage and other construction plans as they affect the damage claims. Major property improvements, such as buildings, etc., shall be accurately spotted and "C" or "O" Notes shall be shown, where applicable.

**(6)** Borough or Township lines shall be shown, where applicable.

- (7) Indicate North Arrow and Bar Scale.
- (8) Construction slope limits shall be shown by symbol.
- (9) All information concerning abandonment and vacation shall appear on the individual Property Plots involved with the change.
- (10) Drainage that affects property damage shall be shown. Of particular interest are inlets for drainage from the property and outlets for drainage onto the property. Pipe and ditch sizes may be determined from preliminary drainage computations.
- (11) Water wells, leech beds, septic tanks, gas tanks, oil wells and accessories are to be located on the Property Plot. It should be made clear that the locations shown are approximate.
- (12) Easements and Other Notes placed on each Property Plot. The following easement definitions are to be used, as applicable.

For easements that are not listed, a formal request for approval shall be submitted to the Department's Office of Chief Counsel which will coordinate with the Bureau of Design and Delivery, Right-of-Way, Utilities and Grade Crossing Division.

**(a) Slope Easements.**

SLOPE EASEMENT. AN EASEMENT FOR THE SUPPORT AND PROTECTION OF THE HIGHWAY, INCLUDING THE RIGHT TO CONSTRUCT, INSPECT, MAINTAIN, REPAIR, RECONSTRUCT AND ALTER DRAINAGE FACILITIES AND THE CONTOUR OF THE LAND. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO THE NECESSARY SUPPORT AND PROTECTION OF THE HIGHWAY RIGHT-OF-WAY AND THE SAFETY OF THE TRAVELING PUBLIC.

See [Section 3.1.N](#) for general discussion of acquisitions for slopes.

**(b) Aerial Easements.** The Note required to be placed on each Plan Sheet, which contains an aerial easement and/or a railroad-highway crossing, shall read as follows:

FOR THE AERIAL EASEMENT DEFINITION, SEE GENERAL NOTES, SHEET \_\_\_\_\_.

The pluses and offsets for the boundary of the aerial easement and the approximate foundation location shall be shown on the plan sheets.

See [Section 3.1.L](#) further discussing aerial easements.

**(c) Drainage Easements.**

DRAINAGE EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF HIGHWAY DRAINAGE FACILITIES. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO THE NECESSARY FLOW OF WATER. HOWEVER, NO STRUCTURE OF ANY KIND MAY BE ERRECTED IN THE AREA, NOR MAY ANY PIPE OR DITCH BE CONNECTED TO THE DEPARTMENT'S PIPE OR DITCH WITHOUT ADVANCED WRITTEN APPROVAL BY THE DEPARTMENT OF TRANSPORTATION.

See [Section 3.1.O](#) for general discussion of acquisitions for drainage.

**(d) Channel Easements.**

CHANNEL EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF THE COURSE OF THE CHANNEL. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO THE NECESSARY FLOW OF WATER.

See [Section 3.1.P](#) for general discussion of acquisitions for channel changes.

**(e) Occasional Flowage Easements.**

OCCASIONAL FLOWAGE EASEMENT. AN EASEMENT ALLOWING THE PROPERTY TO BE INUNDATED BY NATURAL FLOOD WATERS. THE EASEMENT SHALL NOT OTHERWISE, IN ITSELF, PREVENT THE LANDOWNER FROM MAKING ANY LEGAL USE OF THE EASEMENT AREA.

In addition, the existing 100-year flood or other flood frequency used for acquiring the occasional flowage easement shall be shown and that part within the existing 100-year flood line shall be designated by adding it, where appropriate, as follows:

OCCASIONAL FLOWAGE EASEMENT – 3.684 ACRES (EXISTING FLOWAGE AREA – 2.736 ACRES)

See [Section 3.1.Q](#) for general discussion of acquisitions for occasional flooding.

**(f) Temporary Construction Easements.**

TEMPORARY CONSTRUCTION EASEMENT. AN EASEMENT TO USE THE LAND AS NECESSARY DURING CONSTRUCTION OF THE PROJECT. THE EASEMENT IS REQUIRED ONLY UNTIL THE CONSTRUCTION OR WORK INDICATED BY THE PLAN IS COMPLETED, UNLESS SOONER RELINQUISHED IN WRITING BY THE DEPARTMENT.

See [Section 3.1.R](#) for general discussion of temporary acquisitions for construction. The temporary construction easement shall be delineated by a thin, solid black line on the original drawings and labeled as shown in [Chapter 15, Section 15.1, Plate A-II](#).

**(g) Underground Structure Support Easement.**

UNDERGROUND STRUCTURE SUPPORT EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF UNDERGROUND STRUCTURE SUPPORT ELEMENTS. THE EASEMENT SHALL NOT PREVENT THE OWNER FROM MAKING USE OF THE SURFACE FOR FARMING, PARKING AND SIMILAR LEGAL PURPOSES WHICH SHALL NOT INJURE THE STRUCTURE SUPPORT ELEMENTS. HOWEVER, NO STRUCTURE OF ANY KIND MAY BE ERECTED THEREON, NOR IS ANY EXCAVATION OR DRILLING ALLOWED WITHOUT ADVANCED WRITTEN APPROVAL BY THE DEPARTMENT OF TRANSPORTATION.

See [Section 3.1.T](#) for general discussion of acquisitions for underground structural supports.

**(h) Mining Reservations.** Use the following Note where deep mining, including removal of gas and oil by means of wells located off the right-of-way, is involved.

MINING RESERVATION. DEEP MINING OF MINERALS, INCLUDING REMOVAL OF GAS AND OIL BY MEANS OF WELLS OFF THE RIGHT-OF-WAY, BENEATH THE RIGHT-OF-WAY FROM STATION \_\_\_\_\_ TO STATION \_\_\_\_\_ IS PERMITTED

BELOW A MINIMUM DEPTH OF \_\_\_\_\_ ft FROM THE ROADWAY GRADE. APPROVAL BY THE STATE MINING COMMISSION IS REQUIRED FOR ALL MINING OF COAL.

**(i) Right-of-Way for Local Roads and Streets.**

REQUIRED RIGHT-OF-WAY FOR [insert proper type of local road or street; e.g. TOWNSHIP ROAD, BOROUGH STREET, CITY STREET]. RIGHT-OF-WAY ACQUIRED FOR THE BENEFIT OF THE APPLICABLE MUNICIPALITY IN THE SAME INTEREST AS DESIGNATED HEREIN FOR REQUIRED RIGHT-OF-WAY FOR STATE HIGHWAY PURPOSES, ALONG WITH A TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT AND USE OF THE COMMONWEALTH. TITLE SHALL VEST IN THE APPLICABLE LOCAL MUNICIPALITY UPON ACQUISITION AND MAINTENANCE RESPONSIBILITY SHALL TRANSFER UPON THE COMPLETION OF CONSTRUCTION.

See [Section 3.1.AA](#) for general discussion of acquisitions for local roads and streets.

**(j) Utility Easements.** The utility easements shall be labeled in accordance with the requirements presented in [Section 3.7.B](#).

**(k) Sound Barrier Easements.**

SOUND BARRIER EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A SOUND BARRIER, INCLUDING A SURFACE EASEMENT WITH NECESSARY SUPPORT FOR ACCOMMODATION OF THE SOUND BARRIER AND RELATED APPURTENANCES AND AN EASEMENT OF INGRESS AND EGRESS OVER THE REMAINING AREA FOR MAINTENANCE PURPOSES. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR SOUND BARRIER PURPOSES, EXCEPT THAT NO BUILDING OR OTHER FACILITY SHALL BE CONSTRUCTED ON THE PROPERTY WITHOUT PRIOR APPROVAL OF THE DEPARTMENT OF TRANSPORTATION. MOVEABLE ITEMS MAY NEED TO BE REMOVED BY THE OWNER WHEN THE DEPARTMENT ENTERS UPON THE AREA FOR PURPOSES OF INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION OR ALTERATION OF THE BARRIER OR APPURTENANCES.

See [Section 3.1.U](#) for general discussion on acquisitions for sound barriers, indicating that they should normally be located within required right-of-way.

**(l) Legal Right-of-Way Converted to Aerial Easement.**

LEGAL RIGHT-OF-WAY CONVERTED TO AERIAL EASEMENT. PROPERTY IN WHICH THE DEPARTMENT INTENDS TO VACATE ITS EXISTING SURFACE EASEMENT FOR HIGHWAY PURPOSES AND RETAIN AN AERIAL EASEMENT AS DEFINED ELSEWHERE ON THIS PLAN. SUBJECT TO THE APPROVAL OF THIS PLAN BY THE GOVERNOR, THE FILING OF THIS PLAN AS A PUBLIC RECORD IN THE OFFICE OF THE DEPARTMENT AND THE RECORDING OF THIS PLAN IN THE COUNTY RECORDER OF DEEDS OFFICE, THIS NOTE SHALL CONSTITUTE AN ORDER OF VACATION PURSUANT TO SECTION 210 OF THE STATE HIGHWAY LAW, 36 P.S. SECTION 670-210, AS TO THE SURFACE EASEMENT FOR HIGHWAY PURPOSES, EFFECTIVE WHEN THE CONSTRUCTION IS COMPLETED.

If the definition of aerial easement is not otherwise included on the plan, the entire note defining an aerial easement must be set forth on the index page as a General Note.

See [Section 3.1.S](#) for general discussion of converting legal right-of-way to aerial easement.

**(m) Sight Distance Easements.**

SIGHT DISTANCE EASEMENT. AN EASEMENT TO REMOVE, INITIALLY AND IN THE FUTURE, ANY STRUCTURE, VEGETATION OR OTHER IMPROVEMENT THAT MAY INTERFERE WITH OR OBSTRUCT THE FREE AND UNOBSTRUCTED VIEW DOWN AND ACROSS THE LANDS BY ANY PERSON OR PERSONS TRAVELING UPON THE HIGHWAY OR HIGHWAYS. THE PROPERTY OWNER SHALL NOT USE THE LAND SUBJECT TO THE EASEMENT FOR ANY PURPOSE OR IN ANY MANNER WHICH MAY INTERFERE WITH OR OBSTRUCT THE VIEW DOWN AND ACROSS THE LANDS; HOWEVER, THE EASEMENT SHALL NOT OTHERWISE PREVENT THE OWNER FROM MAKING ANY LEGAL USE OF THE LANDS WHICH ARE NOT DETRIMENTAL TO THE NECESSARY FREE AND UNOBSTRUCTED VIEW.

See [Section 3.1.V](#) for general discussion of acquisitions for sight distance.

**(n) Wetland Mitigation Easements.**

Reserved. The Office of Chief Counsel is in discussions with the United States Corps of Engineers on this note. Please contact the Assistant Counsel in Charge of the Environmental Section at (717) 787-5299 for guidance when this type of easement is to be acquired.

See [Section 3.1.DD](#) for general discussions of acquisitions for environmental mitigation.

**(o) Stream Mitigation Easements.**

Reserved. The Office of Chief Counsel is in discussions with the United States Corps of Engineers on this note. Please contact the Assistant Counsel in Charge of the Environmental Section at (717) 787-5299 for guidance when this type of easement is to be acquired.

See [Section 3.1.DD](#) for general discussions of acquisitions for environmental mitigation.

**(p) Terrestrial Mitigation Easements.**

Reserved. The Office of Chief Counsel is in discussions with the United States Corps of Engineers on this note. Please contact the Assistant Counsel in Charge of the Environmental Section at (717) 787-5299 for guidance when this type of easement is to be acquired.

See [Section 3.1.DD](#) for general discussions of acquisitions for environmental mitigation.

**(q) ITS Conduit Easements.**

ITS CONDUIT EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, OPERATION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF CONDUIT FACILITIES FOR INTELLIGENT TRANSPORTATION SYSTEMS (ITS). THE EASEMENT SHALL NOT PREVENT THE OWNER FROM MAKING USE OF THE SURFACE FOR FARMING, PARKING AND SIMILAR PURPOSES WHICH SHALL NOT INJURE THE CONDUIT. HOWEVER, NO STRUCTURE OF ANY KIND MAY BE ERECTED THEREON, NOR IS ANY EXCAVATION OR DRILLING ALLOWED WITHOUT ADVANCED WRITTEN APPROVAL BY THE DEPARTMENT OF TRANSPORTATION.

See [Section 3.1.W](#) for general discussion of acquisitions for ITS conduits, indicating that they should normally be located within required right-of-way.

(r) Sidewalk Easements.

SIDEWALK EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A SIDEWALK. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR SIDEWALK PURPOSES.

See [Section 3.1.X](#) for general discussion of acquisitions for sidewalks, indicating that they should normally be located within required right-of-way.

(s) Traffic Signal Easements.

TRAFFIC SIGNAL EASEMENT. AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, OPERATION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A TRAFFIC SIGNAL AND APPURTENANCE THERETO. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR TRAFFIC SIGNAL PURPOSES.

See [Section 3.1.Y](#) for general discussion of acquisitions for traffic signals, indicating that they should normally be located within required right-of-way.

(t) Private Access.

REQUIRED PRIVATE ACCESS. LAND ACQUIRED IN THE INTEREST DESIGNATED (EITHER FEE SIMPLE OR EASEMENT FOR DRIVEWAY PURPOSES) FOR THE BENEFIT AND USE OF THE PROPERTY OR PROPERTIES DESIGNATED, ALONG WITH A TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT AND USE OF THE COMMONWEALTH, IF NECESSARY. TITLE SHALL VEST IN THE OWNERS OF THE DESIGNATED PROPERTIES UPON ACQUISITION AND MAINTENANCE RESPONSIBILITY SHALL TRANSFER UPON THE COMPLETION OF CONSTRUCTION, IF ANY.

This General Note should not change. The individual information for the specific acquisition, i.e. the nature of the interest acquired and the parcels benefited, will be shown on the line leaders to the area acquired.

See [Section 3.1.BB](#) for general discussion of acquisitions for private access.

See [Figure 3.9](#) for an example plot.

**f. Hatching.** On Property Plots, only the required right-of-way shall be hatched, unless there is additional right-of-way in fee.

For navigable streams, the stream bed shall be considered as the legal right-of-way and shall not be cross-hatched on the Property Plot Plan or cut-out or included in the calculated required right-of-way area. The bed of any non-navigable stream, however, belongs to the abutting property owner and shall be included in the Deed of easement or declaration of taking.

The highwater mark shall be used to determine the area of legal right-of-way for navigable streams.

**g. Size of Property Plots.** Property Plots may be prepared on the available preprinted sheets. An appropriate scale shall be selected which clearly depicts the required Plans. Should the property be of a large area, the entire property shall be shown on one sheet, regardless of the scale necessary to plot the entire property, with appropriate metes and bounds. The portion of the property directly affected by the right-of-way acquisition shall be enlarged elsewhere on the sheet.

**h.** Submission of Property Plots. Property Plot Plans shall be submitted to the District Office as part of the Right-of-Way Plan. The Property Plot sheets shall be placed at the back of the plans and shall be incorporated in the total number of Right-of-Way Plan sheets.

**i.** Professional Seals. Each plot shall contain the seal of the Professional Land Surveyor and the Professional Engineer who are in responsible direction and control of the work.

**B. Board of View Plans.**

**1. Introduction.** Section 509 of the Eminent Domain Code, 26 Pa.C.S. requires the preparation of plans for review by a selected Board of View for all right-of-way claims which go to litigation. The City of Philadelphia's Board of View Plans are incorporated with the Right-of-Way Plan and their requirements are presented in [Section 3.10](#).

**2. Title Area.**

**a.** Heading Data.

- (1) Board of View Plan.
- (2) Commonwealth of Pennsylvania.
- (3) Department of Transportation.

**b.** Identifying Data.

- (1) Property Owner(s).
- (2) Parcel Number.
- (3) Sheet Number(s) of Right-of-Way Plan on which parcel appears.
- (4) State Route Number, Section Number, Claim Number.
- (5) Municipality (City, Borough, Township).
- (6) County.
- (7) Name of Consultant.

**3. Deed Information.**

- a.** Deed Book and Page Number.
- b.** Date of Deed.
- c.** Date of Recording.
- d.** Name of Grantor(s).
- e.** Date of Verification of Foregoing Information.

**4. The Drawing.**

**a.** The entire property of the claimant, including improvements, shall be shown:

- (1) If the claimant owns two or more contiguous parcels, all such parcels shall be shown even if only part of one parcel has been acquired.
- (2) If some of the property described in the Deed was sold prior to condemnation, only the area still owned by the claimant shall be shown.
- (3) Existing easements shall be clearly identified.

**b.** Perimeter distances shall be shown by metes and bounds.

**c.** Identifying stations of all intersecting property lines shall be shown.

**d.** Areas shall be computed as follows:

- (1) Area of parcel(s) as shown in Deed and/or calculated area.
- (2) Area of adverse(s).
- (3) Area within legal right-of-way.
- (4) Effective Area (1-2-3).
- (5) Required right-of-way.
- (6) Total Residue (4-5).
- (7) Required slope, if any.
- (8) Required channel easement, if any.
- (9) Required aerial easement, if any.
- (10) Required occasional flowage easement, if any.
- (11) Required drainage easement, if any.
- (12) Required temporary construction easement, if any.
- (13) Required underground structure support easement, if any.

**e.** If the property is severed by the new construction, the total residue shall be indicated as residue left and residue right or residue parcel A, residue parcel B, residue parcel C, etc.

**f.** Improvements:

- (1) Distance from each improvement (or from the improvement closest to the right-of-way line in a group of improvements) to the right-of-way line shall be indicated to scale, if the distance is 100 ft or less.
- (2) Type of construction of improvement shall be indicated; that is, whether the building is brick, frame, stone or such identifying data as may be obvious.

**g.** Extent and Nature of the Condemnation:

- (1) Legal and required right-of-way lines and widths shall be shown as well as roadway lines and widths, slope and channel easements, temporary construction easements, substitute utility easements, as well as any other easements.
- (2) Drainage and other structures, pipes, ditches, location and direction of flow of outlets, etc., that have any effect on the property should be shown even though these may not necessarily be on the property itself.

**h.** Easements and Other Notes shall be placed on the Board of View Plan. [See Section 3.6.A.2.e.\(12\)](#) for easement definitions that are to be used, as applicable.

**i.** Physical Data:

- (1) Cuts and fills shall be indicated at 50 ft intervals in built-up areas and at 100 ft intervals in open country by placing in a circle, opposite the appropriate station, a figure representing the difference, in feet, between the elevation of the existing terrain at the required right-of-way line and the elevation of the proposed roadway at the outside edge of the shoulder. A plus (+) figure indicates a fill and a minus (-) figure a cut.

In addition, where an improvement to an existing roadway is involved, a figure, placed within a square, shall accompany the circled figure. This figure shall represent the difference, in feet, between the elevations of the existing roadway at the outside edge of the shoulder. Again, a plus (+) figure indicates a fill and a minus (-) figure a cut. [Figure 3.14](#) indicates the distances to be shown in the circles and squares.

The following Legend should be placed on all plans where only the circled figures are appropriate:

Figures Within Circles - The difference, in feet, between the elevation of the existing terrain at the required right-of-way line and the elevation of the proposed roadway at the outside edge of the shoulder, at that station.

Plus (+) figures indicate the edge of the shoulder of the proposed roadway is at a higher elevation than the existing terrain at the required right-of-way line. Minus (-) figures indicate the edge of the shoulder of the proposed roadway is at a lower elevation than the existing terrain at the required right-of-way line.

The following Legend shall be placed on all plans where both the circled figure and the squared figure are appropriate:

Figures Within Circles - The difference, in feet, between the elevation of the existing terrain at the required right-of-way line and the elevation of the proposed roadway at the outside edge of the shoulder, at that station.

Figures Within Squares - The difference, in feet, between the elevation of the existing terrain at the legal right-of-way line and the elevation of the existing roadway at the outside edge of the shoulder, at that station.

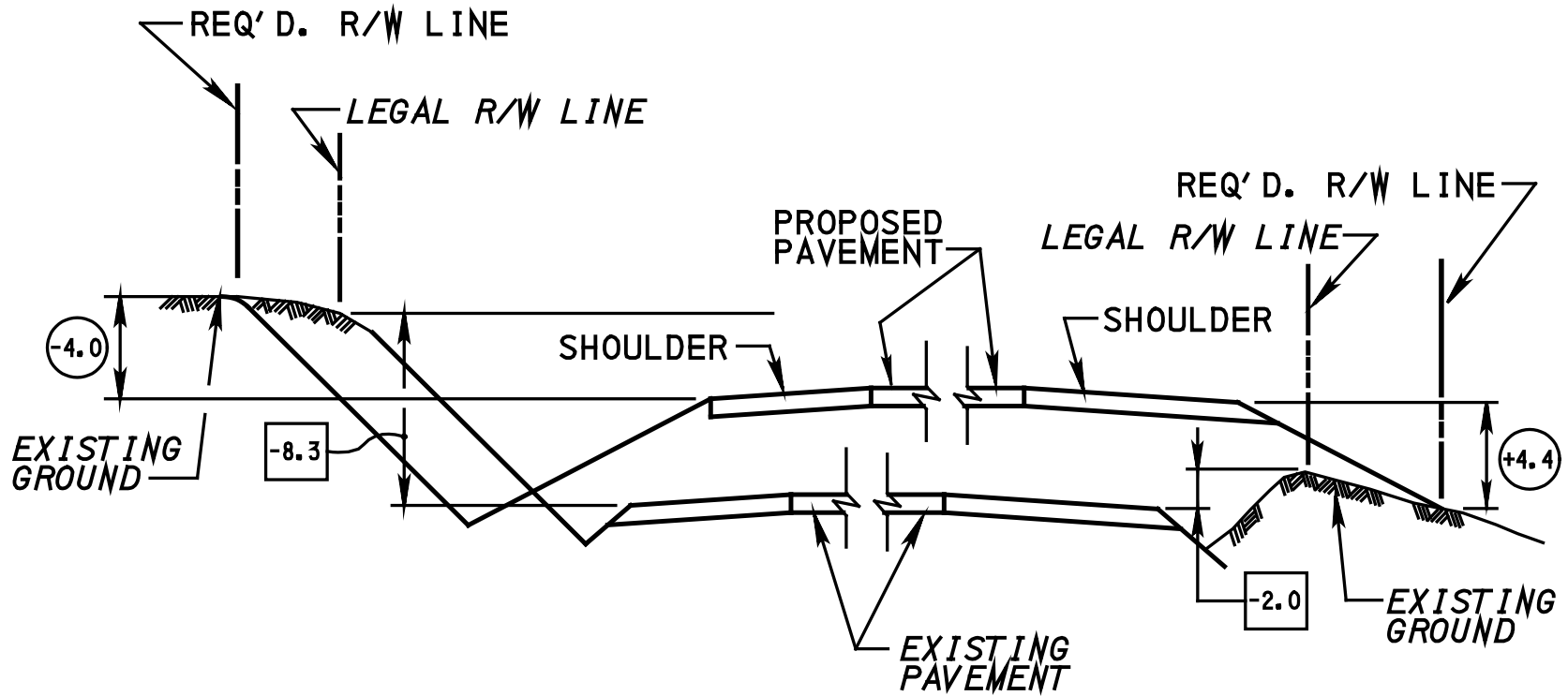
Plus (+) figures indicate the edge of the appropriate roadway is at a higher elevation than the existing terrain at the appropriate right-of-way line. Minus (-) figures indicate the edge of the shoulder of the appropriate roadway is at a lower elevation than the existing terrain at the appropriate right-of-way line.

(2) Trees, swamps, rock and/or other terrain features including human-made features such as power lines, fences, walls, etc.

(3) Indicate North by a directional arrow. North should be in the direction of the top or left-hand border.

**INTENTIONALLY BLANK**

3 - 60



**FIGURE 3.14**  
**INDICATION OF PHYSICAL DATA**  
**FOR CUT AND FILLS**

**5. Preparation of Board Of View Plans.** Good judgment and drafting practices should be exercised in the preparation of the Board of View Plans. Plans shall be prepared on a reproducible of either the standard ANSI C size of 22 in × 17 in or the standard ANSI D size, 34 in × 22 in and at any scale in keeping with the clarity of the drawing. However, the area affected by the take shall be at a scale reduced to not less than 1" = 100'.

This area may be expanded either on the same sheet as the drawing or, if the area of take is too large, on a separate sheet. If the property is too large for one sheet, it may be placed on separate sheets that can be matched in such a way that prints can be combined to make an exhibit 44 in × 34 in or 44 in × 68 in.

**6. General Requirements.** When the Board of View Plans have been completed, they shall be submitted to the District Right-of-Way Administrator. Extreme care shall be exercised to be certain the information that appears on the Board of View Plans is the same as that contained on the Right-of-Way Plans and the Individual Plot Plans, if any. In addition, the Board of View Plans shall be updated to reflect any change or proposed change before or during construction.

**7. Total Take.** The Board of View Plans for properties totally taken shall show all pertinent information concerning the property prior to construction. Construction details shall not be shown.

**8. Priority.** When the Board of View Plans are requested, they shall be completed with all possible haste. The time lapse between the request for the plans and the scheduled hearing is usually 15 days.

### 3.7 RIGHT-OF-WAY TERMINOLOGY ON RIGHT-OF-WAY PLANS

**A. List of Terminology.** The following terminology shall be used on all Right-of-Way Plans:

1. REQUIRED RIGHT-OF-WAY LINE
2. LEGAL RIGHT-OF-WAY LINE
3. REQUIRED RIGHT-OF-WAY LINE FOR ----- (insert the proper type of local road or street; e.g. township road, borough street, or city street)
4. LEGAL RIGHT-OF-WAY LINE FOR ----- (insert the proper type of local road or street; e.g. township road, borough street, or city street)
5. LEGAL RIGHT-OF-WAY LINE (Dedicated by property owner for public use)
6. REQUIRED RIGHT-OF-WAY LINE FOR LIMITED ACCESS
7. LEGAL RIGHT-OF-WAY LINE FOR LIMITED ACCESS
8. EXTENT OF LIMITED ACCESS
9. TEMPORARY CONSTRUCTION EASEMENT (See [Section 3.1.R](#) for details)
10. REQUIRED RIGHT-OF-WAY LINE FOR SERVICE ROAD
11. LEGAL RIGHT-OF-WAY LINE FOR SERVICE ROAD
12. REQUIRED SLOPE EASEMENT
13. LEGAL SLOPE EASEMENT
14. REQUIRED CHANNEL EASEMENT
15. LEGAL CHANNEL EASEMENT

16. REQUIRED DRAINAGE EASEMENT
17. LEGAL DRAINAGE EASEMENT
18. REQUIRED AERIAL EASEMENT
19. LEGAL AERIAL EASEMENT
20. REQUIRED OCCASIONAL FLOWAGE EASEMENT
21. LEGAL OCCASIONAL FLOWAGE EASEMENT
22. REQUIRED SIDEWALK EASEMENT
23. LEGAL SIDEWALK EASEMENT
24. REQUIRED PRIVATE ACCESS (\_\_\_\_\_, \_\_\_\_\_) [The parcel number or numbers of the property or properties for which the access is being acquired and the interest being acquired (fee simple or easement for driveway purposes, not both) should be designated within the parenthesis.]
25. LEGAL PRIVATE ACCESS (\_\_\_\_\_, \_\_\_\_\_) [The parcel number or numbers of the property or properties for which the access was acquired and the interest taken (fee simple or easement for driveway purposes, not both) should be designated within the parenthesis.]
26. REQUIRED WETLAND MITIGATION (FEE SIMPLE) or (EASEMENT)
27. LEGAL WETLAND MITIGATION (FEE SIMPLE) or (EASEMENT)
28. REQUIRED STREAM MITIGATION (FEE SIMPLE) or (EASEMENT)
29. LEGAL STREAM MITIGATION (FEE SIMPLE) or (EASEMENT)
30. REQUIRED TERRESTRIAL MITIGATION (FEE SIMPLE) or (EASEMENT)
31. LEGAL TERRESTRIAL MITIGATION (FEE SIMPLE) or (EASEMENT)
32. REQUIRED REPLACEMENT \_\_\_\_\_ [insert proper type of land, e.g. parkland or game land] (\_\_\_\_\_, \_\_\_\_\_) [The public entity for which the lands are being acquired and the interest being acquired (fee simple or easement for xxx land purposes, not both) should be designated within the parenthesis.]
33. LEGAL REPLACEMENT \_\_\_\_\_ [insert proper type of land, e.g. parkland or game land] (\_\_\_\_\_, \_\_\_\_\_) [The public entity for which the lands were acquired and the interest taken (fee simple or easement for xxx land purposes, not both) should be designated within the parenthesis.]
34. REQUIRED UNDERGROUND STRUCTURE SUPPORT EASEMENT
35. LEGAL UNDERGROUND STRUCTURE SUPPORT EASEMENT
36. LEGAL DITCH EASEMENT
37. LEGAL UNDERGROUND DRAINPIPE EASEMENT
38. LEGAL UNDERGROUND ANCHOR EASEMENT
39. REQUIRED SOUND BARRIER EASEMENT
40. LEGAL SOUND BARRIER EASEMENT

- 41. REQUIRED SIGHT DISTANCE EASEMENT
- 42. LEGAL SIGHT DISTANCE EASEMENT
- 43. REQUIRED ITS CONDUIT EASEMENT
- 44. LEGAL ITS CONDUIT EASEMENT
- 45. REQUIRED TRAFFIC SIGNAL EASEMENT
- 46. LEGAL TRAFFIC SIGNAL EASEMENT
- 47. LEGAL RIGHT-OF-WAY CONVERTED TO AERIAL EASEMENT
- 48. AREA TO BE ABANDONED
- 49. AREA TO BE VACATED

Where an entire area in an interchange or other area is to be acquired, the following designations may be used, where necessary, for clarity with arrows to the extremities of the taking:

- 1. ENTIRE AREA INCLUDED IN REQUIRED RIGHT-OF-WAY
- 2. ENTIRE AREA INCLUDED IN REQUIRED RIGHT-OF-WAY FOR LIMITED ACCESS

On limited access projects, for the beginning and ending of a project, the terminology shall be as follows:

"LIMIT OF ESTABLISHMENT AND AUTHORIZATION"

On free access projects, the designation of all termini for the mainline shall be as follows:

"LIMIT OF AUTHORIZATION"

There may be conditions whereby the "LIMIT OF ESTABLISHMENT" may not be the same as the "LIMIT OF AUTHORIZATION". In such cases separate notations shall be made.

On intersecting roads and "Also" routes incidental to the main project, the terminology shall be as follows:

"BEGIN AUTHORIZATION" and "END AUTHORIZATION"

On plans common to both Right-of-Way and Construction, the terminology shall be as follows:

"LIMIT OF WORK AND AUTHORIZATION" and, if required, any combination of the above that may be applicable.

Naturally, all situations which may arise cannot be covered here and a particular situation deviating from the above should be referred to the District Right-of-Way Administrator. Also, see [Section 3.6.A.2.e.\(12\)](#).

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**B. Utility Terminology.**

1. Existing. All existing utility right-of-way is to be initially shown on highway drawings.

Whenever the utility right-of-way lines and/or easement areas are outside the areas to be required by the Department for highway purposes, the lines/areas must be labeled on the Right-of-Way and Construction Plans as follows:

**EXISTING EASEMENT**

Existing Right-of-Way of   (Utility)  .

**EXISTING FEE SIMPLE**

Shown as normal property lines with the complete name of the utility as property owner.

All existing utility right-of-way is to be shown on highway drawings as a width (if clearly defined) or centerline (if not clearly defined), as applicable, including any utility right-of-way occupied by the Department for highway purposes.

If a utility's existing right-of-way is overtaken by highway right-of-way, the plans must be labeled, either initially or by update, as shown in [Sections 3.7.B.2](#) and [3.7.B.3](#) listed below.

2. Reserved. When utility right-of-way is being overtaken by highway right-of-way and there are no utility relocations/adjustments or utility relocations/adjustments are within the utility's existing easement, the Right-of-Way and Construction Plans must be labeled to show:

**EXISTING EASEMENT**

Right-of-Way Reserved by   (Utility)  .

**EXISTING FEE SIMPLE**

Right-of-Way Reserved in fee by   (Utility)  .

Designation of an area as reserved by a utility does not mean the utility's property interest is being excepted and reserved from the Department's acquisition of the land; rather, it means the Department intends to grant the utility private status, thereby reserving relocation rights in the future. In accordance with 67 Pa. Code Section 459.1, private status is the status of a utility's facilities, which are situated within public right-of-way by agreement with the Department, after the Department condemned the utility's easement and did not provide a substitute right-of-way.

A description of rights is not required where right-of-way is reserved by a utility if the utility is to remain in the existing utility right-of-way with or without adjustment, as long as the utility has a defined easement (See Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 7.3.E.).

A private status agreement is required where a right-of-way is reserved by a utility or where a right-of-way is reserved in fee by a utility (see Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 8.1.L).

3. Substitute Right-of-Way. When utility right-of-way is being overtaken by highway right-of-way and there are utility relocations/adjustments outside the utility's existing easement, the Right-of-Way Plan must be labeled to show:

All substitute right-of-way to be acquired by the Department for utility relocation will be identified on the highway drawings in accordance with the following terminology.

- a. If a substitute utility right-of-way, OUTSIDE the area to be acquired by the Department for highway purposes must be labeled on the highway plans as follows:

TO REPLACE EXISTING EASEMENT

Right-of-Way Plan: Required Substitute Right-of-Way for  (Utility) .

Construction Plan: Substitute Right-of-Way for  (Utility) .

TO REPLACE EXISTING FEE SIMPLE

Right-of-Way Plan: Required Substitute Right-of-Way in Fee for  (Utility) .

Construction Plan: Substitute Right-of-Way in Fee for  (Utility) .

- b. If a substitute right-of-way, WITHIN the area to be acquired by the Department for highway purposes, must be labeled on the Right-of-Way and Construction Plans as follows:

TO REPLACE EXISTING EASEMENT

Substitute Right-of-Way for  (Utility)  with Future Easement Interest.

TO REPLACE EXISTING FEE SIMPLE

Substitute Right-of-Way for  (Utility)  with Future Fee Interest.

A description of rights is required for the property plat (or the plan sheet if there is no property plat) where substitute right-of-way is required for a utility or where a substitute right-of-way for a utility with future easement interest is designated (see Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 7.3.E). A private status agreement is required where a substitute right-of-way for a utility with future easement interest or with future fee interest is designated (see Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 8.1.L).

See Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 7.3 for a discussion regarding the coordination of Substitute Right-of-Way for utility relocation.

See [Figure 3.15](#) for utility Right-of-Way Plan terminology.

4. Utility Access Roads. The following terminology must be used on Right-of-Way Plans for the acquisition of property for utility access roads:

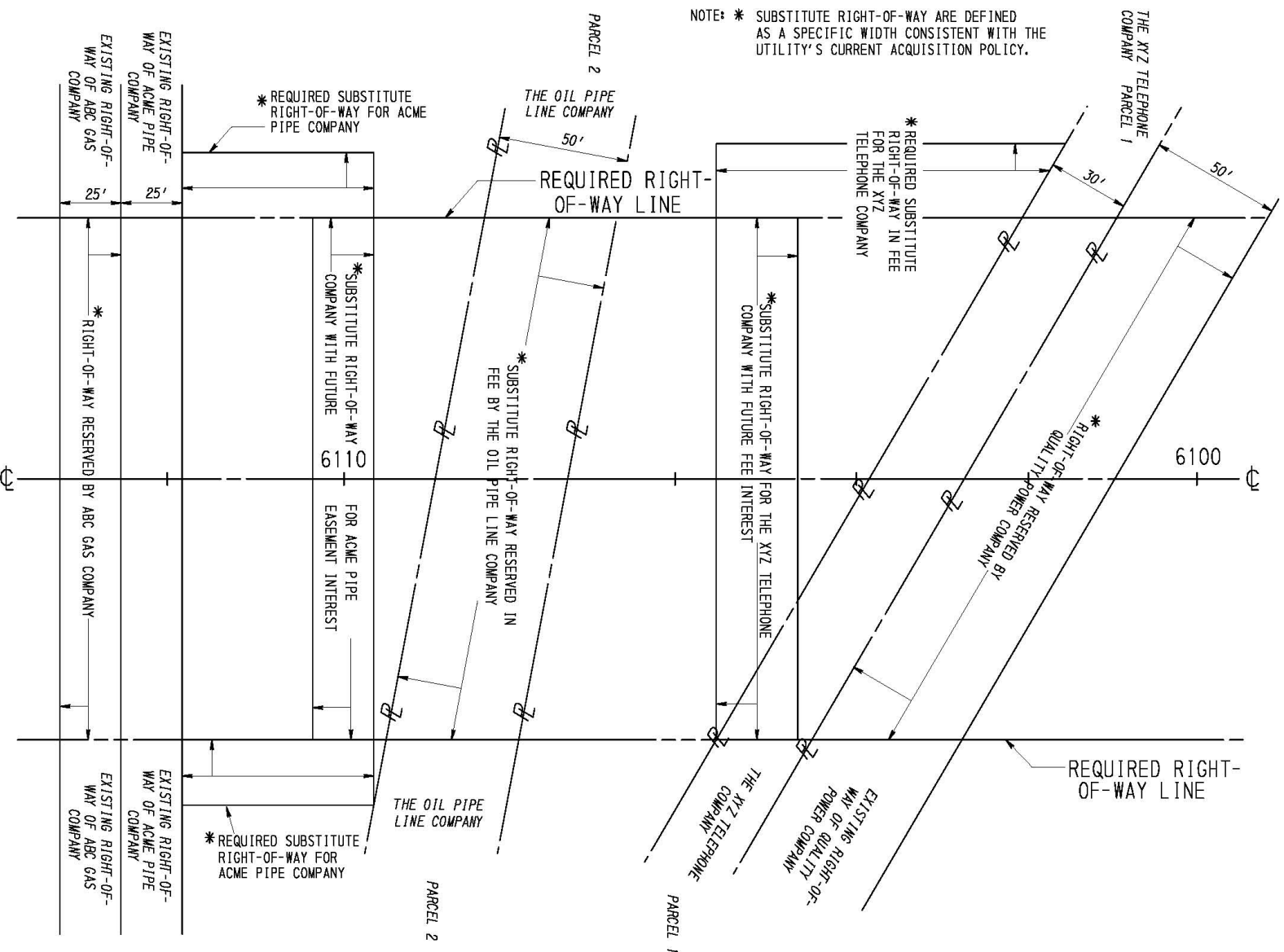
REQUIRED RIGHT-OF-WAY LINE FOR UTILITY ACCESS ROAD

See Publication 16, Design Manual, Part 5, *Utility Relocation*, Section 7.5 for additional information regarding utility access roads.

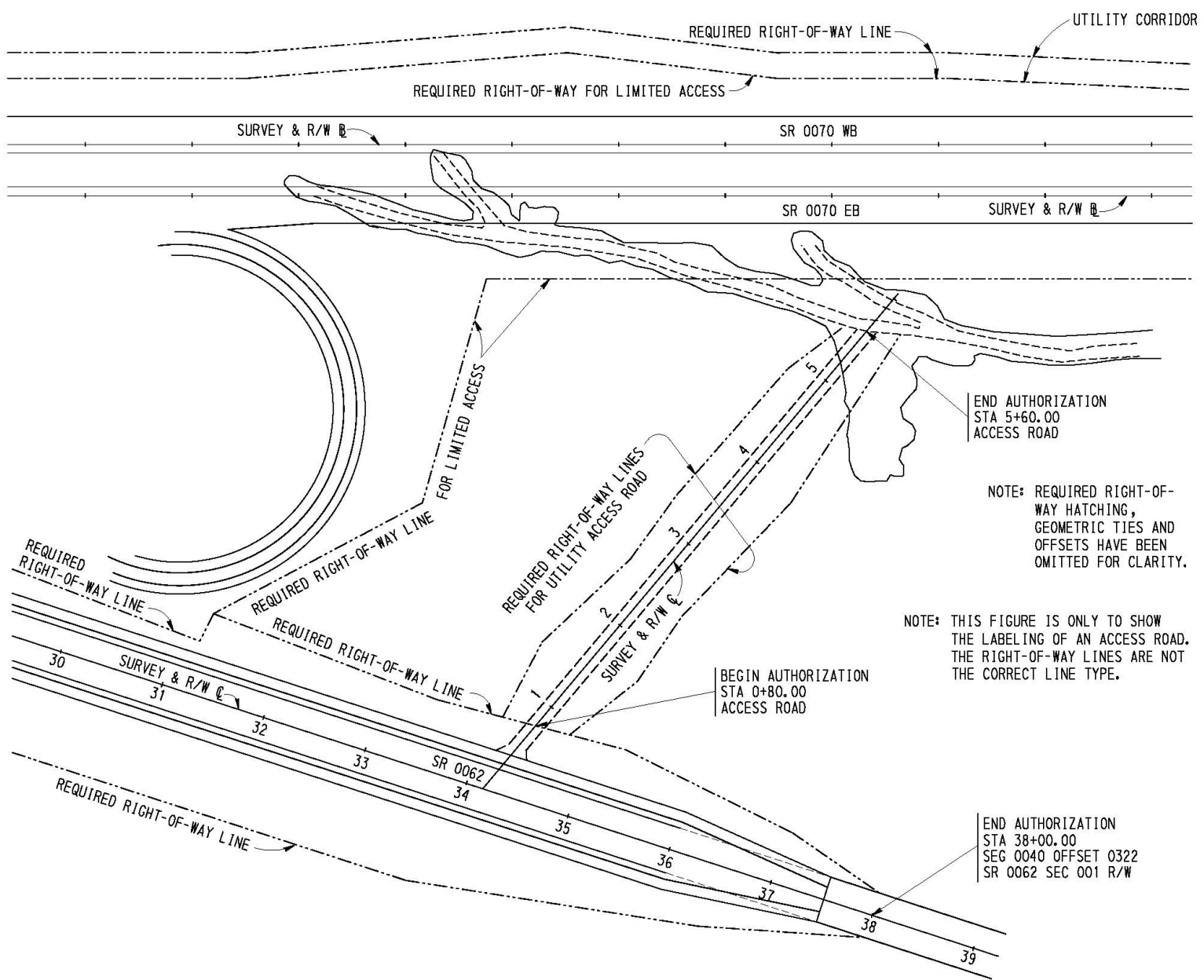
See [Figure 3.16](#) for plan terminology for utility access roads.

- C. **Definitions of Terminology.** See [Section 3.1](#) for definitions of terminology.

**FIGURE 3.15**  
**UTILITY RIGHT-OF-WAY PLAN TERMINOLOGY**



**FIGURE 3.16**  
**PLAN TERMINOLOGY FOR UTILITY ACCESS ROADS**



### 3.8 DETERMINATION OF LEGAL RIGHT-OF-WAY WIDTHS

The legal width of right-of-way of any State Route can be determined from the following:

**A. Prior Highway Plans.** Prior highway plans signed by the Governor; note however that the validity of a "legal" right-of-way which is determined from a prior plan signed by the Governor depends on whether notice of the said plan was received by the then-owners of the properties abutting the highway. Such notice could have been given by recording of the plan, by personal contact, by letter, etc. It is presumed that this notice was given if the Department, County or municipal records indicate that the then-owners were paid right-of-way damages. If a prior plan was not recorded in the county recorder's office, it is necessary to ascertain whether there is sufficient evidence of notice given to prior property owners to support a decision to utilize "legal" right-of-way based on such a plan. This is particularly important if the prior plan was signed by the Governor prior to 1934, when the Department began to pay for right-of-way damages. The District Right-of-Way Administrator should be consulted whenever there is doubt as to the validity of the legal right-of-way based on a prior, un-recorded plan.

**B. Record of Court Proceedings.** Record of court proceedings by which the roadway was originally laid out by viewers (check roadway docket in Court of Quarter Sessions). Note that when the legal right-of-way is based on the width originally laid out by viewers (i.e., where there has been no formal redesignation of the right-of-way lines by plan, ordinance or otherwise), the right-of-way lines are located equidistant from the centerline of the roadway as originally laid out on the ground. Over the years, the paving of a roadway or highway may be moved somewhat to one side or the other. Such movement, of course, does not change the right-of-way lines of the roadway. Hence, after a roadway has been opened for many years, one can no longer rely entirely on the present centerline to locate the side lines of the roadway. To determine the location of the original centerline, and, therefore, of the original right-of-way lines, it is necessary to consider the location of fence lines, walls, buildings, hedges and other monuments as well as the Deeds of abutting properties.

**C. City, Borough or Township Ordinances.** City, Borough or Township Ordinances which legally opened the street or roadway. Note that "laying out" a street or roadway generally means only that the street or roadway was put onto the municipality's plan as a projected street. Before the designated width of the street can be regarded as the legal right-of-way, it shall have been legally opened and adopted. These exact terms are not always used; however, LEGALLY OPENED means that not only has an ordinance been passed by the political subdivision setting a width, but that the street has been physically opened to its ordained width or at least declared to be LEGALLY OPENED to that width, either of which actions by the municipality would have entitled the property owners to just compensation at that time. When there is any doubt as to the meaning of such an ordinance, the Department's Office of Chief Counsel should be consulted.

**D. By Statute.** By statute, a legal right-of-way of 33 ft is presumed on a Township Road in a second-class Township where there is no record of the roadway having been opened to some other width, and where the Township has maintained the roadway with Township funds for at least 21 years. If the roadway in question is now a State Highway, or if the Township or the part of the Township which is the situs of the roadway is now a first-class Township, Borough or City, the 33 ft width presumption would apply only if on September 1, 1933, the effective date of the Act of May 1, 1933, P.L. 103, or thereafter, and all the foregoing conditions were met, that is:

1. The roadway was a Township Road, and
2. The Township was a second-class Township, and
3. The Township has maintained the roadway during the previous 21 years, and
4. There is no record of any other width.

**E. Dedicated to Public Use by Owner.** Right-of-Way can be dedicated to public use by present or prior owner by one of the following:

1. By Deed of dedication.
2. By plan of dedication.
3. By plan of lots, if some lots were sold from the plan.
4. By written agreement, properly signed and executed.

To accept dedicated right-of-way, the following activities need to be taken:

1. Provide note(s) in the GENERAL NOTES of the plan which indicate the origin of the dedicated right-of-way along with the following sentence:

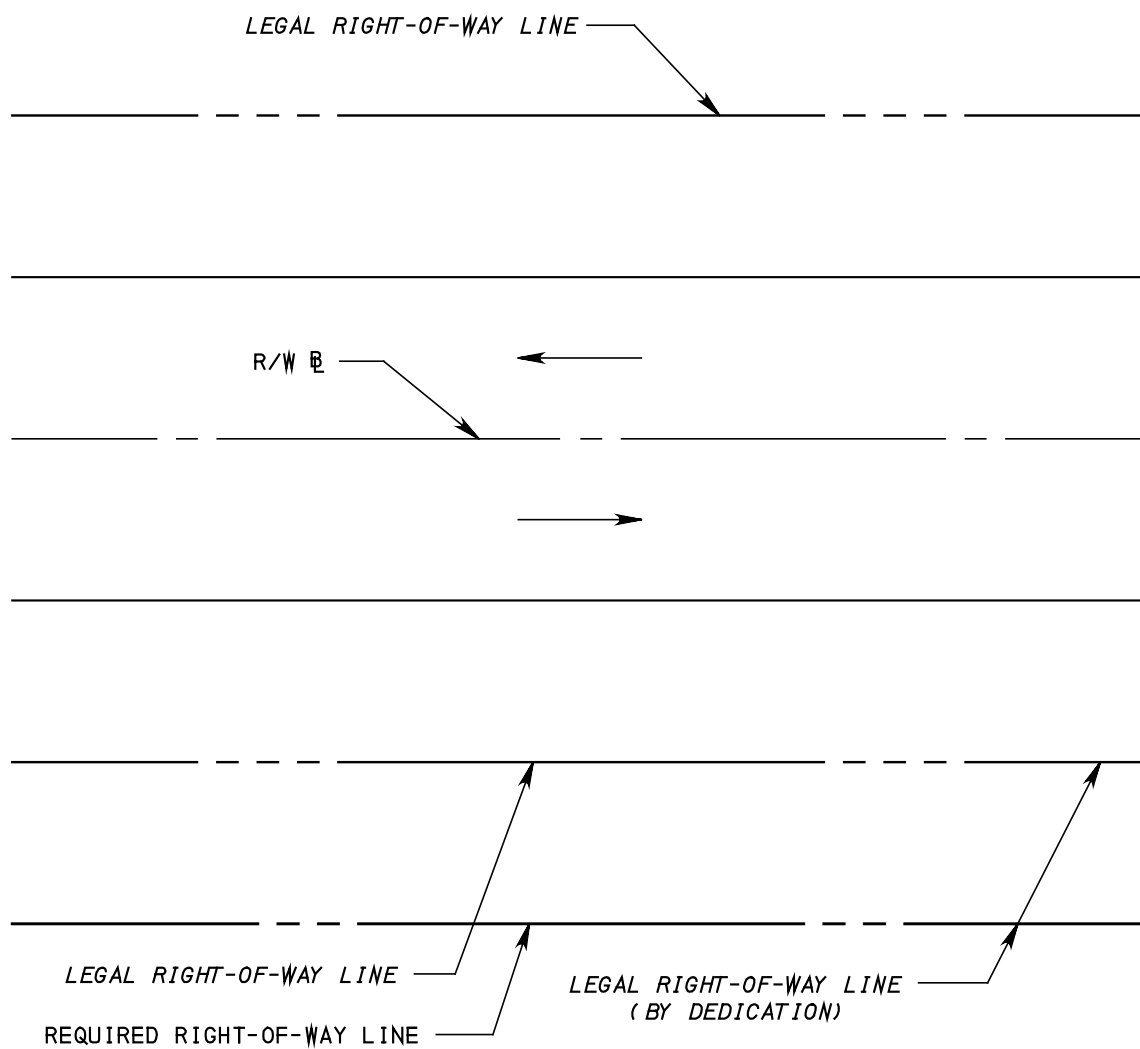
BY THIS PLAN, THE COMMONWEALTH HEREBY ACCEPTS THE AREA DEDICATED FOR STATE HIGHWAY PURPOSES.

2. Label the legal right-of-way as previously recognized by the Department as LEGAL RIGHT-OF-WAY LINE with an arrow to the outside of the existing legal right-of-way line.
3. Label the dedicated right-of-way to be accepted as LEGAL RIGHT-OF-WAY (BY DEDICATION) with arrows to the inside of the dedicated area.
4. Label the outside line as REQUIRED RIGHT-OF-WAY LINE with an arrow to the outside.
5. Include the dedicated right-of-way area in the tabulation of legal right-of-way when preparing claim blocks.

See [Figure 3.17](#) for an example of the plan presentation.

**F. By Actual Width.** If there is no other provable legal right-of-way, the legal right-of-way should be determined from the actual width of the existing edges of pavement and shoulders. If there is an existing slope, it should be designated as the LEGAL LIMIT OF SLOPE EASEMENT.

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**FIGURE 3.17**  
**EXAMPLES OF DEDICATED**  
**RIGHT-OF-WAY**

### 3.9 ABANDONMENT AND VACATION

**A. Definitions.** Abandonment of a State Highway is the transfer by the Department of the jurisdiction and maintenance of an existing State Highway to a municipality. Vacation, on the other hand, is the return of a portion of any existing State Highway to the private property owner whose abutting property originally contained that portion of State Highway vacated. Only highway easements may be vacated; land held in fee title must be disposed in accordance with Publication 378, *Right-of-Way Manual*, Chapter 7, "Excess Land." Road segments held in either easement or fee may be abandoned.

**B. Deciding Whether to Abandon or Vacate.** Whether a roadway should be abandoned or vacated is dependent on many factors, including safety, convenience of access to property owners (Sections 201 and 214 of the State Highway Law), and possible damage claims under Section 613 of the Eminent Domain Code. Abandonment and vacation decisions shall be made by the District Executive in consultation with the Department's Right-of-Way Administrator and the Municipal Services office.

**C. Plans Presentation.** The application general notes when a plan includes abandonment or vacations are set forth in [Section 3.4.H.5.j](#). Refer to [Figure 3.18](#) for examples of typical abandonments and vacations to be indicated on the Right-of-Way Plan:

1. Abandonment. The portion of a State Highway to be abandoned shall be designated as the AREA TO BE ABANDONED and shall have arrows leading to the appropriate lines. This designation is necessary only in the immediate proximity of the project. In addition, a Note describing the limits of abandonment shall be shown on the Index Map as follows:

EXISTING SR 1033 TO BE ABANDONED AS A STATE HIGHWAY BETWEEN SEGMENT 30  
OFFSET 10 AND SEGMENT 50 OFFSET 35 UPON COMPLETION OF CONSTRUCTION.

Inclusion of the abandonment on a plan approved by, or on behalf of, the Governor is the first step in affecting abandonment (36 P.S. Section 670-210).

The road segment must be in first class condition before abandoned to the local municipality (36 P.S. Section 670-214). Form M-4226 (entitled "Inspection of Roads to be Abandoned as State Highways") should be used to document that the local municipality agrees the road is in first class condition. Execution of this form is not legally required to affect abandonment, but is prudent to avoid problems.

Abandonment is not effective until written notice is provided to the local municipality following construction of the project (36 P.S. Section 670-210). A copy of the letter providing this notice must be maintained by the District in the event the local municipality denies responsibility for the road segment in the future. Coordination is required with Municipal Services to insure the road segment is added to the local government's liquid fuels allocation.

2. Vacation. Where the width, lines or location of a State Highway shall be or have been changed, altered or established, according to law, in a manner which does not create an entirely new highway, the section or sections or portions of the right-of-way of the highway, as previously established, which are not included within the changed, altered or established widths shall be considered vacated, if such portions or sections are not the full width of the highway, as previously established (36 P.S. Section 670-214). The portion of State Highway to be vacated shall be shown as an existing legal right-of-way. This area to be vacated shall be designated as the AREA TO BE VACATED and shall have arrows leading to the appropriate lines.

Highway segments less than 2 mi in length can also be vacated if determined to be unnecessary for public use and travel, or burdensome or dangerous, having due regard for the convenience of access to the highway system by owners of property abutting the highway segment (36 P.S. Section 670-210). As with the vacation of strips along a highway, the portion of State highway to be vacated shall be shown as an existing legal right-of-way. This area to be vacated shall be designated as the AREA TO BE VACATED and shall have arrows leading to the appropriate lines.

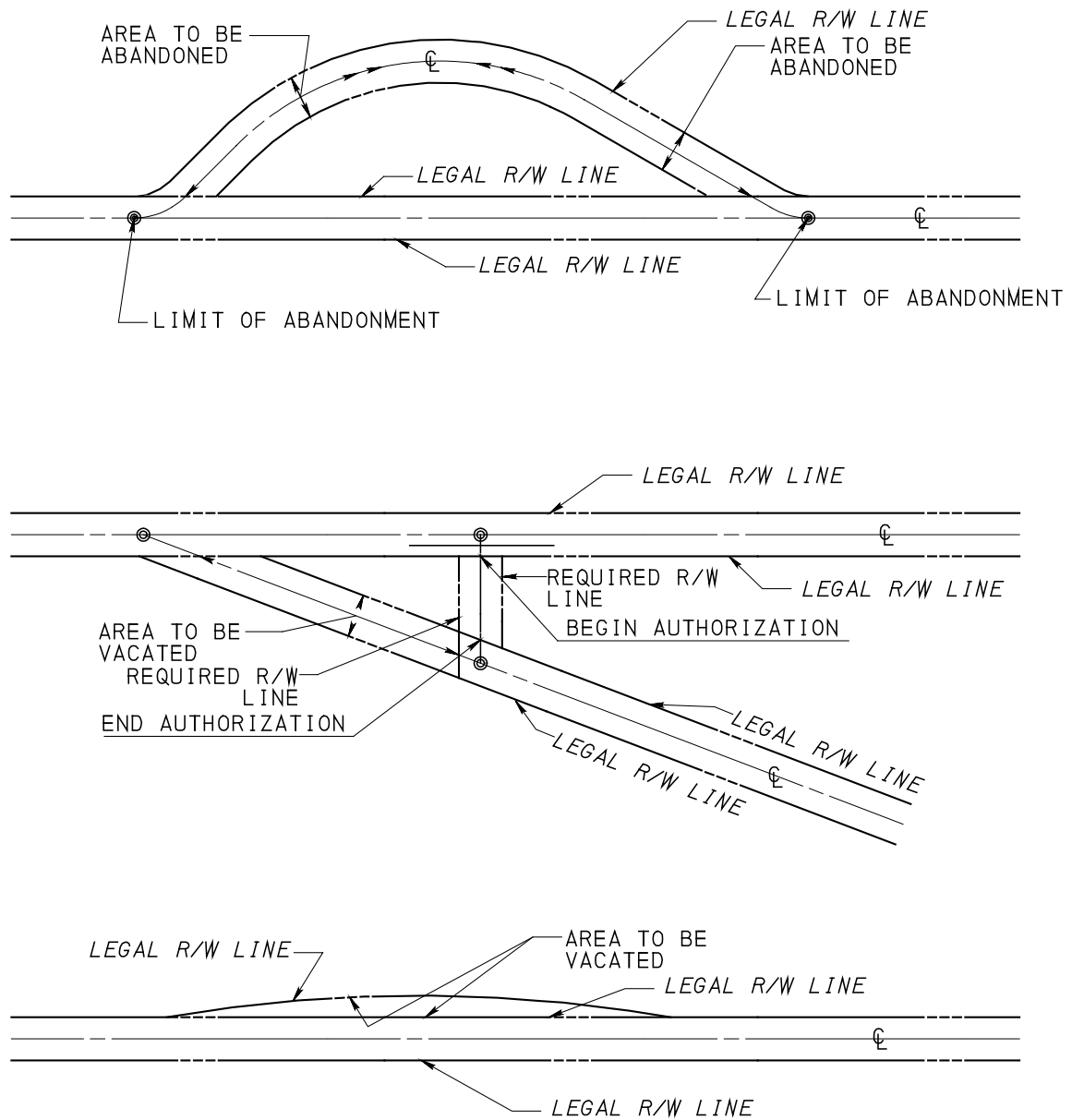
Inclusion of the vacation on a plan approved by, or on behalf of, the Governor is the first step in affecting vacation (36 P.S. Section 670-210).

RW-376 (entitled "Settlement Agreement, Vacation") should be executed by each landowner to whom land will be vacated. Execution of this form is not legally required to affect a vacation, but is prudent to avoid problems.

Vacation is not effective until an order of vacation is executed by, or on behalf of, the Secretary of Transportation. The order of vacation, with a sketch showing the areas vacated and the names of the underlying fee owners, is filed with the recorder of deeds. Thereafter, the part of the highway so vacated shall be closed to public use and travel, and shall no longer be a public road (36 P.S. Section 670-210).

Vacations cannot be made subject to the rights of existing public utility facilities to remain unadjusted within the area vacated if the utilities occupy the right-of-way by permit only. That is, the Department cannot unilaterally reserve easements for other parties as against the land owner when it vacates public right-of-way.

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**FIGURE 3.18  
EXAMPLES OF  
ABANDONMENTS AND VACATIONS**

**3.10 COMBINATION CITY OF PHILADELPHIA BOARD OF VIEW PLANS AND RIGHT-OF-WAY PLANS**

**A. Title Sheet.** In the City of Philadelphia, Right-of-Way Plans shall also meet the requirements of the Board of View. The statement AND BOARD OF VIEW shall be shown in the title in the upper center of the Title Sheet. The local name of the road should be indicated under the State Route Number and the cross streets indicated at the Stationing Limits of the project as indicated below:

DRAWINGS ESTABLISHING LIMITED ACCESS HIGHWAY AND AUTHORIZING ACQUISITION OF  
RIGHT-OF-WAY AND BOARD OF VIEW PLANS FOR

STATE ROUTE 0063 SECTION A02 R/W  
(Woodhaven Road)

IN PHILADELPHIA COUNTY

FROM STA 1+82.00 TO STA 4+35.00  
LENGTH 253.00 FEET (0.048 MILE)  
POQUESSING CREEK TO ACADEMY ROAD

A City of Philadelphia Acknowledgement Block shall be shown in the lower portion of the Title Sheet. The names of the Chief Engineer, the Surveyor, the Streets Commissioner and the Mayor plus the date of the approval shall be shown in this block.

A Surveyor and Regulator Acknowledgement Block shall be shown in the lower portion of the sheet and shall contain the names of the District Surveyor and Regulator plus the date of the approval.

The statement REVIEWED FOR CITY PLAN DATA AND LEGAL STATUS OF STREETS shall be placed above the space reserved for the signature of the Surveyor and Regulator Acknowledgement Block.

**B. General Notes.** Where applicable, the following Notes shall be included on the Typical Section Sheet under the General Notes:

1. ALL EXISTING DISTANCES, ALL NEW PROPERTY DISTANCES (RESULTING FROM NEW CONSTRUCTION) AND DISTANCES INVOLVING RECONSTRUCTION AND/OR RELOCATION OF CITY STREETS ARE SHOWN TO CITY OF PHILADELPHIA DISTRICT STANDARD.

NOTE: For clarity, the City of Philadelphia District Standard distances should be followed by an asterisk properly referenced.

2. ALL PROJECT MEASUREMENTS ARE US STANDARD MEASUREMENTS. TO CONVERT TO CITY OF PHILADELPHIA DISTRICT STANDARD, A FACTOR OF \_\_\_\_\_ IS TO BE USED. THAT IS \_\_\_\_\_ FEET US STANDARD EQUALS 100.00 FEET PHILADELPHIA DISTRICT STANDARD MEASUREMENT.

NOTE: Contact the Survey District in which the project is located for the conversion factor(s) to be used for that particular District. In cases where each line may have its own factor, the factor should be indicated for each line and reference should be made in the General Notes accordingly.

3. THE DATUM FOR THIS PLAN IS BASED ON US COAST & NORTH AMERICAN VERTICAL DATUM OF 1988. THERE IS A DIFFERENCE OF \_\_\_\_\_ FEET BETWEEN THE US COAST & GEODETIC DATUM USED FOR ELEVATIONS SHOWN ON THESE DRAWINGS AND THE DATUM USED BY THE CITY OF PHILADELPHIA SURVEY DISTRICT.

**Example:**

ELEV 10.00' US Coast & Geodetic Survey = ELEV 4.238' City of Philadelphia

NOTE: Contact the Survey District in which each project is located for the difference between the US Coast and Geodetic Datum and the City of Philadelphia Datum to be used.

4. MONUMENTS OR PROPERTY LINE MARKERS LOCATED WITHIN THE LIMITS OF THIS PROJECT SHALL NOT BE DISTURBED UNTIL THEY HAVE BEEN REFERENCED BY THE CITY OF PHILADELPHIA.

5.  INDICATES AREAS OF BUILDINGS OR PORTIONS OF BUILDINGS USED TO OBTAIN THE TAKING VOLUMES SHOWN IN THE TABULATION.

**C. Plan Sheet.** The Right-of-Way Plan Sheet shall contain the following additional details:

1. Properties taken and portions of properties remaining shall be dimensioned in accordance with City of Philadelphia District Standard.
2. The cubical contents of the buildings taken. Where there is a partial taking, the plan should show the cubical contents taken and remaining. State whether the volume includes the basement. The plan should also indicate the construction of the building (frame, brick, etc.).
3. The location and width of all streets. Streets not on the City plan should be so indicated. Indicate clearly whether each street shown on the plan is opened or unopened and show the manner and date of the opening.
4. Where the grade of a street is changed in front of improved property, show elevations of the door sills and cellar window sills on the profiles. Also indicate tops and bottom of all retaining walls and the curb elevation on all streets.
5. Show existing profiles for boundary streets and the proposed profiles for new streets or highways.
6. Where spot elevations on each parcel and elevations along each house line cannot be shown or depicted by contours, a profile should be produced to show this information.

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### 3.11 RIGHT-OF-WAY PLAN REVISIONS

A revision is defined as a change in the original Right-of-Way Plan. Right-of-Way Plan revisions are applicable for plans that have been signed by the Secretary of Transportation.

On a project that requires the Department to acquire an additional estate or easement from a parcel which has been the subject of an acquisition, additional acquisition can not be made until the Right-of-Way Plan has been officially revised.

Procedures and projects for which these revision requirements apply can be found in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Chapter 4, Section 4.13.J.

The proposed plan revisions shall be highlighted on prints of the appropriate plan sheets.

The print of the Title Sheet shall include an approval block containing a general description of all the proposed changes and a list of the sheets and parcel numbers affected by the revisions as shown in [Figure 3.19](#). It is not necessary to provide detailed information, such as stationing, in the description. Lines for the signatures of the District Executive, the District Right-of-Way Administrator, the District Chief-of-Surveys, and the District Plans Engineer shall be included in the block.

After approval of the prints by the District Executive, the District Office shall request the Title Sheet and affected original sheets or reproducibles from the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction. The District should then make changes to the original plan sheets or reproducibles as per the previously approved prints. When making plan revisions, the plan revision block shall be added and completed for each affected plan sheet as shown in [Figure 3.20](#).

Since no erasure of original information is permitted, changes for minor revisions should be made by adding the new information and crossing out the incorrect data. For major revisions, the original sheet shall be marked with a large "X" and a supplemental sheet added to the plan.

An approval block to be included on the original Title Sheet shall contain the general description of all the proposed changes and a list of the sheets and parcel numbers affected by the revisions as previously approved on the print of the Title Sheet. Lines for the signatures of the Deputy Secretary and the Secretary of Transportation along with the statement ON BEHALF OF THE GOVERNOR AS WELL AS THE SECRETARY are to be included in the block, as shown in [Figure 3.21](#), when the Governor has delegated signature authority. The total number of sheets shall be revised by crossing out the original number and adding the new number.

The revised sheets shall be signed and sealed by the appropriate professional land surveyor and as necessary by the professional engineer. See [Figure 3.22](#) for sample block.

The District shall also include the notary seal block and the recorder of deeds block to have the revised plan re-recorded in the office for the recording of deeds. See [Figures 3.23](#) and [3.24](#) for sample blocks. The District shall include the Note for reauthorization in the revision block for all projects. For reauthorizations without revisions, the District shall make a request for the reauthorization to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction. The Plans, Records, and Reproduction shall proceed accordingly.

After the changes have been completed, the District shall submit the Title Sheet and the revised original to the Bureau of Design and Delivery, Office Management and Procurement Section, Plans, Records, and Reproduction. These shall be processed similar to the original plans. The District shall be responsible for making copies of the original plans before they are submitted to the Central Office as only the original Title Sheet shall be returned to the District upon receipt of the necessary approvals.

Additionally, when a Right-of-Way Plan was authorized under the previous eminent domain code and a revision and/or reauthorization is made after September 1, 2006 under the new law, the following note must be added to the title sheet:

ALL REVISIONS TO THIS PLAN AFTER SEPTEMBER 1, 2006, ARE FURTHER AUTHORIZED BY SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa.C.S., SECTION 302(b)(3).

THE PLAN IS REAUTHORIZED AND  
REVISED AS/AND FOR CHANGING AUTHORIZATION  
LENGTH, ADDING TOPOGRAPHY, REMOVING LEGAL  
RIGHT-OF-WAY LINES FROM UNOPENED STREETS.  
CHANGING PLOT AREAS AND ADDING PARCELS 121,  
122 AND 123. SHEET NO 20A IS A NEW SHEET.

PARCELS INVOLVED ARE: 22, 23, 24, 31, 32, 34, 34A,  
35, 36, 40, 51, 59, 64, 82, 119, 121, 122 AND 123.

REVISIONS ON SHEETS: 1, 2, 3, 4, 5, 6, 9, 10, 11, 12,  
13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 27, 28, 29,  
30, 31, 32 AND 34.

RECOMMENDED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
DISTRICT PLANS ENGINEER

RECOMMENDED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
DISTRICT CHIEF-OF-SURVEYS

APPROVED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
DISTRICT RIGHT-OF-WAY ADMINISTRATOR

APPROVED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
DISTRICT EXECUTIVE

**FIGURE 3.19**  
**EXAMPLE OF APPROVAL BLOCK WITH SIGNATURES**  
**FOR PRINT OF TITLE SHEET**

| REVISION<br>NUMBER | REVISIONS | DATE | BY |
|--------------------|-----------|------|----|
|                    |           |      |    |
|                    |           |      |    |

**FIGURE 3.20**  
**EXAMPLE OF PLAN REVISION BLOCK**

THE PLAN IS REAUTHORIZED AND  
REVISED AS/AND FOR CHANGING AUTHORIZATION  
LENGTH, ADDING TOPOGRAPHY, REMOVING LEGAL  
RIGHT-OF-WAY LINES FROM UNOPENED STREETS.  
CHANGING PLOT AREAS AND ADDING PARCELS 121,  
122 AND 123. SHEET NO 20A IS A NEW SHEET.

PARCELS INVOLVED ARE: 22, 23, 24, 31, 32, 34, 34A,  
35, 36, 40, 51, 59, 64, 82, 119, 121, 122 AND 123.

REVISIONS ON SHEETS: 1, 2, 3, 4, 5, 6, 9, 10, 11, 12,  
13, 14, 15, 16, 19, 20, 21, 22, 25, 26, 27, 28, 29,  
30, 31, 32 AND 34.

RECOMMENDED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
DEPUTY SECRETARY

APPROVED \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS THE SECRETARY)

**FIGURE 3.21**  
**EXAMPLE OF APPROVAL BLOCK WITH SIGNATURES**  
**FOR ORIGINAL OF TITLE SHEET**

|                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------|
| <p>REVISION _ PREPARED BY<br/>DISTRICT __-0 DESIGN UNIT</p> <p>(SEAL)</p> <p>_____<br/>(SIGNATURE)<br/>(TITLE)</p> <p>_____<br/>(DATE)</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------|

**FIGURE 3.22**  
**EXAMPLE OF TYPICAL SIGNATURE BLOCK FOR A**  
**PLAN REVISION**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>COMMONWEALTH OF PENNSYLVANIA</p> <p>COUNTY OF DAUPHIN <span style="float: right;">SS</span></p><br><p>BEFORE ME, A NOTARY PUBLIC, PERSONALLY CAME</p> <p>_____</p> <p>KNOWN TO ME OR SATISFACTORILY PROVEN TO BE THE<br/>PERSON WHO HAS BEEN AUTHORIZED BY WRITTEN<br/>DELEGATION TO AFFIX THE FACSIMILE SIGNATURE OF<br/>[INSERT NAME OF CURRENT SECRETARY] SECRETARY OF<br/>TRANSPORTATION ON PLANS AUTHORIZING ACQUISITION<br/>OF RIGHT-OF-WAY BY THE DEPARTMENT OF<br/>TRANSPORTATION, AND AS SUCH AUTHORIZED<br/>REPRESENTATIVE ACKNOWLEDGED THE WITHIN PLAN,<br/>COMPRISING _____ SHEETS, TO BE AN OFFICIAL PLAN OF<br/>THE DEPARTMENT OF TRANSPORTATION AND DESIRED<br/>THAT THE SAME BE RE-RECORDED.</p><br><p>WITNESS MY HAND AND NOTARIAL SEAL</p><br><p>_____</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**FIGURE 3.23**  
**EXAMPLE OF NOTARY BLOCK WITH SIGNATURES**  
**FOR PLAN REVISIONS**

|                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>RE-RECORDED IN THE OFFICE FOR THE RECORDING<br/>OF DEEDS, ETC., IN</p> <p>_____ COUNTY, PA.</p> <p>IN _____ BOOK _____</p> <p>PAGE _____ TO SHOW REVISIONS ON<br/>SHEETS _____</p><br><p>WITNESS MY HAND AND SEAL OF OFFICE</p><br><p>_____</p> <p style="text-align: right;">RECORDER</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**FIGURE 3.24**  
**EXAMPLE OF RECORDER BLOCK WITH SIGNATURES**  
**FOR PLAN REVISIONS**

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## CHAPTER 4

### TRAFFIC CONTROL PLANS

#### 4.0 INTRODUCTION

The Traffic Control Plan (TCP) shall provide clear directions for safely and efficiently handling the flow of traffic through or around the work zone. The degree of detail required for a TCP depends upon the complexity of the project, the amount of traffic interference and other important factors.

TCP's shall comply with the guidelines in the Department's regulations on Work Zone Traffic Control (Publication 213, *Temporary Traffic Control Guidelines*). Each TCP shall clearly indicate the manner in which traffic is to be controlled during each phase of construction and shall clearly depict the traffic control devices and other items necessary for each phase.

#### 4.1 GENERAL INFORMATION

The following information should be shown when the TCP is comprised of plan sheets:

1. Complete the Identification Block in the upper right-hand corner of each plan sheet. The TCP Sheets shall be separately numbered as Supplemental Plans; that is, they shall not be included in the "Total Sheets" shown in the Identification Block of the Construction Plans.
2. The title TRAFFIC CONTROL PLAN shall be prominently placed on each sheet. The title shall also identify the appropriate traffic control phase or stage.
3. For information only, and at an appropriate location, a list of materials shall be shown indicating temporary roadway quantities, sign numbers or designations, quantities required, a description of the signs and devices, all required sizes and other related information. All separate pay items and tabulations shall also be shown.
4. Existing signs and other devices that need to be covered, removed or altered during construction.
5. Construction centerlines and stations identified at intervals not exceeding 100 m (500 ft).
6. Intersecting highways identified by State Route number, traffic route number and street or highway name.
7. North Arrow.
8. Political Subdivisions.
9. Outline of bridges.
10. Railroads.
11. Existing streams and any proposed relocations.
12. Appropriate Bar Scale.
13. Distances to the nearest community at each end of the project to the nearest 0.1 km (0.1 mi).
14. All lettering sizes specified for other parts of the Construction Plan shall apply to these drawings.

15. A Signature Block shall be included on the first sheet of a TCP for signature of the District Traffic Engineer as presented in [Figure 4.1](#) with the exception of projects designed using the procedures in Publication 10X, Design Manual, Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix AB.

16. The responsible registrants shall place a black ink rubber stamp seal and sign the first sheet. The registrants shall also place either a black ink rubber stamp seal or a facsimile seal on all subsequent sheets.

|                                    |
|------------------------------------|
| RECOMMENDED _____ 20 _____         |
| _____<br>DISTRICT TRAFFIC ENGINEER |

**FIGURE 4.1  
EXAMPLE OF SIGNATURE BLOCK  
FOR DISTRICT TRAFFIC ENGINEER  
ON A TRAFFIC CONTROL PLAN (TCP)**

## 4.2 GENERAL NOTES

The following statements shall be used in the General Notes section on the first sheet of the drawings:

THIS WORK CONSISTS OF THE MAINTENANCE OF TRAFFIC AND THE PROTECTION OF THE TRAVELING PUBLIC APPROACHING THE CONSTRUCTION AREA AND WITHIN THE LIMITS OF CONSTRUCTION.

FURNISH, ERECT, PLACE AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES AND MAINTAIN TRAFFIC DURING HOURS OF CONSTRUCTION AND AT ALL OTHER TIMES IN ACCORDANCE WITH THE METHODS INDICATED ON THESE DRAWINGS AND,

1. THE SPECIAL PROVISIONS OF THE CONTRACT.
2. PA CODE, TITLE 67, CHAPTER 212, OFFICIAL TRAFFIC CONTROL DEVICES.
3. PDT PUBLICATION 213, TEMPORARY TRAFFIC CONTROL GUIDELINES.
4. PDT PUBLICATION 35, APPROVED CONSTRUCTION MATERIALS (BULLETIN 15).
5. PDT PUBLICATION 408, SPECIFICATIONS.
6. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

IMMEDIATELY UPON COMPLETION OF THE WORK, REMOVE THE DEVICES. THE DEPARTMENT WILL REMOVE ANY TRAFFIC CONTROL DEVICES ERECTED BY DEPARTMENT FORCES.

COVER OR REMOVE ALL SIGNS NOT IN USE.

# CHAPTER 5

## SOIL PROFILE PLANS

### 5.0 INTRODUCTION

The intrinsic physical and chemical properties of undisturbed soils and their location both vertically and laterally with respect to a proposed grade line are vital factors which may affect route location and are the basic factors which shall dictate the physical cross sections of a highway facility. The slopes of cuts and fills, benching, drainage, pavement type and methods of excavating and placing embankment may all be affected by subsurface conditions.

The frequency of test holes, the number of samples to be tested and any special tests which may be required shall be determined by the District Geotechnical Engineer.

Soil Profile Plans, as discussed in this Chapter, pertain only to the standard ANSI D size, 34 in × 22 in which are submitted with the Construction Plans to the Director, Bureau of Project Delivery.

Variation from these guidelines may be made for a specific project, when justified, by obtaining the approval of the Chief Geotechnical Engineer.

Reference Publication 222, *Geotechnical Investigation Manual* for further information regarding the use of gINT software customized for PennDOT for characterizing geotechnical information and for geotechnical reports available. For preparation of fence logs and other geotechnical reports reference Publication 293, *Geotechnical Engineering Manual*.

### 5.1 TITLE SHEET

The Title Sheet for all soil profiles shall indicate the following information:

1. A legend produced using gINT software with the PennDOT gINT Library containing the soils and rock symbology and respective descriptions as utilized in borings for the project.
2. Headings for the following:
  - a. Abbreviations And Symbols.
  - b. General Notes.
3. A 5.5 in square for the Location Map.
4. Identification Block.

The information placed under items 2.a and 2.b above are self-explanatory; however, a note indicating the date of the approval of line and grade upon which the soil profile is based should be added.

The Title Sheet shall contain the State Route Number, Section Number and County and the Stationing Limits shall be given as required for Construction Plans in [Chapter 2](#).

List any equalities on the drawing preferably below the "From Sta \_\_\_\_ to Sta \_\_\_\_ " designation. The size of lettering shall conform to that presented in [Chapter 13](#) or to PennDOT gINT.

In the lower right-hand corner of the Title Sheet, provide a Signature Block and include the following information:

1. Name of the Engineering firm doing the soils work.
2. Client (Consultant or Department).
3. Seal and signature of the responsible registrants doing the soils work.
4. Date.

When the geotechnical work is being done by the District, include the following information:

1. District Number.
2. Seal and/or signature of the District Geotechnical Engineer.
3. Date.

The responsible registrants doing the geotechnical work shall also place either a black ink rubber stamp seal or a facsimile seal on all subsequent sheets.

## **5.2 INDEX SHEET**

The Index Sheet shall contain an Index Map, to a minimum scale of 1" = 500', with the following data indicated, where applicable:

1. Construction or survey centerlines or baselines for mainline, ramps, side roads and channel changes.
2. Edge of streams.
3. North Arrow.
4. Political subdivisions.
5. Existing roads (State Routes, Township roads and local road names).
6. Railroads.
7. Equality stations.
8. Identification of all ramps.
9. PC's, PT's, etc. (circles only).
10. Label stations at 500 ft intervals.
11. Indicate the extent of work by the designation "Limit of Work" for the mainline and "Start Work" and "Stop Work" for side roads with the State Route Number, Section Number, Township and County.
12. Spot locations of auger and test boring holes and place a Legend at bottom of the sheet, as indicated below:

### **LEGEND**



**AUGER BORING**



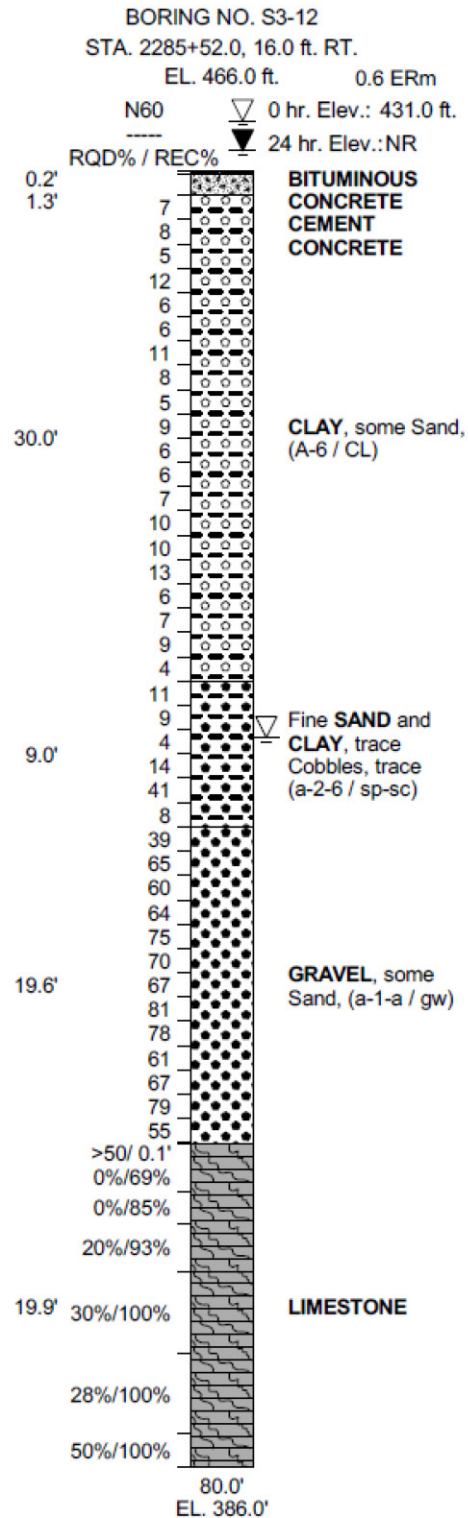
**TEST BORING**

13. Bar Scale.
14. Outline of proposed and existing bridges.
15. Complete the Identification Block in the upper right-hand corner.
16. Scale at bottom of sheet.

### **5.3 PLAN SHEET**

The Soil Profile shall be plotted to a horizontal scale of 1" = 50' and a vertical scale of 1" = 10' and shall contain the following data:

1. Label stations horizontally at 100 ft intervals below the datum line. No overlap from the preceding sheet is necessary. Indicate equality stations.
2. Elevations of datum line and elevations at 10 ft intervals at each end of the sheet.
3. Existing ground elevations along the construction centerline or baseline shall be plotted at 50 ft intervals and these points connected with a solid, thin ink line.
4. Final grade line (graphic representation).
5. Locations of test holes plotted on profile with a solid 0.25 in wide rectangle or hollow 0.25 in wide rectangle from existing ground to depth of hole. gINT Software with the PennDOT gINT Library is to be used to prepare the solid or hollow test hole representations.
6. From all test holes, using gINT Software with the PennDOT gINT Library indicate in double scale 1" = 5' a core 0.5 in wide with symbols for soils encountered and their depths and place this vertically above or below the test hole shown on profile. No interpretation shall be shown between test holes. See example gINT Fence Log Report (produced with PennDOT gINT Library) below:



7. Use gINT Software with the PennDOT gINT Library and Laboratory Test Summary Report to tabulate tests performed on soil samples and the test result:
  - a. Sample Number (if visually identified, refer to sample compared with).
  - b. Boring Number.
  - c. Station.
  - d. Offset.
  - e. Soil Classification.
  - f. Liquid Limit.
  - g. Plasticity Index.
  - h. Mechanical Analysis - Grading.
  - i. Natural Moisture.
  - j. Maximum Density.
  - k. Optimum Moisture.
  - l. California Bearing Ratio.
8. When more than one test or auger boring is made at a station, an accurate graphic cross section of the proposed highway facility shall be drawn in the upper portion of the sheet for that particular station, preferably to a horizontal scale of 1" = 25' and a vertical scale of 1" = 10'. On this section, show the outline of the pavement, median, shoulder, swale, cut and fill slopes and locations and depths of borings. A separate sheet may be used for showing cross sections.
9. When two soil profiles are plotted on the same sheet, they shall be plotted to read from top to bottom.
10. Add the following note to each subsurface boring sheet:

THIS SHEET IS INCLUDED FOR THE CONVENIENCE OF THE DEPARTMENT. SEE SECTION 102.05 OF PUBLICATION 408.

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## **CHAPTER 6**

### **CONTOUR GRADING AND DRAINAGE PLANS, AND EROSION AND SEDIMENT POLLUTION CONTROL PLANS, AND POST CONSTRUCTION STORMWATER MANAGEMENT PLANS**

#### **6.0 INTRODUCTION**

Plans indicating the contour grading and drainage greatly facilitate a three-dimensional design concept and give visual proof of the correlation of the proposed construction with the existing topography. The final plans showing contour grading and drainage information shall reflect the final alignment and profiles and shall include all features reviewed and approved in the Final Design Phase.

Contour Grading and Drainage Plans are required for all projects involving interchanges. The Contour Grading and Drainage Plans shall be numbered consecutively with the Construction Plans and shall be placed at the end of the plans.

Erosion and Sediment Pollution Control (ESPC) Plans are required for all projects involving major earth moving activities and for construction work that requires a Pennsylvania Department of Environmental Protection (PA DEP) permit pursuant to Chapter 102, Chapter 105, or Chapter 106 regulations. ESPC Plans shall be handled as "Also Included" Plans. On smaller projects that do not involve major earth moving activities and environmental permits, the necessary information may be incorporated into the regular Construction Plans, in which case a separate ESPC Plan would not be required.

Post Construction Stormwater Management (PCSM) Plans are required for all projects that require a PA DEP permit pursuant to Chapter 102 regulations. PCSM Plans shall be handled as "Also Included" Plans. On projects that do not require a Chapter 102 permit, but do involve construction of stormwater control measures (SCMs), any information for SCMs included in the project may be incorporated into the Construction Plans, in which case a separate PCSM Plan would not be required.

ESPC Plans and PCSM Plans, as discussed in this Chapter, pertain only to the standard ANSI D size, 34 in × 22 in, drawings. ESPC Plans and PCSM Plans shall be submitted to the appropriate County Conservation District and/or PA DEP Regional Office with their associated permit applications. The final approved plans are submitted with the Construction Plans to the Director, Bureau of Design and Delivery.

#### **6.1 CONTOUR GRADING AND DRAINAGE PLANS**

The Contour Grading and Drainage Plan sheets shall contain the following information:

1. Horizontal and vertical geometry.
2. Ramp and shoulder widths.
3. Rates of superelevation.
4. Superelevation transitions.
5. Pavement width transitions.
6. Length of acceleration and deceleration lanes, including tapers.

7. Emergency escape ramps, open throats on ramps and the type and location of curbs.
8. Islands and treatment, bridges and walls.
9. Right-of-Way lines.
10. Divider widths.
11. Stations and elevations of high points and low points for crest and sag vertical curves on the pavement profile line.
12. Proposed drainage facilities including pipe sizes and all invert and top of grate elevations. Also, box culvert sizes and inverts.
13. Existing 1 ft contours (shown properly screened or shown with short dash lines).
14. Proposed 1 ft contours. Show location of pavement level cross sections. Label 2 ft pavement contours.
15. Existing topography (wooded areas, isolated trees, etc.).
16. Utilities.
17. Springs and wells.
18. Control elevations.
19. North Arrow and coordinate grid (if used).
20. Match lines (common match lines between sheets should be straight for easy matching).
21. Contour Grading and Drainage Plans submitted to the Central Office, Bureau of Project Delivery for review and comments should be color coded as follows: yellow for pavements, orange for shoulders, red for bridge parapets, walls and curbs and blue for channel relocations.
22. The responsible registrants shall place a black ink rubber stamp seal and signature, or use an electronic/digital signature and seal, on the first sheet. The registrants shall also place either a black ink rubber stamp seal, or a facsimile seal, or an electronic/digital seal on all subsequent sheets.

For proposed roadside grading and drainage, the contour intervals shall be 1 ft. In areas of steep slopes, intermediate contour lines should be eliminated to preclude blotches and dark areas when reduced-size prints are made. These contours shall be tied to their respective existing contours to establish the limit of grading. Variable, well-rounded slopes, drainageways and swales shall be designed, where feasible, and coordinated with the bridge and wingwall designs. The drainage system, including all structures, shall be shown.

Proposed contours shall be drawn with continuous lines. These contours shall be in agreement with computed profiles, superelevation rates, transitions and warped surfaces. The station, location and elevation of high and low points of crest and sag vertical curves shall be indicated on the pavement profile line. Pavement and shoulder contours shall be shown at 1 ft intervals. Profiles, contours and/or alignments may require adjustments to achieve a desirable relationship with each other.

Slopes in the area being contoured shall not be contoured from typical, predrawn cross sections. Instead, the Contour Grading and Drainage Plan shall be designed first, after which cross sections for the proposed grading can be prepared. Adjustments of contours and/or cross sections may be required to achieve a desirable relationship. Earthwork quantities shall be obtained from plotted cross sections.

At interchanges, steep roadside earth slopes shall be avoided for all roadways and ramps. Flat slopes should be used, where feasible, for economical construction and maintenance, to increase safety and to enhance the appearance of the area. Broad, rounded drainageways or swale like depressions shall be used, where feasible, to encourage viable turf and easy mower maintenance. V-ditches and small ditches with steep side slopes shall be avoided. Transition grading between cut and fill slopes shall be well-rounded and smooth to blend the highway into the adjacent terrain. Transitions between slope ratios shall be long and natural in appearance.

## **6.2 EROSION AND SEDIMENT POLLUTION CONTROL PLANS**

ESPC Plan drawings shall contain the information described in this section. The primary plan components and their order are as follows.

- Title sheet
- Index sheet
- Construction notes and sequence
- BMP detail sheet
- Plan sheet

The title EROSION AND SEDIMENT POLLUTION CONTROL PLAN shall be prominently placed on each sheet (at the bottom, near the seal). The title shall also identify the appropriate phase or stage.

**A. Title Sheet.** The information presented in this section shall be shown in the appropriate location.

**1. Construction Plan Title Sheet.** Supplemental Plans do not have a separate Title Sheet when submitted with the Construction Plans. When submitted separately, a Title Sheet is required. When submitted with the Construction Plans, the following data from the Construction Plans Title Sheet section shall be incorporated into the first sheet of the ESPC Plan (Title Sheet). Refer to [Chapter 2, Section 2.1](#) for additional information.

**a. Identification Block**

**b. Professional Engineer's Seal Block.** The responsible engineer shall place a black ink rubber stamp seal and sign, or use electronic/digital signature and seal, on the first sheet. A black ink rubber stamp seal, a facsimile seal, or an electronic/digital seal must be placed on all subsequent sheets.

**2. General Notes.** The following general notes shall be provided on the Title Sheet of the ESPC Plan. Additional project specific general notes can be added to this section as needed.

**a. General Site Responsibility.** The following notes shall be included regarding responsibility of installing and maintaining the ESPC BMPs.

IN ACCORDANCE WITH THE CURRENT POLICIES AND PRACTICES IN THE COMMONWEALTH OF PENNSYLVANIA TO CONTROL EROSION, IT IS REQUIRED THAT THE CONTRACTOR FOR THIS PROJECT CONFORM WITH THE FOLLOWING GUIDELINES AS THEY ARE APPLICABLE AND IN ACCORDANCE WITH THE INSTRUCTIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP) AND THE PENNDOT REPRESENTATIVE.

KEEP A COPY OF THE APPROVED PLAN DRAWINGS STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY AT THE PROJECT SITE AT ALL TIMES.

FAILURE TO CORRECTLY INSTALL ESPC BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF ESPC BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY PADEP AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

- b.** Construction Wastes. The note shall identify the construction wastes anticipated for the project.
- c.** Waste Disposal. The note shall provide detailed directions for the recycling and/or disposal of all construction wastes and building materials. The recycling or disposal, whether off- or on-site, should be done in accordance with PADEP's solid waste management regulations in 25 PA Code Section 260.1, 271.1, and 287.1.
- d.** Construction Inspection. The following notes shall be included regarding construction inspection and BMP maintenance.

INSPECT ALL ESPC BMPS ACCORDING TO THE SCHEDULES OUTLINED IN THIS PLAN. PERFORM ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK IMMEDIATELY, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE-MULCHING, AND RE-NETTING.

MAINTAIN A LOG ON SITE SHOWING DATES THAT ESPC BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED.

IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, IMPLEMENT APPROPRIATE BMPS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE COUNTY CONSERVATION DISTRICT OR PADEP. ALSO, IMMEDIATELY NOTIFY THE DEPARTMENT IN ACCORDANCE WITH PUBLICATION 408, SPECIFICATIONS, SECTION 110.02.

- e.** Additional Maps. The note shall provide the location of any item required that is not included in the ESPC Plan drawings. Certain items may be included on separate scale maps to improve clarity. Examples include a topographic map showing the drainage area to a BMP, or a soils map showing the project limits.
- f.** Construction Pollution Potential. The note should discuss the potential for geologic formations or soil conditions to cause pollution during construction and construction practices to minimize pollution potential.
- g.** Miscellaneous Notes. The following miscellaneous notes shall be included.

CONDUCT ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS, IN ACCORDANCE WITH THE APPROVED ESPC PLAN.

LIMIT CLEARING, GRUBBING, AND TOPSOIL STRIPPING TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. DO NOT COMMENCE WORK IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE ESPC BMPS SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS DOCUMENT.

PUMP WATER FROM WORK AREA(S) TO UNDISTURBED VEGETATED AREAS AND ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN.

SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

RETURN SEDIMENT THAT IS TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY AND DISPOSE OF PROPERLY. DO NOT WASH, SHOVEL, OR SWEEP THE SEDIMENT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

SPRINKLE OR APPLY DUST SUPPRESSOR OR KEEP DUST WITHIN TOLERABLE LIMITS AT THE SITE.

- h.** Optional Notes. The following optional notes shall be included if they apply to the project.

HANDLE CONCRETE WASH WATER IN THE MANNER DESCRIBED IN THE PLAN. IN NO CASE SHALL IT BE ALLOWED TO ENTER SURFACE WATERS OR GROUNDWATER SYSTEMS.

KEEP ALL CHANNELS FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.

IMMEDIATELY BACKFILL UNDERGROUND UTILITIES CUTTING THROUGH AN ACTIVE CHANNEL AND RESTORE THE CHANNEL TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. CONVEY BASE FLOW WITHIN THE CHANNEL PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.

ENSURE THAT SUFFICIENT OVER-EXCAVATION IS PROVIDED FOR RIPRAP CHANNELS SUCH THAT THE SPECIFIED CHANNEL DIMENSIONS ARE ACHIEVED AFTER PLACEMENT OF THE STONE.

KEEP SEDIMENT BASINS AND/OR TRAPS FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN OR TRAP OUTLET STRUCTURES AND POLLUTE WATERS OF THE COMMONWEALTH.

PROTECT SEDIMENT BASINS FROM UNAUTHORIZED ACTS BY THIRD PARTIES.

IMMEDIATELY PERMANENTLY REPAIR ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART BECAUSE OF A BASIN OR TRAP DISCHARGE. THE REPAIR MUST BE SATISFACTORY TO THE CONSERVATION DISTRICT AND THE OWNER OF THE DAMAGED PROPERTY.

- i.** Stabilization. The following notes related to permanent stabilization shall be included.

PLACE TOPSOIL AS INDICATED ON THE PLAN AND IN ACCORDANCE WITH PUBLICATION 408 - SPECIFICATIONS.

PERMANENTLY STABILIZE ALL GRADED AREAS IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED.

USE THE SPECIFIED ROLLED EROSION CONTROL PRODUCT(S) ON ALL SEEDED AREAS WITHIN 50 FT OF NON-SPECIAL PROTECTION SURFACE WATERS, WITHIN 100 FT OF SPECIAL PROTECTION SURFACE WATERS, AND WITH SLOPES 3H:1V AND STEEPER.

STABILIZE ALL DISTURBED AREAS IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OF THE PROJECT. APPLY MULCH OR PROTECTIVE BLANKETING DURING NON-GERMINATING MONTHS. APPLY TEMPORARY STABILIZATION TO DISTURBED AREAS THAT WILL BE REACTIVATED WITHIN ONE YEAR; IF LONGER THAN ONE YEAR, APPLY PERMANENT STABILIZATION.

A DISTURBED AREA IS CONSIDERED PERMANENTLY STABILIZED WHEN IT IS COVERED WITH EITHER (1) A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION; OR (2) AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.

ENSURE THAT ESPC BMPS REMAIN FUNCTIONAL UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP.

- j.** Fill Procedures. The following notes related to the quality of fill and fill procedures shall be included.

OBTAIN ESPC PLAN APPROVAL FOR ALL OFF-SITE WASTE AND BORROW AREAS FROM THE CONSERVATION DISTRICT OR PADEP, AND FULLY IMPLEMENT THE PLAN PRIOR TO ACTIVATING THE SITE.

CLEAR, GRUB, AND STRIP TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL FROM FILL AREAS.

KEEP ALL TOPSOIL STOCKPILED ONSITE IN THE LOCATION (S) SHOWN ON THE PLAN. PROVIDE THE AMOUNT OF TOPSOIL REQUIRED TO COMPLETE THE FINAL GRADING AND TO ESTABLISH VEGETATION. PROTECT STOCKPILE(S) AS SHOWN ON THE PLAN. PLACE STOCKPILES NO GREATER THAN 35 FT IN HEIGHT WITH SLOPES NO STEEPER THAN 2H:1V.

COMPACT ALL FILLS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC. IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. PLACE ALL EARTHEN FILLS IN MAXIMUM 9-INCH THICK COMPACTED LAYERS.

DO NOT PLACE FILLS ON SATURATED OR FROZEN SURFACES. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH CONSTRUCTION OF SATISFACTORY FILLS. DO NOT INCORPORATE SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILLS.

ENSURE THAT CUT AND FILL SLOPES ARE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.

- k.** Clean Fill and Environmental Due Diligence. The following clean fill and environmental due diligence notes shall be provided. Additional project specific notes can be added to this section as needed.

THE DEPARTMENT WILL PROVIDE TO THE CONTRACTOR A COMPLETED DUE DILIGENCE FORM FOR EXCESS MATERIAL THAT NEEDS TO BE EXPORTED TO AN OFF-SITE LOCATION. THE CONTRACTOR WILL PROVIDE TO THE DEPARTMENT A DUE DILIGENCE FORM FOR ALL MATERIAL THAT COMES ONTO THE SITE.

ENSURE THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL, DEFINED AS UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOILS, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT (NOT INCLUDING MILLED OR PROCESSED FOR REUSE), BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED.

ANY PLACEMENT OF CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL.

ENVIRONMENTAL DUE DILIGENCE MUST BE PERFORMED TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S MANAGEMENT OF FILL POLICY.

3. **Plan Preparer.** The following information regarding the plan preparer shall be provided.
  - a. PennDOT Engineering District or consulting firm name as appropriate
  - b. Professional Engineer who has direction and control of the engineering aspects of the ESPC Plans
  - c. Contact information (e.g., mailing address)
4. **Project Contacts.** The name, mailing address, and phone number of the applicable PennDOT Engineering District, County Conservation District and/or PADEP Regional Office for the project must be provided.
5. **Sheet Index Block.** A sheet index block shall be provided with the sheet numbers for the following items (at a minimum).
  - a. Title sheet
  - b. Index map
  - c. Construction/BMP sequence
  - d. Detail sheets
  - e. Plan sheets
6. **Waters of the Commonwealth.** The existing and designated uses for all receiving surface waters shall be identified per PA Code Title 25, Environmental Protection, Chapter 93, Water Quality Standards.

**7. Location Map.** A USGS 7.5-minute topographic map shall be provided on the Title Sheet and serve as the project location map. In addition to the USGS map, the following information shall be provided on the location map.

- a. USGS quadrangle name
- b. Limits of work
- c. Bar scale (1" = scale appropriate for project size)
- d. Orientation (north arrow at top left of map)
- e. Legend showing project location and USGS road classifications

**8. Size of Disturbance.** The total area of disturbance as well as any temporary or permanent wetland disturbances should be identified. This should provide an overview of the information required to determine applicable permitting requirements. Any area of applicable road maintenance activities should be identified per PA Code Title 25, Chapter 102. Road maintenance activities are defined in Appendix E of Chapter 12, Publication 584, *PennDOT Drainage Manual*. Additionally, any area of work within the 100-year floodplain as described in PA Code Title 25, Chapter 105 and Chapter 106 should be identified.

**9. PA One Call Block.** Include a PA One Call information block which contains the PA One Call logo, contact info, project location, and serial number.

**10. Summary of ESPC Plan Quantities.** All items with their respective quantities payable under the Construction Contract shall be tabulated on a Summary of Quantities Sheet and the Summary of Quantities Sheet made part of the Construction Plans. Refer to [Chapter 2, Section 2.4](#).

**11. Tabulation of ESPC Plan Quantities.** Contract items shall be tabulated as shown in the examples of typical Tabulation of Quantities Sheets in [Chapter 15, Section 15.2](#). These sheets shall follow the Summary of Quantities Sheet in the Construction Plan. Refer to [Chapter 2, Section 2.5](#).

**B. Index Sheet.** The information presented in this section shall be shown on the Index Sheet, in the appropriate location, for all ESPC Plans. Small projects, such as those with a single plan sheet, do not require an index sheet. Larger projects may require multiple index sheets.

**1. Construction Plan Index Map.** The Index Map from the project Construction Plan shall serve as the foundation of the ESPC Plan Index Sheet.

**2. ESPC Information.** The following general ESPC information shall be included in the Index Map.

- a. Existing streams and wetlands including watershed boundaries
- b. Soil type map boundaries and labels
- c. Locations of any materials, including geologic conditions and soils, which could cause pollution during construction (e.g., exposure of pyrite)

**C. Construction Notes and Sequence.** The information presented in this section shall be shown on the sequence sheets for all ESPC Plans. Larger projects may require multiple sheets to fit the entire sequence.

**1. General BMP Installation and Removal Notes.** The following general notes shall be provided. Additional project specific general BMP installation and removal notes can be added to this section as needed.

AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING, CLEARING AND GRUBBING, INVITE ALL CONTRACTORS, THE DEPARTMENT'S REPRESENTATIVE, AND A REPRESENTATIVE FROM THE COUNTY CONSERVATION DISTRICT (CCD) OR PA DEP TO AN ON-SITE PRE-CONSTRUCTION MEETING.

THE PERMITTEE OR CO-PERMITTEE SHALL NOTIFY THE CCD/PA DEP UPON INSTALLATION OF ALL PERIMETER SEDIMENT CONTROL BMPs AND AT LEAST 3 BUSINESS DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES.

AT LEAST 3 BUSINESS DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INC. AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND REFERENCE THE FOLLOWING SERIAL NUMBERS:

XXXXXXXXXXXX [INSERT APPROPRIATE MUNICIPALITY]

PROCEED WITH ALL EARTH DISTURBANCE ACTIVITIES IN ACCORDANCE WITH THE BMP SEQUENCE. DEVIATION FROM THE SEQUENCE REQUIRES WRITTEN APPROVAL FROM THE CCD/PA DEP PRIOR TO IMPLEMENTATION. COORDINATE ANY/ALL PROPOSED CHANGES TO THE APPROVED PLAN WITH THE PENNDOT REPRESENTATIVE. UPON REVIEW AND CONCURRENCE WITH THE PENNDOT REPRESENTATIVE, COMMUNICATE CHANGES AS FOLLOWS:

- i. DISCUSS THE SEQUENCE DEVIATION WITH THE CCD/PA DEP AND OBTAIN VERBAL APPROVAL.
- ii. MODIFY THE ESPC PLAN (RED-LINE THE DRAWING) AND GET A SIGNATURE/INITIALS FROM THE CCD/PA DEP AT THE SITE OR GET ACKNOWLEDGEMENT THROUGH AN ELECTRONIC PERMITTING SYSTEM. RETAIN THE EARTH DISTURBANCE INSPECTION REPORT ACKNOWLEDGING THE FIELD CHANGE.
- iii. IF NEEDED, FAX OR EMAIL THE MODIFIED SEQUENCE TO THE CCD/PA DEP.

**2. Pre-construction.** The following pre-construction notes shall be provided. Additional project specific notes can be added to this section as needed.

PERFORM A PRE-PROJECT SITE EVALUATION AND DETERMINE IF THERE ARE AREAS WITHIN THE LIMITS OF DISTURBANCE THAT SHOULD NOT BE DISTURBED DURING THE LIFE OF THE PROJECT.

CLEARLY MARK THE LIMITS OF DISTURBANCE AT THE LOCATIONS INDICATED ON THE PLAN. USE STAKES AND FLAGGING THAT ARE DURABLE ENOUGH TO LAST THE ENTIRE DURATION OF ACTIVE DISTURBANCE. INSTALL PROTECTIVE FENCING AROUND SENSITIVE AREAS SHOWN ON THE PLAN AND/OR IDENTIFIED DURING THE PRE-PROJECT EVALUATION. CONSTRUCTION VEHICLES ARE NOT PERMITTED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE DRAWINGS.

**3. Construction Sequence.** Include all steps to install and remove ESPC BMPs with respect to other construction activities.

**4. Final Inspection.** Include instructions on the final inspection and BMP removal process. The following notes shall be provided. Additional project specific notes can be added to this section as needed.

UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, CONTACT THE CCD/PA DEP FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF ESPC BMPs. PERMANENTLY STABILIZED MEANS COVERED WITH EITHER (1) A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION; OR (2) AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.

UPON APPROVAL FROM THE CCD/PA DEP, REMOVE TEMPORARY ESPC BMPS AND CONVERT DESIGNATED SEDIMENT TRAPS/BASINS TO THEIR PERMANENT STORMWATER CONFIGURATIONS. IMMEDIATELY STABILIZE AREAS DISTURBED DURING REMOVAL OR CONVERSION OF BMPS. AVOID DOING REMOVAL AND CONVERSION DURING THE NON-GERMINATING SEASON.

CONTACT THE CCD/PA DEP TO SCHEDULE A FINAL INSPECTION WHEN ALL ESPC BMPS ARE REMOVED AND/OR CONVERTED.

**D. BMP Detail Sheet.** Each ESPC BMP proposed on a project shall have an accompanying detail that provides enough information on installation, inspection, maintenance, and repair to ensure proper construction and function. Large or complex BMPs (e.g., sediment traps and basins) may require multiple Detail Sheets for each BMP. The information presented in this section shall be shown for each BMP in the appropriate location.

**1. BMP Standard Details.** Development of BMP details for all projects shall be completed by first referencing the standard Erosion and Sedimentation Control details from the RC Standards (Publication 72M, *Standards for Roadway Construction*). BMPs not present in the RC Standards should utilize the standard construction details in PADEP's Erosion and Sediment Pollution Control Manual. All details provided should have dimensions and specifications labeled as necessary to aid in construction. The type, location, and schedule should also be provided for any seeding, plantings, or other techniques used to ensure BMP stabilization. BMP sections do not have to be to scale.

**2. BMP Inspection, Maintenance, and Repair Information.** Inspection, maintenance and repair (IMR) information shall be provided for each BMP type proposed on a project. The IMR information should be detailed enough to ensure that the installed BMPs prevent sediment-laden runoff from leaving the construction site until such time that the site is stabilized and the BMPs are removed.

**E. Plan Sheets.** The following general information presented in this section shall be shown in the appropriate locations. The Plan Sheets in ESPC Plans shall use the same scale as the Construction Plan for all projects.

1. Construction Plan sheet components
2. Chapter 102 permit boundary and limits of disturbance
3. Existing and proposed contours
4. Surface waters
5. Riparian forest buffer(s)
6. Watershed boundaries
7. Discharge points
8. ESPC BMP locations
9. Plan Sheet symbology legend

**1. Construction Plan Sheet Components.** The following items from the Construction Plans shall also be shown. Refer to [Chapter 2, Section 2.6](#) for additional information.

- a. Bar scales
- b. Centerlines and baselines
- c. Plan sheet requirements (e.g., north arrow, identification block, professional engineer's seal, etc.)
- d. Existing topography
- e. Areas to be abandoned or vacated
- f. Proposed work (e.g., roadways, structures, guide rail, pipe and inlets, sidewalks and curb ramps)
- g. Existing and proposed utilities
- h. Right-of-way and easement lines (no offset labels)

**2. Permit Boundaries.** The Chapter 102 permit boundary and limits of disturbance shall be shown and clearly labeled to avoid confusion where overlapping may occur.

**3. Existing and Proposed Contours.** Both existing and proposed contours shall be provided on the Plan Sheets. Each should be properly shown and labeled as described below to clearly differentiate between existing and proposed conditions.

Existing contours shall be shown at 1 ft increments; however, 2 ft increments are acceptable where project conditions or survey limit the use of 1 ft contours. Existing contours should be shown dashed at a weight and color (e.g., gray) that is easily differentiated from any proposed contours also shown on the Plan Sheet. Proposed contours should be shown at 1 ft increments everywhere and, in rare cases, may be acceptable in 2 ft increments outside of the roadway and outside of BMP/SCM footprints. Proposed contours should be drawn as a solid line at a weight and color (e.g., black) that is easily differentiated from any existing contours also shown on the Plan Sheet.

Label contour elevations at major intervals of every 5 ft for 1 ft contours and at 10 ft for 2 ft contours. Additional contour labels shall be added to BMPs/SCMs to ensure proper detail.

**4. Surface Waters.** Indicate the location of surface waters of this Commonwealth that may receive runoff within or from the project site and their classification under 25 PA Code Chapter 93 (relating to water quality standards).

**5. Riparian Forest Buffer(s).** Existing and/or proposed riparian forest buffers within the project area shall be shown on the Plan Sheets. Call outs for protection of these areas not to be impacted should also be provided.

**6. Watershed Boundaries.** In addition to displaying all streams and wetlands on the Plan Sheets, the following boundary information shall be provided as applicable.

- a. 100-year floodplain boundary for streams.
- b. 100-year floodway boundary for streams (per detailed FEMA mapping; 50-ft offset from top of bank; or as determined by evidence to the contrary).
- c. Drainage boundary for the receiving surface water (including the stream name and the existing and designated use).

**7. Discharge Points.** All locations within the right-of-way in which runoff concentrates and reaches a surface water must be identified as a discharge point. Locations in which concentrated runoff leaves the right-of-way before reaching a surface water are also considered discharge points. Discharge points shall be labeled with "DP" followed by a three-digit number, starting with DP 001.

**8. BMP Locations.** The location of all proposed ESPC BMPs should be clearly shown and labeled. Standard symbology should be used to denote most BMPs on the Plan Sheets. Grading required to construct sediment basins, sediment traps, channels and berms must be shown on the plan; thus a symbol alone is insufficient for these BMPs.

**9. Plan Sheet Symbology Legend.** Each Plan Sheet shall include a legend that defines the symbology used on the sheet. Note that each legend is specific to the Plan Sheet on which it appears. Items that do not appear on a particular Plan Sheet should not be included in the legend. As applicable, the symbology for the following minimum information shall be included in the legend.

- a. Existing and proposed contours
- b. Existing and proposed drainage pipes and structures
- c. Chapter 102 permit boundary and limits of disturbance
- d. Proposed site access BMPs (e.g., rock construction entrance)
- e. Proposed sediment barriers and filters
- f. Proposed runoff conveyance BMPs
- g. Proposed outlet protection (e.g., rock apron, energy dissipater, RC-30M, rock basin, level spreaders)
- h. Proposed BMPs for instream work and dewatering

### **6.3 POST CONSTRUCTION STORMWATER MANAGEMENT PLANS**

Post Construction Stormwater Management (PCSM) Plan drawings shall contain the information described in this section. The primary plan components and their order are as follows.

- Title sheet
- Index sheet
- Detail sheet
- Plan sheet

The title POST CONSTRUCTION STORMWATER MANAGEMENT PLAN shall be prominently placed on each sheet (at the bottom, near the seal).

**A. Title Sheet.** The information presented in this section shall be shown in the appropriate location.

**1. Construction Plan Title Sheet.** Supplemental Plans do not have a separate Title Sheet when submitted with the Construction Plans. When submitted separately, a Title Sheet is required. When submitted with the Construction Plans, the following information from the Construction Plans Title Sheet section shall be incorporated into the first sheet of the PCSM Plan. Refer to [Chapter 2, Section 2.1](#) for additional information.

**a. Identification Block**

**b. Professional Engineer's Seal Block.** The responsible engineer shall place a black ink rubber stamp seal and sign, or use electronic/digital signature and seal, on the first sheet. A black ink rubber stamp seal, a facsimile seal, or an electronic/digital seal must be placed on all subsequent sheets.

**2. General Notes.** The following general notes shall be included. Additional project specific general notes can be added to this section as needed.

**a. Maintenance Responsibility and Ownership.** The following note shall be included regarding maintenance responsibility and ownership of Department SCMs. If applicable, information pertaining to an agreement assigning ownership or maintenance responsibility to another party should be provided.

THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION (PENNDOT) IS RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE (O&M) OF THE STORMWATER CONTROL MEASURES (OR STORMWATER BMPS) SHOWN IN THIS PLAN.

**b. Long-Term Operation and Maintenance Schedule.** The following note shall be included regarding the long-term operation and maintenance of Department-owned SCMs.

CONSISTENT WITH 25 PA CODE CHAPTER 102, THE POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN CONSISTS OF FULL-SIZE CONSTRUCTION DRAWINGS, A NARRATIVE (IF NEEDED), AND PCSM MODULE 2. DESCRIPTIONS OF THE INSPECTION AND MAINTENANCE REQUIREMENTS FOR EACH STORMWATER CONTROL MEASURE TYPE ARE ATTACHED TO PCSM MODULE 2.

**c. Construction Wastes.** The note shall identify the construction wastes anticipated for the project.

**d. Waste Disposal.** The note shall provide detailed directions for the recycling and/or disposal of all materials associated with and from the SCMs. The recycling or disposal, whether off- or on-site, should be done in accordance with PA DEP's solid waste management regulations in 25 PA Code §260.1, 271.1, and 287.1.

- e. **Construction Inspection.** The following note shall be included regarding construction inspection and SCM installation.

IN ACCORDANCE WITH PUBLICATION 408, SPECIFICATIONS, SECTION 107.28, ENSURE THAT A LICENSED PROFESSIONAL AND/OR THEIR DESIGNEE IS PRESENT ON SITE TO OBSERVE THE CRITICAL STAGES OF CONSTRUCTION OF SCMS, WHICH ARE NOTED IN THE INSTALLATION SEQUENCE OF EACH SCM.

- f. **Additional Maps.** The note shall provide the location of any item required that is not included in the PCSM Plan drawings. Certain items may be included on separate scale maps to improve clarity. Examples include a topographic map showing the drainage area to an SCM, or a soils map showing the project limits.

- g. **Construction Pollution Potential.** The note should discuss the potential for either geologic formations or soil conditions to cause pollution during construction on a project.

**3. Plan Preparer.** The following information regarding the plan preparer shall be provided.

- a. PennDOT Engineering District or consulting firm name as appropriate
- b. Professional Engineer who has direction and control of the engineering aspects of the PCSM Plan
- c. Contact information (e.g., mailing address)

**4. Project Contacts.** The name, mailing address, and phone number of the applicable PennDOT Engineering District, County Conservation District and/or PA DEP Regional Office for the project must be provided.

**5. Sheet Index.** A sheet index shall be provided. At a minimum, the sheet numbers for the following items should be included.

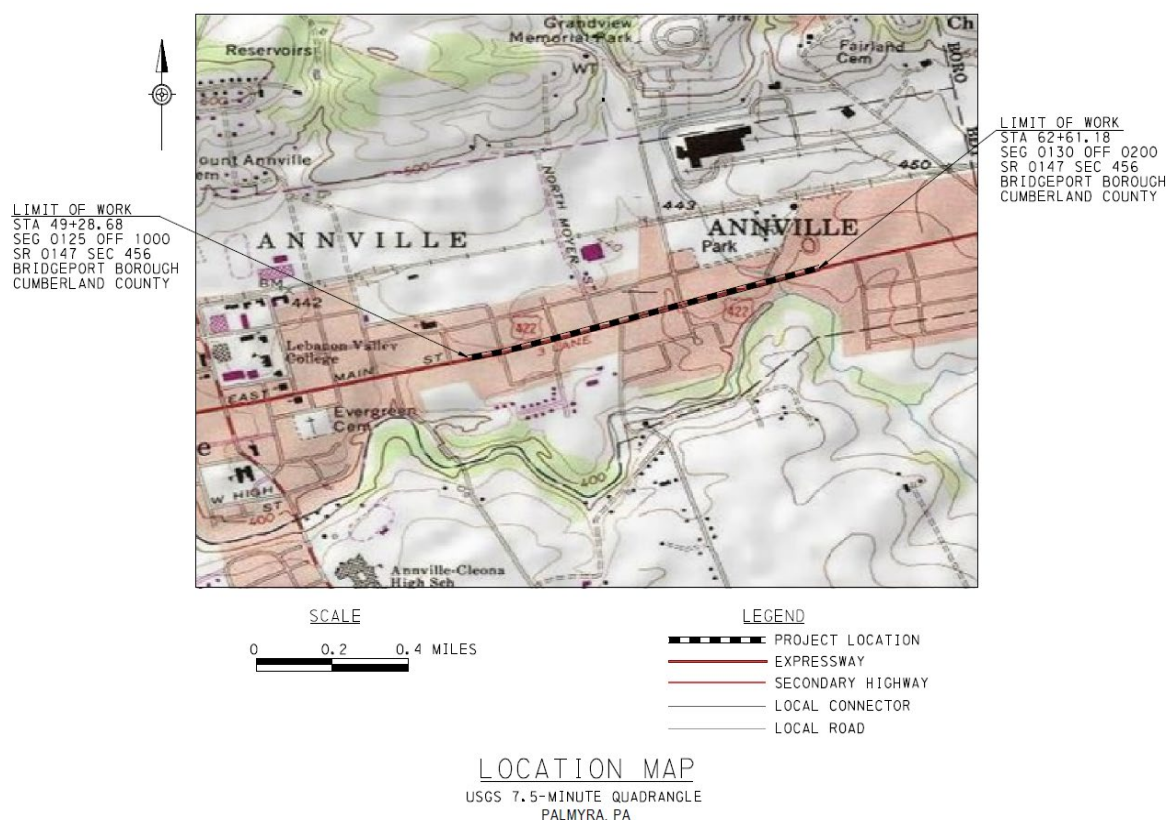
- a. Title sheet
- b. Index map
- c. Detail sheets
- d. Plan sheets

**6. Waters of the Commonwealth.** The existing and designated uses for all receiving surface waters shall be identified per PA Code Title 25, Environmental Protection, Chapter 93, Water Quality Standards.

**7. Riparian Buffers.** A statement on the location of the project's earth disturbance activities relative to any existing or proposed riparian buffer areas shall be included. As applicable, include additional information on any riparian buffer management plan required under Title 25, Chapter 102, Section 14 of the Pennsylvania Code.

**8. Location Map.** A USGS 7.5-minute topographic map shall be provided on the title sheet and serve as the project location map. [Figure 6.1](#) is an example of a location map. In addition to the USGS map, the following information shall be provided with the location map.

- a. USGS quadrangle name
- b. Limits of work
- c. Bar scale (1" = scale appropriate for project size)
- d. Orientation (north arrow at top left of map)
- e. Legend showing project location and USGS road classifications



**FIGURE 6.1**  
**EXAMPLE OF A LOCATION MAP**

**9. Stormwater Control Measure Location Table.** The SCM Location Table shall serve as an SCM index for PCSM Plans. The table provides an overview of the SCMs on the project and should include the following information. An example table is shown in [Figure 6.2](#).

- SCM type
- Total number of each SCM type on project
- SCM identification number
- SCM location (e.g., project station(s))
- Sheet reference number for SCM Plan Sheet and Detail Sheet

Note that the SCM identification number is a temporarily assigned number for plan and permit purposes. The format shall be SCM ID ####. In accordance with Publication 888, *Stormwater Control Measure Maintenance Manual*, a permanent identification number will be assigned by BOMO after project completion.

| SCM TYPE              | TOTAL<br># | ID                       | LOCATION(S)                    | PLAN<br>SHEET<br># | DETAIL<br>SHEET<br># |
|-----------------------|------------|--------------------------|--------------------------------|--------------------|----------------------|
| INFILTRATION<br>BASIN | 2          | SCM ID 001<br>SCM ID 002 | STA 51+00, RT<br>STA 53+50, LT | 23<br>25           | 12<br>13             |
| BIORETENTION          | 1          | SCM ID 003               | STA 60+25, LT                  | 28                 | 14                   |
| VEGETATED<br>SWALE    | 10         | SCM ID 004-013           | NUMEROUS                       | 23-28              | 10                   |

**FIGURE 6.2  
EXAMPLE OF SCM LOCATION TABLE**

**10. Summary of PCSM Plan Quantities.** All items with their respective quantities payable under the Construction Contract shall be tabulated on a Summary of Quantities Sheet and the Summary of Quantities Sheet made part of the Construction Plans. See [Chapter 2, Section 2.4](#).

**11. Tabulation of PCSM Plan Quantities.** Contract items shall be tabulated as shown in the examples of typical Tabulation of Quantities Sheets in Chapter 15, Section 15.2. These sheets shall follow the Summary of Quantities Sheet in the Construction Plan. See [Chapter 2, Section 2.5](#).

**B. Index Sheet.** The information presented in this section shall be shown on the PCSM Plan Index Sheet. Larger projects may require multiple index sheets.

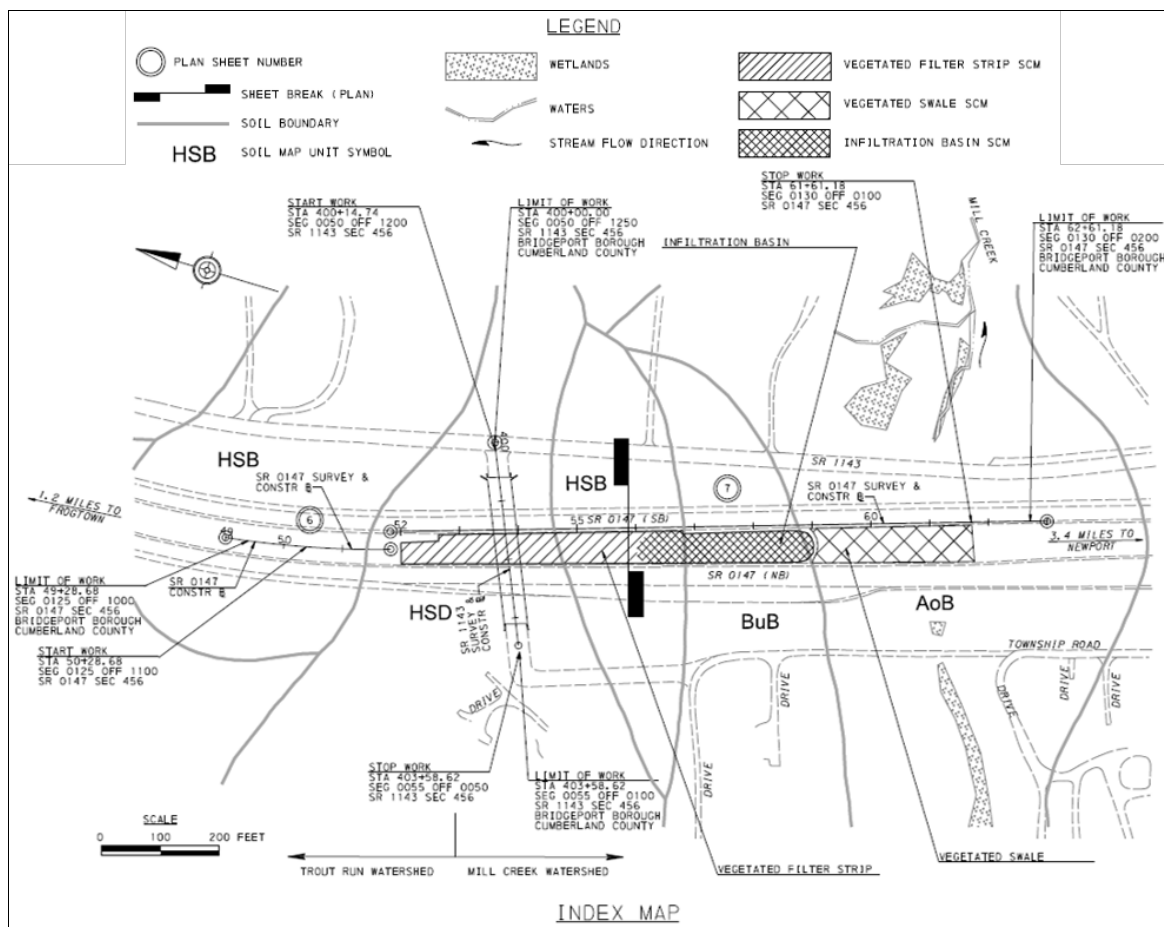
**1. Construction Plan Index Map.** The index map from the project Construction Plan shall serve as the foundation of the PCSM Plan Index Sheet. See [Chapter 2, Section 2.2.A](#) for information that is included in the index map. The following items are exceptions that should not be shown on the index map.

- a. Temporary roadways
- b. Property lines and owner's names

**2. PCSM Information.** Additional information that shall be included in the index map is as follows. An example of an index map is shown in [Figure 6.3](#).

- a. SCM locations with labels
- b. Existing streams and wetlands
- c. Watershed boundaries for streams
- d. Soil type boundaries and labels
- e. Existing and proposed riparian forest buffers
- f. Locations of any materials, including geologic conditions and soils, which could cause pollution during construction (e.g., exposure of pyrite)

**3. Legend.** A legend of symbols used on the index map shall be included.



**FIGURE 6.3  
EXAMPLE OF INDEX MAP**

**C. Detail Sheet.** The following information presented in this section shall be shown for each SCM in the appropriate location. SCMs with complex configurations, outlet works, or plantings may require multiple detail sheets.

1. Plan view (as needed)
2. SCM representative sections
3. Primary and emergency outlet structure details
4. SCM installation sequence and notes
5. Planting and stabilization specifications
6. SCM geometry information

**1. Plan View.** A plan view shall be provided on the Detail Sheet for all basins and any other SCM that may need to be shown at a larger scale for clarity. The scale does not have to be altered from the plan sheets, but it can be if enlarging the drawing improves clarity. Basemap items may be removed to improve clarity; existing and proposed contours, roadways, buildings, drainage systems, centerline or baseline, and right-of-way information should be shown. Drawn to scale, the plan view provides the orientation and location of any SCM sections on the detail sheet. SCM components such as outlet structures, spillways, or top of berm elevations should also be labeled on the plan view.

**2. SCM Representative Sections.** A minimum of two section views, longitudinal and transverse, shall be provided for each SCM type with appropriate detail to aid in construction. Additional section views may be necessary for certain SCMs. Sections should go through the primary and emergency spillways, if applicable. Dimensions and specifications should be labeled appropriately. A general section view with an accompanying table of design information is adequate for certain SCM types, such as vegetated swales, vegetated filter strips, and subsurface infiltration trenches. SCM sections do not have to be to scale.

**3. Primary and Emergency Outlet Structure Details.** Primary and emergency outlet structure information shall be included for all applicable SCMs. Information may include concrete outlet structure, emergency spillway, trash rack, concrete collar, etc. Multiple section views may be necessary for certain outlet structure designs. Outlet structure sections do not have to be to scale.

**4. SCM Installation Sequence and Notes.** Typical notes cover the SCM construction process from site preparation, through excavation and construction, to stabilization and vegetation establishment. A complete and specific sequence of SCM installation, including critical stages, shall be provided for each SCM type. Separate sequences may be appropriate for SCMs of the same type; for example, two detention basins.

**5. Planting and Stabilization Specifications.** The type, location, and schedule shall be provided for any seeding, plantings, or other techniques used to ensure permanent SCM stabilization.

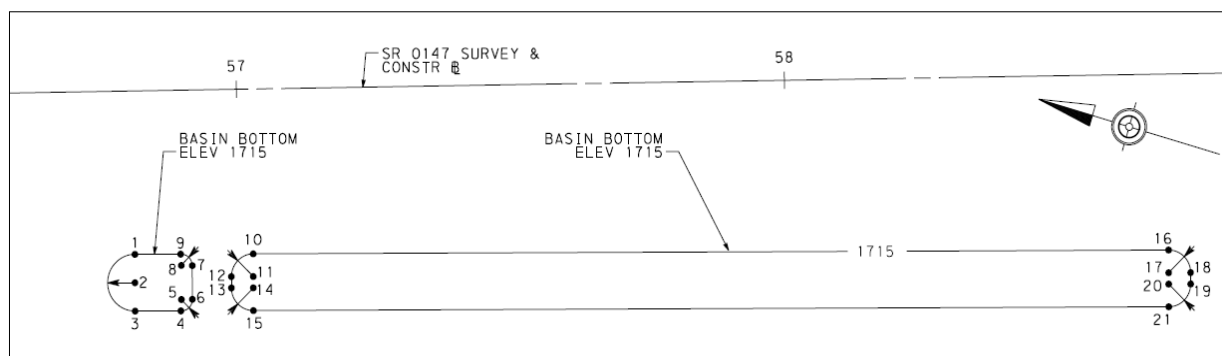
**6. SCM Geometry Information.** The SCM geometry information provides pertinent dimension and elevation points referenced to the construction baseline that aid the contractor in properly constructing an SCM. Geometry information is recommended for SCMs with large footprints and irregular shapes. Linear SCMs, such as level spreaders and infiltration berms, may also benefit from a geometry table.

The geometry information consists of a simplified plan view displayed to scale and a table summarizing the geometry information. In addition to being created to scale, the simplified plan view should display the following:

- a. Construction baseline reference or state plane coordinates
- b. Pertinent SCM contours for geometry points (typically basin bottom, top of berm, forebay, and spillway)
- c. Underdrain layout, if applicable
- d. Geometry points (both elevation and radius)

The less symmetrical an SCM is shaped, the more geometry points that may be needed to ensure a proper construction stake out. The points should be placed at all radii and points of inflection on the pertinent SCM contours. All points placed on the plan view are summarized in a geometry table. [Figure 6.4](#) is an example of a geometry plan and table for an SCM. At a minimum, the following information should be provided in the table:

- a. Point number
- b. Radius (geometry radius points only)
- c. Station and offset or state plane coordinates
- d. Elevation (geometry points only)



**INFILTRATION BASIN BOTTOM**

| POINT NO. | RADIUS (FT) | STATION  | OFFSET (FT) | ELEVATION (FT) |
|-----------|-------------|----------|-------------|----------------|
| 1         | ---         | 56+81.00 | 28.80 LT    | 1715.00        |
| 2         | 5.00        | 56+81.10 | 33.80 LT    | ---            |
| 3         | ---         | 56+80.80 | 38.80 LT    | 1715.00        |
| 4         | ---         | 56+89.30 | 38.90 LT    | 1715.00        |
| 5         | 2.00        | 56+89.40 | 36.90 LT    | ---            |
| 6         | ---         | 56+91.40 | 36.90 LT    | 1715.00        |
| 7         | ---         | 56+91.50 | 31.00 LT    | 1715.00        |
| 8         | 2.00        | 56+89.50 | 30.90 LT    | ---            |
| 9         | ---         | 56+89.40 | 28.90 LT    | 1715.00        |
| 10        | ---         | 57+02.60 | 29.10 LT    | 1715.00        |
| 11        | 4.00        | 57+02.60 | 33.10 LT    | ---            |
| 12        | ---         | 56+98.60 | 33.00 LT    | 1715.00        |
| 13        | ---         | 56+98.60 | 35.00 LT    | 1715.00        |
| 14        | 4.00        | 57+02.60 | 35.10 LT    | ---            |
| 15        | ---         | 57+02.50 | 39.10 LT    | 1715.00        |
| 16        | ---         | 58+69.90 | 31.00 LT    | 1715.00        |
| 17        | 4.00        | 58+69.80 | 35.00 LT    | ---            |
| 18        | ---         | 58+73.90 | 35.10 LT    | 1715.00        |
| 19        | ---         | 58+73.80 | 37.10 LT    | 1715.00        |
| 20        | 4.00        | 58+69.80 | 37.00 LT    | ---            |
| 21        | ---         | 58+69.80 | 41.00 LT    | 1715.00        |

**FIGURE 6.4  
EXAMPLE OF SCM GEOMETRY PLAN AND TABLE**

**D. Plan Sheets.** The following general information presented in this section shall be shown on PCSM Plan Sheets.

1. Construction Plan sheet components
2. Chapter 102 permit boundary and limits of disturbance
3. Existing and proposed contours
4. Surface waters
5. Riparian forest buffer(s)
6. Discharge points
7. Watershed boundaries
8. SCM locations and labels
9. Infiltration testing and test pit locations
10. Symbology legend

**1. Construction Plan Sheet Components.** The following items from the Construction Plans shall also be shown on the Plan Sheets for PCSM Plans. Refer to [Chapter 2, Section 2.6](#) for additional information.

- a. Bar scales
- b. Centerlines and baselines
- c. Plan sheet requirements (e.g., north arrow, identification block, professional engineer's seal, etc.)
- d. Existing topography
- e. Areas to be abandoned or vacated
- f. Proposed work (e.g., roadways, structures, guide rail, pipe and inlets, sidewalks and curb ramps)
- g. Existing and proposed utilities
- h. Right-of-way lines and easements

**2. Permit Boundaries.** The Chapter 102 Permit Boundary and Limit of Disturbance (LOD) shall be shown on the Plan Sheets. The boundaries should be clearly labeled to avoid confusion where overlapping may occur.

**3. Existing and Proposed Contours.** Both existing and proposed contours shall be provided on the Plan Sheets. Each should be properly shown and labeled as described below to clearly differentiate between existing and proposed conditions.

Existing contours shall be shown at 1 ft increments; however, 2 ft increments are acceptable where project conditions or survey limit the use of 1 ft contours. Existing contours should be shown dashed at a weight and color (e.g., gray) that is easily differentiated from any proposed contours also shown on the Plan Sheet. Proposed contours should be shown at 1 ft increments everywhere and, in rare cases, may be acceptable in 2 ft increments outside of the roadway and SCM footprints. Proposed contours should be drawn as a solid line at a weight and color (e.g., black) that is easily differentiated from any existing contours also shown on the Plan Sheet.

Label contour elevations at major intervals of every 5 ft for 1 ft contours and at 10 ft for 2 ft contours. Additional contour labels shall be added to SCMs to ensure proper detail.

**4. Surface Waters.** Indicate the location of surface waters of this Commonwealth that may receive runoff within or from the project site and their classification under 25 PA Code Chapter 93 (relating to water quality standards).

**5. Riparian Forest Buffer(s).** Existing and/or proposed riparian forest buffers within the project area shall be shown on the Plan Sheets. Call outs for protection of these areas not to be impacted should also be provided.

**6. Discharge Points.** All locations within the right-of-way in which runoff concentrates and reaches a surface water must be identified as a discharge point. Locations in which concentrated runoff leaves the right-of-way before reaching a surface water are also considered discharge points. Discharge points shall be labeled with "DP" followed by a three-digit number, starting with DP 001.

**7. Watershed Boundaries.** In addition to displaying all streams and wetlands on the Plan Sheets, the following boundary information shall be provided as applicable.

- a. 100-year floodplain boundary for streams
- b. 100-year floodway boundary for streams (per detailed FEMA mapping; 50-ft offset from top of bank; or as determined by evidence to the contrary)
- c. Drainage boundary for the receiving surface water (including the stream name and the existing and designated use)

**8. SCM Locations and Labels.** The location of all proposed SCMs shall be clearly shown and labeled (SCM type and a name/identifier). Existing SCMs should be labeled using their SCM inventory ID. Do not show temporary erosion and sediment control measures.

**9. Infiltration Testing and Test Pit Locations.** The location of all infiltration tests and soil test pits used to justify SCM selection, siting, and design shall be provided. Their locations shall be indicated by a unique identifier (e.g., IT-X or TP-X) and symbol that are included in the plan sheet legend. Also, on the plan or on a separate map, include the infiltration test elevation and design rate; and identify the bottom of the test pit and the elevation of any limiting zone encountered.

**10. Plan Sheet Symbology Legend.** Each plan sheet shall include a legend that defines the symbology used on the sheet. Note that each legend is specific to the sheet on which it appears. Items that do not appear on a particular plan sheet should not be included in the legend. As applicable, the symbology for the following minimum information shall be included in the legend.

- a. Existing and proposed contours
- b. Existing and proposed drainage pipes and structures
- c. Chapter 102 permit boundary and limits of disturbance
- d. Infiltration test and soil test pit location
- e. Proposed rock outlet protection (e.g., rock apron, energy dissipator, RC-30M, rock basin)
- f. Proposed SCMs

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## CHAPTER 7

### SAFETY REST AREA AND WELCOME CENTER PLANS, JUNKYARD CONTROL PLANS AND LANDSCAPE PLANTING DESIGN (ROADSIDE DEVELOPMENT) PLANS

#### 7.0 INTRODUCTION

**A. Safety Rest Area and Welcome Center Plans.** Where provisions are to be made for the construction of Safety Rest Areas or Welcome Centers, plans shall be prepared to clearly show the items indicated in this Chapter for plan presentation as well as the relationship of these facilities to the roadway.

These plans are usually incorporated as part of the Construction Plans. However, they may be separate plans and, as such, they shall be an entity in themselves and shall include the following:

1. Title Sheet.
2. Index Sheet.
3. Typical Section Sheet.
4. Summary of Quantities Sheet.
5. Tabulation of Quantities Sheet.
6. Plan Sheet.
7. Right-of-Way Plan Sheet.

When the Safety Rest Area or Welcome Center Plans are included with the Construction Plans, the Title Sheet, Index Sheet, Summary of Quantities Sheet and the Tabulation of Quantities Sheet shall be omitted from these plans and included with those portions of the overall Construction Plans.

When construction of a Safety Rest Area is proposed on an existing route and constructed with Federal funds, a separate Right-of-Way Plan shall be required for the acquisition of Right-of-Way for the Safety Rest Area.

**B. Junkyard Control Plans.** Junkyard Control Plans are always an entity in themselves. These plans shall be prepared for all junkyard control projects, whether the junkyard is to be screened or removed. The Junkyard Control Plan shall be a graphic record of surrounding property.

**C. Landscape Planting Design (Roadside Development) Plans.** Landscape Planting Design (Roadside Development) Plans shall be included as part of the Construction Plans and shall show the highway roadside as an integral part of the entire highway facility.

**D. Responsible Registrant's Seal.** When the above plans include a Title Sheet, the responsible registrants shall place a black ink rubber stamp seal and sign the Title Sheet. (Title Sheets prepared by Consultants shall include a Consultant's Signature Block with the appropriate information specified in [Chapter 8, Section 8.1.](#)) On all other sheets, the responsible registrants shall place either a black ink rubber stamp seal or a facsimile seal.

#### 7.1 SAFETY REST AREA AND WELCOME CENTER PLANS

Safety Rest Area Plans shall include, but not limited to, a general site plan, contour grading and drainage, water system, sewage system, power and highway lighting, landscaping, profile sheets and buildings. These plans shall be prepared in accordance with the requirements presented in the appropriate Chapters of this Manual.

**A. Title Sheet.** The Title Sheet used for Construction Plans shall be used as the Title Sheet for all Safety Rest Area or Welcome Center Plans when they are an entity in themselves. The Title Sheet shall be prepared in accordance with the requirements in [Chapter 2, Section 2.1](#). The following title shall be listed below the COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION heading:

DRAWINGS FOR CONSTRUCTION OF A SAFETY REST AREA, INCLUDING BUILDING, POWER  
SUPPLY AND HIGHWAY LIGHTING, WATER AND SEWAGE SYSTEMS AND LANDSCAPE  
PLANTING

When required, other major construction items such as ramps, parking areas, etc., should also be included.

**B. Index Sheet.** The Index Sheet used for Construction Plans shall be used as the Index Sheet for all Safety Rest Area or Welcome Center Plans when they are an entity in themselves and shall be prepared in accordance with the requirements in [Chapter 2, Section 2.2](#).

**C. Typical Section Sheet.** When a Typical Section Sheet is necessary, it shall be prepared in accordance with the requirements in [Chapter 2, Section 2.3](#). All typical sections of other items shall be shown in conjunction with the plans for that item, i.e., water system, sewage system, building, etc.

**D. Summary of Quantities and Tabulation of Quantities Sheets.** The Summary and Tabulation of Quantities Sheets for construction pay items shall be prepared in accordance with the requirements in [Chapter 2, Sections 2.4](#) and [2.5](#).

**E. Plan Sheets:**

**1. General Site Plan.** The General Site Plans of the Plan sheets shall be designated as Drawing Number G-1, G-2, etc. in the lower right-hand corner. The drawings shall have a scale of 1:500 (1" = 50') and shall encompass the entire area of work. Information shown shall consist of, but shall not be limited to, proposed grading, existing topography, building location, water system and sewage system layout, electrical supply and area lighting and other systems to show the relationship of the different systems to each other.

**2. Contour Grading and Drainage Plan.** The Contour Grading and Drainage Plans shall be prepared in accordance with the requirements in [Chapter 6](#). The subsequent Plan sheets shall show, at a scale of 1:200 (1" = 20'), an area adjacent to the building necessary to site the building, provide drainage from the building and to blend the proposed grading into the existing contours. The 1:200 (1" = 20') scale enlargement shall include, but shall not be limited to, existing topography, building location with floor elevation, construction working points, roof drain locations, sidewalk layout with construction working points, radii, elevation and slopes of proposed grading, benching, flagpole and drinking fountain locations and other necessary data. Additional 1:200 (1" = 20') scale enlargements may be necessary to show, in sufficient detail, the relationship of the components involved in the different systems.

**3. Water System Plans.** The Water System Plans shall be designated as Drawing Number W-1, W-2, etc. in the lower right-hand corner. The details of the necessary water system components shall be shown at a scale necessary for clarity on subsequent sheets. This shall include, but not be limited to, the source of water, any necessary treatment facilities, the connections to the building, drinking fountains and other related items, existing topography, proposed grading, construction working points, table of construction working points and General Notes.

**4. Sewage System Plans.** The Sewage System Plans shall be shown at a scale of 1:200 (1" = 20') and shall be designated as Drawing Number SD-1, SD-2, etc. in the lower right-hand corner. If the system involves sewage treatment, the sheet designation shall be ST-1, ST-2, etc. The details of the necessary sewage system components shall be shown at a scale necessary for clarity on subsequent sheets. This shall include, but shall not be limited to, the existing topography, proposed grading, construction working points, table of construction working points and General Notes. Included in the Plan sheets shall be a profile, at a convenient scale, of the entire sewage system showing the outlet from the building, original ground, proposed grade, invert elevations of pipes, manholes, treatment or disposal facilities, inlets, etc., to show the relationships of the system components.

**5. Power Supply and Area Highway Lighting Plans.** The sheets for the Power Supply and Area Highway Lighting Plans shall be designated as Drawing Number HL-1, HL-2, etc. in the lower right-hand corner and shall be prepared in accordance with the requirements in [Chapter 9](#).

A plan of the area lighting system at a scale of 1:500 (1" = 50') shall be shown on the first sheet and shall encompass the entire area of work involved. The electric power connection shall be shown and the location of the terminal pole noted.

Subsequent Plan sheets shall show, but shall not be limited to, the schematic diagrams, details as required, and General Notes.

**6. Landscape Plans.** The Landscape Plans shall be shown on the subsequent sheets of the Contour Grading and Drainage Plan Sheets. The scale shall be 1:500 (1" = 50') for the General Landscape Plan. Included on the General Landscape Plans shall be the table pad locations and a tabulation chart of those locations, General Notes and related details. The foundation planting and other specialized items (shown on the Landscape Plan) shall be shown at a scale of 1:200 (1" = 20'). This 1:200 (1" = 20') scale enlargement shall also include the locations of the flagpole, drinking fountains and other special items.

**7. Profile Sheets.** When Detail and Profile Sheets are necessary for new ramps and parking areas, they shall be prepared in accordance with the requirements in [Chapter 2, Section 2.6](#).

**8. Building Plans.** Standard architectural drawings and specifications for the Safety Rest Area Building shall be furnished to the Design Agency by the Department. It shall be the responsibility of the Design Agency to coordinate the building drawings and specifications with the plans for the entire Safety Rest Area. Modifications to the standard building drawings shall be necessary to adjust the requirements of the water, sewage, electrical and telephone systems. It may be necessary to revise the building drawings and specifications to accommodate the above systems and to change the footing design according to the results of the soils investigation. The changes to the plans and specifications are the responsibility of the Design Agency.

The Building Plans shall be numbered independently and shall not be included in the total number of sheets, but shall be recorded as "Also Included" Sheets on the Title Sheet.

**F. Right-of-Way Plans.** When the Right-of-Way Plans are an entity in themselves, they shall be prepared in accordance with the requirements in [Chapter 3](#).

The title listed shall be as indicated below:

DRAWING ESTABLISHING (AND/OR RE-ESTABLISHING) LIMITED ACCESS AND AUTHORIZING  
ACQUISITION OF RIGHT-OF-WAY FOR SAFETY REST AREAS

When a Welcome Center is proposed to be included with the Safety Rest Area, the above title shall be modified as indicated below:

RIGHT-OF-WAY FOR SAFETY REST AREA/WELCOME CENTER

Below the Stationing Limits on the Title Sheet, add the following statement:

THIS PLAN PREPARED PURSUANT TO THE ACT OF JUNE 7, 1961, P.L. 257 AND SECTION 302 (b)  
(3) OF THE EMINENT DOMAIN CODE, 26 PA.C.S.

## 7.2 JUNKYARD CONTROL PLANS

All junkyard control projects shall require plans and removal estimates to determine the feasibility of either screening or removal. These drawings shall consist of a Title Sheet, Index Sheet and a Plan sheet. The Title Sheet shall generally conform to the requirements indicated in [Chapter 3, Section 3.1](#) except that the suffix "J" rather than "R/W" shall follow the section number.

**A. Title Sheet.** The Title Sheet shall indicate the following:

**Metric Example:**

DRAWINGS  
FOR  
JUNKYARD CONTROL  
OF  
  
STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_ -J  
  
IN \_\_\_\_\_ COUNTY  
  
FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ km  
FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ m TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ m

PLANS PREPARED PURSUANT TO ACT NO. 4, SPECIAL SESSION NO. 3, APPROVED JULY 28, 1966.

**English Example:**

DRAWINGS  
FOR  
JUNKYARD CONTROL  
OF  
  
STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_ -J  
  
IN \_\_\_\_\_ COUNTY  
  
FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ FT \_\_\_\_\_ MI  
FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

PLANS PREPARED PURSUANT TO ACT NO. 4, SPECIAL SESSION NO. 3, APPROVED JULY 28, 1966.

The following information shall be located in the upper right-hand corner of the Title Sheet and beneath the Project Identification Block:

Inventory Index No. \_\_\_\_\_

Highway Beautification Index No. \_\_\_\_\_

Junkyard License No. \_\_\_\_\_

**B. Index Sheet.** The Index Sheet shall conform to the requirements indicated in [Chapter 3, Section 3.2](#), as applicable.

All General Notes, tabulation of items and quantities shall be placed on this sheet. At least one cross section through the highway and the junkyard shall be shown.

**C. Plan Sheet.** The Plan sheets for both screening and removal projects shall be prepared in conformance with the requirements indicated in [Chapter 3, Section 3.4](#). Landscape Planting Design (Roadside Development) Plans for screening projects shall also conform to the requirements indicated in [Section 7.3.A.5](#).

### **7.3 LANDSCAPE PLANTING DESIGN (ROADSIDE DEVELOPMENT) PLANS**

The information presented in this Section shall apply to Wetland Mitigation Planting Plans, Wildlife Habitat Mitigation Planting Plans, Maintenance Yard or Stockpile Area Screening Plans or any other plans requiring landscape planting design and plan presentation.

Where no roadway construction is involved other than landscape planting or erosion control items, such as in beautification projects, the plans shall be an entity in themselves. Where landscape planting design (roadside development) is a part of highway construction, the quantities and plans shall be numbered in the Construction Plans and placed immediately after the Contour Grading and Drainage Plans.

#### **A. Landscape Planting Design (Roadside Development) Plans Presentation Where Separate Plans Are Required:**

**1. Title Sheet.** The Title Sheet format used for Construction Plans shall be used as the Title Sheet for all Landscape Planting Design (Roadside Development) Plans. The Title Sheet shall be prepared in accordance with the requirements in [Chapter 2, Section 2.1](#). The following is a sample title to be listed below the COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION heading:

DRAWINGS FOR LANDSCAPE PLANTING DESIGN (ROADSIDE DEVELOPMENT)

This title shall be modified, as applicable.

**2. Index Sheet.** The Index Sheet format used for Construction Plans shall be used as the Index Sheet for all Landscape Planting Design (Roadside Development) Plans and shall be prepared in accordance with the requirements in [Chapter 2, Section 2.2](#).

**3. Typical Section Sheet.** When a Typical Section Sheet is necessary, it shall be prepared in accordance with the requirements in [Chapter 2, Section 2.3](#) and shall show the following:

- a. Pavement width and cross slope.
- b. Shoulder width and cross slope.
- c. Median width, type and cross slope.
- d. Embankment and cut slopes.
- e. Topsoil depth and limits.
- f. Selective tree removal and trimming.
- g. Stationing Limits of each typical section.
- h. The location of erosion control materials (such as Jute Matting) and the use areas of Seed Formulae.

**4. Summary and Tabulation of Quantities Sheets.** The summary and tabulation of construction pay item quantities shall be prepared in accordance with the requirements in [Chapter 2, Sections 2.4](#) and [2.5](#). Application rates, formulations and other necessary information not covered in Publication 408 Specifications shall be shown as a Note on the Tabulation of Quantities Sheet.

The following items shall be shown in tabulation form by station, right or left, with quantities: Selective tree removal and trimming; seed bed preparation and crownvetch seeding; erosion protection matting; placing stockpiled topsoil; seeding and soil supplements; mulching; herbicide spraying and crownvetch crowns with spacing information covered in the remarks.

A separate tabulation of topsoil quantities shall be shown by routes and station for the topsoil available and required. A summary of the topsoil salvaged from the project and the quantity to be furnished shall be shown below the tabulation.

**5. Plan Sheets.** Plan sheets are seldom necessary for erosion control items but are required for all tree, shrub and vine plantings.

Clarity and uniformity of plan presentations are the major objectives in Landscape Planting Design (Roadside Development) Plan preparations. All lettering and drafting shall be legible. Scales should be realistic so they depict the approximate size of the plant at near-maturity.

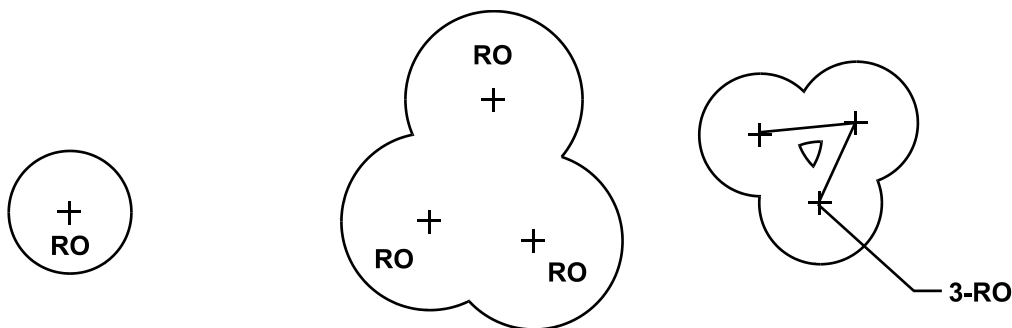
A series of key symbols for plant names has been established for use on Planting Plans and are presented in the Construction Items Catalog, Publication 7M, Section 2808 (Publication 7, Section 808).

In the event that more than one size of a given species is used on a plan, the key symbol shall be followed by a numerical designation to cover the various sizes. For example, if three different sizes of pin oak are specified, the key symbols would be as follows: P01, P02 and P03.

The purpose of the plan is to accurately locate the planting design in the field by presenting, as complete as possible, a graphic description of the design. The following symbols and techniques should be used as a guide in the preparation of Landscape Planting Design (Roadside Development) Plans.

**MAJOR DECIDUOUS TREE:** Circle size:  $\pm 12$  m ( $\pm 40$  ft)

EXAMPLES:

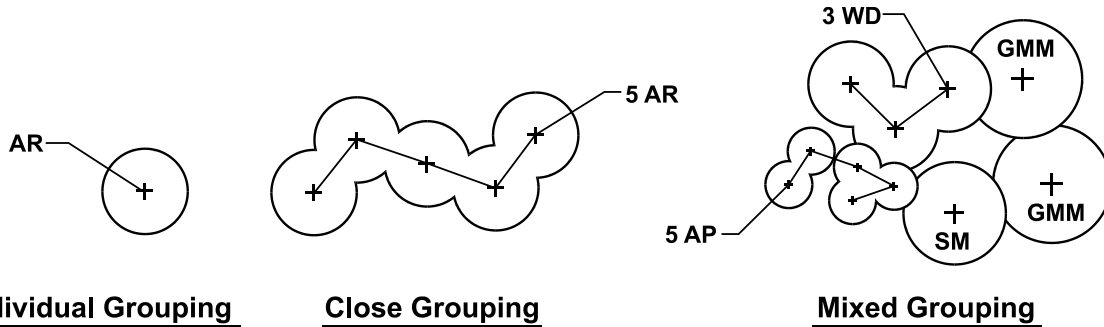


**Individual Grouping**

**Close Grouping**

COLUMNAR AND FLOWERING TREE: Circle size:  $\pm 6$  m ( $\pm 20$  ft)  
EVERGREEN TREE: Circle size:  $\pm 4$  m ( $\pm 15$  ft)

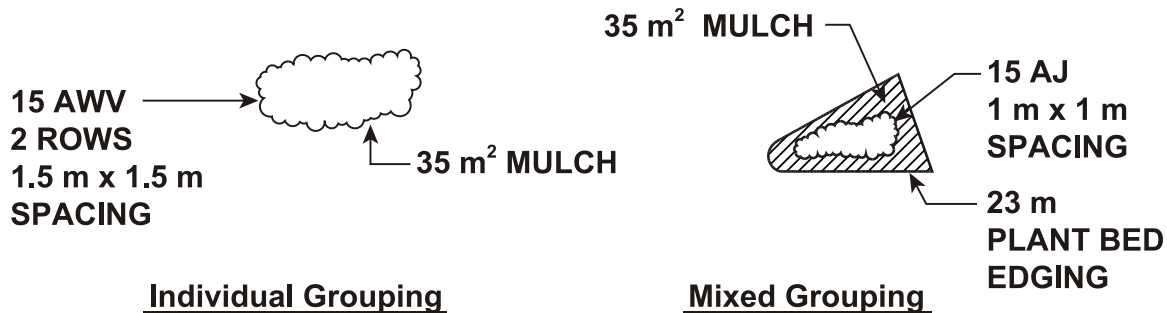
EXAMPLES:



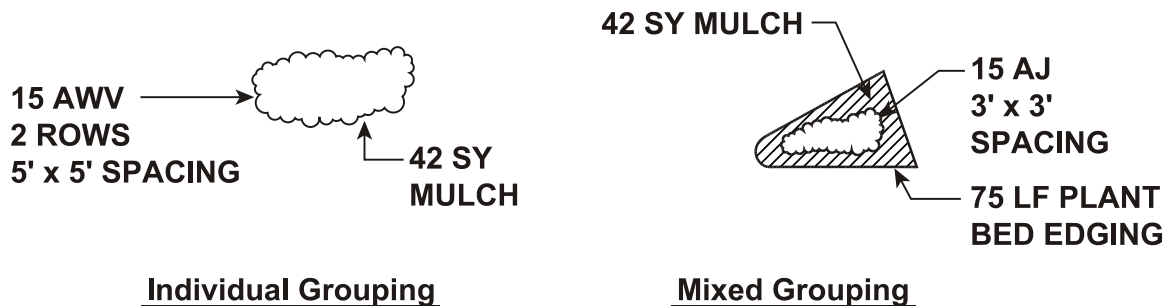
Note: For clarity in reading plans, avoid overlap of tree circles and different plant species. Indicate quantities as shown.

SHRUBS: Shrubs may be shown individually or in groupings for larger scale drawings such as 1:200 (1" = 20'); however, shrubs shall be shown as plant bed groupings on smaller scale drawings such as 1:500 (1" = 50') or smaller.

EXAMPLES (Metric):



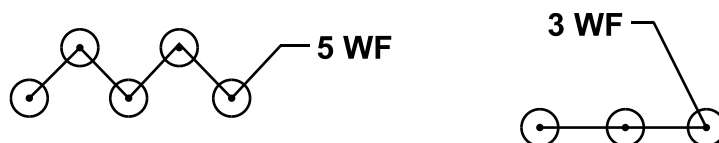
EXAMPLES (English):



Note: Indicate any pertinent information to clarify the intent of the designer.

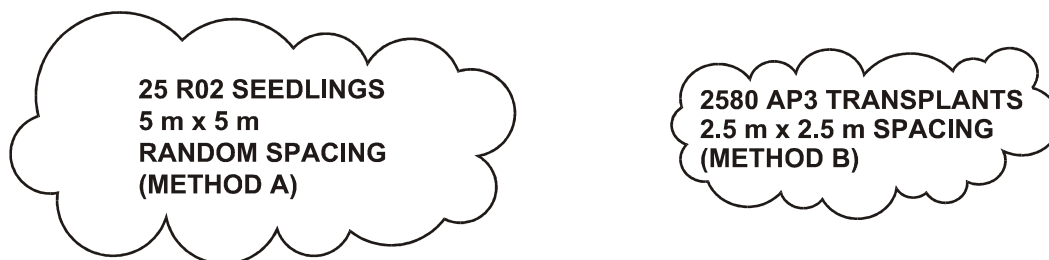
Shrub diameter for individual shrubs on the plan should approximate the near mature size of the plant and should be drawn at the desired spacing.

EXAMPLES:

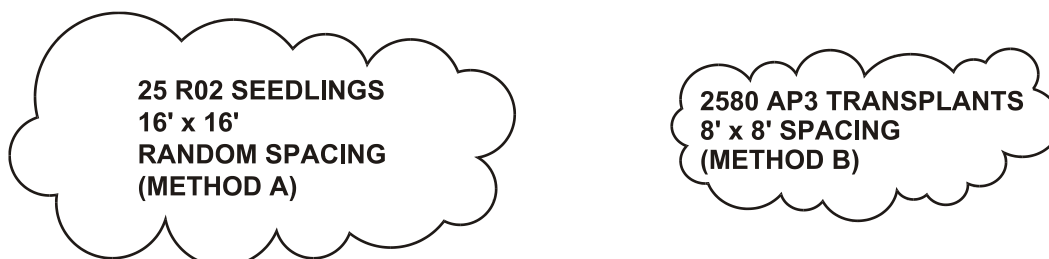


**SEEDING AND TRANSPLANTS:**

EXAMPLES (Metric): (Reforestation Methods A & B)



EXAMPLES (English): (Reforestation Methods A & B)



Note: Indicate any pertinent information to clarify the intent of the designer.

**MOW LINES:**

EXAMPLE:



Note: Label mow line outside of the area not to be mowed.

Other symbols may be used as long as the intent of the designer and the symbols are clearly identified.

Each plan sheet shall have a Plant List Tabulation of the plant material shown on that sheet. The Plant List Tabulation should be located preferably in the lower right-hand section of the plan sheet and should be completed similar to the example indicated in [Table 7.1](#).

**TABLE 7.1**  
**PLANT LIST TABULATION**

| QUANTITY | KEY | COMMON NAME      | SCIENTIFIC NAME               | SIZE AND ROOT                | REMARKS*                      |
|----------|-----|------------------|-------------------------------|------------------------------|-------------------------------|
| 14       | WP  | WHITE PINE       | PINUS STROBUS                 | 1.8 M (6 FT)<br>HT B&B       | ---                           |
| 16       | SPY | SPREADING<br>YEW | TAXUS<br>CUSPIDATA<br>EXPANSA | 450 MM (18 IN)<br>SPD B&B    | 1.2 M (4 FT)<br>OC<br>SPACING |
| 250      | AP4 | AUSTRIAN PINE    | PINUS NIGRA                   | SEEDLING 200<br>MM (8 IN) HT | SEE<br>SPECIAL<br>PROV        |

\*Include any pertinent information not shown on the plans.

**6. Plant Materials.** The Department has a list of recommended plant species in a variety of desirable sizes which is included in the Construction Items Catalog, Publication 7M, Section 2808 (Publication 7, Section 808). Each species and size carries an individual item number. Should additional items be required, the request should be submitted to the District Roadside Development Specialist who, in turn, shall submit the request to the Central Office, Bureau of Project Delivery. The item numbers shall appear on the Summary of Quantities Sheet. Under no circumstances shall new item numbers be assigned without prior approval, as noted above.

**B. Landscape Planting Design (Roadside Development) Plans Presentation Where Plans Are a Part of the Highway Construction.** Where Landscape Planting Design (Roadside Development) Plans are a part of highway construction, it shall not be necessary to prepare a separate Title Sheet, Index Map, Typical Section Sheet, Summary of Quantities and Tabulation of Quantities Sheets. The Seed Formulae use areas and typical installations of erosion control materials such as Jute Matting, Soil Retention Blanket, etc., shall be shown on the roadway typical sections or on separate sketches depicting typical conditions.

The Plan sheets for all planting of trees, shrubs and vines shall be prepared, as noted in [Section 7.3.A.5](#), and numbered with the rest of the plan sheets.

The quantities for all contract pay items shall be entered on the Summary of Quantities Sheets in the proper sequence with all other construction items. The tabulation of construction pay item quantities shall be prepared in accordance with the requirements in [Chapter 2, Section 2.5](#). Application rates, formulations or other information not covered in Publication 408 Specifications, but essential to the project, shall be shown as a General Note on the Typical Section Sheet. A separate Tabulation of Topsoil Quantities shall be shown by routes and stations for the topsoil available and required. A summary of the topsoil salvaged from the project and the quantities to be furnished shall be shown below the tabulation. Topsoil salvaged from the project shall be used to the greatest extent possible thereby reducing the Topsoil Furnished and Placed item to a minimum. Where the quantity available on the project exceeds the requirements, the excess shall be stockpiled within the Right-of-Way where it shall be accessible and shall not present an objectionable appearance nor interfere with other operations. The quantity of stockpiled excess topsoil shall be shown on the Tabulation of Quantities Sheet as indicated below:

\_\_\_\_\_ M3 EMBANKMENT (TOPSOIL STOCKPILED)  
(\_\_\_\_\_ CY EMBANKMENT (TOPSOIL STOCKPILED))

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# CHAPTER 8

## SIGNING AND SIGN LIGHTING PLANS

### 8.0 INTRODUCTION

For a highway facility to function with maximum efficiency, signing, along with the other design factors, shall be considered jointly in the early stages of project development. Signing and geometric design shall be closely coordinated so that the facility can attain its intended function. After the signing and geometrics are adjusted and made compatible, the Signing and Sign Lighting Plans shall be developed in accordance with the identified sign locations.

The Signing and Sign Lighting Plans normally shall be made part of the Construction Plans as a Supplemental Plan; however, they may be a separate plan. When they are not included with the Construction Plans, they shall be an entity in themselves and shall constitute a complete set of plans which shall include the following:

1. Title Sheet.
2. Index Sheet.
3. Index - Location Map Sheet.
4. Summary of Quantities Sheet.
5. Tabulation of Quantities Sheet.
6. Detail Sheet.
7. Plan Sheet.
8. Standard Drawings (Unapproved standard drawings are not to be noted in the General Notes and shall be handled as special detail drawings and attached and numbered in with the plan.).

When the Signing and Sign Lighting Plans are included with the Construction Plans, the Title Sheet and Summary of Quantities Sheet shall be omitted from the Signing Plan. The Construction Plans Summary shall contain the sign and sign lighting items.

When the Signing and Sign Lighting Plans include a Title Sheet, the Professional Engineer who has direction and control of the engineering aspects of the plan shall place a black ink rubber stamp seal and sign the Title Sheet. This is usually the District Traffic Engineer. (Title Sheets prepared by consultants shall include a Consultant's Signature Block with the appropriate information specified in [Section 8.1.](#)) On all other sheets, the responsible registrants shall place either a black ink rubber stamp seal or a facsimile seal.

If multiple registrants prepare or direct and control the preparation of documents, each registrant's Seal and Signature shall appear on the document as appropriate. The responsible registrants shall also place a black rubber stamp Seal and Signature on the Title Sheet. The registrants shall also place either a black ink rubber stamp or facsimile seal on all subsequent sheets for which they are responsible.

The sheets should be numbered separately and a reference shall be made on the Title Sheet of the Construction Plans as follows:

ALSO INCLUDED:

.....

.....

\_\_\_\_\_ SHEETS - SIGNING AND SIGN LIGHTING PLANS

## **8.1 TITLE SHEET**

The Title Sheet format used for Construction Plans shall be used as the Title Sheet for all Signing and Sign Lighting Plans when they are an entity in themselves. The Title Sheet shall be prepared in accordance with the requirements in [Chapter 2, Section 2.1](#). The following title shall be listed below the COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION heading:

### **DRAWINGS FOR THE ERECTION OF SIGNS (AND SIGN LIGHTING) AND MARKERS**

Complete the Title Block as follows:

1. State Route.
2. Section with the suffix "S".
3. County or Counties.
4. Stationing Limits and length.

The Stationing Limits shall cover the furthest sign and shall be called the "Limit of Work". The project length shall be expressed to the nearest 0.01 km (0.001 mi).

When the project is in two or more counties, the Stationing Limits should be broken for each county.

Provide a Consultant's Signature Block for the Consultant preparing the plans and include, where appropriate, the following:

1. Name of Consultant.
2. Seal, Signature and Title of the Professional Engineer responsible for the drawings. Seals shall be of the rubber-stamp type and applied legibly in black ink.
3. Date.

Complete the Identification Block in the upper right-hand corner as follows:

1. Indicate the 14 digit State Project Number.
2. Show the total number of sheets.
3. Indicate the funding codes (see [Chapter 2, Section 2.1.B](#)).

Only State Routes shall appear in the Title Block and in the Identification Block on the Title Sheet.

When the Signing and Sign Lighting Plans are included with the Construction Plans, the Title Sheet of the Construction Plans shall be the only Title Sheet of the plans and shall contain such reference to the Signing and Sign Lighting Plans as is necessary.

Below the Title Block, add the following Note:

**TOGETHER WITH THE CONSTRUCTION AND ERECTION OF SIGNS (AND SIGN LIGHTING) AND MARKERS FOR ALL INTERSTATE (OTHER) ROUTES AS SHOWN ON THE DETAIL SHEETS COMPRISING THESE PLANS**

If the last sign is located "Well Beyond" the normal Limit of Work stations, the "Limit of Signing" stations may be added below the construction stations on the Title Sheet so that the normal Limits of Work stations can be retained. "Well Beyond" means off the normal Index Map coverage. However, the Index Map in the "Also Included" Sheets shall be drawn to cover the entire signing length.

**8.2 INDEX SHEET**

The Index Sheet shall contain the following information:

1. Legend for all symbols used in the drawings.
- \*2. Tabulation of length.
3. General Notes, as required.
- \*4. Location of Project on State Map.
5. Complete Identification Block in upper right-hand corner.
6. Index to all drawings comprising plans.

\* When the Sign and Sign Lighting Plans are combined with the Construction Plans, these items may be eliminated from the Index Sheet of the Signing and Sign Lighting Plans.

**8.3 INDEX-LOCATION MAP SHEET**

The Index-Location Map Sheet shall contain a combination Index-Location Map (no scale) and shall show all parallel and intersecting roadways within a corridor having a direct influence on the determination of sign messages.

Identify and show, where applicable, the following:

1. Construction centerline and stations identified at maximum 100 m (500 ft) intervals.
2. Edge of existing roadways (indicate mainline heavier than intersecting routes).
3. State Routes and Township Roads by number.
4. Edge of streams.
5. Railroads.
6. Outline of proposed and existing bridges.
7. Political subdivisions with the names written in the subdivisions.
8. "Limit of Work" stations on the mainline.

**Metric Example:**

LIMIT OF WORK  
STA 20+570.000  
SEG 50 OFFSET 23 m  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

**English Example:**

LIMIT OF WORK  
STA 675+00.00  
SEG 50 OFFSET 75  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

9. "Start Work" and "Stop Work" stations on all intersecting roadways, temporary roadways and temporary detours, where applicable.
10. Equality Stations.
11. Limits of project covered within each sheet with the sheets identified using the following symbol on the sheet and identified in the Legend.



12. Solid line schematic blowups for all interchanges drawn in a rectangle. Identify, in the rectangle, the exit number, the interchange name and the intersecting Traffic Route.
13. North Arrow.

#### 8.4 SUMMARY OF QUANTITIES SHEET

The standard Summary of Quantities Sheet shall list every pay item used on the project when Signing and Sign Lighting Plans are submitted as a separate entity in themselves. When the Signing and Sign Lighting Plans are included with the Construction Plans, the list of pay items on the Signing and Sign Lighting Plans shall be included in the Summary of Quantities Sheet on the Construction Plans. No separate Summary of Quantities Sheet is necessary with the Signing Plans.

#### 8.5 TABULATION OF QUANTITIES SHEET

The Tabulation of Quantities Sheet, and as many succeeding sheets as required, shall be used for the tabulation of all items which occur on the Detail Sheets, including alternatives.

In tabulating signs, indicate the following:

1. Sign number.
2. Fabrication Sheet Number, where applicable.
3. Detail Sheet Number.
4. Total quantity of each specific type of sign.
5. Square meters (square feet) in each specific type of sign.
6. Total square meters (square feet) for each specific type of sign.
7. Total square meters (square feet) for all specific types of signs of one general type.
8. Approximate station location, left or right, and the State Route Number. If signs are to be mounted on existing bridges, so indicate. Tabulate and locate by station, where applicable.
9. The Tabulation of Quantities Sheet shall contain a tabulation of all items occurring on the Signing and Sign Lighting Plan. The description of all items shall be in accordance with the current Construction Items Catalog (Publication 7M (Publication 7)).

#### 8.6 DETAIL SHEETS

**A. Identification Data.** Generally, there are three types of Detail Sheets. Type I is a general plan and indicates sign messages, sign location and type of sign. Type II is a structural drawing and shows details of each individual overhead sign structure installation. Type III is a sign fabrication drawing.

**B. Plan Sheet - Type I (General Plans).** This Plan Sheet shall be drawn to a scale of 1:2000 (1" = 200'); however, a scale of 1:1000 (1" = 100') shall be used in interchange areas and at major intersections. This Plan Sheet shall contain the following data:

1. Centerline and/or baseline for mainline, ramps, service roads, frontage roads, streets, edges of pavement, islands and authorized crossovers.
2. Stations at 100 m (500 ft) intervals and ticks at 20 m (100 ft) intervals.
3. Identification of all routes.
4. County, Township, State and City lines.
5. North Arrow (standard).
6. Symbol, installation type, number and location of each type of sign.

**C. Detail Sheet - Type II (Sign Structure Drawings).** This Detail Sheet is applicable to all overhead sign structures and shall contain the following drawings and data:

1. Location Plan (when Signing Plans are combined with Construction Plans, the centerline and station location of the sign structure may be shown on the roadway drawings).
2. Plan, elevation and end view of sign structure.
3. Details.
4. Sign Schematic.
5. Estimated Quantities.
6. Design Criteria.
7. General Notes.
8. Title Block.

The Location Plan shall be drawn to a minimum scale of 1:500 (1" = 50') and shall show the following data:

1. Construction centerline and stationing.
2. Station for centerline of the sign structure.
3. Edge of pavement, shoulders and median with dimensions.
4. Legal Right-of-Way lines.
5. Existing guide rail, ditches, inlets, pipes, etc.
6. Bench Mark(s) - Identification, location by station, offset and elevation.
7. Proposed construction - guide rail.
8. Survey Book numbers.
9. North Arrow.

A single line schematic for columns and/or with the shape of the sign, messages and sign identification shall be prepared for each overhead structure supported sign.

The Plan View shall show the following:

1. Centerline of sign structure.
2. Edge of pavement.
3. Construction centerline, station and skew angle between the centerline of sign structure and the construction centerline.
4. Arrow indicating direction of traffic.
5. Centerline of splices (for overhead trusses).
6. Description of types and sizes of structural members.

The Elevation View shall clearly indicate or show the following:

1. Cross section of roadway adjacent to or under the sign.
2. Edge of pavement.
3. Shoulders.
4. Median, cut and fill slopes.
5. Underdrains.
6. Existing pipes, inlets, etc.
7. Description of types and sizes of structural members.
8. Dimensions, sizes and types of signs.
9. Elevations at top of concrete pedestals and bottom of footings.
10. Minimum vertical sign clearance.
11. Guide rail for sign support protection.
12. Type of footing, if standard. If not standard, the entire footing shall be detailed.

The End View shall indicate any dimensions, details, etc., which cannot be shown on the Plan or Elevation Views.

Show all required details such as connections to bridge structures, overhead signs on existing sign structures etc., to a scale commensurate with the complexity of the detail.

Place the Table of Estimated Quantities (see [Figure 8.1](#)) in the upper right-hand corner of the sheet.

| TABLE OF ESTIMATED QUANTITIES |                                                                         |          |
|-------------------------------|-------------------------------------------------------------------------|----------|
|                               | DESCRIPTION                                                             | QUANTITY |
| 2204<br>0100<br><br>M3        | CLASS 3 EXCAVATION                                                      | 38       |
| 3001<br>0010<br><br>M3        | CLASS A CEMENT CONCRETE                                                 | 13       |
| 3002<br>0001<br><br>KG        | REINFORCEMENT BARS                                                      | 327      |
| 2620<br>1075<br><br>M         | TYPE 2-S GUIDE RAIL                                                     | 365.760  |
| 2620<br>1250<br><br>EACH      | TYPE 2 STRONG POST END TREATMENT                                        | 2        |
| 2948<br>0101<br><br>LS        | STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS<br>(APPROX 5300 kg*) | ---      |
| 2936<br>0001<br><br>M2        | STRUCTURE MOUNTED EXTRUDED ALUMINUM CHANNEL SIGNS                       | 18       |

\* INCLUDES CATWALK AND LIGHTING SUPPORTS

**FIGURE 8.1 (METRIC)**  
**EXAMPLE OF TABLE OF ESTIMATED QUANTITIES**

| TABLE OF ESTIMATED QUANTITIES |                                                                           |          |
|-------------------------------|---------------------------------------------------------------------------|----------|
|                               | DESCRIPTION                                                               | QUANTITY |
| 0204<br>0100<br><br>CY        | CLASS 3 EXCAVATION                                                        | 50       |
| 1001<br>0010<br><br>CY        | CLASS A CEMENT CONCRETE                                                   | 17       |
| 1002<br>0001<br><br>LB        | REINFORCEMENT BARS                                                        | 720      |
| 0620<br>1075<br><br>LF        | TYPE 2-S GUIDE RAIL                                                       | 1200     |
| 0620<br>1250<br><br>EACH      | TYPE 2 STRONG POST END TREATMENT                                          | 2        |
| 0948<br>0101<br><br>LS        | STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS<br>(APPROX 11,700 LB*) | ---      |
| 0936<br>0001<br><br>SF        | STRUCTURE MOUNTED EXTRUDED ALUMINUM CHANNEL SIGNS                         | 196      |

\* INCLUDES CATWALK AND LIGHTING SUPPORTS

**FIGURE 8.1 (ENGLISH)**  
**EXAMPLE OF TABLE OF ESTIMATED QUANTITIES**

The design criteria for each overhead sign structure shall be indicated as presented in the following example:

**Metric Example:**

|                           |
|---------------------------|
| DESIGN                    |
| A = 18.581 m <sup>2</sup> |
| L = 24.384 m              |
| H = 9.144 m               |
| TYPE 1 LOADING            |

**English Example:**

|                |
|----------------|
| DESIGN         |
| A = 200 SF     |
| L = 80 ft      |
| H = 30 ft      |
| TYPE 1 LOADING |

The General Notes shall make reference to any standards or specifications which are applicable to the design.

The Sign Lighting Sheets shall show the details for sign lighting and shall include but shall not be limited to the following: location of the structures, location of the service poles, size and location of the wire, location of luminaires, locations of junction boxes, the roadway jack and quantities, for information only pertaining to the lump sum item for sign lighting.

1. When sign lighting is to be energized by roadway lighting circuits, see the Roadway Lighting Plans for proper connections to the roadway lighting circuit.
2. When roadway lighting circuits are not available and sign lighting is to be energized from a separate supply source, the power supply shall be that source location resulting from the procedures established in Publication 10C, Design Manual, Part 1C, *Transportation Engineering Procedures*, Chapter 4, Section 4.4.C.

The Title Block for the Sign Structure Detail Sheets shall be shown in the lower right-hand corner and shall be completed as indicated in [Figure 8.2](#) or in [Figure 8.3](#) for variable message signs.

**D. Detail Sheet - Type III (Sign Fabrication).** Sign fabrication shall clearly indicate or show the following:

1. Length of sign.
2. Height of sign.
3. Sign legend details.
4. Size of border and radii of corners.

|                                                              |                                |
|--------------------------------------------------------------|--------------------------------|
| COMMONWEALTH OF PENNSYLVANIA<br>DEPARTMENT OF TRANSPORTATION |                                |
| SIGN STRUCTURE                                               |                                |
| FOR                                                          |                                |
| SR 0080 SEC 042<br>STA 30+547.1 EB                           | INTERSTATE 80<br>CENTRE COUNTY |
| GENERAL PLAN AND ELEVATION                                   |                                |
|                                                              | SHEET <u>1</u> OF <u>7</u>     |
|                                                              | S-                             |

**FIGURE 8.2 (METRIC)  
EXAMPLE OF TITLE BLOCK  
FOR SIGN STRUCTURE DETAIL SHEET**

|                                                              |                                |
|--------------------------------------------------------------|--------------------------------|
| COMMONWEALTH OF PENNSYLVANIA<br>DEPARTMENT OF TRANSPORTATION |                                |
| SIGN STRUCTURE                                               |                                |
| FOR                                                          |                                |
| SR 0080 SEC 042<br>STA 1002+20 EB                            | INTERSTATE 80<br>CENTRE COUNTY |
| GENERAL PLAN AND ELEVATION                                   |                                |
|                                                              | SHEET <u>1</u> OF <u>7</u>     |
|                                                              | S-                             |

**FIGURE 8.2 (ENGLISH)  
EXAMPLE OF TITLE BLOCK  
FOR SIGN STRUCTURE DETAIL SHEET**

|                                                                                              |                            |
|----------------------------------------------------------------------------------------------|----------------------------|
| COMMONWEALTH OF PENNSYLVANIA<br>DEPARTMENT OF TRANSPORTATION                                 |                            |
| VMS SIGN STRUCTURE                                                                           |                            |
| FOR                                                                                          |                            |
| SR 0080 SEC 042 INTERSTATE 80<br>STA 30+547.1 EB CENTRE COUNTY<br>GENERAL PLAN AND ELEVATION |                            |
| RECOMMENDED _____                                                                            | SHEET <u>1</u> OF <u>7</u> |
| _____<br>CHIEF BRIDGE ENGINEER                                                               | S-                         |

**FIGURE 8.3 (METRIC)  
EXAMPLE OF TITLE BLOCK  
FOR VMS SIGN STRUCTURE DETAIL SHEET**

|                                                                                             |                            |
|---------------------------------------------------------------------------------------------|----------------------------|
| COMMONWEALTH OF PENNSYLVANIA<br>DEPARTMENT OF TRANSPORTATION                                |                            |
| VMS SIGN STRUCTURE                                                                          |                            |
| FOR                                                                                         |                            |
| SR 0080 SEC 042 INTERSTATE 80<br>STA 1002+20 EB CENTRE COUNTY<br>GENERAL PLAN AND ELEVATION |                            |
| RECOMMENDED _____                                                                           | SHEET <u>1</u> OF <u>7</u> |
| _____<br>CHIEF BRIDGE ENGINEER                                                              | S-                         |

**FIGURE 8.3 (ENGLISH)  
EXAMPLE OF TITLE BLOCK  
FOR VMS SIGN STRUCTURE DETAIL SHEET**

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## CHAPTER 9

### HIGHWAY LIGHTING PLANS

#### 9.0 INTRODUCTION

The following descriptions and information pertain to the preparation of plans and special provisions for the present installation of a complete or a partial lighting facility. Where provisions are to be made for present or future lighting during construction, the locations on bridges of pole-base anchor bolts, conduits, junction boxes and conduit under pavements shall be shown on the Roadway Construction Plans and Bridge Plans.

It is desirable to coordinate the locations and types of all signs, which require lighting, with the lighting poles before final plans for lighting are prepared.

The Highway Lighting Plan requirements presented herein may be made part of the Construction Plans as a Supplemental Plan or may be a separate plan. When they are not included with the Construction Plans, they shall be an entity in themselves and shall constitute a complete set of plans which include the following:

1. Title Sheet.
2. Index Sheet.
3. Summary of Quantities Sheet.
4. Tabulation of Quantities Sheet.
5. Detail Sheet.
6. Plan Sheets.

All of the above sheets shall be dated when submitted to the Central Office for review.

When the Highway Lighting Plans are included with the Construction Plans, the Title Sheet, Location Map, Index Sheet and Summary of Quantities Sheet shall be omitted from the lighting plans. The lighting sheets should be numbered separately and a reference shall be made on the Title Sheet of the Construction Plans as follows:

ALSO INCLUDED:

.....

.....

\_\_\_\_\_ SHEETS - HIGHWAY LIGHTING PLANS

When the Highway Lighting Plans include a Title Sheet, the responsible registrants shall place a black ink rubber stamp seal and sign the Title Sheet. (Title Sheets prepared by Consultants shall include a Consultant's Signature Block with the appropriate information specified in [Section 9.1](#).) On all other sheets, the responsible registrants shall place either a black ink rubber stamp seal or a facsimile seal.

If the highway lighting is located "Well Beyond" the roadway or construction "Limit of Work" stations, "Limit of Highway Lighting" stations shall be added below the construction stations on the Title Sheet so the normal "Limit of Work" stations can be retained. "Well Beyond" means off the normal Index Map coverage. The plans in the "Also Included" sheets comprising the Highway Lighting Plans shall be drawn to cover the entire highway lighting length.

## 9.1 TITLE SHEET

The Title Sheet format used for the Construction Plans shall be used as the Title Sheet for all Highway Lighting Plans when they are an entity in themselves. The Title Sheet shall be prepared in accordance with the requirements in [Chapter 2, Section 2.1](#). The following title shall be listed below the COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION heading:

### DRAWINGS FOR INSTALLATION OF HIGHWAY LIGHTING

Complete the Title Block as follows:

1. State Route.
2. Section with the suffix "L".
3. County or Counties.
4. Stationing Limits and lengths as indicated below:

**Metric Example:**

STA \_\_\_\_ TO STA \_\_\_\_ AND LENGTH  
SEG \_\_\_\_ OFFSET \_\_\_\_ m TO SEG \_\_\_\_ OFFSET \_\_\_\_ m

**English Example:**

STA \_\_\_\_ TO STA \_\_\_\_ AND LENGTH  
SEG \_\_\_\_ OFFSET \_\_\_\_ TO SEG \_\_\_\_ OFFSET \_\_\_\_

The Stationing Limits shall be the "Limit of Work" stations and shall correspond to the overall length of the project.

Indicate the scale of the plan sheets with Bar Scales.

Complete the Identification Block in the upper right-hand corner.

Provide a Consultant's Signature Block for the Consultant preparing the plans and include the following:

1. Name of Consultant.
2. Seal, date, signature and title of the person responsible for the drawings in black ink.

Indicate the location of the project on a Location Map using a heavy dashed line and indicate, as termini, the "Limit of Work" stations with the corresponding station. Orient the map so that the North Arrow is vertical toward the top of the sheet and place the North Arrow on the left side of the Location Map. A scale of 1:50 000 (1" = 1.0 mi) shall be used, when possible.

Below the Location Map, show a legend. See [Chapter 15, Section 15.2, Plate B-XIII](#).

**9.2 INDEX SHEET**

**A. List of Items for Index Sheet.** The following general information shall be shown on the Index Sheet:

1. Index Map.
2. Location of Project on State Map.

**B. Index Map.** The Index Map shall be placed on the Index Sheet, to best advantage, using a scale no smaller than 1:5000 (1" = 500') and shall show the following data, where applicable:

1. Construction centerline and stations identified at maximum 100 m (500 ft) intervals (PC's and PT's circles only, when available).
2. Edge of existing roadways.
3. State Routes and Township Roads.
4. Local road names.
5. Railroads.
6. Edge of streams.
7. Outline of proposed and existing bridges.
8. Political subdivisions.
9. "Limit of Work" stations on the mainline.

**Metric Example:**

LIMIT OF WORK  
STA 20+570.000  
SEG 60 OFFSET 23 m  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

**English Example:**

LIMIT OF WORK  
STA 675+00.00  
SEG 60 OFFSET 75  
SR 1033 SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

10. "Stop Work" and "Start Work" stations on all intersecting roadways, temporary roadways, temporary connections, service roads, railroad-highway grade crossings and on channel changes, if a baseline is used.
11. Listing of Utilities (if being prepared as a separate plan).
12. North Arrow.
13. Bar Scale.

**C. Location of Project on State Map.** Indicate the location of the project on the State Map and enclose within two concentric circles as shown in [Chapter 15, Section 15.2, Plate B-XII](#).

### 9.3 SUMMARY OF QUANTITIES SHEET

The Summary of Quantities Sheet shall list every pay item used on the project when the Highway Lighting Plans are submitted as a separate entity in themselves. When the Highway Lighting Plans are included with the Construction Plans, the list of pay items of the Highway Lighting Plan shall be included in the Summary of Quantities Sheet of the Construction Plans.

### 9.4 TABULATION OF QUANTITIES SHEET

Contract items shall be tabulated by roadway and stations similar to the sample Tabulation of Quantities Sheet shown in [Chapter 15, Section 15.2](#). These sheets shall follow the Summary of Quantities Sheet.

Descriptions of Construction Items shall be in accordance with the current Construction Items Catalog (Publication 7M (Publication 7)).

The "Remarks" column is to be used for general remarks relative to the installation of the items listed. When a Type A pole base is used, explain why it is required instead of a Type S base. For example: "PARAPET MOUNTED" or "BEHIND GUIDERAIL".

Items such as cable, trench, conduit, junction boxes, and cable and conduit markers can be shown as "Entire Project Items" and tabulated separately.

The Consultant shall determine the set back and "C" Dimensions of all pole foundations. This information is to be shown in two right-hand columns on the Tabulation of Quantities Sheet for each ground-mounted pole location. Also add columns for the "LUMINAIRE ID" and for the luminaire "PHOTOMETRIC DISTRIBUTION".

The "C" Dimension is the difference in elevation between a point on the roadway immediately below the luminaire and the top of the pole foundation when installed in accordance with the Department's Standard Drawings. The "C" Dimension shall be shown as a positive dimension when the elevation of the top of the pole foundation is lower than the roadway under the luminaire and negative when the elevation of the top of the pole foundation is higher than the roadway under the luminaire.

Do not include items that are to be furnished under other phases of work. For example, bridge electrical items are shown as quantities on the Bridge Plans. Under pavement conduits should be shown on the roadway plans for information only. Installation should be coordinated with the General Contractor, when applicable.

All items or portions of the work for 100% State-financed projects, which shall be covered by an agreement, shall be clearly identified in the tabulation as City Portion, etc.

A separate tabulation shall be shown for facilities other than highway lighting, such as fire and police communications, in cases where a separate plan for such facilities has not been prepared.

### 9.5 DETAIL SHEET

The following information shall be shown on the Detail Sheets:

1. General Notes with references to applicable Standard Drawings and Specifications, with dates of approval (show on first sheet or Summary of Quantities Sheet if the Highway Lighting Plans are a separate entity in themselves).
2. Provide a complete schematic wiring diagram for each power supply and control cabinet showing voltage and phase information and the required electrical sizes for all components.
3. Provide a complete schematic wiring diagram for all roadway and sign luminaires identifying each by number and showing phase location or circuit designation.

4. Provide drawings covering all details not shown in, or differing from, the Standard Drawings and Specifications. Show the scales of all drawings. Identify details with item number, if applicable. Include the "PHOTOMETRIC SPECIFICATION REQUIREMENTS" table as applicable.
5. Show by detail or notes, the type of guide rail used and distances from back of post of guide rail to edge of pavement.

## **9.6 PLAN SHEET**

The plan sheets shall show the following information:

1. Complete layout and stationing of roadway lighting systems with all luminaires identified by number.
2. Legend for poles, luminaire types, lamps, cables, conduits, junction boxes, cable and conduit markers and any other pertinent items.
3. Location by station of all luminaires and power supply poles. A standard luminaire installation is perpendicular to the edge of the roadway. A special note on the detail is required for other than standard installations.
4. Location by station and setback of all high mast lighting poles.
5. Ground elevation at foundation locations for all high mast lighting poles.
6. Location by station of all signs which are to be lighted.
7. All cable and conduit runs to light poles and signs with an indication of the number of cables and their sizes.
8. Mounting heights of all luminaires by legend or note.
9. North Arrow.
10. Guide rail (type and location).
11. Facilities for lighting which are existing or to be provided by others when such information is necessary for the construction of the lighting system.
12. A separate sheet for facilities other than the roadway lighting which are included when such facilities would clutter the Highway Lighting Plan Sheets such as signalization or fire and police communication
13. Right-of-Way lines.
14. Shoulder lines.
15. Curbs.
16. Utility locations, at the time of construction, above and below the ground, when in proximity to highway lighting construction.

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# CHAPTER 10

## TRAFFIC SIGNAL PLANS

### 10.0 INTRODUCTION

The following descriptions and information pertain to the preparation of Traffic Signal Plans and Special Provisions for a traffic signal installation. Where provisions are to be made for future signals during the highway construction, the locations of foundations, conduits and junction boxes shall be shown on the Roadway Construction Plans and Bridge Plans.

The Traffic Signal Plans presented herein may be included as part of the Construction Plans as a Supplemental Plan or may be a separate plan. When they are not included with the Construction Plans, they shall be an entity in themselves and shall constitute a complete set of plans which shall include the following:

1. Title Sheet.
2. Index Sheet.
3. Summary of Quantities Sheet.
4. Tabulation of Quantities Sheet.
5. Plan Sheet.
6. Special Provisions.

When the Traffic Signal Plans are included with the Construction Plans, the Title Sheet, Index Sheet and the Summary of Quantities Sheet shall be omitted from the traffic plans. The items relating to these plans shall be included with the Construction Plans Summary of Quantities Sheet. The sheets should be numbered separately and a reference shall be made on the Title Sheet of the Construction Plans as follows:

ALSO INCLUDED:

.....

.....

\_\_\_\_\_ SHEETS - TRAFFIC SIGNAL PLANS

When the Traffic Signal Plans include a Title Sheet, the responsible registrants shall place a black ink rubber stamp seal and sign the Title Sheet. (Title Sheets prepared by Consultants shall include a Consultant's Signature Block with the appropriate information specified in Section 10.1.) On all other sheets, the responsible registrants shall place either a black ink rubber stamp seal or a facsimile seal.

### 10.1 TITLE SHEET

The Title Sheet format used for Construction Plans shall be used as the Title Sheet for all Traffic Signal Plans when they are to be let as a separate project. The Title Sheet shall be prepared in accordance with the requirements in [Chapter 2, Section 2.1](#). The following title shall be listed below the COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION heading:

DRAWINGS FOR CONSTRUCTION (INSTALLATION OF TRAFFIC SIGNALS)

Complete the Title Block as follows:

1. State Route.
2. Section.
3. County or Counties.
4. Stationing Limits and lengths as indicated below:

**Metric Example:**

STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ km  
SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ m TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ m

**English Example:**

STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ FT \_\_\_\_\_ MILES  
SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

The Stationing Limits for only State Routes shall be the "Limit of Work" stations for the overall length of the project and the construction length shall normally be the sum of the lengths of the individual intersections. If survey or construction stations are not available, the "Limit of Work" stations shall be established through the use of dimensions from an established point at the first and last intersection, such as curb lines.

Complete the Identification Block in the upper right-hand corner. Indicate the 14 digit State Project Number below the Identification Block and show the Federal-Aid Number above the Identification Block, when applicable.

Provide a Consultant's Signature Block for the Consultant preparing the plans and include the following:

1. Name of Consultant.
2. Seal, date, signature and title of the person responsible for the drawings in black ink.

## 10.2 INDEX SHEET

**A. List of Items for Index Sheet.** The following general information shall be shown on the Index Sheet:

1. Index Location Map.
2. Location Map.
3. Location of Project on State Map.

**B. Index Map.** The Index Map shall be placed on the Index Sheet, to best advantage, using a scale no smaller than 1:5000 (1" = 500') and shall show the following data, where applicable:

1. Construction centerline and stations identified at maximum 100 m (500 ft) intervals (PC's and PT's circles only, when available).
2. Edge of existing roadways.
3. State Routes and Township Roads.
4. Local road names.
5. Railroads.
6. Edge of streams.
7. Outline of proposed and existing bridges.
8. Political subdivisions.

9. Property lines and property owner names, if required.
10. "Limit of Work" stations on the mainline.

**Metric Example:**

LIMIT OF WORK  
STA 20+570.000  
SEG 20 OFFSET 305 m  
SR 1033, SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

**English Example:**

LIMIT OF WORK  
STA 675+00.00  
SEG 20 OFFSET 1000  
SR 1033, SEC A04  
GREENWOOD TOWNSHIP  
PERRY COUNTY

11. "Stop Work" and "Start Work" stations on all "Also" routes, intersecting roadways, temporary roadways, temporary connections, service roads and railroad-highway crossings.
12. Equality stations.
13. Distances to the nearest 0.1 km (0.1 mi) to the nearest community at each end of the project. Also give similar distances from project limits at crossroads to the nearest community in each direction. If no towns are nearby, indicate distance in kilometers (miles) to Traffic Routes or State Routes.
14. Limits of project covered within each sheet with the sheets identified using the following symbol on the sheet and identified in the Legend:



15. Bar Scale.
16. North Arrow.
17. Listing of Utilities (If being prepared as a separate plan).

**C. Location Map.** The Location Map shall be placed in the lower left-hand corner of the Index Sheet and may be traced from County or City Maps. The map shall be oriented so that the North Arrow shall be vertical toward the top of the sheet and a Bar Scale, indicated in kilometers (miles), below the map. Also label the project, detours, state highways and township roads and place a Legend as shown on [Chapter 15, Section 15.2, Plate B-XIII](#) below the Location Map.

LEGEND

|                                            |  |
|--------------------------------------------|--|
| PROJECT                                    |  |
| DETOUR                                     |  |
| STATE HIGHWAY                              |  |
| TOWNSHIP ROADS<br>(CITY OR BOROUGH STREET) |  |

**D. Location of Project on State Map.** Indicate the location of the project on the State Map and enclose within two concentric circles as shown in [Chapter 15, Section 15.2, Plate B-XII](#).

### 10.3 SUMMARY OF QUANTITIES SHEET

The standard Summary of Quantities Sheet shall list every pay item used on the project when the Traffic Signal Plans are submitted as a separate entity in themselves. When the Traffic Signal Plans are included with the Construction Plans, the list of pay items of the Traffic Signal Plan shall be included in the Summary of Quantities Sheet of the Construction Plans. However, a Tabulation of Quantities Sheet shall be included with the traffic signal drawings.

When the Traffic Signal Plans are included with the Construction Plans, the General Notes shall be included on the first Special Detail Sheet or the first plan sheet if room allows. When this is not possible, a separate sheet shall be used.

The General Notes shall include a list of all applicable Standard Drawings. These standards shall also be listed in the General Notes of the roadway drawings when the Traffic Signal Plans are included with the Construction Drawings.

### 10.4 TABULATION OF QUANTITIES SHEET

Contract items shall be tabulated, similar to the Tabulation of Quantities Sheets, as shown in [Chapter 15, Section 15.2](#).

Individual tabulations normally should be made for the following items:

1. Signs.
2. Traffic Signal Supports.
3. Electrical Distribution (Conduit, Trench, Cable, Junction Boxes, Electrical Service).
4. Detectors.
5. Miscellaneous (Controller Assemblies, Systems and Communication Equipment, Signal Heads).
6. Pavement Markings.

All signal supports and detectors should be located by station and offset or dimension from the curb lines.

### 10.5 PLAN SHEET

The plan sheet shall show the following information:

1. Complete scaled layout of the intersection of the traffic signal installation prepared in accordance with current design procedures presented in Publication 149, *Traffic Signal Design Handbook*.
2. All conduit runs.
3. Location and size of signal faces.
4. Location and type of controller.

5. Location and type of detectors including size, if applicable.
6. Color sequence chart, movement and phasing diagram including timing data.
7. Legend for poles, controller, signal heads, detectors, conduits, junction boxes and other pertinent items.
8. Title Block in lower right-hand corner indicating intersecting streets, municipality and signatures of the Municipal Official and the District Traffic Engineer.
9. Indicate the following roadway information on the Plan Sheets:
  - a. Centerline or baseline (if available).
  - b. Roadway grade.
  - c. Edges of pavement and shoulder.
  - d. Curb lines.
  - e. Pertinent topography.
  - f. Legal Right-of-Way lines.
  - g. \*Property owners.
  - h. Bar Scale.
  - i. North Arrow.
  - j. \*Utilities.

\* When Traffic Signal Plans are included in the contract, a note may be used to refer to the roadway plan sheet which shows the location of utilities and the names of property owners.

**10.** Wiring diagrams shall be shown for electrical distribution systems other than shown on the Standard Drawings.

Special Details, if required, should be shown on the plan sheets, if space permits. When this is not possible, Special Detail Sheets should be provided. When necessitated by the size or configuration of the intersection, (the amount of data to be shown, etc.), two plan sheets may be used to avoid overcrowding.

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# **CHAPTER 11**

## **STRUCTURE PLANS**

### **11.0 INTRODUCTION**

The purpose of this Chapter is to provide supplemental guidance for the orderly preparation of Structure Plans. The methods, procedures and examples presented herein are to be followed to promote consistency in the preparation of Structure Plans.

### **11.1 PLAN PRESENTATION**

Structure plan presentation shall follow the direction given in Publication 15M, Design Manual, Part 4, *Structures*. For items not covered in Publication 15M, Design Manual, Part 4, *Structures*, the guidance of Publication 14M, Design Manual, Part 3, *Plans Presentation*, shall be followed.

### **11.2 STRUCTURE PLAN REVISIONS**

Revisions to Final Structure Plans shall be completed as directed in Publication 15M, Design Manual, Part 4, *Structures*, Chapter 1, PP 1.6.3.3, PP 1.9.8, and PP 1.10.6.

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## CHAPTER 12

### COMPUTER AIDED DRAFTING AND DESIGN (CADD) SYSTEM PROCEDURES AND CONFIGURATION

#### 12.0 INTRODUCTION

The information in this Chapter is provided to assist users of the Pennsylvania Department of Transportation's Computer Aided Drafting and Design (CADD) system in preparing all CADD project plans and to provide guidance for CADD project plans prepared by Consultants.

On the Pennsylvania Department of Transportation's Computer Aided Drafting and Design (CADD) system, all plans are created as MicroStation® (DGN) files.

**Note:** Programs such as BRADD and gINT make use of the MicroStation architecture but may not be required to meet the standards of this Manual. Refer first to these products' respective manuals for their specific standards. Then refer to this Manual for any required additional guidance.

**Note:** Consultants may obtain the Department's CADD environment resource files by going to the following location on our website: [www.penndot.gov](http://www.penndot.gov) and then navigating the menu path: Project & Programs > Road Design & Environment > CADD Resources

#### 12.1 DEFINITIONS

- CADD Design File → MicroStation® (DGN) file
- Department's CADD software → Bentley's MicroStation® software
- Department's CADD Software Working Environment → Any file used to configure the Department's CADD software to operate in accordance with the Department's graphics standards. This custom workspace must be used by all Department CADD users and is available to all business partners for their use.

#### 12.2 NAMING OF CADD DESIGN FILES

It is critical that CADD Design File names adequately define file contents so that anyone viewing project file folders can quickly identify each CADD Design File. The following recommendations should be used as a guideline for file naming.

The recommended naming convention for roadway CADD Design Files is as follows:

FORMAT: ccsssxxx.ttt

cc = County Number, two digits  
ssss = State Route Number, four digits  
xxx = Section Number, three digits  
ttt = File Type, three digits

FILE TYPE:

.TY\* - Title and Typical Section Sheets  
.SU\* - Summary, Tabulation and Form 407 Sheets  
.PL\* - Plan, Profile, Index and Plot Sheets  
.MC\* - Signal, Traffic Control and Miscellaneous Sheets  
\* - Can only be 1 digit or character

Example: Dauphin County, SR 5098, Section 400, Plan Sheets first file.

Design File Name: 225098400.PL1

The recommended naming convention for bridge plan sheets prepared using MicroStation® is as follows:

FORMAT: ccsssnni.xxx

cc = County Number  
ssss = State Route Number  
nn = Sheet Number  
i = This is a one character structure identification letter. This allows you to have more than one set of design drawings generated for one structure.  
xxx = Section Number

EXAMPLE: Allegheny County  
SR 1053, Section 005  
General Plan Sheet (Sheet No. 1)  
Given structure identification "A"

Design file name: 02105301A.005

File name shall be no more than nine characters plus the Section Number. Each sheet is a separate file.

Structure Identification (ID) Letter: Used to differentiate between several structures on one project. They shall be labeled in order of increasing station.

**Note:** See [Appendix A](#) for information and guidance regarding the naming of CADD Design Files saved to the PDF format for use within the Department's Electronic Document Management System.

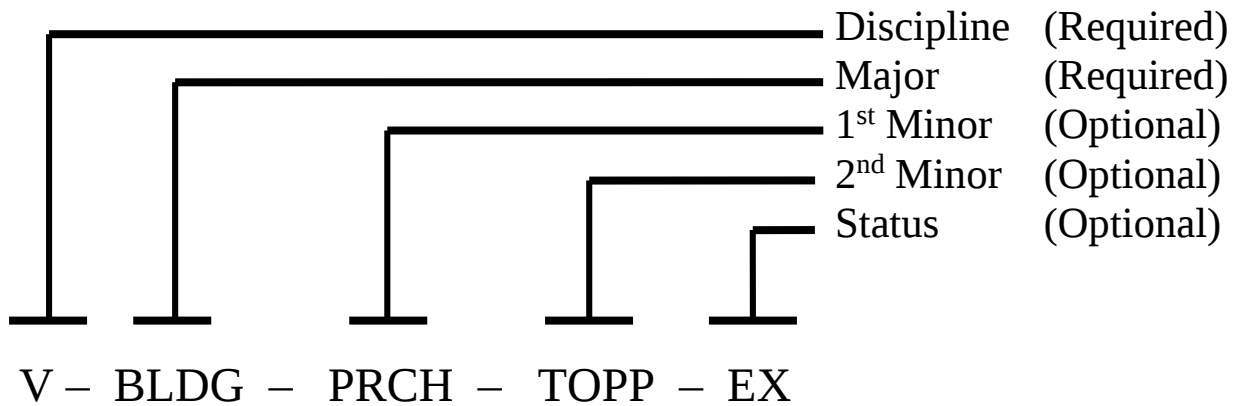
**NOTE:** BRADD generated MicroStation® (DGN) files do not conform to these file naming conventions.

### 12.3 CADD DESIGN FILE LEVEL CONVENTION

MicroStation® (DGN) files allow data to be separated by levels within the file. The use of levels provides a data management tool to control data display beyond reference files, features, graphic weight, and line styles. The Department's level naming convention follows a modified National CAD Standard® naming convention. The Department's named levels are listed in [Appendix D](#). Levels 1 through 63 remain active in order to provide backward compatibility with existing designs and are listed in [Appendix C](#). New designs shall use the named levels listed in [Appendix D](#).

**NOTE:** BRADD generated MicroStation® (DGN) files do not conform to the named level conventions of [Appendix D](#) or the level number convention of [Appendix C](#). For BRADD's level conventions, see Chapter 7 of the BRADD User Manual.

Level names consist of a **Discipline** code (one or two digits), a **Major** code (four digits), a **1<sup>st</sup> Minor** code (four digits), a **2<sup>nd</sup> Minor** code (four digits) and a **Status** code (two digits). Valid levels must contain a Discipline and Major code while the Minor and Status codes are optional codes to more precisely define the graphic content to be placed on the level. The Department modifies the National CAD Standard® level naming convention by defining the Status code to be two digits as opposed to the standard one digit. A listing of the Discipline and Major codes appears in [Appendix D](#).



**NOTE:** In general, V- and VA- levels serve as existing feature levels, C-, T- and S- (and others, if defined) serve as proposed feature levels.  
For example, V-ROAD-EDGE (Survey-Pavement Edge) is an existing feature; C-ROAD-EDGE is a proposed feature.

#### 12.4 CADD DESIGN FILE GRAPHIC SYMBOLOGY

Graphic symbology refers to the configuration and settings used by the Department's CADD software to achieve the plotted results as defined by this Manual. The Department's CADD Software Working Environment uses By-Level Symbology to control the graphic symbology of CADD Design Files. Level properties that may be controlled in this manner are listed in [Appendix D](#). Older CADD files using numeric levels will follow the standards listed in [Appendix C](#).

**NOTE:** BRADD generated MicroStation® (DGN) files do not conform to these graphic standards. See Chapter 7 of the BRADD User Manual for BRADD graphic standards.

**A. Line Styles.** The Department's CADD Software Working Environment provides standard line styles (or codes) for use on plans. The line styles are shown in [Appendix D, Figure D.1](#).

Nonstandard line codes are to be placed on the level's root or MAJOR code level. A legend of the line code, giving the line code name, the line code description, and a graphic sample of the line code, shall be placed as a General Note.

**B. Fonts.** The Department's CADD Software Working Environment provides a library of fonts to be used for different types of work. The fonts used for plan preparation are Font 5 (Vertical) for proposed work, Font 25 (Slanted) for existing information and Font 7 for sheet titles or Title Sheet text. These fonts are shown in [Appendix D, Table D.5](#).

**C. Graphic Weights.** The Department's CADD Software Working Environment provides standard graphic weights (or line widths) for use on plans. The graphic weights (or line widths) and codes are shown in [Appendix D, Table D.6](#).

**D. Color Tables.** The Department does not currently require standard colors be used in plans production as the final output is black line work on a white background.

When showing existing features on a plan for reference, it may be necessary to de-emphasize the existing features for clarity. The Department recognizes the use of dithered or grey tone line work to display existing features. Dithered or grey tone line work must be reproducible from microfilmed plans. See [Chapter 13.2, Image Lines](#), for information on the Department's dithering method.

## **12.5 REFERENCE FILES AND CELL LIBRARIES**

Graphics used repetitively in plan preparations may be stored on the CADD system as reference files or as a cell in a cell library. Examples of this information would be blank plan or cross section sheets, General Notes, and typical section details. The Bureau of Project Delivery is responsible for keeping this information current. When these files are used on specific projects, the District shall review the content for accuracy and update the content for the project conditions. Any questionable information shall be called to the attention of the Bureau of Project Delivery for verification or revision.

## **12.6 ELECTRONIC FILE EXCHANGE OF CADD DATA FILES**

See [Appendix B](#) for information and guidance regarding the exchange of electronic copies of all CADD Project Files between the Department and Business Partners (Consultants and Contractors).

## **12.7 ELECTRONIC FILES AND 3D MODELING IMPLEMENTATION**

As uniformity and consistency of the 3D data files will increase the constructor's understanding of the design intent presented in the official plan set, the following are guidelines for implementation:

1. Determine and document whether 3D modeling will be used during the Scoping Field View.
2. Design all projects with the "US Survey Foot" as the working unit of measure.
3. Make LandXML translations of each of the following data sets when practical and relevant as determined by the ADE-Design:
  - a. **Existing or surveyed surface** - the surface as it exists prior to construction or a construction stage when a project is multi-staged.
  - b. **Final project geometry** - the horizontal and vertical alignment data for each design corridor or cross section set represented in the final design. Temporary road(s) geometry for staged construction should be saved to separate LandXML data files.
  - c. **Final design surface** - the proposed design surface complete in all its parts. It may be contained in a single merged surface or in several component surfaces. The final design surface must be checked for accuracy prior to LandXML translation.
4. Compress all LandXML files using the WinZip software package and store as a \*.zip file type for loading into the Engineering and Construction Management System (ECMS).
5. The Portable Document Format (PDF) is an open standard for electronic document exchange. Produce the plan set loaded into ECMS directly from the CADD software as a set of PDF files. A PDF file created from a scanned plan sheet should not be loaded into ECMS as part of the official plan set because a scanned image loses graphic and numeric detail. The exception to this rule is a Title Sheet which must contain a professional seal and original signature.
6. All Civil Application Files provided to bidders must contain only data represented in the official plan set. No alternate design data should be included. If such information is present, it must be redacted prior to translation to LandXML.
7. If the roadway design was not developed in a 3D format, no effort should be made to recreate the design for the sole purpose of generating 3D data for translation to the LandXML format.

# CHAPTER 13

## ENGINEERING GRAPHIC STANDARDS

### 13.0 INTRODUCTION

All project plans shall be prepared by using drawing practices designed specifically for half-size reproduction. Generally, plans will be generated using Computer Aided Drafting and Design (CADD) software and plan deliverables will be PDF format files. If plan deliverables are to include hard copy prints, the following requirements apply:

1. Drawings should be black line work printed on engineering bond paper, which reflects maximum light and provides maximum contrast between its own background and any image drawn upon it.
2. Line work on both sides of the media is not permitted as quality prints cannot be readily produced.
3. Drawing materials or sizes should not be mixed within the same set of plans.

The Department provides CADD users a MicroStation® workspace that supports the line work, text and symbology requirements described below. This custom workspace is available to all Department CADD users. Consultants may obtain the Department's CADD environment resource files by going to the following location on our website: [www.penndot.gov](http://www.penndot.gov) and then navigating the menu path:

Project & Programs > Road Design & Environment > CADD Resources

See [Chapter 12](#) for further information on using CADD to prepare plans.

### 13.1 BORDER LINES

The border lines shall be approximately 0.5 in from the top, bottom and right side of the page, and 1.5 in from the left side. Drawings shall be so planned that all details fall within the prescribed border lines.

### 13.2 IMAGE LINES

Lines shall not be spaced closer than 0.050 in. Again, proper scale is stressed to ensure that proper spacing is maintained. The fact that an additional sheet may be needed in some cases is immaterial.

Line body shall be uniformly dense and opaque. Dithering techniques may be used where applicable to de-emphasize information not part of the current design or that may cause confusion. Dithering needs to be reproduced; therefore, only use dithering techniques that are reproducible and visible.

Intersections of lines shall be made with care so that the line edges are sharp.

### 13.3 CHARACTERS

Minimum text size is 0.12 in for uppercase.

All characters shall be open, bold, uniform and formed with a dense but not wide line.

Space between characters shall be 50 percent of the width of the widest character and space between the lines of lettering shall be 50 percent of the height of the tallest letter.

To differentiate between existing conditions and proposed work, slanted text shall be used to identify existing conditions and vertical text shall be used for proposed construction, Tabulation of Quantities Sheet and Special Notes.

Do not crowd information in tight lines. Print the note where there is space and use arrows.

### 13.4 BLOCK DIMENSIONS

Table 13.1 summarizes the block dimensions to be used.

**TABLE 13.1**  
**BLOCK DIMENSIONS**

| UNIT  | DESCRIPTION                                                                         | WIDTH (in) | HEIGHT (in) |
|-------|-------------------------------------------------------------------------------------|------------|-------------|
| Plans | Title Block (Standards for Roadway Construction)                                    | 4.5        | 8           |
|       | Title Sheet Identification Block                                                    | 6          | 1.5         |
|       | Professional Engineer's Seal Block<br>(and Prepared By)                             | 3          | 6           |
|       | Professional Engineer's Seal Block (Block Only)                                     | 3          | 3           |
|       | Professional Land Surveyor's Seal Block (and Prepared By)<br>for Right-of-Way Plans | 3          | 6           |
|       | Title Sheet Signature Block (District Executive, Deputy<br>Secretary, etc.)         | 4.5        | OPEN        |
|       | Sheet Index Block                                                                   | 7          | OPEN        |
|       | Plan Sheet Identification Block                                                     | 6          | 1.5         |
|       | Earthwork Summary Block                                                             | VARIES     | VARIES      |
|       | Cut and Fill Area Block (Cross Section Sheets)                                      | 2.75       | 1.5         |
|       | Plan Revision Block                                                                 | 6          | VARIES      |

Note: The values in Table 13.1 may be adjusted as necessary.

### 13.5 LINE WEIGHTS AND SYMBOLS

The graphic weights, line styles and symbols as indicated in [Chapter 12](#), [Appendix C](#) and [Appendix D](#) shall be used in the preparation of all plans.

**13.6 DRAFTING STANDARDS FOR TITLE SHEETS****A. Title Sheet:**

0.500 in COMMONWEALTH OF PENNSYLVANIA

0.500 in DEPARTMENT OF TRANSPORTATION

0.350 in DRAWINGS

0.240 in FOR

0.350 in CONSTRUCTION

0.240 in OF

0.240 in STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_

0.240 in IN \_\_\_\_\_ COUNTY

0.200 in FROM STA \_\_\_\_ TO STA \_\_\_\_ LENGTH \_\_\_\_ ft \_\_\_\_ mi

0.200 in FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

0.240 in ALSO

0.240 in STATE ROUTE \_\_\_\_\_

0.200 in FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_

**B. Identification Block:**

0.100 in Titles (Block Identification)

0.140 in Project No.

0.425 in FAI, FAS, etc.

0.200 in District No.

0.140 in County, Township, Borough, Route, Section and Application

0.290 in Total Sheets

**C. Design Designation Block:**

0.200 in Design Designation

0.140 in All Data

**D. Bar Scales:**

0.200 in Scale

0.140 in All Data

**E. Supplemental Sheet:**

0.200 in Also Included

0.140 in All Data

**F. Notes:**

0.120 in For All Notes

**G. Signature Blocks:**

0.120 in      All Data

**13.7 PLAN REVIEW CHECKLIST**

The following Plan Review Checklist shall be used as a guide for designers in checking their work to help assure that the best possible plan has been prepared. The checklist is intended for use in the review of preliminary and final Right-of-Way and Construction Plans. Detailed information for these plans is provided elsewhere in this Manual. The checklist is not intended to be an all-inclusive list of items to be checked. It is also not intended to provide a duplication of the information contained elsewhere in this Manual.

**A. Right-of-Way Plans:****1. Title Sheet:**

- a.** Identification Block
- b.** Design Designation
- c.** State Route Numbers
- d.** Section Numbers
- e.** Stationing Limits
- f.** Authorization Length
- g.** "Also" Routes
- h.** Signature Block
- i.** Designer Block
- j.** Appropriate Legal Notes
- k.** PUC Notes
- l.** Bar Scales

**2. Index Sheet:****a. Index Map:**

- (1)** Centerlines and Stations
- (2)** Limits of Project
- (3)** Edges of Pavement
- (4)** Radius
- (5)** Property Lines
- (6)** Property Owner's Names
- (7)** Structures
- (8)** North Arrow
- (9)** State Route Numbers, Township Route Numbers and Local Road Names
- (10)** Railroads
- (11)** Edges of Streams
- (12)** Political Boundaries
- (13)** Equality Stations
- (14)** Temporary Roadways
- (15)** Channel Changes
- (16)** Sheet Identifications
- (17)** Abandonment Notes
- (18)** Legend

**3. Typical Section Sheets:**

- a.** Overall and Authorization Lengths
- b.** Equalities
- c.** Location Map with Legend
- d.** General Notes
- e.** Typical Sections
- f.** Special Details (affecting Right-of-Way)
- g.** Tabulation of Project Coordinates
- h.** Public Utilities

**4. Plan Sheets:**

- a.** Alignments
- b.** North Arrow
- c.** Bearings - Stations
- d.** References - Bench Marks
- e.** Structure Data
- f.** Limits and Begins and Ends of Authorization
- g.** Property Lines and Owners
- h.** Driveways - Other Access
- i.** Parcel Numbers - References to Property Plots
- j.** Right-of-Way Lines - Labels - Offsets
- k.** Easement Notes
- l.** Excavation and Embankment Lines
- m.** Topo and Drainage Affecting Right-of-Way Acquisition
- n.** Utilities

**5. Profile Sheets:**

- a.** Limits of Authorization
- b.** Begin and End Authorization
- c.** Structures and Clearances
- d.** Grades
- e.** HLSD or SSD
- f.** Datum
- g.** Graphic Grades
- h.** PVC, PVI, PVT
- i.** Pipes Affecting Right-of-Way Acquisition
- j.** Equalities
- k.** Utilities

**6. Property Plot Plans (same as Plan Sheets except the following are not required):**

- a.** Structure Data
- b.** References - Bench Marks

Add the following:

- c.** Deed Information
- d.** Property Description
- e.** Right-of-Way Areas

**B. Construction Plans:**

**1. Title Sheet:**

- a.** Identification Block
- b.** Design Designation
- c.** State Route Numbers
- d.** Section Numbers
- e.** Stationing Limits
- f.** Construction Length
- g.** "Also" Routes
- h.** Signature Block
- i.** Designer Block
- j.** PUC Notes
- k.** Limited Access Note
- l.** Supplemental Plans
- m.** Bar Scales

**2. Index Sheet:**

**a. Index Map:**

- (1)** Centerlines and Stations
- (2)** Limits of Project
- (3)** Edges of Pavement
- (4)** Radius
- (5)** Property Lines
- (6)** Property Owner's Names
- (7)** Structures
- (8)** North Arrow
- (9)** Sheet Limits and Legend
- (10)** Record of Existing Road Types
- (11)** Channel Changes
- (12)** Temporary Roadways
- (13)** Straight Line Diagram Data
- (14)** State Route Numbers, Township Route Numbers and Local Road Names
- (15)** Railroads
- (16)** Edges of Streams
- (17)** Political Boundaries
- (18)** Equality Stations

**b. Sheet Index**

**3. Typical Section Sheets:**

- a.** Tabulation of Overall and Construction Lengths
- b.** Equalities
- c.** Location Map with Legend
- d.** General Notes
- e.** Special Details
- f.** Earthwork Summary
- g.** Public Utilities
- h.** Applicable Standards
- i.** Typical Sections
- j.** Tabulation of Project Coordinates

4. Summary and Tabulation of Quantities Sheets:
  - a. Pay Items
  - b. Item Numbers
  - c. Quantities
  - d. Reference Special Provisions
  - e. Reference Supplemental Plans
  - f. Alternates
5. Plan Sheets:
  - a. Alignments
  - b. North Arrow
  - c. Bearings - Stations
  - d. References - Bench Marks
  - e. Structure Data
  - f. Limits of Work
  - g. Start and Stop Work
  - h. Property Lines and Owners
  - i. Parcel Numbers
  - j. Driveways
  - k. Right-of-Way Lines - Labels - Offsets (if required)
  - l. Easements
  - m. Topo Affecting Construction
  - n. Pay Items - Pipes, Inlets, Guide Rail, Etc.
  - o. Utilities
6. Profile Sheets:
  - a. Limits of Work
  - b. Start and Stop Work
  - c. Structures and Clearances
  - d. Grades
  - e. HLSD or SSD
  - f. Datum
  - g. Graphic Grades
  - h. PVC, PVI, PVT
  - i. Pipes and Parallel Drainage
  - j. Equalities
  - k. Utilities

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# CHAPTER 14

## STANDARD DRAFTING ABBREVIATIONS

### 14.0 INTRODUCTION

The specific terminology and associated abbreviations indicated herein are provided for uniformity and for general use by personnel engaged in plans development and presentation.

### 14.1 GENERAL ABBREVIATIONS

#### - A -

ABANDONED.....ABD  
ABUTMENT.....ABUT  
ACRE, ACRES.....ACRE  
ADDITION.....ADD  
ADJUSTING.....ADJ  
AFTERNOON.....PM  
AGGREGATE.....AGGR  
AHEAD.....AHD  
ALTERNATE.....ALT  
AMPERE.....A  
ANGLE.....ANGLE  
APPLICATION.....APPL  
APPROACH.....APPR  
APPROVED.....APPD

APPROXIMATE.....APPROX  
AREA.....A  
ASPHALT.....ASPH  
ASPHALT COATED  
CORRUGATED  
METAL PIPE.....ACCOMP  
ASSISTANT.....ASST  
ASSOCIATE.....ASSOC  
ASSOCIATION.....ASSN  
AUTOMATIC.....AUTO  
AUXILIARY.....AUX  
AVENUE.....AVE  
AVERAGE.....AVG

#### - B -

BACK.....BK  
BACKFILL.....B'FILL  
BACKSIGHT.....BS  
BACK TO BACK.....B to B  
BAG, BAGS.....BAG, BAGS  
BARN.....BARN  
BARREL.....BBL  
BASELINE.....  
BASEMENT.....BSMT  
BEAM.....BEAM  
BEARING.....BRG  
BELL AND SPIGOT.....B & S  
BENCH MARK.....BM  
BEVELED.....BEV  
BITUMINOUS.....BIT  
BITUMINOUS SURFACE  
COURSE.....BIT SURF CRSE  
BLACK.....BLK

BLUE.....BLUE  
BOARD.....BD  
BOROUGH.....BORO  
BOTTOM.....BOT  
BOTTOM OF BANK.....BB  
BOTTOM OF CURB.....BC  
BOTTOM OF CUT.....BC  
BOTTOM OF FILL.....BF  
BOTTOM OF STAKE.....BS  
BOTTOM OF WALL.....BW  
BOULDERS.....B  
BOULEVARD.....BLVD  
BOUNDARY.....BNDY  
BRICK.....BRICK  
BROOK.....BROOK  
BROWN.....BRN  
BUILDING.....BLDG  
BULKHEAD.....BLKHD

- C -

CANDELA ..... cd  
CAPACITY ..... CAP  
CAST IRON ..... CI  
CAST IRON PIPE ..... CIP  
CATCH BASIN ..... CB  
CELSIUS ..... °C  
CEMENT ..... CEM  
CEMETERY ..... CEMETERY  
CENTER TO CENTER ..... C TO C  
CENTER, CENTERS ..... CTR, CTRS  
CENTERLINE .....  $\frac{C}{L}$   
CHAIN ..... CH  
CHANGE ..... CHG  
CHANNEL ..... CHANNEL  
CHECKED ..... CHD  
CHURCH ..... CH  
CIRCULAR ..... CIR  
CLASS ..... CL  
CLAY ..... CLAY  
CLEAR ..... CLR  
COATED ..... CT'D  
COEFFICIENT ..... COEF  
COLUMN ..... COL  
COMBINATION ..... COMB  
COMPUTATIONS ..... COMP  
CONCRETE ..... CONC  
CONCRETE PIPE ..... CP  
CONDUIT ..... CONDUIT  
CONSTRUCT ..... CONST

CONSTRUCTION ..... CONSTR  
CONTINUATION ..... CONT  
CONTINUED ..... CONT'D  
CONTINUOUS ..... CONT  
CONTINUOUSLY REINFORCED  
CONCRETE ..... CRC  
CONTRACT ..... CONTRACT  
CONTRACTOR ..... CONTR  
CONTROL ..... CONTROL  
COORDINATE ..... COORD  
CORNER ..... COR  
CORRUGATED METAL ..... CM  
CORRUGATED METAL PIPE ..... CMP  
COULOMB ..... C  
COUNTY ..... CO  
COURSE ..... CRSE  
CREEK ..... CK  
CROSS ROAD ..... X RD  
CROSS SECTION ..... X SECT  
CRUSHED ..... CR  
CUBIC ..... CU  
CUBIC FOOT ..... CF or ft<sup>3</sup>  
CUBIC FEET PER SECOND ..... CFS or ft<sup>3</sup>/s  
CUBIC METERS ..... m<sup>3</sup>  
CUBIC METERS PER SECOND ..... m<sup>3</sup>/s  
CUBIC MILLIMETERS ..... mm<sup>3</sup>  
CUBIC YARD ..... CY or yd<sup>3</sup>  
CULVERT ..... CULV  
CUT ..... C

- D -

DAY, DAYS ..... DAY, DAYS  
DEGREE ..... DEG OR °  
DEPARTMENT ..... DEPT  
DESIGNED ..... DSGN  
DIAMETER ..... DIA OR Ø  
DIMENSION ..... DIM

DIRECTIONAL ..... DIR  
DOWNSTREAM ..... DWNSTRE  
DRAWING, DRAWINGS ..... DWG, DWGS  
DRIVE ..... DR  
DWELLING ..... DWLG

- E -

EACH ..... EACH or EA  
EDGE OF CONCRETE ..... EC  
EDGE OF PAVEMENT ..... EP  
EDGE OF ROAD ..... ER  
EDGE OF SHOULDER ..... ES  
EDGE OF STREAM ..... E STRE  
ELBOW ..... ELB  
ELEVATION ..... ELEV  
EMBANKMENT ..... EMB  
EMERGENCY ..... EMERG  
ENCLOSURE ..... ENCL  
END TO END ..... E TO E  
ENDWALL ..... EDW

ENGINEER ..... ENGR  
EQUAL ..... =  
EQUALITY ..... EQ  
EQUATION ..... EQ  
EQUIVALENT ..... EQUIV  
ESTIMATE ..... EST  
EXCAVATION ..... EXC  
EXISTING ..... EXIST  
EXPANSION ..... EXP  
EXTENSION ..... EXTN  
EXTERNAL ..... EXTL  
EXTRA ..... EXTRA

## - F -

FACE OF CURB ..... FC  
 FACE TO FACE ..... F TO F  
 FAHRENHEIT ..... °F  
 FEDERAL ..... FED  
 FEDERAL AID ..... FA  
 FEDERAL AID APPALACHIA ..... APD  
 FEDERAL AID INTERSTATE ..... FAI  
 FEDERAL AID PRIMARY ..... FAP  
 FEDERAL AID SECONDARY ..... FAS  
 FEDERAL AID URBAN ..... FAU  
 FEET ..... ft or '  
 FEET BOARD MEASURE ..... FBM  
 FEET PER SECOND ..... ft/s  
 FEET PER MINUTE ..... ft/min  
 FENCE POST ..... FP

FERRY ..... FY  
 FIGURE ..... FIG  
 FILL ..... F  
 FINISHED GRADE ..... FG  
 FIRE HYDRANT ..... FH  
 FLANGE, FLANGED ..... FLG  
 FLEXIBLE ..... FLEX  
 FLOOR ..... FLR  
 FLOW LINE ..... FL  
 FOOT ..... ft OR '  
 FORD ..... FD  
 FORENOON ..... AM  
 FORESIGHT ..... FS  
 FOUNDATION ..... FDN  
 FRAME DWELLING ..... FR DWL

## - G -

GAGE ..... GA  
 GALLON, GALLONS ..... gal  
 GALLONS PER MINUTE ..... gal/min  
 GALLONS PER SECOND ..... gal/s  
 GARAGE ..... GAR  
 GAUGE ..... GA  
 GENERAL ..... GENL

GIGA ..... G  
 GRAM ..... g  
 GREEN ..... GRN  
 GROUND ..... GRD  
 GUIDE RAIL ..... GR  
 GUIDE RAIL POSTS ..... GP

## - H -

HEADER ..... HDR  
 HECTARE ..... ha  
 HERTZ ..... Hz  
 HIGH WATER ..... HW

HIGHWAY ..... HWY  
 HORIZONTAL ..... HOR  
 HOUR, HOURS ..... HOUR or h  
 HOUSE ..... HSE

## - I -

INCH ..... in or "  
 INCLUDING ..... INCL  
 INCORPORATED ..... INC  
 INFORMATION ..... INF  
 INLET ..... I  
 INSIDE DIAMETER ..... ID

INTEGRAL ..... INTEG  
 INTERMEDIATE ..... INTER  
 INVERT ..... INV  
 IRON PIN ..... I PIN  
 IRON PIPE ..... IP

## - J -

JOINT ..... JT  
 JOULE ..... J

JUNCTION ..... JCT  
 JUNCTION BOX ..... JB

## - K -

KILO ..... k  
 KILOGRAM ..... kg

KILOMETER ..... km  
 KILOMETERS PER HOUR ..... km/h

## - L -

LAKE ..... LAKE  
 LATITUDE ..... LAT  
 LEFT ..... LT  
 LENGTH ..... LGTH  
 LIGHT ..... LT  
 LIGHTING ..... LTG  
 LIMITED ACCESS ..... LA  
 LINEAR ..... LIN

LINEAR FOOT ..... LF  
 LITER ..... L  
 LONGITUDE ..... LONG  
 LONGITUDINAL ..... LONG  
 LUMEN ..... lm  
 LUMP SUM ..... LS  
 LUX ..... lx

## - M -

MANHOLE ..... MH  
 MASONRY ..... MAS  
 MATERIAL ..... MAT'L  
 MAXIMUM ..... MAX  
 MEAN SEA LEVEL ..... MSL  
 MEGA ..... M  
 MERIDIAN ..... MER  
 METER ..... m  
 METERS PER SECOND ..... m/s  
 METRIC TON ..... tonne  
 MILE ..... mi

MILES PER HOUR ..... mph  
 MILLI ..... m  
 MILLIMETER ..... mm  
 MINIMUM ..... MIN  
 MINUTE (ANGLE  
     MEASURE) ..... MIN OR '  
 MINUTE (TIME MEASURE) ..... min  
 MISCELLANEOUS ..... MISC  
 MONUMENT ..... MON  
 MOUNTABLE ..... MTBL  
 MOUNTAIN ..... MTN

## - N -

NATIONAL ..... NTL  
 NATIVE ..... NAT  
 NEGATIVE ..... NEG

NEWTON ..... N  
 NUMBER ..... NO  
 NUMBERS ..... NOS

## - O -

OFFSET ..... OFF  
 ON CENTERS ..... OC  
 OPPOSITE ..... OPP  
 ORANGE ..... ORN

ORIGINAL GROUND ..... OG  
 OUNCE ..... oz  
 OUTSIDE DIAMETER ..... OD  
 OUTSIDE TO OUTSIDE ..... O TO O

## - P -

PAGE ..... P  
 PAGES ..... PP  
 PARAGRAPH ..... PAR  
 PARALLEL ..... PAR  
 PASCAL ..... Pa  
 PAVEMENT ..... PAV'T  
 PAVING ..... PAV'G  
 PERCENT ..... %  
 PERFORATED ..... PERF  
 PERMANENT ..... PERM  
 PLAIN ..... PL  
 PLAIN CEMENT CONCRETE ..... PLCC

PLANE ..... PL  
 PLATE ..... PL  
 POINT ..... PT  
 POUNDS ..... lb  
 PORTLAND CEMENT  
     CONCRETE ..... PCC  
 POWER POLE ..... PP  
 PRIMARY ..... PRI  
 PROFILE GRADE ..... PG  
 PROJECT ..... PROJ  
 PROPERTY LINE ..... PL

## - Q -

QUADRANGLE ..... QUAD

QUART ..... QT

## - R -

RADIAN.....rad  
RAILROAD .....RR  
RAILWAY .....RWY  
RECEIVED .....REC'D  
RECONSTRUCT ..... RECONSTR  
RED.....RED  
REDRESSED .....REDR  
REFERENCE .....REF  
REFLECTION.....REFLN  
REFLECTOR .....REFLR  
REGULAR .....REG  
REINFORCED .....REINF

REINFORCED CEMENT  
CONCRETE ..... RCC  
REINFORCED CONCRETE  
PIPE .....RCP  
REINFORCEMENT.....REINF  
REINFORCING .....REINF  
REMOVAL .....REMOV  
REQUIRED.....REQ'D  
REVISION .....REV  
RIGHT .....RT  
RIGHT-OF-WAY .....R/W  
ROAD.....RD  
ROADWAY .....RDWY  
ROUTE.....RTE

## - S -

SANITARY SEWER ..... SAN S  
SECOND (ANGLE  
MEASURE).....SEC OR "  
SECOND (TIME  
MEASURE).....s  
SECTION ..... SECT  
SEGMENT .....SEG  
SELECT .....SEL  
SEPARATE.....SEP  
SERVICE .....SERV  
SET, SETS.....SET  
SHEET.....SH  
SHOULDER.....SHLDR  
SIDEWALK .....S'WALK  
SIGNAL .....SIG  
SQUARE .....SQ  
SQUARE FOOT.....SF or ft<sup>2</sup>  
SQUARE INCH .....in<sup>2</sup>  
SQUARE METERS .....m<sup>2</sup>  
SQUARE MILE .....mi<sup>2</sup>

SQUARE KILOMETERS.....km<sup>2</sup>  
SQUARE MILLIMETERS .....mm<sup>2</sup>  
SQUARE YARD .....SY or yd<sup>2</sup>  
STANDARD .....STD  
STATE ROUTE .....SR  
STATION .....STA  
STEEL .....STL  
STORY .....STY  
STREAM.....STRE  
STREET .....ST  
STRUCTURAL .....STR  
STRUCTURE.....STR  
SUBGRADE.....SUBG  
SUBSTRUCTURE ..... SUBSTR  
SUPERELEVATION .....SE  
SUPERSTRUCTURE .....SUPERSTR  
SUPPORT.....SUP  
SURFACE .....SURF  
SURVEY .....SURV  
SYMMETRICAL .....SYM

## - T -

TEE .....TEE  
TELEPHONE .....TEL  
TELEPHONE POLE .....TP  
TEMPERATURE .....TEMP  
TEMPORARY .....TEMP  
TERMINAL .....TERM  
TERRA COTTA.....TC  
TON, TONS .....ton  
TONNE.....tonne  
TONGUE & GROOVE .....T & G  
TOP OF BANK .....TB

TOP OF CURB.....TC  
TOP OF CUT .....TC  
TOP OF FILL .....TF  
TOP OF GRATE .....TG  
TOP OF RAIL .....TR  
TOP OF WALL .....TW  
TOPOGRAPHY .....TOPO  
TOWNSHIP .....TWP  
TRAFFIC.....TR  
TRANSVERSE .....TRANSV  
TYPICAL .....TYP

## - U -

UNDERDRAIN..... U-DRAIN

UPSTREAM..... UPSTRE

## - V -

|                     |      |                          |     |
|---------------------|------|--------------------------|-----|
| VARIABLE.....       | VAR  | VERTICAL METER.....      | Vm  |
| VERTICAL .....      | VERT | VITRIFIED CLAY PIPE..... | VCP |
| VERTICAL CURVE..... | VC   | VOLT .....               | V   |
| VERTICAL FEET.....  | VF   | VOLUME .....             | VOL |

## - W -

|                       |           |                     |    |
|-----------------------|-----------|---------------------|----|
| WALK .....            | WK        | WEIGHT .....        | WT |
| WATT .....            | W         | WIDENED CURVE ..... | WC |
| WEARING SURFACE ..... | WEAR SURF | WINGWALL.....       | WW |

## - Y -

|            |    |              |     |
|------------|----|--------------|-----|
| YARD.....  | yd | YELLOW ..... | YEL |
| YEAR ..... | YR |              |     |

**14.2 HORIZONTAL CURVE ABBREVIATIONS**

|                                           |            |
|-------------------------------------------|------------|
| POINT OF INTERSECTION .....               | PI         |
| DELTA - EXTERNAL ANGLE.....               | $\Delta$   |
| EXTERNAL DISTANCE.....                    | E          |
| TANGENT.....                              | T          |
| RADIUS.....                               | R          |
| DEGREE OF CURVATURE .....                 | D          |
| LENGTH OF CURVE .....                     | L          |
| POINT OF CURVE .....                      | PC         |
| POINT OF TANGENT .....                    | PT         |
| POINT ON CURVE.....                       | POC        |
| POINT ON TANGENT .....                    | POT        |
| POINT ON SUBTANGENT.....                  | POST       |
| POINT OF COMPOUND CURVE .....             | PCC        |
| POINT OF REVERSE CURVE.....               | PRC        |
| CURVE TO SPIRAL POINT .....               | CS         |
| SPIRAL TO CURVE POINT .....               | SC         |
| SPIRAL TO TANGENT POINT .....             | ST         |
| TANGENT TO SPIRAL POINT .....             | TS         |
| TANGENT DISTANCE .....                    | TS         |
| RADIUS OF CIRCULAR CURVE .....            | RC         |
| SIMPLE CURVE CO-ORDINATE (ORDINATE) ..... | p          |
| SIMPLE CURVE CO-ORDINATE (ABSCISSA) ..... | k          |
| SPIRAL ANGLE .....                        | $\theta_s$ |
| SPIRAL LENGTH.....                        | $L_s$      |
| CENTRAL ANGLE BETWEEN THE                 |            |
| SC AND CS.....                            | $\Delta_c$ |
| EXTERNAL DISTANCE.....                    | ES         |
| LENGTH OF CIRCULAR CURVE .....            | LC         |
| LONG CHORD .....                          | LC         |
| LONG TANGENT.....                         | LT         |
| SHORT TANGENT.....                        | ST         |
| TANGENT DISTANCE FOR SC .....             | $x_c$      |
| TANGENT OFFSET OF THE SC.....             | $y_c$      |

**14.3 VERTICAL CURVE ABBREVIATIONS**

|                                     |      |
|-------------------------------------|------|
| POINT OF VERTICAL INTERSECTION..... | PVI  |
| POINT OF VERTICAL CURVE.....        | PVC  |
| POINT OF VERTICAL TANGENT .....     | PVT  |
| LENGTH OF VERTICAL CURVE .....      | VC   |
| MIDDLE ORDINATE.....                | MO   |
| STOPPING SIGHT DISTANCE .....       | SSD  |
| HEADLIGHT SIGHT DISTANCE .....      | HLSD |

**14.4 SURVEY TERM ABBREVIATIONS**

|                                                   |                   |
|---------------------------------------------------|-------------------|
| HEIGHT OF INSTRUMENT .....                        | HI                |
| BACKSIGHT.....                                    | BS                |
| FRONTSIGHT.....                                   | FS                |
| CONTROL POINT .....                               | CP                |
| TURNING POINT.....                                | TP                |
| ANGLE .....                                       | ANGLE or $\angle$ |
| CROSS SECTION.....                                | X SECT            |
| DEFLECTION.....                                   | DEFL              |
| MAGNETIC .....                                    | MAG               |
| TOP OF STAKE .....                                | TS                |
| BOTTOM OF STAKE.....                              | BS                |
| GLOBAL POSITIONING SYSTEM.....                    | GPS               |
| NORTH AMERICAN DATUM OF 1927 .....                | NAD 27            |
| NORTH AMERICAN DATUM OF 1983.....                 | NAD 83            |
| NORTH AMERICAN VERTICAL<br>DATUM OF 1988 .....    | NAVD 88           |
| NATIONAL GEODETIC REFERENCE<br>SYSTEM.....        | NGRS              |
| NATIONAL GEODETIC SURVEY .....                    | NGS               |
| NATIONAL GEODETIC VERTICAL<br>DATUM OF 1929 ..... | NGVD 29           |
| STATE PLANE COORDINATE SYSTEM.....                | SPCS              |
| STATE PLANE COORDINATE SYSTEM<br>OF 1927.....     | SPCS 27           |
| STATE PLANE COORDINATE SYSTEM<br>OF 1988.....     | SPCS 88           |
| U.S. COAST & GEODETIC SURVEY.....                 | USC&GS            |
| U.S. GEOLOGICAL SURVEY.....                       | USGS              |

**14.5 DIRECTIONAL ABBREVIATIONS**

|                  |    |
|------------------|----|
| EAST .....       | E  |
| EASTBOUND .....  | EB |
| NORTH.....       | N  |
| NORTHBOUND.....  | NB |
| NORTHEAST.....   | NE |
| NORTHWEST .....  | NW |
| SOUTH .....      | S  |
| SOUTHBOUND ..... | SB |
| SOUTHEAST .....  | SE |
| SOUTHWEST .....  | SW |
| WEST.....        | W  |
| WESTBOUND .....  | WB |

#### 14.6 COMMON CONSTRUCTION ITEMS AND ABBREVIATIONS.

| <u>COMMON CONSTRUCTION ITEM</u>      | <u>ABBREVIATION</u> |
|--------------------------------------|---------------------|
| TEMPORARY CONSTRUCTION EASEMENT..... | TEMP CONSTR EASE    |

##### BASE COURSE

|                                    |                 |
|------------------------------------|-----------------|
| PLAIN CEMENT CONCRETE.....         | PLCCBC          |
| HES PLAIN CEMENT CONCRETE .....    | HES PLCCBC      |
| BITUMINOUS CONCRETE.....           | BCBC            |
| CRUSHED AGGREGATE .....            | CABC            |
| AGGREGATE BITUMINOUS.....          | ABBC            |
| AGGREGATE-CEMENT .....             | ACBC            |
| AGGREGATE - LIME - POZZOLAN .....  | A LIME-POZZ BC  |
| SUBBASE .....                      | NO ABBREVIATION |
| RECYCLED BITUMINOUS CONCRETE ..... | RECY BCBC       |

##### BITUMINOUS PAVEMENTS

|                                                        |                            |
|--------------------------------------------------------|----------------------------|
| BITUMINOUS WEARING COURSE, * .....                     | BIT WEAR CRSE, *           |
| * (FJ-1, ID-2, ETC.) .....                             | * (FJ-1, ID-2, ETC.)       |
| BITUMINOUS TACK COAT .....                             | BIT TACK COAT              |
| BITUMINOUS PRIME COAT .....                            | BIT PRIME COAT             |
| BITUMINOUS SEAL COAT .....                             | BIT SEAL COAT              |
| BITUMINOUS SURFACE TREATMENT .....                     | BIT SURF TREAT             |
| SLURRY SEAL .....                                      | NO ABBREVIATION            |
| REMOVAL OF EXISTING BITUMINOUS SURFACE<br>COURSE ..... | REMOVE EXIST BIT SURF CRSE |
| RECYCLED BITUMINOUS WEARING COURSE, .....              | RECY BIT WEAR CRSE, _____  |

##### RIGID PAVEMENTS

|                                 |                |
|---------------------------------|----------------|
| PLAIN CEMENT CONCRETE.....      | PLCC PAV'T     |
| HES PLAIN CEMENT CONCRETE ..... | HES PLCC PAV'T |

COMMON CONSTRUCTION ITEMABBREVIATIONRIGID PAVEMENTS (CONTINUED)

REINFORCED CEMENT CONCRETE.....RCC PAV'T

EXTRA STRENGTH REINFORCED CEMENT  
CONCRETE .....EXTR STR RCC PAV'T

HES REINFORCED CEMENT CONCRETE .....HES RCC PAV'T

CONTINUOUSLY REINFORCED CONCRETE  
PAVEMENT .....CRC PAV'T

TERMINAL JOINTS .....TERM JTS

PROTECTIVE COATING FOR CEMENT CONCRETE .....PROTECT CTG FOR CC PAV'T AND  
PAVEMENTS AND SHOULDERS SHLDRS\*PIPES

REINFORCED CONCRETE PIPE, TYPE \_\_\_\_ .....RC PIPE, TYPE \_\_\_\_

STANDARD DUCTILE IRON PIPE .....STD DI PIPE

HEAVY DUCTILE IRON PIPE .....HEAVY DI PIPE

EXTRA HEAVY DUCTILE IRON PIPE .....EXTRA HEAVY DI PIPE

CORRUGATED DUCTILE IRON PIPE .....CDI PIPE

RIBBED DUCTILE IRON PIPE .....RIBBED DI PIPE

CORRUGATED GALVANIZED STEEL PIPE,.....CGSP, TYPE \_\_\_\_ I  
TYPE \_\_\_\_ ICOATED POLYMER CORRUGATED GALVANIZED  
STEEL PIPE ARCH, TYPE \_\_\_\_ C .....CCGS PIPE ARCH, TYPE \_\_\_\_ CCORRUGATED ALUMINUM ALLOY PIPE ARCH.....CORR AA PIPE ARCH TYPE \_\_\_\_ II  
TYPE \_\_\_\_ IIREINFORCED CONCRETE PIPE,.....RC PIPE, TYPE \_\_\_\_ (OPEN JTS)  
TYPE \_\_\_\_ (OPEN JOINTS)PERFORATED CORRUGATED GALVANIZED .....PERF CGS PIPE, TYPE \_\_\_\_ I  
STEEL PIPE, TYPE \_\_\_\_ IPERFORATED CORRUGATED ALUMINUM ALLOY .....PERF CORR AA PIPE, TYPE \_\_\_\_ I  
PIPE, TYPE \_\_\_\_ ICOATED POLYMER PERFORATED CORRUGATED .....C PERF CGS PIPE, TYPE \_\_\_\_ C  
GALVANIZED STEEL PIPE, TYPE \_\_\_\_ C

|                                 |                     |
|---------------------------------|---------------------|
| <u>COMMON CONSTRUCTION ITEM</u> | <u>ABBREVIATION</u> |
|---------------------------------|---------------------|

\*PIPES (CONTINUED)

|                                                                                           |              |
|-------------------------------------------------------------------------------------------|--------------|
| PERFORATED CORRUGATED GALVANIZED STEEL ....PERF CGS PIPE ARCH,<br>PIPE ARCH, TYPE ____ II | TYPE ____ II |
|-------------------------------------------------------------------------------------------|--------------|

|                                                                                                           |             |
|-----------------------------------------------------------------------------------------------------------|-------------|
| COATED POLYMER PERFORATED CORRUGATED .....C PERF CGS PIPE ARCH,<br>GALVANIZED STEEL PIPE ARCH TYPE ____ C | TYPE ____ C |
|-----------------------------------------------------------------------------------------------------------|-------------|

|                                                                       |  |
|-----------------------------------------------------------------------|--|
| CORRUGATED ALUMINUM ALLOY PIPE, TYPE ____ I.CORR AA PIPE, TYPE ____ I |  |
|-----------------------------------------------------------------------|--|

|                                 |                       |
|---------------------------------|-----------------------|
| EPOXY-LINED CONCRETE PIPE ..... | EPOXY-LINED CONC PIPE |
|---------------------------------|-----------------------|

|                                         |                                     |
|-----------------------------------------|-------------------------------------|
| SMOOTH-LINED CORRUGATED GALVANIZED..... | SMOOTH-LINED CGS PIPE<br>STEEL PIPE |
|-----------------------------------------|-------------------------------------|

|                                      |                |
|--------------------------------------|----------------|
| THERMOPLASTIC PIPE, GROUP ____ ..... | TP, GROUP ____ |
|--------------------------------------|----------------|

|                                          |                   |
|------------------------------------------|-------------------|
| THERMOPLASTIC PIPE, GROUP IV, ____ ..... | TP, GROUP IV ____ |
|------------------------------------------|-------------------|

|                              |         |
|------------------------------|---------|
| CORRUGATED POLYETHYLENE..... | CORR PE |
|------------------------------|---------|

INDICATE CORRUGATIONS AND THICKNESS (IN MILLIMETERS (GAGE)) FOR ALL  
METAL PIPES.

INLETS

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| TYPE ____ CONCRETE TOP UNIT ..... | TYPE ____ CONC TOP UNIT, LT (OR RT) |
|-----------------------------------|-------------------------------------|

|                       |                             |
|-----------------------|-----------------------------|
| TYPE ____ FRAME ..... | TYPE ____ FRAME, LT (OR RT) |
|-----------------------|-----------------------------|

|                          |               |
|--------------------------|---------------|
| STANDARD INLET BOX ..... | STD INLET BOX |
|--------------------------|---------------|

|                           |                     |
|---------------------------|---------------------|
| TYPE ____ INLET BOX ..... | TYPE ____ INLET BOX |
|---------------------------|---------------------|

ENDWALLS

|                |              |
|----------------|--------------|
| TYPE D-W ..... | TYPE D-W EDW |
|----------------|--------------|

|              |            |
|--------------|------------|
| TYPE D ..... | TYPE D EDW |
|--------------|------------|

|                |              |
|----------------|--------------|
| TYPE D-E ..... | TYPE D-E EDW |
|----------------|--------------|

|                |              |
|----------------|--------------|
| TYPE E-S ..... | TYPE E-S EDW |
|----------------|--------------|

COMMON CONSTRUCTION ITEMABBREVIATIONMANHOLES

|                                    |                 |
|------------------------------------|-----------------|
| MANHOLE .....                      | MH              |
| MANHOLE, MODIFIED.....             | MH, MOD         |
| MANHOLE, USING EXISTING FRAME..... | MH, USING EXIST |
| AND COVER                          | FRAME AND COVER |

LUMP SUM

|                                                                        |                 |
|------------------------------------------------------------------------|-----------------|
| MOBILIZATION .....                                                     | NO ABBREVIATION |
| INSPECTOR'S FIELD OFFICE AND INSPECTION<br>FACILITIES, TYPE ____ ..... | NO ABBREVIATION |
| CONSTRUCTION SURVEY .....                                              | NO ABBREVIATION |
| CONSTRUCTION SURVEY FOR DRAINAGE<br>STAKEOUTS.....                     | NO ABBREVIATION |

UNDERDRAIN

|                                             |                                           |
|---------------------------------------------|-------------------------------------------|
| PIPE UNDERDRAIN, TYPE ____ BACKFILL .....   | PIPE U-DRAIN, TYPE ____ B'FILL            |
| PAVEMENT BASE DRAIN.....                    | PAV'T BASE DRAIN                          |
| FINE AGGREGATE FOR EXTRA DEPTH PIPE.....    | FINE AGGR FOR EXTRA DEPTH<br>PIPE U-DRAIN |
| UNDERDRAIN                                  |                                           |
| ADDITIONAL COARSE AGGREGATE FOR EXTRA ..... | ADD CRSE AGGR FOR EXTRA                   |
| DEPTH PIPE UNDERDRAIN                       | DEPTH PIPE U-DRAIN                        |
| DEPTH PAVEMENT BASE DRAIN.....              | ____ PAV'T BASE DRAIN                     |
| STONE BACKFILL FOR MISCELLANEOUS.....       | STONE B'FILL FOR MISC                     |
| DRAINAGE                                    | DRAINAGE                                  |
| SUBSURFACE DRAIN OUTLETS .....              | SUBSURF DRAIN OUTLETS                     |

END SECTIONS AND SLOPE PIPE FITTINGS

|                                                               |                                     |
|---------------------------------------------------------------|-------------------------------------|
| STEEL END SECTION,<br>METALLIC COATED, ____ MM THICKNESS..... | STEEL END SECT, MC, ____ MM         |
| (____ GAGE), TYPE ____, FOR ____ PIPE                         | (____ GA), TYPE ____, FOR ____ PIPE |
| ALUMINUM ALLOY END SECTION, ____ MM .....                     | ALUM ALLOY END SECT, ____ MM        |
| THICKNESS (____ GAGE), FOR ____ PIPE                          | (____ GA), FOR ____ PIPE            |

COMMON CONSTRUCTION ITEMABBREVIATIONEND SECTIONS AND SLOPE PIPE FITTINGS (CONTINUED)

|                              |       |                              |
|------------------------------|-------|------------------------------|
| SLOPE PIPE FITTING, FOR ____ | ..... | SLOPE PIPE FITTING, FOR ____ |
| PIPE                         |       | PIPE                         |

GUIDE RAIL

|                      |       |                 |
|----------------------|-------|-----------------|
| TYPE ____ GUIDE RAIL | ..... | NO ABBREVIATION |
|----------------------|-------|-----------------|

|                              |       |            |
|------------------------------|-------|------------|
| STRUCTURE MOUNTED GUIDE RAIL | ..... | STR MTD GR |
|------------------------------|-------|------------|

|                               |       |                    |
|-------------------------------|-------|--------------------|
| TYPE ____ GUIDE RAIL, SPECIAL | ..... | TYPE ____ GR, SPEC |
|-------------------------------|-------|--------------------|

|                                |       |                   |
|--------------------------------|-------|-------------------|
| TYPE ____ GUIDE RAIL, MODIFIED | ..... | TYPE ____ GR, MOD |
|--------------------------------|-------|-------------------|

|               |       |                 |
|---------------|-------|-----------------|
| END ANCHORAGE | ..... | NO ABBREVIATION |
|---------------|-------|-----------------|

|                         |       |                     |
|-------------------------|-------|---------------------|
| TYPE ____ END TREATMENT | ..... | TYPE ____ END TREAT |
|-------------------------|-------|---------------------|

|                            |       |                        |
|----------------------------|-------|------------------------|
| END TREATMENT, DRIVEWAYS & | ..... | END TREAT, DRIVEWAYS & |
| OPENINGS                   |       | OPENINGS               |

|                  |       |           |
|------------------|-------|-----------|
| TERMINAL SECTION | ..... | TERM SECT |
|------------------|-------|-----------|

|                      |       |                 |
|----------------------|-------|-----------------|
| METAL MEDIAN BARRIER | ..... | NO ABBREVIATION |
|----------------------|-------|-----------------|

|                                         |     |                               |
|-----------------------------------------|-----|-------------------------------|
| METAL MEDIAN BARRIER, STRUCTURE MOUNTED | ... | METAL MEDIAN BARRIER, STR MTD |
|-----------------------------------------|-----|-------------------------------|

|                         |       |                     |
|-------------------------|-------|---------------------|
| CONCRETE MEDIAN BARRIER | ..... | CONC MEDIAN BARRIER |
|-------------------------|-------|---------------------|

|                                 |       |                             |
|---------------------------------|-------|-----------------------------|
| PRECAST CONCRETE MEDIAN BARRIER | ..... | PRECAST CONC MEDIAN BARRIER |
|---------------------------------|-------|-----------------------------|

|                |       |           |
|----------------|-------|-----------|
| END TRANSITION | ..... | END TRANS |
|----------------|-------|-----------|

RIGHT-OF-WAY FENCE

|                               |       |                      |
|-------------------------------|-------|----------------------|
| RIGHT-OF-WAY FENCE, TYPE ____ | ..... | R/W FENCE, TYPE ____ |
|-------------------------------|-------|----------------------|

|                                      |       |                         |
|--------------------------------------|-------|-------------------------|
| END POSTS FOR TYPE ____ RIGHT-OF-WAY | ..... | END POSTS FOR TYPE ____ |
| FENCE                                |       | R/W FENCE               |

|                                         |       |                            |
|-----------------------------------------|-------|----------------------------|
| CORNER POSTS FOR TYPE ____ RIGHT-OF-WAY | ..... | CORNER POSTS FOR TYPE ____ |
| FENCE                                   |       | R/W FENCE                  |

|                                       |       |                          |
|---------------------------------------|-------|--------------------------|
| PULL POSTS FOR TYPE ____ RIGHT-OF-WAY | ..... | PULL POSTS FOR TYPE ____ |
| FENCE                                 |       | R/W FENCE                |

|                                            |     |                        |
|--------------------------------------------|-----|------------------------|
| PEDESTRIAN GATE FOR TYPE ____ RIGHT-OF-WAY | ... | PED GATE FOR TYPE ____ |
| FENCE                                      |     | R/W FENCE              |

|                                 |                     |
|---------------------------------|---------------------|
| <u>COMMON CONSTRUCTION ITEM</u> | <u>ABBREVIATION</u> |
|---------------------------------|---------------------|

RIGHT-OF-WAY FENCE (CONTINUED)

|                              |                        |
|------------------------------|------------------------|
| VEHICULAR GATE FOR TYPE ____ | VEH GATE FOR TYPE ____ |
| RIGHT-OF-WAY FENCE           | R/W FENCE              |

CRIBBING

|                                         |                        |
|-----------------------------------------|------------------------|
| REINFORCED CONCRETE CRIBBING, TYPE ____ | RC CRIBBING, TYPE ____ |
|-----------------------------------------|------------------------|

|                |              |
|----------------|--------------|
| METAL CRIBBING | MET CRIBBING |
|----------------|--------------|

TRAFFIC SEPARATOR

|                            |          |
|----------------------------|----------|
| CONCRETE TRAFFIC SEPARATOR | C TR SEP |
|----------------------------|----------|

CURB

|                            |           |
|----------------------------|-----------|
| PLAIN CEMENT CONCRETE CURB | PLCC CURB |
|----------------------------|-----------|

|                                          |                               |
|------------------------------------------|-------------------------------|
| PLAIN CONCRETE MOUNTABLE CURB, TYPE ____ | PL CONC MTBLE CURB, TYPE ____ |
|------------------------------------------|-------------------------------|

|                                  |                             |
|----------------------------------|-----------------------------|
| STRAIGHT GRANITE CURB, TYPE ____ | STR GRANITE CURB, TYPE ____ |
|----------------------------------|-----------------------------|

|                                |                 |
|--------------------------------|-----------------|
| CURVED GRANITE CURB, TYPE ____ | NO ABBREVIATION |
|--------------------------------|-----------------|

|                     |                |
|---------------------|----------------|
| STRAIGHT STONE CURB | STR STONE CURB |
|---------------------|----------------|

|                   |                 |
|-------------------|-----------------|
| CURVED STONE CURB | NO ABBREVIATION |
|-------------------|-----------------|

|                          |             |
|--------------------------|-------------|
| BITUMINOUS CONCRETE CURB | B CONC CURB |
|--------------------------|-------------|

|                             |                        |
|-----------------------------|------------------------|
| REDRESSED, RESET STONE CURB | REDR, RESET STONE CURB |
|-----------------------------|------------------------|

GUTTER

|                              |             |
|------------------------------|-------------|
| PLAIN CEMENT CONCRETE GUTTER | PLCC GUTTER |
|------------------------------|-------------|

|                                   |                  |
|-----------------------------------|------------------|
| PLAIN CEMENT CONCRETE CURB GUTTER | PLCC CURB GUTTER |
|-----------------------------------|------------------|

|                     |                  |
|---------------------|------------------|
| PLAIN RUBBLE GUTTER | PL RUBBLE GUTTER |
|---------------------|------------------|

|                        |                 |
|------------------------|-----------------|
| MORTARED RUBBLE GUTTER | NO ABBREVIATION |
|------------------------|-----------------|

SHOULDERS

|                            |                         |
|----------------------------|-------------------------|
| PAVED SHOULDERS, TYPE ____ | PAV'D SHLDRS, TYPE ____ |
|----------------------------|-------------------------|

|                      |             |
|----------------------|-------------|
| STABILIZED SHOULDERS | STAB SHLDRS |
|----------------------|-------------|

COMMON CONSTRUCTION ITEMABBREVIATIONMASONRY

BRICK MASONRY ..... BRICK MAS

MASONRY REPOINTING, TYPE \_\_\_\_ ..... MAS REPOINT, TYPE \_\_\_\_

RELIEF JOINT

PAVEMENT RELIEF JOINT ..... PAV'T RELIEF JT

SHOULDER RELIEF JOINT ..... SHLDR RELIEF JT

APPROACH SLABS

BRIDGE APPROACH SLAB ..... BR APPR SLAB

STREAMBED

CEMENT CONCRETE PAVING FOR STREAMBEDS ..... C C PAV'G FOR STRBEDS

PLAIN RUBBLE PAVING FOR STREAMBEDS ..... PL RUB PAV'G FOR STRBEDS

MORTARED RUBBLE PAVING FOR STREAMBEDS ..... MORTARED RUB PAV'G FOR  
STRBEDS

CEMENT CONCRETE SPILLWAYS ..... C C SPILLWAYS

MORTARED STONE SPILLWAYS ..... NO ABBREVIATION

SLOPE WALL

PRECAST CEMENT CONCRETE BLOCK SLOPE WALL . PRECAST C C BLOCK SLOPE WALL

CAST-IN-PLACE CEMENT CONCRETE SLAB SLOPE ..... CIP C C SLAB SLOPE  
WALL WALL

PLAIN STONE SLOPE WALL ..... PL STONE SLOPE WALL

MORTARED STONE SLOPE WALL ..... NO ABBREVIATION

RANDOM STONE SLOPE WALL ..... NO ABBREVIATION

TREE WALL

TYPE \_\_\_\_ TREE WALL ..... NO ABBREVIATION

SIDEWALK

CEMENT CONCRETE SIDEWALK ..... C C S'WALK

COMMON CONSTRUCTION ITEM ..... ABBREVIATIONRESURFACING

SELECTED MATERIAL SURFACING ..... SEL MAT'L SURFG

BARRICADE

PERMANENT BARRICADE ..... PERM BARRICADE

HOLES

DOWEL HOLES \_\_\_\_ DEPTH ..... NO ABBREVIATION

WATERPROOFING

MEMBRANE WATERPROOFING ..... NO ABBREVIATION

AGGREGATE

NO \_\_\_\_ COARSE AGGREGATE ..... NO \_\_\_\_ COARSE AGGR

TYPE \_\_\_\_ FINE AGGREGATE ..... TYPE \_\_\_\_ FINE AGGR

CONCRETE

CLASS \_\_\_\_ CEMENT CONCRETE ..... CL \_\_\_\_ C C

TREMIE CEMENT CONCRETE ..... TREMIE C C

SOIL (DEVELOPMENT & MAINTENANCE)

TOPSOIL FURNISHED AND PLACED ..... NO ABBREVIATION

PLACING STOCKPILED TOPSOIL ..... NO ABBREVIATION

SEEDING AND SOIL SUPPLEMENTS- ..... SEEDING AND SOIL SUPPL-  
FORMULA \_\_\_\_ FORM \_\_\_\_

MOWING ..... NO ABBREVIATION

HERBICIDE APPLICATION \_\_\_\_ ..... NO ABBREVIATION

MULCHING - \_\_\_\_ ..... NO ABBREVIATION

JUTE MATTING ..... NO ABBREVIATION

SHRUB BED PREPARATION ..... SHRUB BED PREP

| <u>COMMON CONSTRUCTION ITEM</u>             | <u>ABBREVIATION</u>        |
|---------------------------------------------|----------------------------|
| <u>TREES</u>                                |                            |
| TRANSPLANTING DECIDUOUS TREES (SIZES).....  | NO ABBREVIATION            |
| TRANSPLANTING EVERGREEN TREES (SIZES).....  | NO ABBREVIATION            |
| TRANSPLANTING FLOWERING TREES (SIZES) ..... | NO ABBREVIATION            |
| TRANSPLANTING SHRUBS (SIZE) .....           | NO ABBREVIATION            |
| WATERING.....                               | NO ABBREVIATION            |
| SODDING .....                               | NO ABBREVIATION            |
| SELECTIVE TREE REMOVAL AND TRIMMING .....   | SELECT TREE REMOV AND TRIM |
| <u>FENCE</u>                                |                            |
| ROADSIDE FENCE, TYPE ____ .....             | RDSIDE FENCE, TYPE ____    |
| REMOVAL OF EXISTING FENCE .....             | REMOV OF EXISTG FENCE      |
| <u>SAFETY REST AREAS</u>                    |                            |
| ROADSIDE CLEANUP .....                      | NO ABBREVIATION            |
| TOILET FACILITIES - MEN (OR WOMEN) .....    | NO ABBREVIATION            |
| TOILET FIXTURES - ____ .....                | NO ABBREVIATION            |
| PRIVY VAULT - ____ .....                    | NO ABBREVIATION            |
| WELL SHELTER .....                          | NO ABBREVIATION            |
| DEEP WELL, PUMP AND DRAIN .....             | NO ABBREVIATION            |
| DRINKING FOUNTAIN .....                     | NO ABBREVIATION            |
| WATER SUPPLY SYSTEM .....                   | NO ABBREVIATION            |
| REST AREA GRILL.....                        | REST AREA GRILL            |
| REST AREA TABLE AND .....                   | REST AREA TABLE AND        |
| BENCH COMBINATION                           | BENCH COMB                 |
| REST AREA MARKER SIGN .....                 | REST AREA MARKER SIGN      |
| REST AREA APPROACH SIGN.....                | REST AREA APPR SIGN        |
| REST AREA BULLETIN BOARD .....              | REST AREA BULLETIN BOARD   |
| SAFETY REST AREA BUILDING .....             | SAFETY REST AREA BLDG      |

|                                 |                     |
|---------------------------------|---------------------|
| <u>COMMON CONSTRUCTION ITEM</u> | <u>ABBREVIATION</u> |
|---------------------------------|---------------------|

SAFETY REST AREAS (CONTINUED)

|                                |                 |
|--------------------------------|-----------------|
| BENCH SEAT .....               | NO ABBREVIATION |
| COUNTER AND COUNTER UNIT ..... | NO ABBREVIATION |
| SHUTTERS.....                  | NO ABBREVIATION |
| SEWAGE DISPOSAL SYSTEM.....    | NO ABBREVIATION |

MAINTENANCE OF TRAFFIC

|                                                                                                              |                                                                             |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| MAINTENANCE AND PROTECTION OF TRAFFIC .....<br>DURING CONSTRUCTION                                           | MAINT AND PROTECT OF<br>TRAFFIC DURING CONSTR                               |
| CALCIUM CHLORIDE .....                                                                                       | NO ABBREVIATION                                                             |
| MAINTENANCE OF RAILROAD TRAFFIC.....                                                                         | MAINT OF RR TRAFFIC                                                         |
| TWO-LANE TEMPORARY BRIDGE AND .....<br>APPROACHES - (ONE LANE) METHOD _____,<br>STA _____                    | TWO-LANE TEMP BR AND APPR-<br>(ONE LANE) METH _____,<br>STA _____           |
| MAINTENANCE AND PROTECTION OF TRAFFIC .....<br>ON TEMPORARY BRIDGE AND APPROACHES<br>METHOD _____, STA _____ | MAINT AND PROTECT OF TRAFF<br>ON TEMP BR AND APPR-<br>METH _____, STA _____ |
| REMOVAL OF TEMPORARY BRIDGE AND .....<br>APPROACHES - METHOD _____, STA _____                                | REMOV OF TEMP BR AND APPR-<br>METH _____, STA _____                         |
| TEMPORARY PEDESTRIAN BRIDGE AND.....<br>APPROACHES, STATION _____                                            | TEMP PED BR AND APPR,<br>STA _____                                          |
| TEMPORARY ROADWAY .....                                                                                      | TEMP RDWY                                                                   |

HIGHWAY LIGHTING .....USE ONLY THE ABBREVIATIONS  
SHOWN IN CONSTRUCTION  
ITEMS CATALOG

HIGHWAY SIGNING

|                                                            |                                    |
|------------------------------------------------------------|------------------------------------|
| STRUCTURE MOUNTED EXTRUDED ALUMINUM .....<br>CHANNEL SIGNS | STR MTD EXTR ALUM CHANNEL<br>SIGNS |
| REFLECTIVE UNITS - (COLOR).....                            | NO ABBREVIATION                    |
| DISTANCE MARKER UNITS.....                                 | NO ABBREVIATION                    |
| DELINEATOR PLAQUES.....                                    | NO ABBREVIATION                    |
| WOOD DELINEATOR POSTS .....                                | NO ABBREVIATION                    |

COMMON CONSTRUCTION ITEMABBREVIATIONHIGHWAY SIGNING (CONTINUED)

DELINEATOR BRACKETS, TYPE \_\_\_\_ .....NO ABBREVIATION

DISTANCE MARKER BRACKETS, TYPE \_\_\_\_ .....NO ABBREVIATION

REMOVE DISTANCE MARKER .....NO ABBREVIATION  
BRACKETS, TYPE \_\_\_\_

POST MOUNTED SIGNS, TYPE \_\_\_\_ .....NO ABBREVIATION

NON PLOWABLE RAISED PAVEMENT MARKERS ( )....NON PLOW RAISED PAV'T MKRS ( )

STRUCTURES

STEEL WIRE FABRIC .....NO ABBREVIATION

TEMPORARY FALSEWORK .....TEMP FALSEWORK

SCAFFOLDING .....NO ABBREVIATION

LUMBER .....LMBR

TREATED LUMBER .....TREAT LMBR

SELECTED BORROW EXCAVATION, STRUCTURE .....SEL BORROW EXC, STR B'FILL  
BACKFILL

REINFORCEMENT BARS .....REINF BARS

TIMBER TEST PILES, STATION.....TIMBR TEST PILES  
(\_\_\_\_ EACH \_\_\_\_ LONG) STA \_\_\_\_ (\_\_\_\_ EA \_\_\_\_ LONG)TREATED TIMBER TEST PILES, STATION.....TREAT TIMBR TEST PILES  
(\_\_\_\_ EACH \_\_\_\_ LONG) STA \_\_\_\_ (\_\_\_\_ EA \_\_\_\_ LONG)PRECAST REINFORCED CONCRETE TEST PILES,.....PRECAST R C TEST PILES,  
STATION \_\_\_\_ (\_\_\_\_ EACH \_\_\_\_ LONG) STA \_\_\_\_ (\_\_\_\_ EA \_\_\_\_ LONG)CAST-IN-PLACE CONCRETE TEST PILES, .....CIP CONC TEST  
STATION \_\_\_\_ (\_\_\_\_ EACH \_\_\_\_ LONG) PILES, STA \_\_\_\_ (\_\_\_\_ EA \_\_\_\_ LONG)STEEL BEAM TEST PILES, HP STATION .....STL BEAM TEST PILES, HP  
\_\_\_\_ (\_\_\_\_ EACH \_\_\_\_ LONG) STA \_\_\_\_ (\_\_\_\_ EA \_\_\_\_ LONG)

STEEL BEAM PILE TIP REINFORCEMENT, HP \_\_\_\_ .....STL BEAM PILE TIP REINF, HP \_\_\_\_

STEEL SHEET PILING, STATION \_\_\_\_ .....STL SHEET PILING, STA \_\_\_\_

SOLDIER PILING, STATION \_\_\_\_ .....SOLDIER PILING, STA \_\_\_\_

DIAMETER DRILLED CAISSONS, SHAFT.....DIA DRILLED CAISSONS,  
SECTION SHAFT SECT

| <u>COMMON CONSTRUCTION ITEM</u>                 | <u>ABBREVIATION</u>               |
|-------------------------------------------------|-----------------------------------|
| <u>STRUCTURES (CONTINUED)</u>                   |                                   |
| DIAMETER DRILLED CAISSONS, ROCK SOCKET.....     | DIA DRILLED CAISSONS, ROCK SOCKET |
| DIAMETER SHELLS FOR DRILLED CAISSONS .....      | DIA SHELLS FOR DRILLED CAISSONS   |
| ALUMINUM BRIDGE RAILING .....                   | ALUM BRIDGE RAIL                  |
| PROTECTIVE BARRIER .....                        | PROT BARRIER                      |
| STEEL BRIDGE RAILING .....                      | STL BRIDGE RAIL                   |
| GALVANIZED STEEL PIPE RAILING.....              | GALV STL PIPE RAIL                |
| PARAPET PROTECTIVE FENCE, ____ .....            | PARAP PROT FENCE, ____            |
| SIDEWALK PROTECTIVE FENCE, ____ .....           | S'WALK PROT FENCE, ____           |
| ERECT BRIDGE RAILING .....                      | ERECT BR RAIL                     |
| TEMPORARY RAILING .....                         | TEMP RAIL                         |
| REMOVE EXISTING BRIDGE RAILING.....             | REMOVE EXIST BR RAIL              |
| REMOVE AND RESET EXISTING BRIDGE RAILING .....  | REMOVE AND RESET EXIST BR RAIL    |
| REPAIR EXISTING BRIDGE RAILING .....            | REPAIR EXIST BR RAIL              |
| PRESSURE MORTAR POINTING .....                  | PRESSURE MORT POINTING            |
| PRESSURE MORTAR SURFACING.....                  | PRESSURE MORT SURF                |
| REMOVAL OF EXISTING BRIDGE, STATION ____ .....  | REMOVAL OF EXIST BR, STA ____     |
| REMOVAL OF EXISTING BRIDGE .....                | REMOVAL OF EXISTING BR            |
| SUPERSTRUCTURE, STATION ____                    | SUPERSTR, STA ____                |
| REMOVAL OF EXISTING BRIDGE FLOORING,.....       | REMOVAL OF EXIST BR               |
| STATION ____                                    | FLOOR, STA ____                   |
| RESET EXISTING BRIDGE FLOORING,.....            | RESET EXIST BR FLOOR,             |
| STATION                                         | STA ____                          |
| REMOVAL OF EXISTING BRIDGE WEARING .....        | REMOVAL OF EXIST BR WEAR          |
| SURFACE, STATION ____                           | SURF, STA ____                    |
| REMOVAL OF EXISTING BRIDGE SIDEWALK, .....      | REMOVAL OF EXIST BR S'WALK,       |
| STATION ____                                    | STA ____                          |
| REMOVAL OF EXISTING CULVERT,.....               | REMOVAL OF EXIST CULV,            |
| STATION ____                                    | STA ____                          |
| RESET EXISTING ____ BENCH MARK, STATION ____ .. | RESET EXIST BM, STA ____          |
| BOUNDARY MARKERS .....                          | BNDY MARKERS                      |

COMMON CONSTRUCTION ITEM ..... ABBREVIATIONSTRUCTURES (CONTINUED)

|                                                 |                                                  |
|-------------------------------------------------|--------------------------------------------------|
| RESET MONUMENTS .....                           | RESET MONS                                       |
| BRIDGE STRUCTURE, AS DESIGNED, S- ____ .....    | NO ABBREVIATION                                  |
| STEEL BRIDGE SUPERSTRUCTURE.....                | NO ABBREVIATION                                  |
| BRIDGE SUBSTRUCTURE, AS DESIGNED, S- ____ ..... | NO ABBREVIATION                                  |
| WELDING .....                                   | NO ABBREVIATION                                  |
| FLAME CUTTING .....                             | NO ABBREVIATION                                  |
| SCUPPER, TYPE ____ .....                        | NO ABBREVIATION                                  |
| SCUPPER, TYPE ____, MODIFIED .....              | SCUPPER, TYPE ____, MOD                          |
| WALKWAY GRATING.....                            | WK'WAY GRATING                                   |
| FABRICATED STRUCTURAL STEEL .....               | FAB STR STL                                      |
| PAINTING EXISTING STRUCTURAL STEEL .....        | PAINTING EXIST STR STL                           |
| PAINTING EXISTING BRIDGE RAILING,.....          | PAINTING EXIST BR RAIL, STA ____<br>STATION ____ |
| PRESTRESSED CONCRETE BRIDGE .....               | P/S CONC BRIDGE SUPERSTRUCTURE<br>SUPERSTRUCTURE |
| PRESTRESSED CONCRETE BRIDGE STRUCTURE .....     | P/S CONC BRIDGE STRUCTURE                        |
| CLOSED CELL NEOPRENE SPONGE .....               | NO ABBREVIATION                                  |
| NEOPRENE BEARING PADS .....                     | NO ABBREVIATION                                  |
| PRESTRESSED CONCRETE ____ BEAMS.....            | P/S CONC ____ BEAMS                              |
| REPAIR EXISTING PARAPET .....                   | REPAIR EXIST PARAPET                             |
| REPAIR EXPANSION DAMS.....                      | REPAIR EXP DAMS                                  |
| REPLACE EXPANSION DAMS .....                    | REPLACE EXP DAMS                                 |
| REPAIR BEARINGS .....                           | REPAIR BRGS                                      |
| REPAIR EXPANSION BEARINGS .....                 | REPAIR EXP BRGS                                  |
| REPLACE EXPANSION BEARINGS .....                | REPLACE EXP BRGS                                 |
| LANCE PLATE DAMS .....                          | NO ABBREVIATION                                  |
| REBUILD ABUTMENT PEDESTALS.....                 | REBUILD ABUT PEDESTALS                           |

COMMON CONSTRUCTION ITEMABBREVIATIONSTRUCTURES (CONTINUED)

REPAIR DETERIORATED CONCRETE.....REPAIR DETERIORATED CONC

JACKING BRIDGE SUPERSTRUCTURE.....JACKING BR SUPERSTR

CONCRETE BRIDGE DECK REPAIR, TYPE \_\_\_\_ .....CONC BR DECK REPAIR, TYPE \_\_\_\_

INSTALLATION OF \_\_\_\_ FACILITIES.....NO ABBREVIATION

REMOVAL OF \_\_\_\_ FACILITIES.....NO ABBREVIATION

**14.7 SUBSURFACE UTILITY ENGINEERING ABBREVIATIONS**

|       |                                         |                                                                                                                                                                                                                                                                                                   |
|-------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AATFI | Abandoned According to Field Inspection | This acronym is useful when there is clear evidence in the field of an abandoned utility, such as a cut visible wire or pipe, or visible pipes with sufficient damage as to make them unusable.                                                                                                   |
| AATUR | Abandoned According To Utility Records  | Utilities that are abandoned may be difficult to distinguish from active ones. Judgments in this case can put the project at risk. In cases where abandonment is indicated from a review of utility owner information, the engineer can reduce that risk by indicating the source of information. |
| CQL   | Change in Utility Quality Level         | This acronym, accompanied by the symbol  , cutting across the utility trend line, indicates the exact point where a Utility Quality Level changes.                                                             |
| EATUR | Empty According to Utility Records      | This is a useful acronym for when a conduit cannot be imaged, and the utility records indicate it is empty. It gives the user of the data a reason why the conduit was not able to be brought to QLB status, and may influence design or construction decisions.                                  |
| EOGI  | End of Geophysical Information          | This acronym is placed at the end point of a QLB utility depiction when there is no more record or geophysical data to indicate why the utility information ended. It is used to eliminate the data users' "guess" as to why information may end.                                                 |
| EORI  | End of Record Information               | This acronym is placed at the end point of a QLC or QLD utility depiction when there is no more record data to indicate how the utility continued. It is used to eliminate the data users' "guess" as to why information may end.                                                                 |
| GDD   | Geophysical Depth Determination         | This acronym is used after a depth reference along a utility to indicate the source of the depth information. Additional descriptors, such as RADAR or PIPE LOCATOR, may sometimes be used.                                                                                                       |
| LOS   | Limit of SUE information                | This acronym is used to draw a perimeter line around an area such as an intersection where SUE data was obtained. Utilities depicted outside of the limit of SUE information is typically assumed to be QLD.                                                                                      |
| NAC   | No Associated Cable                     | This acronym is used when a structure is shown on the plans, but no geophysical or record data are available to show the associated underground cabling, if any. It lets the data users know that an effort was made to find such cables, but those efforts were unsuccessful.                    |
| NAP   | No Associated Piping                    | This acronym is used when a structure is shown on the plans, but no geophysical or record data are available to show the associated underground pipe, if any. It lets the data users know that an effort was made to find such pipes, but those efforts were unsuccessful.                        |
| OOS   | Out Of Service                          | A utility may not be in active use by a utility owner, but not abandoned. It may still contain product, or be reactivated by the utility owner in the future.                                                                                                                                     |

|     |                            |                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QLA | Quality Level A            | Information was obtained through the nondestructive exposure of subsurface utilities to determine precise horizontal and vertical locations, and also provides the type, size, condition, material and other characteristics of underground features.                                                                                                                                        |
| QLB | Quality Level B            | Information was obtained through the application of appropriate surface geophysical methods to determine the existence and appropriate horizontal position of the subsurface utilities. QLB data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents. |
| QLC | Quality Level C            | Existing utility structures have been field located and surveyed to assist in depicting the utilities shown on records. No electronic designating information was obtained.                                                                                                                                                                                                                  |
| QLD | Quality Level D            | Depicted according to utility record information and in-field visual inspection. No electronic designating information was obtained.                                                                                                                                                                                                                                                         |
| RDD | Record Depth Determination | This acronym is used after a depth reference along a utility to indicate the source of the depth information.                                                                                                                                                                                                                                                                                |
| TOU | Top Of Utility             | This acronym is used after a depth reference at a structure such as a valve box, handhole, or vault, where the depth from cover to the utility can be measured.                                                                                                                                                                                                                              |

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## CHAPTER 15

### PLATES

#### 15.0 INTRODUCTION

The various plates contained in this Chapter represent example sketches and general format that are provided as guidance in the preparation of highway plans.

#### 15.1 "A" PLATES

The following is a listing of the "A" Plates that are presented in this Section to provide example sketches for suggested treatments for presentation on Construction and Right-of-Way Plans.

| <u>PLATE NUMBER</u> | <u>TITLE</u>                                                                            |
|---------------------|-----------------------------------------------------------------------------------------|
| Plate A-I           | Clarification of Right-of-Way Terms                                                     |
| Plate A-II          | Example Sketch Indicating Areas for Tabulation on Right-of-Way Plans and Property Plats |
| Plate A-III         | Example Sketch Indicating Required Channel Easement on Property Plot                    |
| Plate A-IV          | Example Sketch Indicating Construction Limits at Intersections                          |
| Plate A-V           | Example Sketch Indicating Right-of-Way Limits at Intersections                          |
| Plate A-VI          | Example Sketch Indicating Construction Limits at Interchanges                           |
| Plate A-VII         | Example Sketch Indicating Right-of-Way Limits at Interchanges                           |

Plate A-V and Plate A-VII are provided as suggested treatments to locate the Limit of Work and Limit of Authorization stations when one State Route comes into another State Route without crossing. These represent general cases and the indicated schemes need not be followed when other factors are involved since the examples are based on both State Routes being on the Title Sheet. However, the same logic applies to side roads where the terminology would be "start-stop work" and "begin-end authorization."

## PLATE A-I CLARIFICATION OF RIGHT-OF-WAY TERMS

|                             |                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEED AREA                   | - That area described by the metes and bounds given on the Deed.                                                                                                                                                                                                                                                                                     |
| CALCULATED AREA             | - A check of the Deed Area by mathematical methods.                                                                                                                                                                                                                                                                                                  |
| ADVERSE AREA                | - A portion(s) of the property sold in fee simple by the present owner.                                                                                                                                                                                                                                                                              |
| LEGAL RIGHT-OF-WAY EASEMENT | - The area previously acquired by plan or dedication and currently being used for Right-of-Way purposes. These areas are easements only and, upon abandonment, would revert to the local community for continuation as Right-of-Way and, upon vacation, would revert to the owner of the reversionary interest who would then own the area outright. |
| LEGAL RIGHT-OF-WAY FEE      | - The area previously acquired by the Department either by condemnation, dedication or amicable agreement and owned by the Department in fee simple. This area shall be tabulated on the Right-of-Way Claim Information as adverse or exception.                                                                                                     |
| EXCEPTION                   | - The area of previously deeded lands which have been excluded from the current owner's use.                                                                                                                                                                                                                                                         |
| EFFECTIVE AREA              | - The portion of the Deed Area, after all exceptions, adverses and legal Right-of-Way are subtracted, actually owned by the property owner.                                                                                                                                                                                                          |
| REQUIRED AREA               | - One vacant space for use other than those listed (For others, see <a href="#">Chapter 3, Section 3.6</a> ).                                                                                                                                                                                                                                        |
| TOTAL RESIDUE               | - The Effective Area, less the Required Right-of-Way, less substitute Right-of-Way in fee.                                                                                                                                                                                                                                                           |
| VERIFICATION DATE           | - Date of latest Title verification.                                                                                                                                                                                                                                                                                                                 |
| DRAWN BY                    | - Name of Consultant or District drawing the Property Plat.                                                                                                                                                                                                                                                                                          |

PLATE A-1 (METRIC)  
(Continued)

| RIGHT-OF-WAY CLAIM INFORMATION                                                |                 |       |          |                          |                         |          |                          |
|-------------------------------------------------------------------------------|-----------------|-------|----------|--------------------------|-------------------------|----------|--------------------------|
| COMMONWEALTH OF PENNSYLVANIA-DEPARTMENT OF TRANSPORTATION                     |                 |       |          |                          |                         |          |                          |
| STATE RTE. _____ SEC NO. _____ (INCLUDE CITY, TWP OR BORO) _____ COUNTY _____ |                 |       |          |                          |                         |          |                          |
| PARCEL NO. _____ SHEET NO. _____ CLAIM NO. _____                              |                 |       |          |                          |                         |          |                          |
| PROPERTY OWNER(S) _____                                                       |                 |       |          |                          |                         |          |                          |
| GRANTOR(S) _____                                                              |                 |       |          |                          |                         |          |                          |
|                                                                               |                 | AREAS | ACRE /SF | HECTARES /M <sup>2</sup> | REQUIRED AREA           | ACRE /SF | HECTARES /M <sup>2</sup> |
| DEED BOOK _____                                                               | DEED            |       |          |                          | RIGHT OF WAY            |          |                          |
| PAGE _____                                                                    | CALCULATED      |       |          |                          | CHANNEL                 |          |                          |
| DATE OF DEED _____                                                            | ADVERSES        |       |          |                          | SLOPE                   |          |                          |
| DATE OF RECORD _____                                                          | LEGAL R/W       |       |          |                          |                         |          |                          |
| CONSIDERATION _____                                                           | EFFECTIVE       |       |          |                          |                         |          |                          |
| TAX STAMPS _____                                                              | TOTAL REQ'D R/W |       |          |                          | VERIFICATION DATE _____ |          |                          |
|                                                                               | TOTAL RESIDUE   |       |          |                          | DRAWN BY _____          |          |                          |
|                                                                               | RESIDUE LT      |       |          |                          | SCALE _____             |          |                          |
|                                                                               | RESIDUE RT      |       |          |                          |                         |          |                          |

ALL PROPERTIES ARE PLOTTED FROM DEEDS OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, OR FROM FIELD SURVEY. PROPERTY LINES WERE SURVEYED ONLY WHEN DETERMINED NECESSARY BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT. PROPERTY LINES NOT ESTABLISHED BY FIELD SURVEY WERE PLOTTED BASED ON EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA.

THIS PROPERTY PLOT IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.

| PARCEL NUMBER | PROPERTY OWNER | DEED BOOK | DATE OF DEED   | CONSID | TAX STAMPS | DEED AREA |                    | ADVERSE AREA |                    | LEGAL R/W AREA |                    | EFFECTED AREA |                    | REQ'D R/W AREA |                    | RESIDUE TOTAL |                    | RESIDUE LEFT |                    | RESIDUE RIGHT |                    | VERIFICATION DATE |
|---------------|----------------|-----------|----------------|--------|------------|-----------|--------------------|--------------|--------------------|----------------|--------------------|---------------|--------------------|----------------|--------------------|---------------|--------------------|--------------|--------------------|---------------|--------------------|-------------------|
|               |                |           |                |        |            | ACRE /SF  | HA /M <sup>2</sup> | ACRE /SF     | HA /M <sup>2</sup> | ACRE /SF       | HA /M <sup>2</sup> | ACRE /SF      | HA /M <sup>2</sup> | ACRE /SF       | HA /M <sup>2</sup> | ACRE /SF      | HA /M <sup>2</sup> | ACRE /SF     | HA /M <sup>2</sup> | ACRE /SF      | HA /M <sup>2</sup> |                   |
|               | GRANTOR        | PAGE      | DATE OF RECORD |        |            |           |                    |              |                    |                |                    |               |                    |                |                    |               |                    |              |                    |               |                    |                   |
|               |                |           |                |        |            |           |                    |              |                    |                |                    |               |                    |                |                    |               |                    |              |                    |               |                    |                   |
|               |                |           |                |        |            |           |                    |              |                    |                |                    |               |                    |                |                    |               |                    |              |                    |               |                    |                   |
|               |                |           |                |        |            |           |                    |              |                    |                |                    |               |                    |                |                    |               |                    |              |                    |               |                    |                   |

ALL REQUIRED RIGHT-OF-WAY FOR THIS PROJECT SHALL BE ACQUIRED IN FEE SIMPLE UNLESS OTHERWISE NOTED. AREAS, IF ANY, NOT TO BE ACQUIRED IN FEE SIMPLE SHALL BE ACQUIRED IN THE LESSER ESTATE OR INTEREST NOTED ON THE PLANSHEET.

HA = HECTARES

PLATE A-1 (ENGLISH)  
(Continued)

| RIGHT-OF-WAY CLAIM INFORMATION                                                |                       |                                                                                           |
|-------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------|
| COMMONWEALTH OF PENNSYLVANIA-DEPARTMENT OF TRANSPORTATION                     |                       |                                                                                           |
| STATE RTE. _____ SEC NO. _____ (INCLUDE CITY, TWP OR BORO) _____ COUNTY _____ |                       |                                                                                           |
| PARCEL NO. _____ SHEET NO. _____ CLAIM NO. _____                              |                       |                                                                                           |
| PROPERTY OWNER(S) _____                                                       |                       |                                                                                           |
| GRANTOR(S) _____                                                              |                       |                                                                                           |
| DEED BOOK _____                                                               | AREAS _____           | ACRE/SF _____                                                                             |
| PAGE _____                                                                    | DEED _____            | REQUIRED AREA ACRE/SF _____                                                               |
| DATE OF DEED _____                                                            | CALCULATED _____      | RIGHT OF WAY _____                                                                        |
| DATE OF RECORD _____                                                          | ADVERSES _____        | CHANNEL _____                                                                             |
| CONSIDERATION _____                                                           | LEGAL R/W _____       | SLOPE _____                                                                               |
| TAX STAMPS _____                                                              | EFFECTIVE _____       | _____                                                                                     |
| _____                                                                         | TOTAL REQ'D R/W _____ | VERIFICATION DATE _____                                                                   |
| _____                                                                         | TOTAL RESIDUE _____   | DRAWN BY _____                                                                            |
| _____                                                                         | RESIDUE LT _____      | SCALE  |
| _____                                                                         | RESIDUE RT _____      |                                                                                           |

ALL PROPERTIES ARE PLOTTED FROM DEEDS OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, OR FROM FIELD SURVEY. PROPERTY LINES WERE SURVEYED ONLY WHEN DETERMINED NECESSARY BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT. PROPERTY LINES NOT ESTABLISHED BY FIELD SURVEY WERE PLOTTED BASED ON EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA.

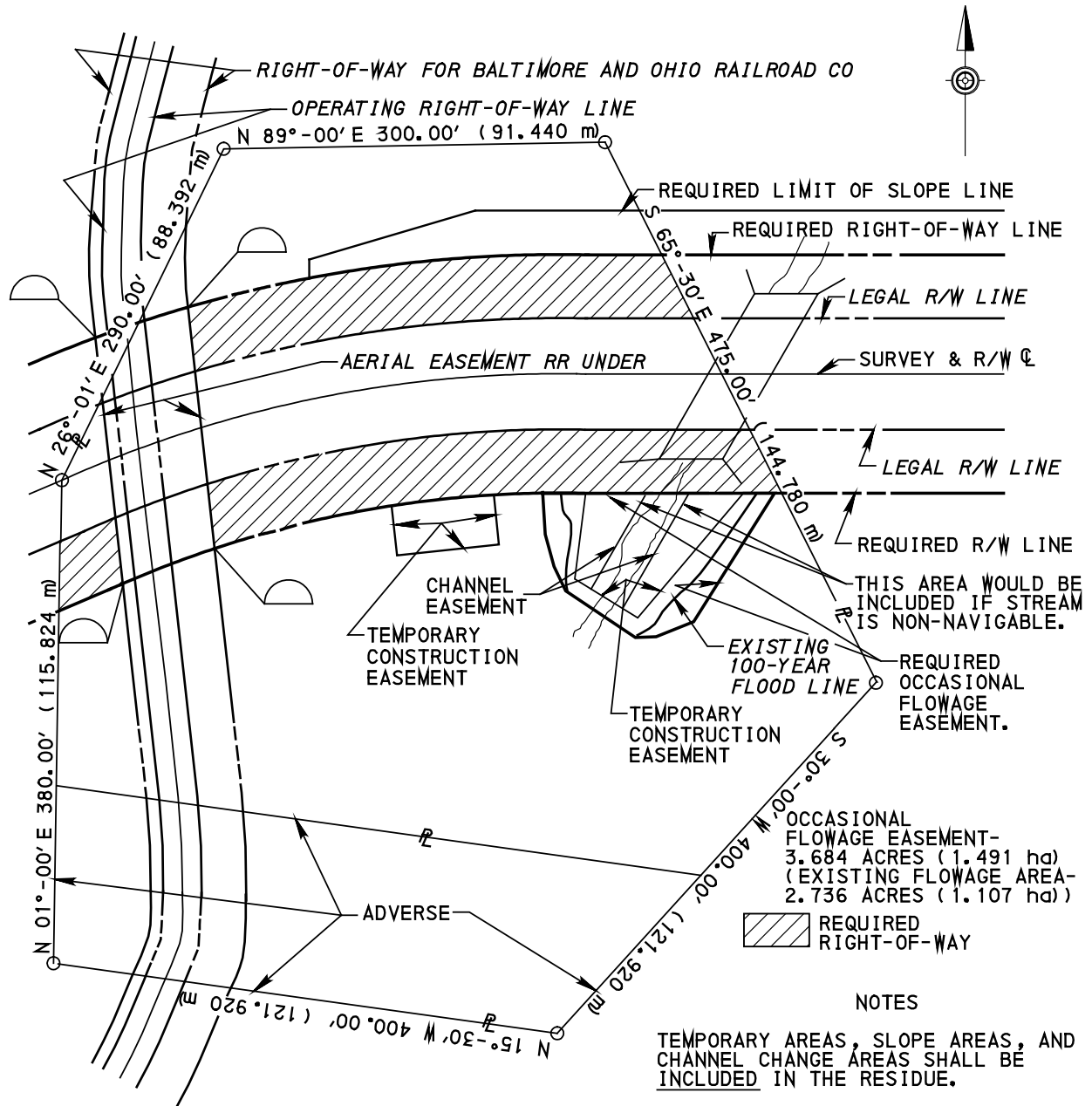
THIS PROPERTY PLOT IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.

| PARCEL NUMBER | PROPERTY OWNER | DEED BOOK | DATE OF DEED   | CONSID | TAX STAMPS | DEED AREA | ADV AREA | LEGAL R/W AREA | EFF AREA | REQ'D R/W AREA | RESI-DUE TOTAL | RESI-DUE LT | RESI-DUE RT | VERIFI-CATION DATE |
|---------------|----------------|-----------|----------------|--------|------------|-----------|----------|----------------|----------|----------------|----------------|-------------|-------------|--------------------|
|               | GRANTOR        | PAGE      | DATE OF RECORD |        |            |           |          |                |          |                |                |             |             |                    |
|               |                |           |                |        |            |           |          |                |          |                |                |             |             |                    |
|               |                |           |                |        |            |           |          |                |          |                |                |             |             |                    |
|               |                |           |                |        |            |           |          |                |          |                |                |             |             |                    |
|               |                |           |                |        |            |           |          |                |          |                |                |             |             |                    |

ALL REQUIRED RIGHT-OF-WAY FOR THIS PROJECT SHALL BE ACQUIRED IN FEE SIMPLE UNLESS OTHERWISE NOTED. AREAS, IF ANY, NOT TO BE ACQUIRED IN FEE SIMPLE SHALL BE ACQUIRED IN THE LESSER ESTATE OR INTEREST NOTED ON THE PLANSHEET.

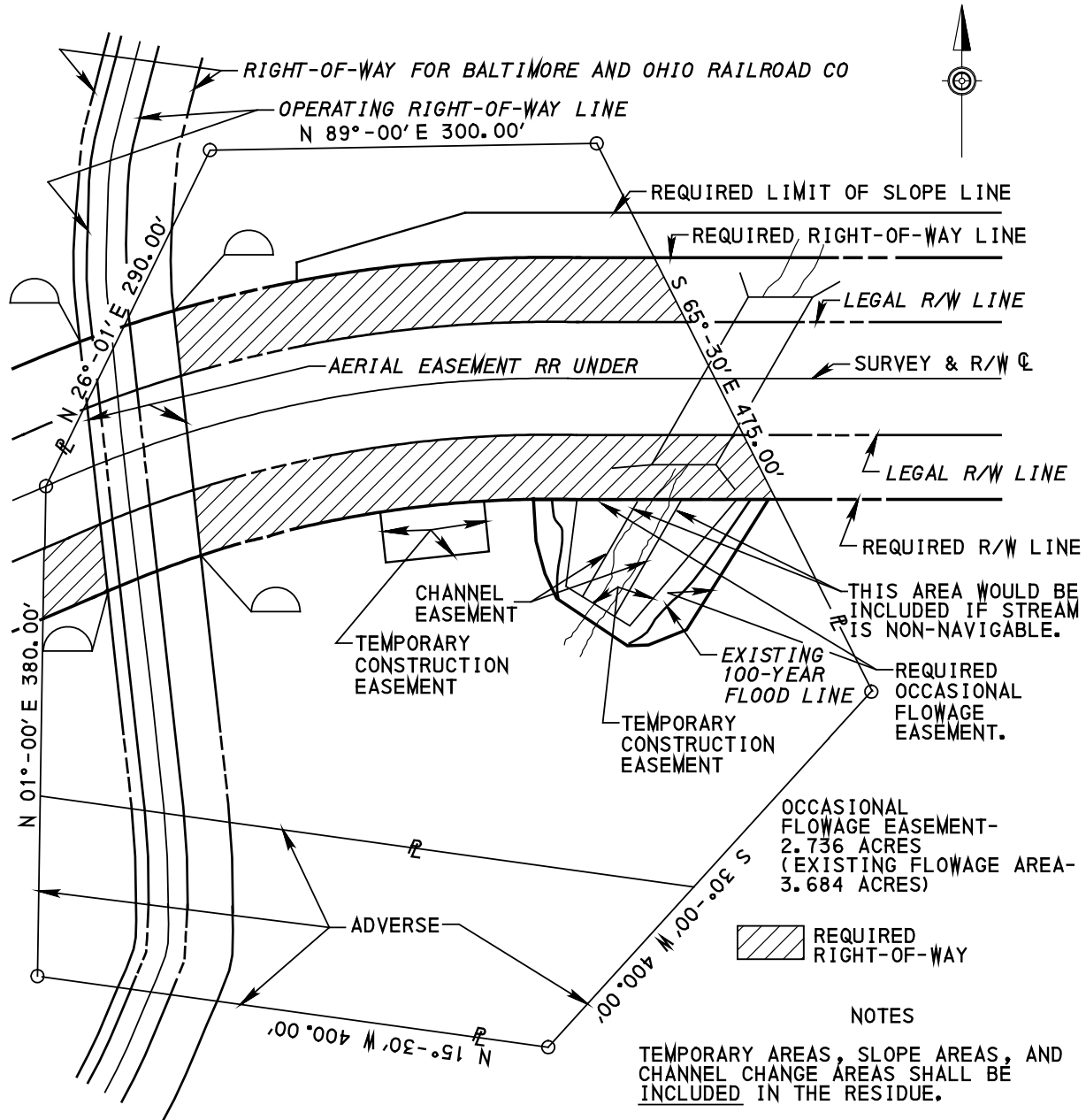
HA = HECTARES

**PLATE A-II (METRIC)**  
**EXAMPLE SKETCH INDICATING AREAS**  
**FOR TABULATION ON RIGHT-OF-WAY PLANS**  
**AND PROPERTY PLOTS**



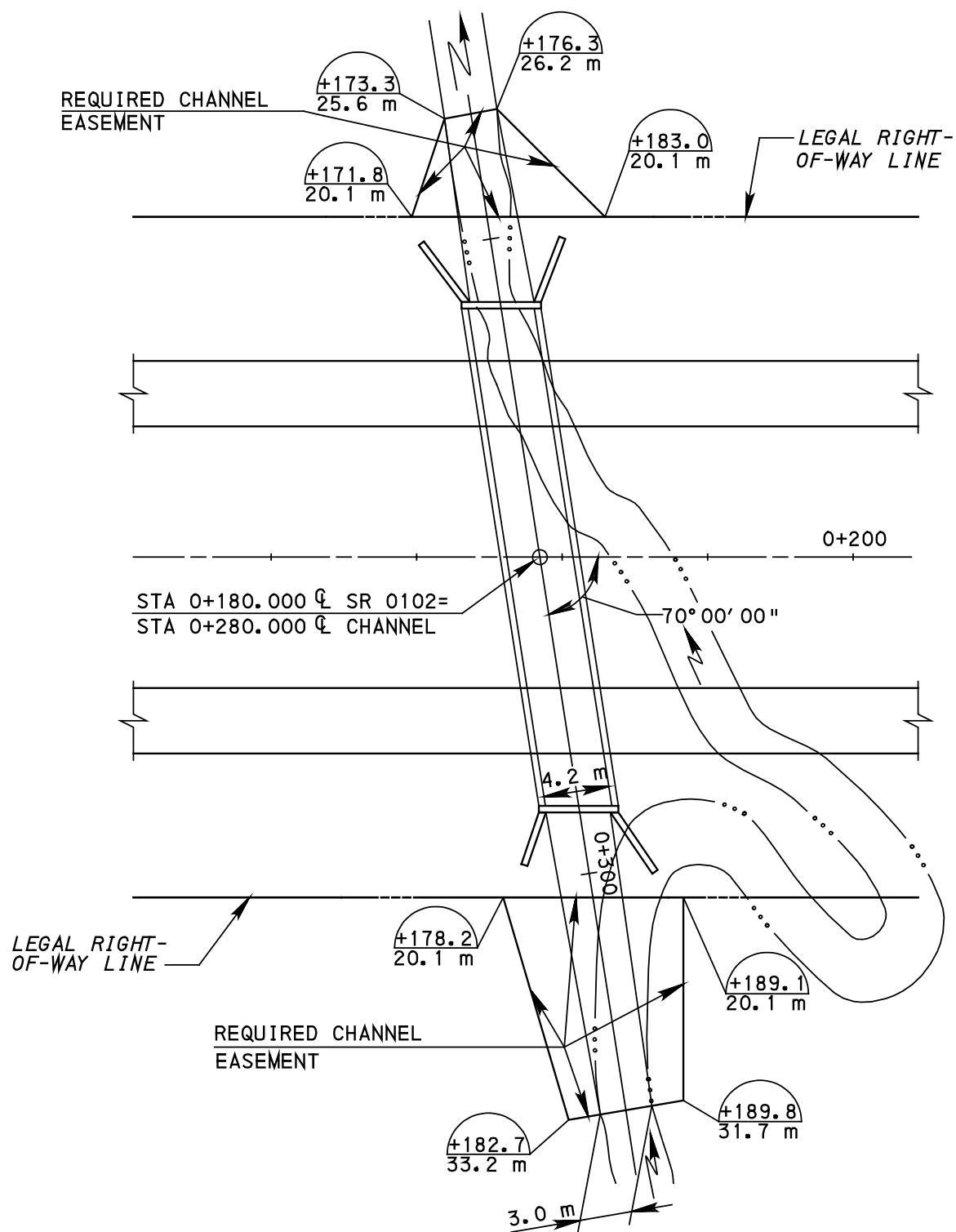
EFFECTIVE AREA = DEED AREA - (LEGAL + ADVERSES + UTILITIES IN FEE).  
 RESIDUE = EFFECTIVE AREA - (REQUIRED RIGHT-OF-WAY + SUBSTITUTE  
 RIGHT-OF-WAY IN FEE + NAVIGABLE STREAMS).

**PLATE A-II (ENGLISH)**  
**EXAMPLE SKETCH INDICATING AREAS**  
**FOR TABULATION ON RIGHT-OF-WAY PLANS**  
**AND PROPERTY PLOTS**



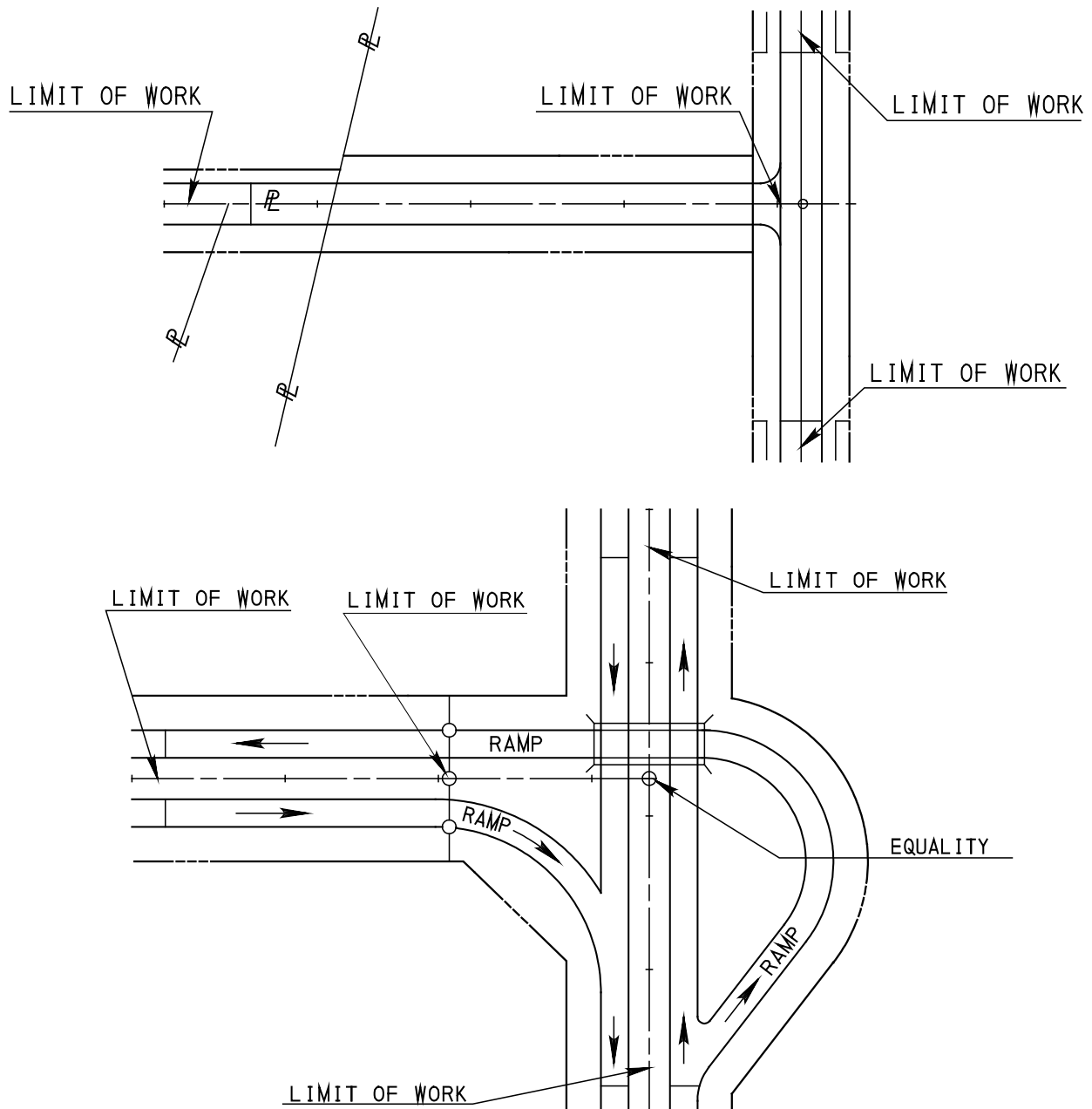
EFFECTIVE AREA = DEED AREA - (LEGAL + ADVERSES + UTILITIES IN FEE).  
 RESIDUE = EFFECTIVE AREA - (REQUIRED RIGHT-OF-WAY + SUBSTITUTE  
 RIGHT-OF-WAY IN FEE + NAVIGABLE STREAMS).

**PLATE A-III (METRIC)**  
**EXAMPLE SKETCH INDICATING REQUIRED**  
**CHANNEL EASEMENT ON PROPERTY PLOT**

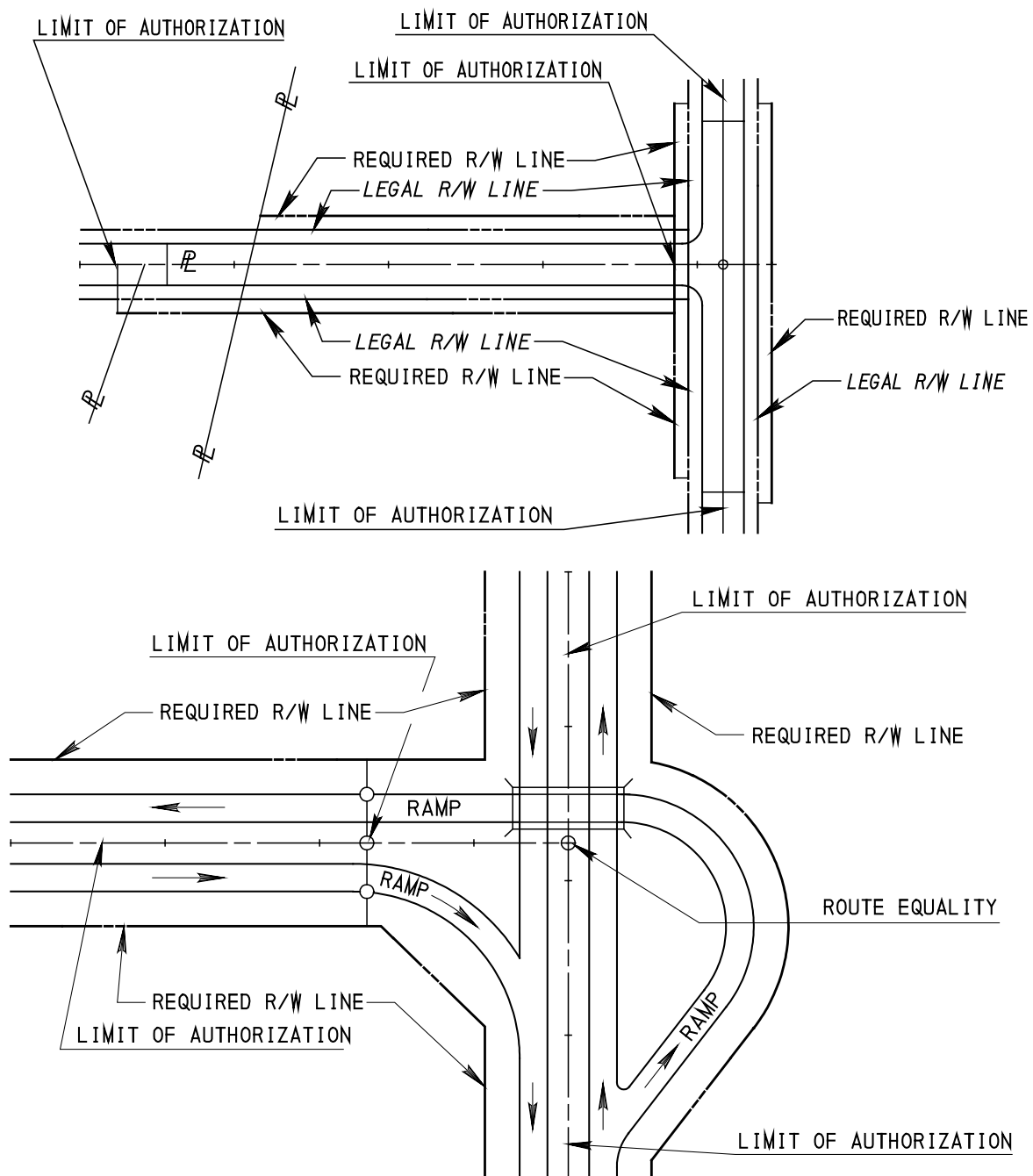




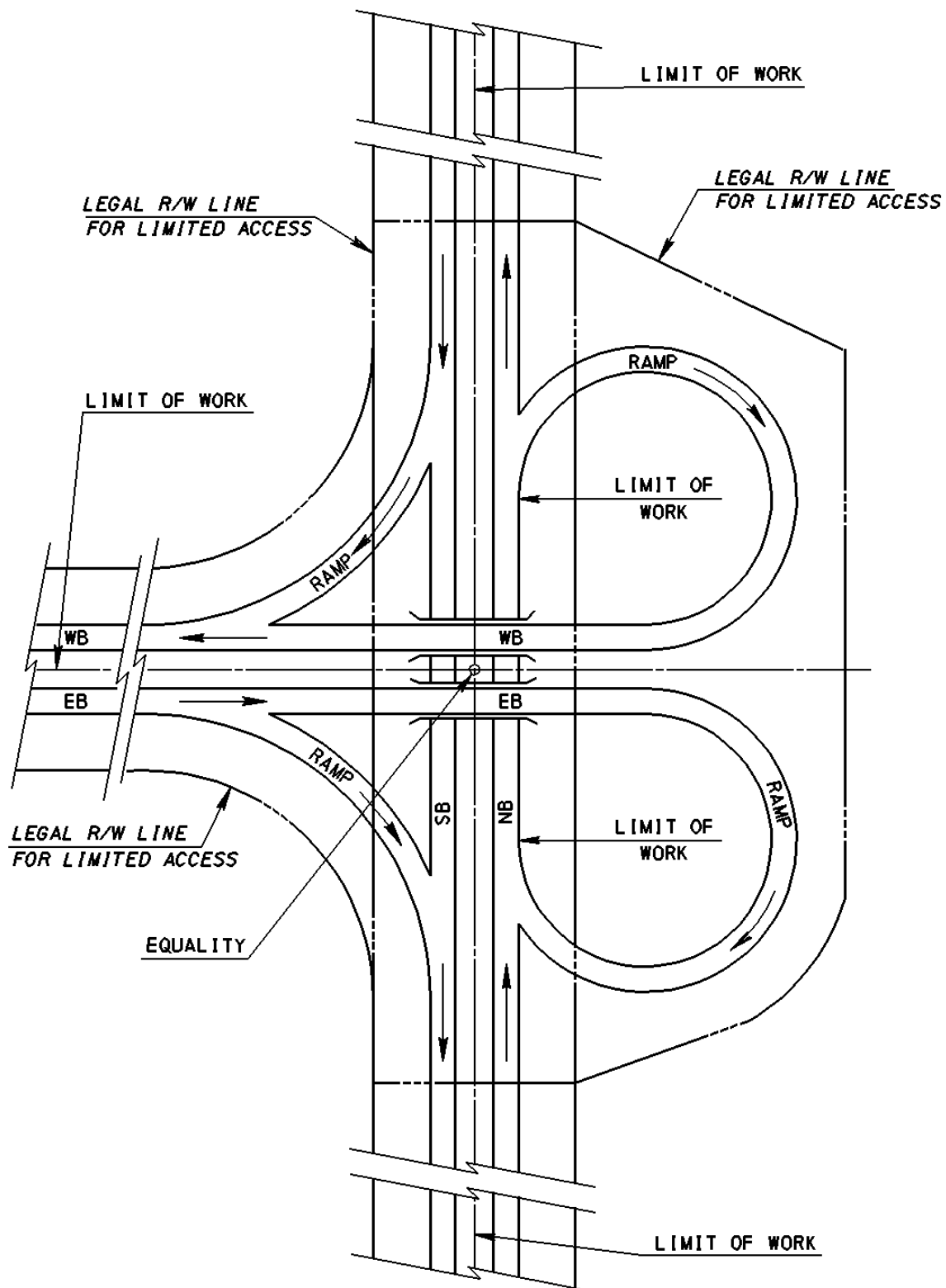
**PLATE A-IV  
EXAMPLE SKETCH INDICATING  
CONSTRUCTION LIMITS AT INTERSECTIONS**



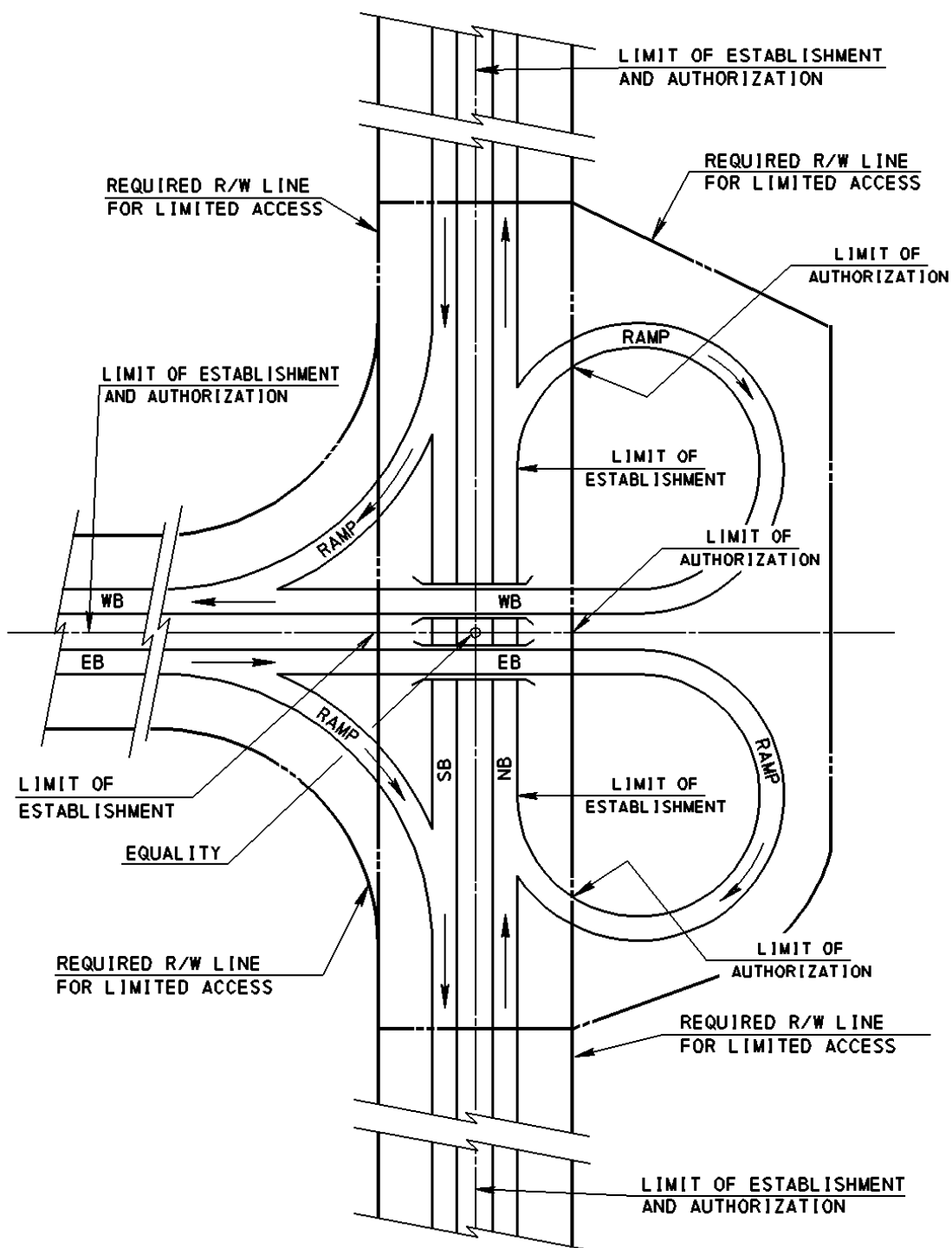
**PLATE A-V**  
**EXAMPLE SKETCH INDICATING**  
**RIGHT-OF-WAY LIMITS AT INTERSECTIONS**



**PLATE A-VI**  
**EXAMPLE SKETCH INDICATING**  
**CONSTRUCTION LIMITS AT INTERCHANGES**



**PLATE A-VII**  
**EXAMPLE SKETCH INDICATING**  
**RIGHT-OF-WAY LIMITS AT INTERCHANGES**



**15.2 "B" PLATES**

The following is a listing of the "B" Plates that are contained in this Section which compliment the applicable plan sheets as presented in this Manual.

| <u>PLATE NUMBER</u> | <u>TITLE</u>                                                                                                                                                                                 |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plate B-I           | Example of Title Sheet for Construction Plans                                                                                                                                                |
| Plate B-II          | Example of Summary of Quantities Sheet                                                                                                                                                       |
| Plate B-III         | Example of Tabulation of Quantities Sheet                                                                                                                                                    |
| Plate B-IV          | Example of Tabulation of Quantities Sheet<br>(Roadway Quantities, Miscellaneous Earthwork, Right-of-Way<br>Fence and Miscellaneous Items)                                                    |
| Plate B-V           | Example of Tabulation of Quantities Sheet<br>(Pavement Base Drains, Guide Rail and Median Barrier,<br>Roadside Development and Erosion Control, Grading Sections<br>and Top Soil Quantities) |
| Plate B-VI          | Example of Alternate Method for Tabulation of Quantities Sheet<br>(Drainage Quantities)                                                                                                      |
| Plate B-VIIA        | Example of Pipe Design Number and Concrete<br>Pipe Item Number - Summary Sheet                                                                                                               |
| Plate B-VIIB        | Example of Pipe Design Number and Concrete<br>Pipe Item Number - Tabulation of Quantities Sheet (Drainage<br>Quantities)                                                                     |
| Plate B-VIII        | Example of Title Sheet for Right-of-Way Plans                                                                                                                                                |
| Plate B-IX          | Example of Title Sheet for Design-Build Plans                                                                                                                                                |
| Plate B-X           | Example of Cross Section Sheet                                                                                                                                                               |
| Plate B-XI          | Example of Cross Section Sheet                                                                                                                                                               |
| Plate B-XII         | Example of Location of Project on State Map                                                                                                                                                  |
| Plate B-XIII        | Location Map Legend                                                                                                                                                                          |
| Plate B-XIV         | Example of Title Sheet for Right-of-Way by Township                                                                                                                                          |
| Plate B-XV          | Example of Right-of-Way Deeded to the Commonwealth                                                                                                                                           |

15 - 14

PLAN PREPARATION  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

SEGMENT OFFSETS ARE MEASURED IN METERS

ECMS No. \_\_\_\_\_

PLATE B-1 (METRIC)  
EXAMPLE OF TITLE SHEET  
FOR CONSTRUCTION PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION

DRAWINGS

FOR

CONSTRUCTION

OF

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_

IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ km

FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m

SCALE

HORIZONTAL 

VERTICAL 

DESIGN DESIGNATION

TRAFFIC DATA

HIGHWAY CLASSIFICATION -

DESIGN SPEED -

PAVEMENT WIDTH -

SHOULDER WIDTH -

CURRENT A. D. T. -

DESIGN YEAR A. D. T. -

D. H. V. -

D -

T -

ASST. DIST. EXEC.

DATE \_\_\_\_\_

RECOMMENDED DATE \_\_\_\_\_

DISTRICT PLANS ENGINEER

RECOMMENDED DATE \_\_\_\_\_

DISTRICT EXECUTIVE

RECOMMENDED DATE \_\_\_\_\_

DEPUTY SECRETARY

APPROVED DATE \_\_\_\_\_

SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS HERSELF)

15 - 15

PLAN PREPARATION  
PLANS ENGINEER \_\_\_\_\_  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

ECMS No. \_\_\_\_\_

PLATE B-1 (ENGLISH)  
EXAMPLE OF TITLE SHEET  
FOR CONSTRUCTION PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION

DRAWINGS  
FOR  
CONSTRUCTION  
OF

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_  
IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ FT. \_\_\_\_\_ MI.  
FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_

SCALE

HORIZONTAL

0 25 50 FEET

VERTICAL

0 5 10 FEET

DESIGN DESIGNATION

|                          |                        |  |
|--------------------------|------------------------|--|
| HIGHWAY CLASSIFICATION - | TRAFFIC DATA           |  |
| DESIGN SPEED -           | CURRENT A. D. T. -     |  |
| PAVEMENT WIDTH -         | DESIGN YEAR A. D. T. - |  |
| SHOULDER WIDTH -         | D. H. V. -             |  |
|                          | D -                    |  |
|                          | T -                    |  |

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

|                                                                                  |             |
|----------------------------------------------------------------------------------|-------------|
| RECOMMENDED                                                                      | DATE: _____ |
| DISTRICT PLANS ENGINEER                                                          |             |
| RECOMMENDED                                                                      | DATE: _____ |
| DISTRICT EXECUTIVE                                                               |             |
| RECOMMENDED                                                                      | DATE: _____ |
| DEPUTY SECRETARY                                                                 |             |
| APPROVED                                                                         | DATE: _____ |
| SECRETARY OF TRANSPORTATION<br>(ON BEHALF OF THE GOVERNOR<br>AS WELL AS HERSELF) |             |

PLATE B-11  
EXAMPLE OF SUMMARY  
OF QUANTITIES SHEET

## S U M M A R Y

| REVISION<br>NUMBER | REVISIONS | DATE | BY | DISTRICT | COUNTY | ROUTE | SECTION | SHEET<br>OF |
|--------------------|-----------|------|----|----------|--------|-------|---------|-------------|
|                    |           |      |    |          |        |       |         |             |
|                    |           |      |    |          |        |       |         |             |
|                    |           |      |    |          |        |       |         |             |

[illegible]

OPERATOR  
FILE NAME=

|                    |           |       |         |         |
|--------------------|-----------|-------|---------|---------|
| DISTRICT           | COUNTY    | ROUTE | SECTION | SHEET   |
|                    |           |       |         | OF      |
|                    |           |       |         |         |
| REVISION<br>NUMBER | REVISIONS |       |         | DATE BY |
|                    |           |       |         |         |
|                    |           |       |         |         |
|                    |           |       |         |         |

PLATE B-111  
EXAMPLE OF TABULATION  
OF QUANTITIES SHEET

## TABULATION OF QUANTITIES

| CLASS 1 EXCAVATION |                                 | REMARKS | SIDE | STATIONS |
|--------------------|---------------------------------|---------|------|----------|
| ITEM NO.           | DESCRIPTION                     |         |      |          |
| 2201               | SELECTED BORROW EXCAVATION ROCK |         |      |          |
| 2202               | CLASS R-6                       |         |      |          |
| 2203               | GEOTEXTILE, CLASS 2, TYPE A     |         |      |          |
| 2204               |                                 |         |      |          |
| 2205               | SURFACE (NO. 2A)                |         |      |          |
| 2206               | BASE OF SUBGRADE PAVEMENT       |         |      |          |
| 2207               | SUBGRADE, 40 MM WELDED          |         |      |          |
| 2208               |                                 |         |      |          |
| 2209               |                                 |         |      |          |
| 2210               |                                 |         |      |          |
| 2211               |                                 |         |      |          |
| 2212               |                                 |         |      |          |
| 2213               |                                 |         |      |          |
| 2214               |                                 |         |      |          |
| 2215               |                                 |         |      |          |
| 2216               |                                 |         |      |          |
| 2217               |                                 |         |      |          |
| 2218               |                                 |         |      |          |
| 2219               |                                 |         |      |          |
| 2220               |                                 |         |      |          |
| 2221               |                                 |         |      |          |
| 2222               |                                 |         |      |          |
| 2223               |                                 |         |      |          |
| 2224               |                                 |         |      |          |
| 2225               |                                 |         |      |          |
| 2226               |                                 |         |      |          |
| 2227               |                                 |         |      |          |
| 2228               |                                 |         |      |          |
| 2229               |                                 |         |      |          |
| 2230               |                                 |         |      |          |
| 2231               |                                 |         |      |          |
| 2232               |                                 |         |      |          |
| 2233               |                                 |         |      |          |
| 2234               |                                 |         |      |          |
| 2235               |                                 |         |      |          |
| 2236               |                                 |         |      |          |
| 2237               |                                 |         |      |          |
| 2238               |                                 |         |      |          |
| 2239               |                                 |         |      |          |
| 2240               |                                 |         |      |          |
| 2241               |                                 |         |      |          |
| 2242               |                                 |         |      |          |
| 2243               |                                 |         |      |          |
| 2244               |                                 |         |      |          |
| 2245               |                                 |         |      |          |
| 2246               |                                 |         |      |          |
| 2247               |                                 |         |      |          |
| 2248               |                                 |         |      |          |
| 2249               |                                 |         |      |          |
| 2250               |                                 |         |      |          |
| 2251               |                                 |         |      |          |
| 2252               |                                 |         |      |          |
| 2253               |                                 |         |      |          |
| 2254               |                                 |         |      |          |
| 2255               |                                 |         |      |          |
| 2256               |                                 |         |      |          |
| 2257               |                                 |         |      |          |
| 2258               |                                 |         |      |          |
| 2259               |                                 |         |      |          |
| 2260               |                                 |         |      |          |
| 2261               |                                 |         |      |          |
| 2262               |                                 |         |      |          |
| 2263               |                                 |         |      |          |
| 2264               |                                 |         |      |          |
| 2265               |                                 |         |      |          |
| 2266               |                                 |         |      |          |
| 2267               |                                 |         |      |          |
| 2268               |                                 |         |      |          |
| 2269               |                                 |         |      |          |
| 2270               |                                 |         |      |          |
| 2271               |                                 |         |      |          |
| 2272               |                                 |         |      |          |
| 2273               |                                 |         |      |          |
| 2274               |                                 |         |      |          |
| 2275               |                                 |         |      |          |
| 2276               |                                 |         |      |          |
| 2277               |                                 |         |      |          |
| 2278               |                                 |         |      |          |
| 2279               |                                 |         |      |          |
| 2280               |                                 |         |      |          |
| 2281               |                                 |         |      |          |
| 2282               |                                 |         |      |          |
| 2283               |                                 |         |      |          |
| 2284               |                                 |         |      |          |
| 2285               |                                 |         |      |          |
| 2286               |                                 |         |      |          |
| 2287               |                                 |         |      |          |
| 2288               |                                 |         |      |          |
| 2289               |                                 |         |      |          |
| 2290               |                                 |         |      |          |
| 2291               |                                 |         |      |          |
| 2292               |                                 |         |      |          |
| 2293               |                                 |         |      |          |
| 2294               |                                 |         |      |          |
| 2295               |                                 |         |      |          |
| 2296               |                                 |         |      |          |
| 2297               |                                 |         |      |          |
| 2298               |                                 |         |      |          |
| 2299               |                                 |         |      |          |
| 2300               |                                 |         |      |          |
| 2301               |                                 |         |      |          |
| 2302               |                                 |         |      |          |
| 2303               |                                 |         |      |          |
| 2304               |                                 |         |      |          |
| 2305               |                                 |         |      |          |
| 2306               |                                 |         |      |          |
| 2307               |                                 |         |      |          |
| 2308               |                                 |         |      |          |
| 2309               |                                 |         |      |          |
| 2310               |                                 |         |      |          |
| 2311               |                                 |         |      |          |
| 2312               |                                 |         |      |          |
| 2313               |                                 |         |      |          |
| 2314               |                                 |         |      |          |
| 2315               |                                 |         |      |          |
| 2316               |                                 |         |      |          |
| 2317               |                                 |         |      |          |
| 2318               |                                 |         |      |          |
| 2319               |                                 |         |      |          |
| 2320               |                                 |         |      |          |
| 2321               |                                 |         |      |          |
| 2322               |                                 |         |      |          |
| 2323               |                                 |         |      |          |
| 2324               |                                 |         |      |          |
| 2325               |                                 |         |      |          |
| 2326               |                                 |         |      |          |
| 2327               |                                 |         |      |          |
| 2328               |                                 |         |      |          |
| 2329               |                                 |         |      |          |
| 2330               |                                 |         |      |          |
| 2331               |                                 |         |      |          |
| 2332               |                                 |         |      |          |
| 2333               |                                 |         |      |          |
| 2334               |                                 |         |      |          |
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| 2338               |                                 |         |      |          |
| 2339               |                                 |         |      |          |
| 2340               |                                 |         |      |          |
| 2341               |                                 |         |      |          |
| 2342               |                                 |         |      |          |
| 2343               |                                 |         |      |          |
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| 2350               |                                 |         |      |          |
| 2351               |                                 |         |      |          |
| 2352               |                                 |         |      |          |
| 2353               |                                 |         |      |          |
| 2354               |                                 |         |      |          |
| 2355               |                                 |         |      |          |
| 2356               |                                 |         |      |          |
| 2357               |                                 |         |      |          |
| 2358               |                                 |         |      |          |
| 2359               |                                 |         |      |          |
| 2360               |                                 |         |      |          |
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OPERATOR  
FILE NAME



**PLATE B-V**  
**EXAMPLE OF TABULATION**  
**OF QUANTITIES SHEET**

## PAVEMENT BASE DRAIN

| ITEM<br>NUMBER | QUANTITY | REMARKS                                                            | SIDE | STATIONS       | ROUTE   |
|----------------|----------|--------------------------------------------------------------------|------|----------------|---------|
| 0084<br>0150   |          | CLASS 4 EXCAVATION                                                 |      |                |         |
| 0010<br>0151   |          | 4" PAVEMENT BASE DRAIN                                             |      |                |         |
| 0010<br>0150   |          | ADDITIONAL COARSE AGGREGATE FOR<br>EXTRA DEPTH PAVEMENT BASE DRAIN |      |                |         |
| 0015<br>0021   |          | 4" SUBSURFACE DRAIN OUTLETS                                        |      |                |         |
| 1001<br>0010   |          | CLASS 3 CEMENT CONCRETE                                            |      |                |         |
| ITEM<br>NUMBER |          |                                                                    |      |                |         |
|                | 120      | OUTLET TO INLET                                                    | LT   | 16+82 TO 18+02 | SR 8501 |
|                | 120      | OUTLET TO INLET                                                    | RT   | 16+82 TO 18+02 |         |
|                | 130      | OUTLET TO INLET                                                    | LT   | 18+07 TO 19+37 |         |
|                | 150      |                                                                    | RT   | 18+07 TO 19+57 |         |
|                | 48       | OUTLET TO INLET                                                    | LT   | 22+15 TO 23+23 |         |
|                | 10 146   | OUTLET TO INLET                                                    | LT   | 23+37 TO 24+83 |         |
|                | 209      | OUTLET TO INLET                                                    | LT   | 33+75 TO 35+84 |         |
|                | 124      | OUTLET TO INLET                                                    | LT   | 35+88 TO 37+12 | TOTAL   |
| 10 1047        | 11       |                                                                    |      |                |         |

## ROADSIDE DEVELOPMENT AND EROSION CONTROL

| ITEM<br>NUMBER | QUANTITY | REMARKS                                     | STATIONS       | ROUTE   |
|----------------|----------|---------------------------------------------|----------------|---------|
| 0001<br>0001   |          | CLASS 1 EXCAVATION                          |                |         |
| 0011<br>0013   |          | SEEDING AND SOIL SUPPLEMENTS -<br>FORMULA B |                |         |
| 0005<br>0018   |          | MULCHING - WOOD CHIPS                       |                |         |
| 0011<br>0001   |          | SELECTIVE TREE REMOVAL AND<br>TRIMMING      |                |         |
| 0005<br>0021   |          | ROCK, CLASS R-3                             |                |         |
| 0001<br>0001   |          | ROCK BASIN                                  |                |         |
| 0001<br>0001   |          | SILT BARRIER FENCE - 18" HEIGHT             |                |         |
| ITEM<br>NUMBER |          |                                             |                |         |
|                | 14100    |                                             | 12+00 TO 45+00 | SR 8501 |
|                | 150      | SEDIMENTATION                               | 14+75          |         |
|                |          |                                             | 25+00          |         |
|                |          |                                             | 29+00          |         |
|                |          |                                             | 38+80          | SR 8675 |
|                | 1528     |                                             | 16+23 TO 80+65 |         |
| 150 15620      | 8650     |                                             |                | TOTAL   |

## TABULATION OF QUANTITIES

## GUIDE RAIL AND MEDIAN BARRIER

| ITEM<br>NUMBER | QUANTITY | REMARKS                              | SIDE | STATIONS       | ROUTE   |
|----------------|----------|--------------------------------------|------|----------------|---------|
| 0001<br>0402   |          | TERMINAL SECTION - BRIDGE CONNECTION |      |                |         |
| 0001<br>0402   |          | TYPE 2-W GUIDE RAIL                  |      |                |         |
| 0001<br>1075   |          | TYPE 2-S GUIDE RAIL                  |      |                |         |
| 0001<br>1075   |          | TYPE 2-SC GUIDE RAIL                 |      |                |         |
| 0001<br>1250   |          | TYPE 2 STRONG POST END TREATMENT     |      |                |         |
| 0001<br>1250   |          | TYPE 2-W END TREATMENT               |      |                |         |
| ITEM<br>NUMBER |          |                                      |      |                |         |
|                | 400      |                                      | LT   | 12+48 TO 16+48 | SR 8501 |
|                | 400      |                                      | RT   | 12+48 TO 16+48 |         |
|                | 62.5     | 25                                   | LT   | 23+62 TO 24+87 |         |
|                | 62.5     | 25                                   | RT   | 23+62 TO 24+87 |         |
|                | 62.5     | 25                                   | LT   | 28+87 TO 30+12 |         |
|                | 62.5     | 25                                   | RT   | 28+87 TO 30+12 |         |
| 4 800          | 250      |                                      |      |                | TOTAL   |

**TABULATION OF**  
**1000 FT GRADING SECTIONS \***  
**( INFORMATION ONLY )**

| EXCAVATION<br>CY | EMBANKMENT<br>CY | STATIONS       | ROUTE       |
|------------------|------------------|----------------|-------------|
| 12000            | 5000             | 12+00 TO 20+00 | SR 8501     |
| 5500             | 9500             | 20+00 TO 30+00 |             |
| 6500             | 8100             | 30+00 TO 40+00 |             |
| 6200             | 2400             | 40+00 TO 45+00 |             |
| 32000            | 25600            |                | ROUTE TOTAL |
| 375              | 310              | 68+20 TO 70+00 | SR 8675     |
| 1150             | 840              | 70+00 TO 80+00 |             |
| 15               | 130              | 80+00 TO 82+00 |             |
| 1800             | 1250             |                | ROUTE TOTAL |
| 33800            | 26850            |                | GRAND TOTAL |

\* INCLUDES ONLY WORK WITHIN NORMAL ROADWAY TEMPLATE

**TABULATION OF**  
**TOPSOIL QUANTITIES**  
**( INFORMATION ONLY )**

| TOPSOIL<br>AVAILABILITY<br>CY | REQUIREMENT<br>CY | STATIONS       | ROUTE       |
|-------------------------------|-------------------|----------------|-------------|
| 550                           | 140               | 12+00 TO 20+00 | SR 8501     |
| 260                           | 430               | 20+00 TO 30+00 |             |
| 380                           | 1260              | 30+00 TO 40+00 |             |
| 240                           | 610               | 40+00 TO 45+00 |             |
| 2130                          | 3100              |                | ROUTE TOTAL |
| 30                            | 50                | 68+20 TO 70+00 | SR 8675     |
| 135                           | 170               | 70+00 TO 80+00 |             |
| 10                            | 20                | 80+00 TO 82+00 |             |
| 175                           | 240               |                | ROUTE TOTAL |
| 2305                          | 3340              |                | GRAND TOTAL |

## TOPSOIL REQUIREMENTS

TOPSOIL REQUIRED 3340 CY ITEM NO 2803-0001 (PLACING STOCKPILED TOPSOIL)  
 LESS TOPSOIL SALVAGE 2305 CY  
 TOPSOIL REQUIRED 1035 CY ITEM NO 2802-0001 (TOPSOIL FURNISHED AND PLACED)

[illegible]

## S U M M A R Y

15 - 21

### TABULATION OF QUANTITIES - DRAINAGE

[illegible]

PLAN PREPARATION  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

SEGMENT OFFSETS ARE MEASURED IN METERS

MWS No. \_\_\_\_\_

PLATE B-VIII (METRIC)  
EXAMPLE OF TITLE SHEET  
FOR RIGHT-OF-WAY PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION

DRAWINGS AUTHORIZING ACQUISITION

OF

RIGHT-OF-WAY

FOR

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_

IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ km

FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m

THIS PLAN PREPARED PURSUANT TO SECTION 2003 (a) OF THE ADMINISTRATIVE  
CODE (ACT OF APRIL 9, 1929, P.L. 177, AS AMENDED BY ACT 1979-100), AND  
SECTION 402 (b) (3) OF THE EMINENT DOMAIN CODE OF 1964 AS AMENDED.

SCALE

HORIZONTAL 

VERTICAL 

DESIGN DESIGNATION

HIGHWAY CLASSIFICATION -  
DESIGN SPEED -  
PAVEMENT WIDTH -  
SHOULDER WIDTH -

CURRENT A.D.T. -  
DESIGN YEAR A.D.T. -  
D.H.V. -  
D -  
T -

RECORDED IN THE OFFICE FOR THE  
RECORDING OF DEEDS, ETC. IN  
\_\_\_\_\_ COUNTY, PA.  
IN \_\_\_\_\_ BOOK \_\_\_\_\_ PAGE \_\_\_\_\_  
WITNESS MY HAND AND SEAL OF OFFICE  
\_\_\_\_\_  
DATE \_\_\_\_\_  
RECORDER \_\_\_\_\_

COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF DAUPHIN, SS  
BEFORE ME, A NOTARY PUBLIC, PERSONALLY CAME  
\_\_\_\_\_, KNOWN TO ME OR  
SATISFACTORILY PROVEN TO BE THE PERSON WHO  
HAS BEEN AUTHORIZED BY WRITTEN DELEGATION  
TO AFFIX THE FACSIMILE SIGNATURE OF  
\_\_\_\_\_, (PRESIDENT, BOARD OF SURVEYS, SECRETARY) SECRETARY  
OF TRANSPORTATION, ON PLANS AUTHORIZING  
ACQUISITION OF RIGHT-OF-WAY BY THE DEPARTMENT  
OF TRANSPORTATION, AND AS SUCH AUTHORIZED  
REPRESENTATIVE ACKNOWLEDGED THE WITHIN PLAN,  
COMPRISING \_\_\_\_\_ SHEETS, TO BE AN OFFICIAL PLAN  
OF THE DEPARTMENT OF TRANSPORTATION AND  
DESIRED THAT THE SAME BE RECORDED AS SUCH.  
WITNESS MY HAND AND NOTARIAL SEAL.  
\_\_\_\_\_  
DISTRICT CHIEF OF SURVEYS  
DATE: \_\_\_\_\_

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

RECOMMENDED DATE: \_\_\_\_\_  
DISTRICT PLANS ENGINEER  
RECOMMENDED DATE: \_\_\_\_\_  
DISTRICT EXECUTIVE  
RECOMMENDED DATE: \_\_\_\_\_  
DEPUTY SECRETARY  
APPROVED DATE: \_\_\_\_\_  
SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS HERSELF)

15 - 24

PLAN PREPARATION  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

MPMS No. \_\_\_\_\_

PLATE B-VIII (ENGLISH)  
EXAMPLE OF TITLE SHEET  
FOR RIGHT-OF-WAY PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION  
DRAWINGS AUTHORIZING ACQUISITION  
OF  
RIGHT-OF-WAY  
FOR

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_

IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ FT. \_\_\_\_\_ MI.  
FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_

THIS PLAN PREPARED PURSUANT TO SECTION 2003(a) OF THE ADMINISTRATIVE  
CODE, AS AMENDED, 71 P.S. SECTION 513(a), AND SECTION 302(b)(3) OF THE  
EMINENT DOMAIN CODE, 26 Pa. C.S., SECTION 302(b)(3).

SCALE

HORIZONTAL 0 25 50 FEET

VERTICAL 0 5 10 FEET

DESIGN DESIGNATION

TRAFFIC DATA

|                          |                      |
|--------------------------|----------------------|
| HIGHWAY CLASSIFICATION - | CURRENT A.D.T. -     |
| DESIGN SPEED -           | DESIGN YEAR A.D.T. - |
| PAVEMENT WIDTH -         | D.H.V. -             |
| SHOULDER WIDTH -         | D -                  |
|                          | T -                  |

RECORDED IN THE OFFICE FOR THE  
RECORDING OF DEEDS, ETC. IN

\_\_\_\_\_ COUNTY, PA.

IN \_\_\_\_\_ BOOK \_\_\_\_\_ PAGE \_\_\_\_\_

WITNESS MY HAND AND SEAL OF OFFICE

DATE

RECORDER

COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF DAUPHIN  
SS  
BEFORE ME, A NOTARY PUBLIC, PERSONALLY CAME  
\_\_\_\_\_, KNOWN TO ME OR  
SATISFACTORILY PROVEN TO BE THE PERSON WHO  
HAS BEEN AUTHORIZED BY WRITTEN DELEGATION  
TO AFFIX THE FACSIMILE SIGNATURE OF  
[INSERT NAME OF CURRENT SECRETARY] SECRETARY  
OF TRANSPORTATION, ON PLANS AUTHORIZING  
ACQUISITION OF RIGHT-OF-WAY BY THE DEPARTMENT  
OF TRANSPORTATION, AND AS SUCH AUTHORIZED  
REPRESENTATIVE ACKNOWLEDGED THE WITHIN PLAN,  
COMPRISING \_\_\_\_\_ SHEETS, TO BE AN OFFICIAL PLAN  
OF THE DEPARTMENT OF TRANSPORTATION AND  
DESIRED THAT THE SAME BE RECORDED AS SUCH.  
WITNESS MY HAND AND NOTARIAL SEAL

DISTRICT CHIEF OF SURVEYS  
DATE: \_\_\_\_\_

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

|                                                                                  |             |
|----------------------------------------------------------------------------------|-------------|
| RECOMMENDED                                                                      | DATE: _____ |
| DISTRICT PLANS ENGINEER                                                          |             |
| RECOMMENDED                                                                      | DATE: _____ |
| DISTRICT EXECUTIVE                                                               |             |
| RECOMMENDED                                                                      | DATE: _____ |
| DEPUTY SECRETARY                                                                 |             |
| APPROVED                                                                         | DATE: _____ |
| SECRETARY OF TRANSPORTATION<br>(ON BEHALF OF THE GOVERNOR<br>AS WELL AS HERSELF) |             |

PLAN PREPARATION  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

SEGMENT OFFSETS ARE MEASURED IN METERS

MPMS/ECMS No. \_\_\_\_\_

PLATE B-IX (METRIC)  
EXAMPLE OF TITLE SHEET  
FOR DESIGN-BUILD PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION

CONCEPTUAL DESIGN DRAWINGS

FOR  
CONSTRUCTION  
OF

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_  
IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ km  
FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ m

SCALE

HORIZONTAL 

VERTICAL 

DESIGN DESIGNATION

HIGHWAY CLASSIFICATION -  
DESIGN SPEED -  
PAVEMENT WIDTH -  
SHOULDER WIDTH -

CURRENT A. D. T. -  
DESIGN YEAR A. D. T. -  
D. H. V. -  
D -  
T -

TRAFFIC DATA

RECOMMENDED DATE: \_\_\_\_\_  
DISTRICT PLANS ENGINEER

RECOMMENDED DATE: \_\_\_\_\_  
DISTRICT EXECUTIVE

RECOMMENDED DATE: \_\_\_\_\_  
DEPUTY SECRETARY

APPROVED DATE: \_\_\_\_\_  
SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS HERSELF)

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

PLAN PREPARATION  
DESIGNER \_\_\_\_\_

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

MPHS/ECMS No. \_\_\_\_\_

PLATE B-IX (ENGLISH)  
EXAMPLE OF TITLE SHEET  
FOR DESIGN-BUILD PLANS

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION

CONCEPTUAL DESIGN DRAWINGS  
FOR  
CONSTRUCTION  
OF

STATE ROUTE \_\_\_\_\_ SECTION \_\_\_\_\_  
IN \_\_\_\_\_ COUNTY

FROM STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ LENGTH \_\_\_\_\_ FT. \_\_\_\_\_ MI.  
FROM SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG. \_\_\_\_\_ OFFSET \_\_\_\_\_

SCALE

HORIZONTAL

0

25

50

FEET

VERTICAL

0

5

10

FEET

DESIGN DESIGNATION

|                          |                      |  |
|--------------------------|----------------------|--|
| HIGHWAY CLASSIFICATION - | TRAFFIC DATA         |  |
| DESIGN SPEED -           | CURRENT A.D.T. -     |  |
| PAVEMENT WIDTH -         | DESIGN YEAR A.D.T. - |  |
| SHOULDER WIDTH -         | D.H.V. -             |  |
|                          | D -                  |  |
|                          | T -                  |  |

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

RECOMMENDED

DATE: \_\_\_\_\_

DISTRICT PLANS ENGINEER

RECOMMENDED

DATE: \_\_\_\_\_

DISTRICT EXECUTIVE

RECOMMENDED

DATE: \_\_\_\_\_

DEPUTY SECRETARY

APPROVED

DATE: \_\_\_\_\_

SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS HERSELF)

PLATE B-X (METRIC, 1:50 SCALE)  
EXAMPLE OF CROSS SECTION SHEET

| PENNSYLVANIA DEPARTMENT OF TRANSPORTATION<br>CROSS SECTIONS |    |        |    |            |    |              |    |             |   |           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
|-------------------------------------------------------------|----|--------|----|------------|----|--------------|----|-------------|---|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| DISTRICT                                                    |    | COUNTY |    | ROUTE/SECT |    | PRELIM BK NO |    | FINAL BK NO |   | SHEET     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
| 8-0                                                         |    | TIOGA  |    | 49 60M     |    | ---          |    | ---         |   | 80 OF 141 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
| 18                                                          | 17 | 16     | 15 | 14         | 13 | 12           | 11 | 10          | 9 | 8         | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|                                                             |    |        |    |            |    |              |    |             |   |           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |
| 18                                                          | 17 | 16     | 15 | 14         | 13 | 12           | 11 | 10          | 9 | 8         | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |

App/Section No. \_\_\_\_\_

Route No. \_\_\_\_\_

Original Prepared By \_\_\_\_\_

Original Checked By \_\_\_\_\_

Imp/Date By \_\_\_\_\_

Area By \_\_\_\_\_

Profile Prepared By \_\_\_\_\_

Profile Checked By \_\_\_\_\_

Area By \_\_\_\_\_

Area Checked By \_\_\_\_\_

SCALE 1:50

PLATE B-X (METRIC, 1:100 SCALE)  
EXAMPLE OF CROSS SECTION SHEET

| PENNSYLVANIA DEPARTMENT OF TRANSPORTATION<br>CROSS SECTIONS                                                                                                                                                                                                                                               |    |        |    |            |    |              |    |             |    |           |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|----|------------|----|--------------|----|-------------|----|-----------|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| DISTRICT                                                                                                                                                                                                                                                                                                  |    | COUNTY |    | ROUTE/SECT |    | PRELIM BK NO |    | FINAL BK NO |    | SHEET     |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8-0                                                                                                                                                                                                                                                                                                       |    | TIOGA  |    | 49 60M     |    | ---          |    | ---         |    | 80 OF 141 |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 36                                                                                                                                                                                                                                                                                                        | 34 | 32     | 30 | 28         | 26 | 24           | 22 | 20          | 18 | 16        | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| <div><div>Application No. _____</div><div>Route No. _____</div><div>Original Prepared By _____</div><div>Original Checked By _____</div><div>Revised By _____</div><div>Drawn By _____</div><div>Plotted Prepared By _____</div><div>Plotted Checked By _____</div><div>Area Checked By _____</div></div> |    |        |    |            |    |              |    |             |    |           |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 36                                                                                                                                                                                                                                                                                                        | 34 | 32     | 30 | 28         | 26 | 24           | 22 | 20          | 18 | 16        | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |

SCALE 1:100

PLATE B-X (ENGLISH, 1:5 SCALE)  
EXAMPLE OF CROSS SECTION SHEET

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION  
CROSS SECTIONS

| DISTRICT | COUNTY | ROUTE | SECT | PRELIM BK NO | FINAL BK NO | SHEET     |
|----------|--------|-------|------|--------------|-------------|-----------|
| 8-0      | TIOGA  | 49    | 80M  |              |             | 80 OF 141 |

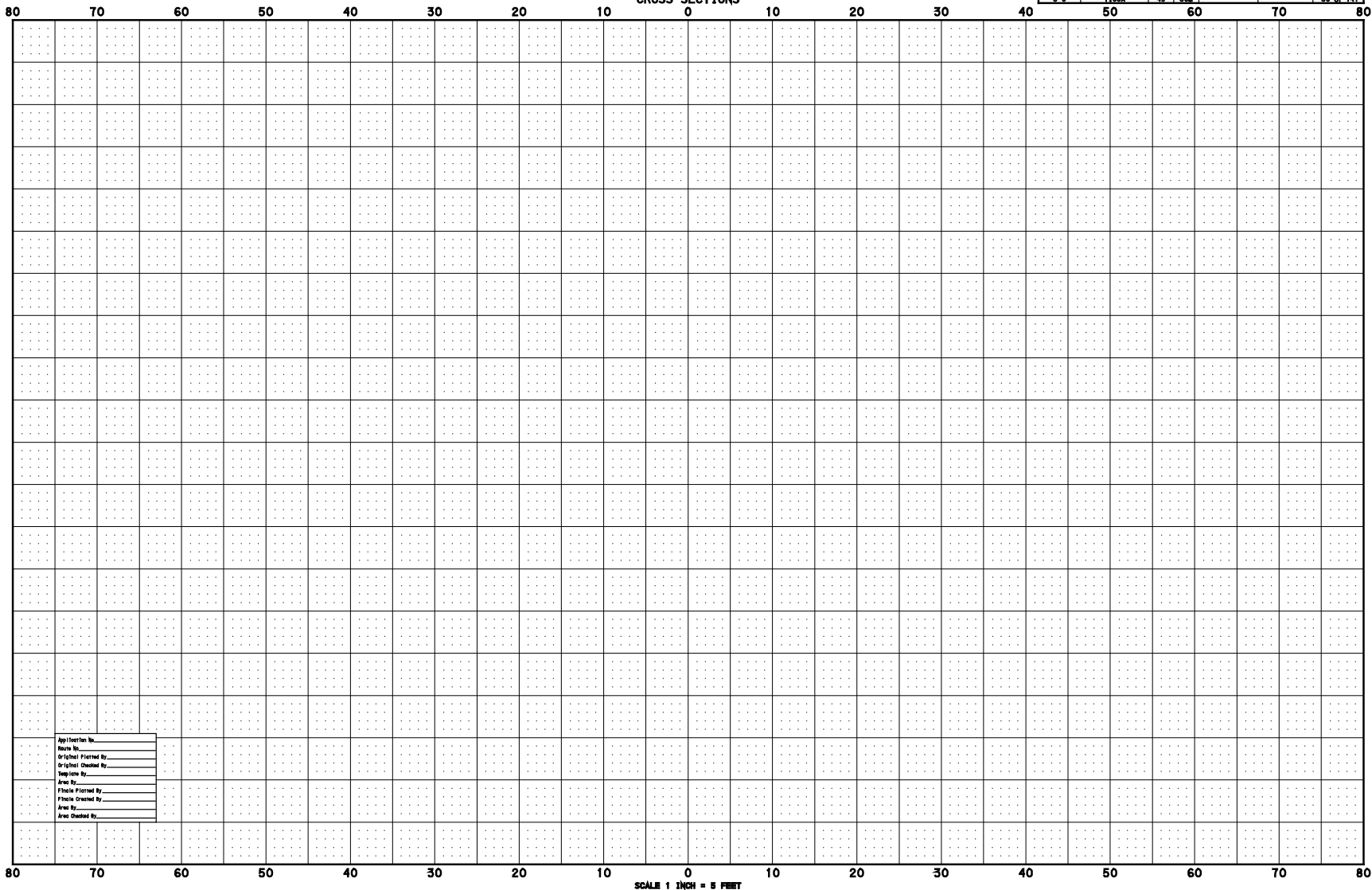
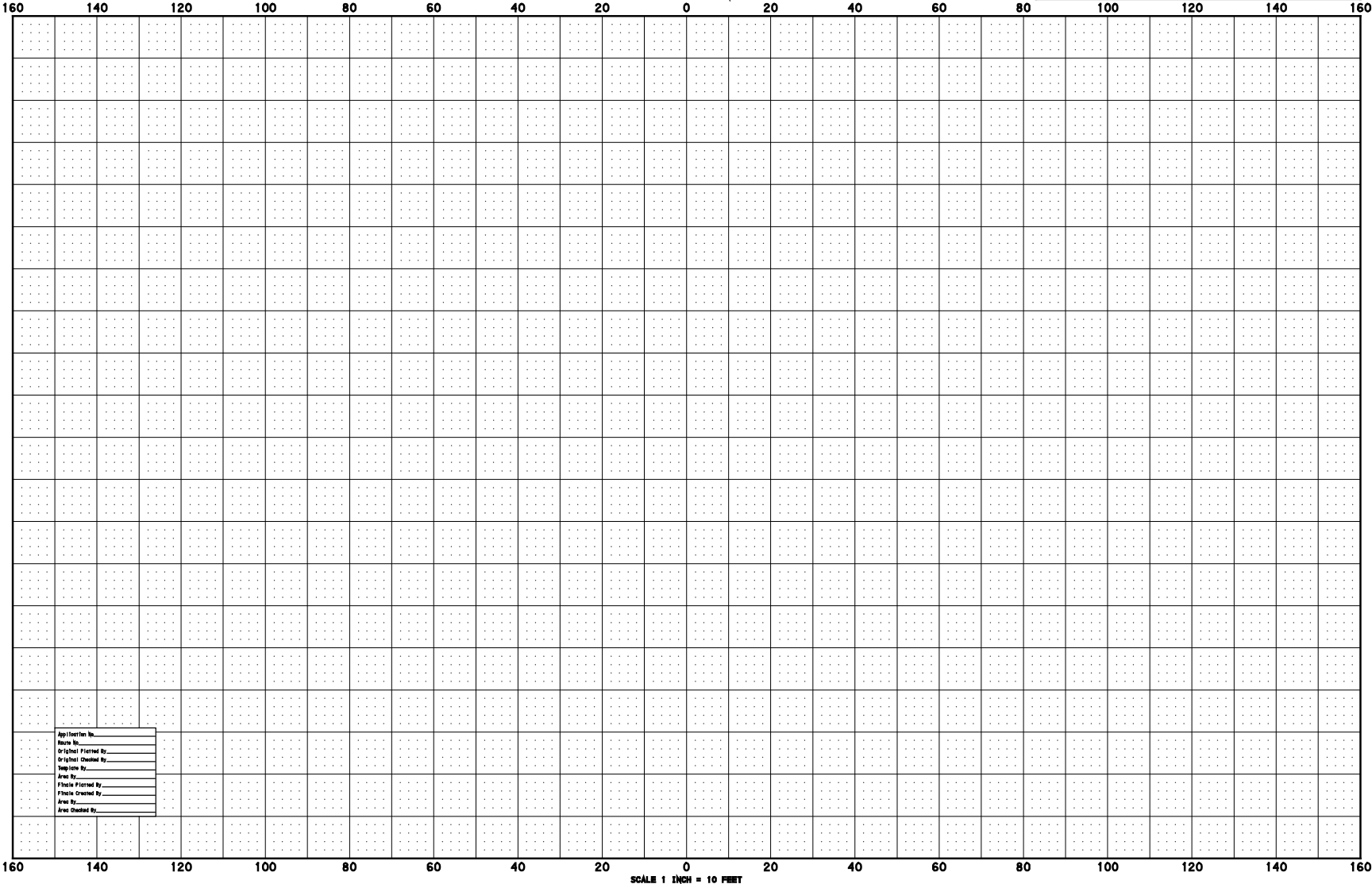


PLATE B-X (ENGLISH, 1:10 SCALE)  
EXAMPLE OF CROSS SECTION SHEET

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION  
CROSS SECTIONS

| DISTRICT | COUNTY | ROUTE | SECT | PRELIM BK NO | FINAL BK NO | SHEET     |
|----------|--------|-------|------|--------------|-------------|-----------|
| 3-0      | TIGRA  | 49    | 80W  |              |             | 80 OF 141 |



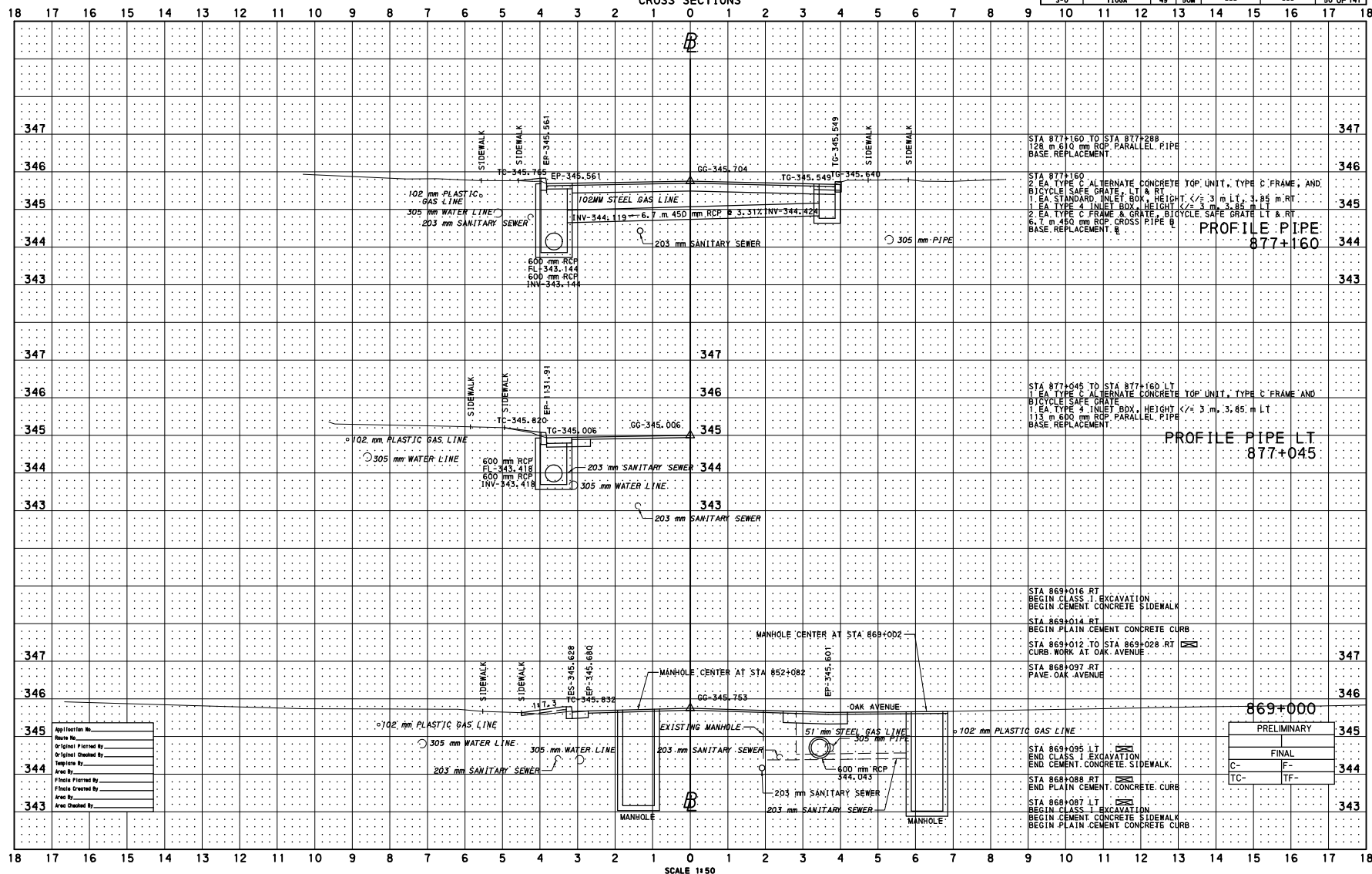
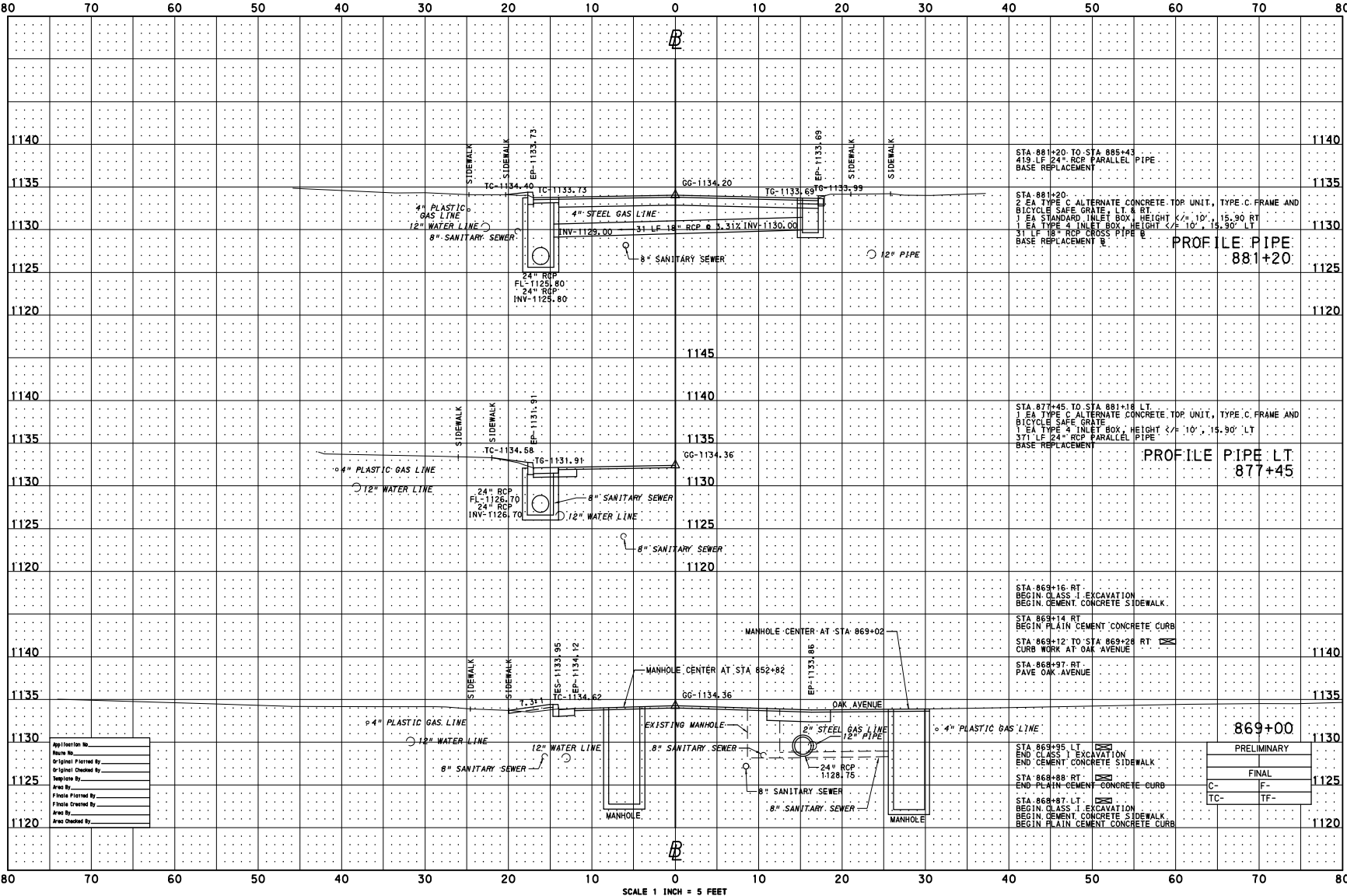


PLATE B-XI (ENGLISH.)  
EXAMPLE OF CROSS SECTION SHEET

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION  
CROSS SECTIONS

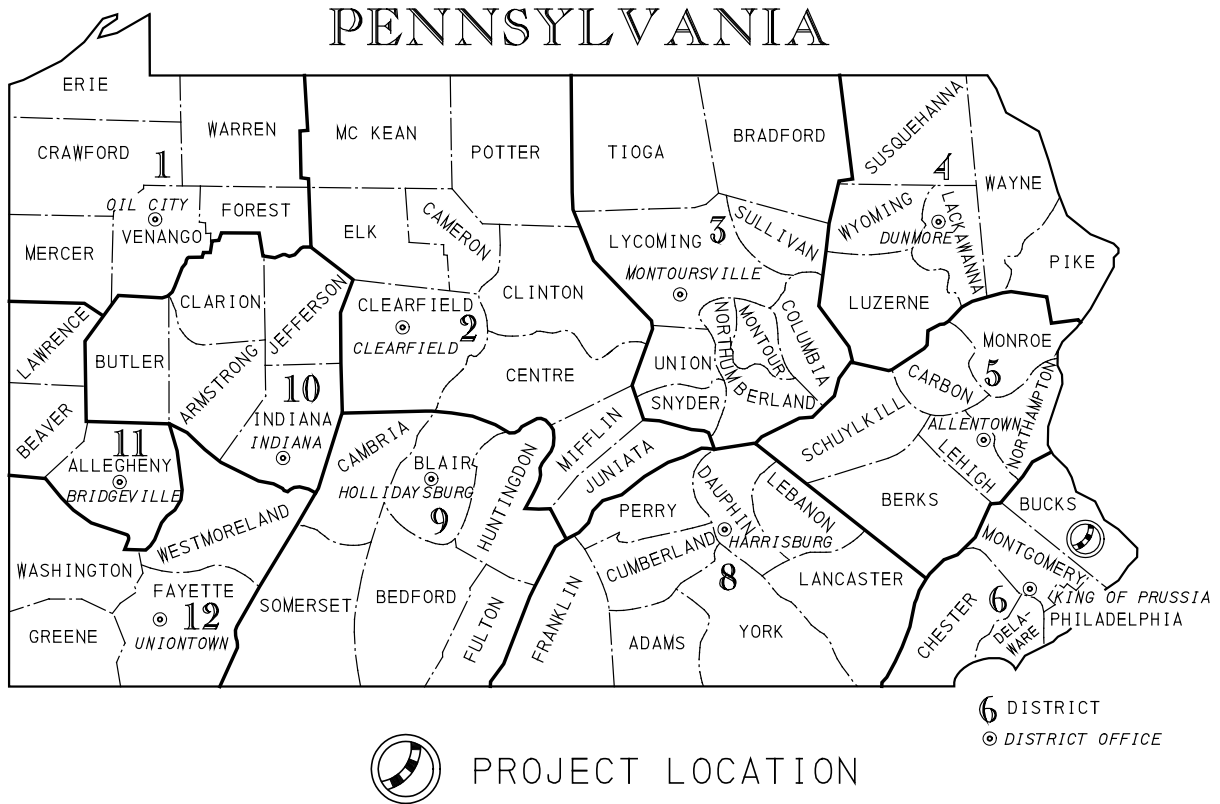
| DISTRICT | COUNTY | ROUTE | SECT | PRELIM BK NO | FINAL BK NO | SHEET     |
|----------|--------|-------|------|--------------|-------------|-----------|
| 3-0      | YIOGA  | 49    | SOM  | ---          | ---         | 50 OF 141 |



SCALE 1 INCH = 5 FEET

|                       |  |
|-----------------------|--|
| App/Location No.      |  |
| Route No.             |  |
| Designated/Planned By |  |
| Original/Checked By   |  |
| Typical/By            |  |
| Area By               |  |
| Final/Planned By      |  |
| Final/Checked By      |  |
| Area By               |  |
| Area/Checked By       |  |

|             |
|-------------|
| PRELIMINARY |
| FINAL       |
| C- F-       |
| TC- TF-     |



**PLATE B-XII**  
**PROJECT LOCATION MAP**

LEGEND

|                                            |  |
|--------------------------------------------|--|
| PROJECT                                    |  |
| DETOUR                                     |  |
| STATE HIGHWAY                              |  |
| TOWNSHIP ROADS<br>(CITY OR BOROUGH STREET) |  |

**PLATE B-XIII**  
**LOCATION MAP LEGEND**

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

MPWS No. \_\_\_\_\_

PLATE B-XIV  
EXAMPLE OF TITLE SHEET  
FOR RIGHT-OF-WAY BY TOWNSHIP

COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF TRANSPORTATION  
DRAWINGS AUTHORIZING ACQUISITION  
OF  
RIGHT-OF-WAY  
FOR

STATE ROUTE \_\_\_\_\_, SECTION \_\_\_\_\_

IN \_\_\_\_\_ COUNTY

BY \_\_\_\_\_ TOWNSHIP

ON BEHALF OF

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF TRANSPORTATION

FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ FT \_\_\_\_\_ MI

FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

THIS PLAN PREPARED PURSUANT TO SECTIONS 2003(e) AND 2002(d)(6) AND (7) OF THE ADMINISTRATIVE CODE, AS AMENDED, 71 P.S. SECTIONS 513(e) AND 512(d)(6) AND (7), SECTION 302(b)(3) OF THE EMINENT DOMAIN CODE, 26 Pa. C.S. SECTION 302(b)(3), AND APPROPRIATE MUNICIPAL AUTHORITY FOR THE PURPOSE OF AUTHORIZING AND APPROVING THE LOCAL MUNICIPALITY TO ACQUIRE RIGHT-OF-WAY FOR STATE HIGHWAY PURPOSES ON BEHALF OF THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF TRANSPORTATION.

SCALE

HORIZONTAL 0 25 50 FEET

VERTICAL 0 5 10 FEET

DESIGN DESIGNATION

|                          |                      |
|--------------------------|----------------------|
| HIGHWAY CLASSIFICATION - | CURRENT A.D.T. -     |
| DESIGN SPEED -           | DESIGN YEAR A.D.T. - |
| PAVEMENT WIDTH -         | D.H.V. -             |
| SHOULDER WIDTH -         | D -                  |
|                          | T -                  |

TRAFFIC DATA

RECORDED IN THE OFFICE FOR THE  
RECORDING OF DEEDS, ETC. IN

\_\_\_\_\_ COUNTY, PA.

IN \_\_\_\_\_ BOOK \_\_\_\_\_ PAGE \_\_\_\_\_

WITNESS MY HAND AND SEAL OF OFFICE

\_\_\_\_\_ DATE \_\_\_\_\_

RECORDER

COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF DAUPHIN SS  
BEFORE ME, A NOTARY PUBLIC, PERSONALLY CAME  
\_\_\_\_\_ KNOWN TO ME OR  
SATISFACTORILY PROVEN TO BE THE PERSON WHO  
HAS BEEN AUTHORIZED BY WRITTEN DELEGATION  
TO AFFIX THE FACSIMILE SIGNATURE OF  
\_\_\_\_\_  
(PRESENT NAME OF CURRENT SECRETARY) SECRETARY  
OF TRANSPORTATION, ON PLANS AUTHORIZING  
ACQUISITION OF RIGHT-OF-WAY BY THE DEPARTMENT  
OF TRANSPORTATION, AND AS SUCH AUTHORIZED  
REPRESENTATIVE ACKNOWLEDGED THE WITHIN PLAN  
COMPRISING \_\_\_\_\_ SHEETS, TO BE AN OFFICIAL PLAN  
OF THE DEPARTMENT OF TRANSPORTATION AND  
DESIRING THAT THE SAME BE RECORDED AS SUCH.  
WITNESS MY HAND AND NOTARIAL SEAL.

DISTRICT CHIEF OF SURVEYS  
DATE: \_\_\_\_\_

ASST. DIST. EXEC.  
DATE: \_\_\_\_\_

RESOLUTION NUMBER \_\_\_\_\_  
RECOMMENDED DATE: \_\_\_\_\_

LOCAL GOVERNMENT OFFICIAL

RECOMMENDED DATE: \_\_\_\_\_

DISTRICT PLANS ENGINEER

RECOMMENDED DATE: \_\_\_\_\_

DISTRICT EXECUTIVE

RECOMMENDED DATE: \_\_\_\_\_

DEPUTY SECRETARY

APPROVED DATE: \_\_\_\_\_

SECRETARY OF TRANSPORTATION  
(ON BEHALF OF THE GOVERNOR  
AS WELL AS HERSELF)

| DISTRICT | COUNTY | TOWNSHIP | BOROUGH | ROUTE | SECTION | TOTAL SHEETS |
|----------|--------|----------|---------|-------|---------|--------------|
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |
|          |        |          |         |       |         |              |

PLATE B-XV  
EXAMPLE OF RIGHT-OF-WAY  
TITLE SHEET  
DEEDED TO THE COMMONWEALTH

DRAWINGS DEPICTING RIGHT-OF-WAY  
TO BE DEEDED TO THE  
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION

UNDER HOP APPLICATION NO. \_\_\_\_\_  
BY \_\_\_\_\_  
FOR

STATE ROUTE \_\_\_\_\_, SECTION \_\_\_\_\_

IN \_\_\_\_\_ COUNTY

FROM STA \_\_\_\_\_ TO STA \_\_\_\_\_ LENGTH \_\_\_\_\_ FT \_\_\_\_\_ MI  
FROM SEG \_\_\_\_\_ OFFSET \_\_\_\_\_ TO SEG \_\_\_\_\_ OFFSET \_\_\_\_\_

THIS PLAN PREPARED TO DOCUMENT THE RIGHT-OF-WAY FOR STATE HIGHWAY  
PURPOSES THAT WILL BE DEEDED TO THE COMMONWEALTH AS REQUIRED BY THE  
PROVISIONS OF 67 PA. CODE CHAPTER 441, ENTITLED "ACCESS TO AND OCCUPANCY  
OF HIGHWAYS BY DRIVEWAYS AND LOCAL ROADS."

SCALE

HORIZONTAL 0 25 50 FEET

VERTICAL 0 5 10 FEET

|                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                          |                                  |                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RECORDED IN THE OFFICE FOR THE<br>RECORDING OF DEEDS, ETC. IN<br>_____, COUNTY, PA.<br>IN _____ BOOK _____ PAGE _____<br>WITNESS MY HAND AND SEAL OF OFFICE<br>_____<br>DATE _____<br>RECORDER _____ | COMMONWEALTH OF PENNSYLVANIA<br>COUNTY OF DAUPHIN<br>SS<br>BEFORE ME, A NOTARY PUBLIC, PERSONALLY CAME<br>_____, KNOWN TO ME OR<br>SATISFACTORILY PROVEN TO BE THE PERSON WHO<br>HAS BEEN AUTHORIZED BY WRITTEN DELEGATION<br>TO AFFIX THE FACSIMILE SIGNATURE OF<br>_____, SECRETARY<br>OF TRANSPORTATION, ON PLANS AUTHORIZING<br>ACQUISITION OF RIGHT-OF-WAY BY THE DEPARTMENT<br>OF TRANSPORTATION, AND AS SUCH AUTHORIZED<br>REPRESENTATIVE ACKNOWLEDGED THE WITHIN PLAN,<br>COMPRISING _____ SHEETS, TO BE AN OFFICIAL PLAN<br>OF THE DEPARTMENT OF TRANSPORTATION AND<br>DESIRED THAT THE SAME BE RECORDED AS SUCH.<br>WITNESS MY HAND AND NOTARIAL SEAL<br>_____ | DISTRICT CHIEF OF SURVEYS<br>DATE: _____ | ASST. DIST. EXEC.<br>DATE: _____ | APPROVED _____ DATE: _____<br>DISTRICT EXECUTIVE<br>RECOMMENDED _____ DATE: _____<br>DEPUTY SECRETARY<br>APPROVED _____ DATE: _____<br>SECRETARY OF TRANSPORTATION<br>(ON BEHALF OF THE GOVERNOR<br>AS WELL AS HERSELF) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# **APPENDIX A**

## **PENNDOT EDMS Plan Sheet File Naming Convention**

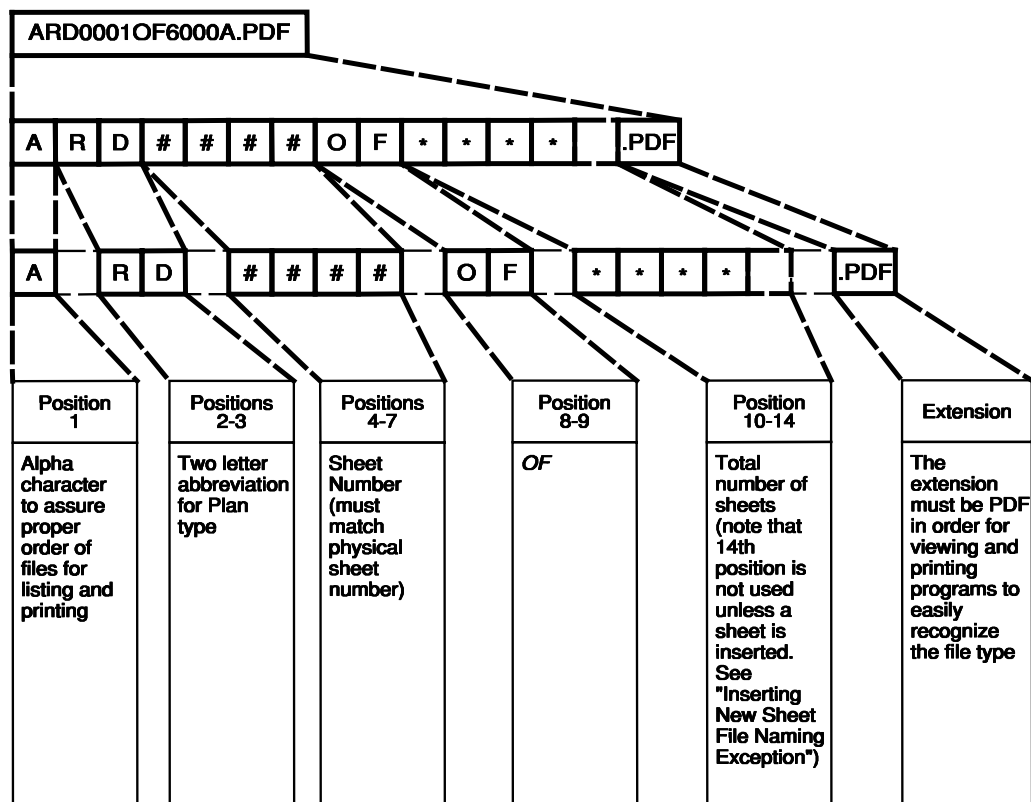
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## Introduction

The purpose of this document is to describe and illustrate the file naming convention for scanned or electronically generated plan sheets. The Central Office Plans Reproduction unit is currently using this standard for files. If any plans are being scanned within PennDOT, they must follow this naming format in order to provide a uniform method of exchanging the electronic plans.

The document is divided into two sections. The first describes the standard format for naming plan sheet files. The second describes two exceptions to the naming standard.

## File Naming Format



*Plans file name breakdown*

**Position 1**

This is an alpha character (A to R) that is assigned to each plan type in a project to allow for the proper order in listing and printing. The lettering always begins with 'A'. 'S' is reserved for Structures, 'X' is reserved for Cross Sections, and 'Z' is reserved for any existing structure plans that will be included.

**Position 2-3**

This is a two-letter abbreviation that allows for the easy visual recognition of what the plan type is. The following cross-reference matrix can be used to determine the proper alpha character and abbreviation to use for the different plan types.

| Document Type                               | Alpha | Abbrev. |
|---------------------------------------------|-------|---------|
| Right of Way Plan                           |       | RW      |
| Roadway Plan                                |       | RD      |
| Utility Relocation Plan                     |       | UR      |
| Landscaping Plan                            |       | LP      |
| Safety Rest Area Plan                       |       | RA      |
| Highway Lighting Plan                       |       | HL      |
| Railroad Plan                               |       | RR      |
| Erosion and Sediment Pollution Control Plan |       | EC      |
| Wetland Mitigation Plan                     |       | WM      |
| Environmental Mitigation Plan               |       | EM      |
| Contamination and Remediation Plan          |       | CR      |
| Pollution Control Plan                      |       | PC      |
| Roadway Test Boring Plan                    |       | RT      |
| Highway Advisory Radio Plan                 |       | HA      |
| Weather Monitoring System Plan              |       | WS      |

| Document Type                     | Alpha | Abbrev. |
|-----------------------------------|-------|---------|
| Pavement Sensor Plan              |       | PS      |
| Traffic Control Plan              |       | TC      |
| Signing and Pavement Marking Plan |       | SM      |
| Emergency Detour Plan             |       | ED      |
| Traffic Signal Plan               |       | TS      |
| Interconnect Plan                 |       | IP      |
| Traffic Monitoring Plan           |       | TM      |
| Flashing Warning Device Plan      |       | FW      |
| Sign Structure Plan               |       | SS      |
| Soil Profile Plan                 |       | SP      |
| Structure Plan                    | S     | *       |
| Cross Section                     | X     | CS      |
| Existing Structure Plan           | Z     | ES      |
| Other Plan                        |       | OP      |

\* See Exceptions > Structure Plan File Naming Exception

### **Position 4-7**

#### — This is a four-place position that contains the numeric sheet number (right justified with preceding zeros: 0001, 0002...0010,0012, etc.).

### **Position 8-9**

This is simply the descriptive "OF" for 0001 OF 99, 0002 OF 99, etc.

### **Position 10-14**

Position 10 to 13 denotes the total number of sheets (with no preceding zeros: 1,2,3...10,11,12...100,101,102, etc.). The fifth place (14) is used for identifying inserted sheets.

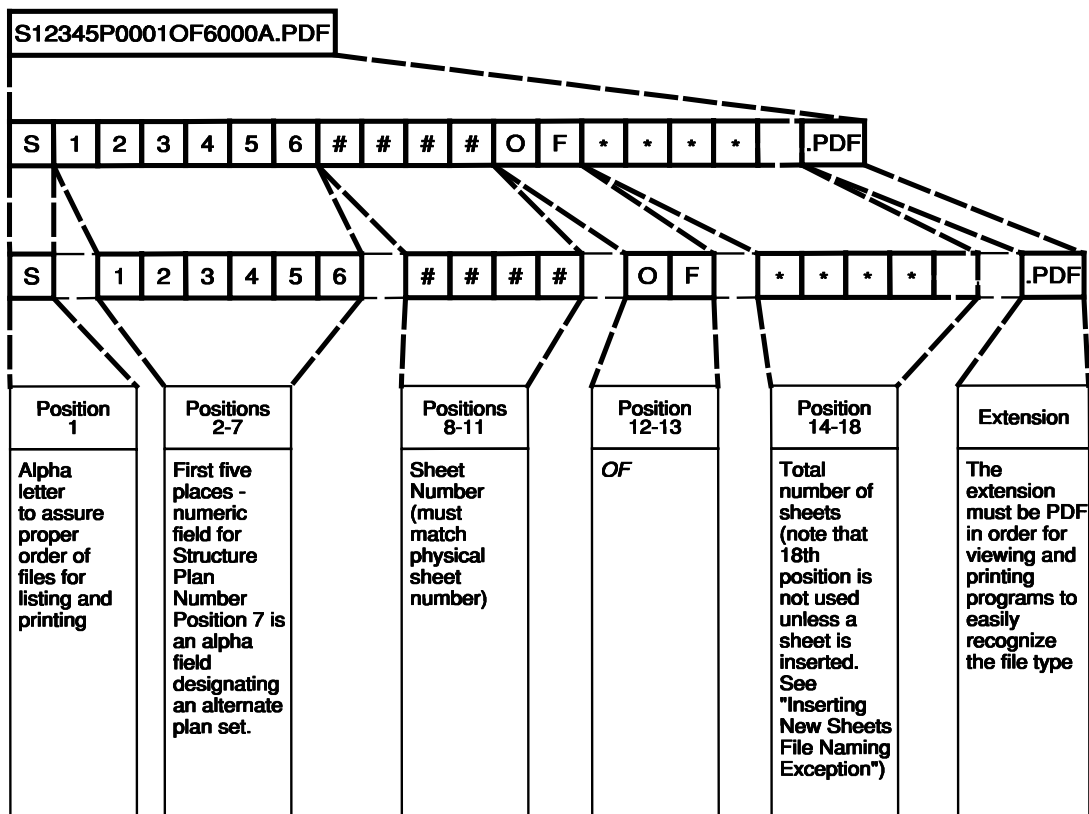
## Extension

The extension of every file must be ".PDF" in order for viewers and other applications to recognize the type.

## Exceptions

### Structure Plan File Naming Exception

Structure plans have five numeric digits for identification instead of two, so the positions mentioned above shift to the right.



*Structure Plans file name breakdown*

### ***Position 1***

This is an alpha character (A to R) that is assigned to each plan type in a project to allow for the proper order in listing and printing. The lettering always begins with 'A'. 'S' is reserved for Structures, 'X' is reserved for Cross Sections, and 'Z' is reserved for any existing structure plans that will be included.

### ***Position 2-7***

This the 5-character structure number plus an alpha character.. An alpha character is used if the files represent an alternate plan (See DM Part 4 Section 1.6.2.5 for more information.).

### ***Position 8-11***

#### — This is a four-place position that contains the numeric sheet number (right justified with preceding zeros: 0001, 0002...0010,0012, etc.).

### ***Position 12-13***

This is simply the descriptive "OF" for 0001 OF 99, 0002 OF 99, etc.

### ***Position 14-18***

Position 14 to 17 denotes the total number of sheets (with no preceding zeros: 1,2,3...10,11,12...100,101,102, etc.). The fifth place (18) is used for identifying inserted sheets.

### ***Extension***

The extension of every file must be ".PDF" in order for viewers and other applications to recognize the type.

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## APPENDIX B

### DATA TRANSFER GUIDELINES

The Department may exchange electronic copies of CADD Data with its Business Partners (Consultants and Contractors) as part of normal business operations during a design/construction project.

#### B.1 DEFINITIONS

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CADD Environment →                  | The hardware, Operating System, Support Files and CADD software used to produce CADD Design Files or Civil Application Files.                                                                                                                                                                                                                                                                      |
| CADD Design Files →                 | Department: MicroStation® (DGN) files<br>Business Partners: Output file of any drafting software that can be translated to the DGN file format; i.e. AutoCAD® (DWG)                                                                                                                                                                                                                                |
| Civil Application Files →           | Department: InRoads® DTM or ALG files<br>Business Partners: Output of any civil design software with the ability to produce LandXML translations of the design content                                                                                                                                                                                                                             |
| CADD Software Working Environment → | Any file used to configure the Department's CADD software (MicroStation®) or Civil Application software (InRoads®) to operate in accordance with the Department's graphics standards. This custom workspace must be used by all Department CADD users and is available to all business partners for their use.                                                                                     |
| CADD Project Files →                | Department or Business Partner CADD Design Files and Civil Application Files                                                                                                                                                                                                                                                                                                                       |
| CADD Construction Files →           | Translations of CADD Design Files to PDF format files and Civil Application Files to XML (LandXML) or DXF format as appropriate for the data contained within the file. The translated files must contain only the graphic or design data information that properly reflects the state of the design presented in the Right-of-Way plans and the Plans, Specifications and Estimates (PS&E) plans. |
| CADD Data →                         | Any or all of the following: CADD Project Files; CADD Software Working Environment; and CADD Construction Files.                                                                                                                                                                                                                                                                                   |
| CADD Model →                        | The civil design data (i.e., roadway, grading or excavation surface and geometric data) within the CADD Project Files.                                                                                                                                                                                                                                                                             |
| CADD Model Data →                   | The CADD Model translated to the LandXML or DXF format as appropriate for the data contained within the file.                                                                                                                                                                                                                                                                                      |
| Non-CADD Model Data →               | Data from a non-CADD source that can be used within a CADD environment to create a CADD Model.                                                                                                                                                                                                                                                                                                     |

## **B.2 CADD DATA EXCHANGE**

The exchange of CADD Data can occur between the Department and its Business Partners (Consultants and Contractors) in the following manner:

- From the Department to Consultants;
- From Consultants to the Department;
- From the Department to Contractors; and
- From Contractors to the Department.

Before a request for CADD Data is effectuated by the Department, the Department's Project Manager must ensure that the CADD Data to be exchanged is the Intellectual Property of the Commonwealth as given below:

### Intellectual Property Rights

- If the work has been completed by Department employees, the Commonwealth owns all of the intellectual property rights which are needed to exchange the CADD Data with others.
- If the work has been completed by a consultant under contract to the Department, the underlying contract with the consultant assigns the Intellectual Property Rights to the Department or Commonwealth through the contract language reference to Publication 442, *Specifications for Consultant Agreements for Project Development Services*, in which the Department reserves ownership rights to deliverables "without restriction or limitation on their further use." The underlying contract should list the specific CADD Data to be included as deliverables for the Intellectual Property ownership rights to be assured.

If an original work has been completed by Contractors or their employees, the Intellectual Property Rights may be held by the Contractor.

### **B.2.1 CADD DATA EXCHANGE FROM THE DEPARTMENT TO CONSULTANTS**

The exchange of CADD Data from the Department to Consultants shall occur as an exchange of the CADD Project Files only.

### **B.2.2 CADD DATA EXCHANGE FROM CONSULTANTS TO THE DEPARTMENT**

The exchange of CADD Data from Consultants to the Department can occur as an exchange of:

- Only CADD Construction Files;
- Only CADD Project Files; or
- Both CADD Construction Files and CADD Project Files.

Where only the CADD Construction Files are exchanged, the consultant shall not be required to follow the file naming conventions or CADD Design File working units established for the Department's CADD Software Working Environment. However, the unit of measure MUST be the US Survey Foot and the final plans shall meet the requirements in [Chapter 13](#) and the final deliverable requirements as stated in [Chapter 1, Section 1.5](#).

Where the CADD Project Files are exchanged, then without exception these files shall comply with all sections of this Appendix and [Chapter 13](#). In order to avoid translation problems, Consultants are encouraged to use both the current CADD software and Civil Application software (including the CADD Software Working Environment) used by the Department, even when the exchanged files are only the CADD Construction Files and not the CADD Project Files.

If the CADD Project Files are to be exchanged from a Consultant to the Department for loading onto the Department's CADD Domain, then at the time of preparation of the consultant agreement, the following must be included in the "Scope of Work" for each individual project:

1. All CADD Project Files must be compatible with the types and versions of all Department CADD Domain software being used at the time of transfer of the files from the consultant to the Department.
2. All CADD Design Files must be in MicroStation® (DGN) format. If the MicroStation® (DGN) format is not the original format of the consultant's generated CADD design files, then:
  - a. The consultant shall be responsible for reviewing the translated CADD Design Files for accuracy; and
  - b. The consultant's original CADD design files including all relevant support files, in their native format, must also be submitted.
3. All CADD Application Files must be in InRoads® DTM or ALG format. If the InRoads® DTM or ALG format is not the original format of the consultant's generated CADD application files, then:
  - a. The consultant shall be responsible for reviewing the translated CADD Application Files for accuracy; and
  - b. The consultant's original CADD application files including all relevant support files, in their native format, must also be submitted.

### **B.2.3 CADD DATA EXCHANGE FROM THE DEPARTMENT TO CONTRACTORS**

Both pre-bid and post-bid, only the CADD Construction Files will be exchanged.

No CADD Project Files used to create the CADD Construction Files will be exchanged as the CADD Project Files typically contain extraneous data used in the design process but which is not included in the CADD Construction Files.

## **B.3 CADD MODEL DATA**

CADD Model Data should be an accurate digital representation of the official highway design plan set. The CADD Model Data is characterized by:

- The LandXML or DXF format as appropriate for the data contained within the file;
- File content and structure; and
- Naming guidelines.

### **B.3.1 LandXML and DXF FORMATS**

The Department's standard for CADD Model Data is the LandXML (an XML file schema) and the DXF file formats for civil engineering design and survey data. These formats provide a standard for data exchange from design to construction software applications or from design (Department standard CADD software) to design (non-Department CADD software).

### **B.3.2 FILE CONTENT and STRUCTURE**

CADD Model Data may be provided as part of the official bid package. The LandXML file format is used for the Surface Feature, Geometry and Cross Section data. The DXF file format must be used for the Surface Triangle Mesh data.

### B.3.2.1 SURFACE FILES

Surface files must be in the **US Survey Foot** unit of measure. The civil design application may define the surface as a Digital Terrain Model (DTM), a Triangulated Irregular Network (TIN), a Digital Elevation Model (DEM) or other electronic format. The surface data must be translated as defined below:

1. Feature data must be translated to LandXML format; and
2. Triangle Mesh data must be translated to DXF format.

The State of the surface data should be set to the appropriate value, Abandoned, Destroyed, Existing or Proposed for the data contained within a LandXML file.

### B.3.2.2 GEOMETRY FILES

Geometry files must be in the **US Survey Foot** unit of measure. All geometry features, alignments and COGO points, should be translated. The State of the geometry data should be set to the appropriate value, Abandoned, Destroyed, Existing or Proposed for the data contained within a LandXML file.

### B.3.2.3 CROSS SECTION FILES

Cross Section files must be in the **US Survey Foot** unit of measure. Each translated cross section set should have its Alignment State set to the appropriate value, Abandoned, Destroyed, Existing or Proposed for the alignment used to in the generation of the cross sections data contained within a LandXML file.

## B.3.3 LandXML and DXF NAMING GUIDELINES

Two sets of naming guidelines for LandXML files are presented.

- LandXML File Naming
- LandXML Data Naming

One set of naming guidelines for DXF files is presented.

### B3.3.1 LandXML and DXF FILE NAMING GUIDELINES

When translating a data file to a new format, consistent naming practices will reduce errors. The guidelines for naming a LandXML file are:

- The LandXML file should have the same name as the corresponding the civil design application file.
- A Surface file will be prefixed with the characters: **S-**
- A Geometry file will be prefixed with the characters: **G-**
- A Cross Section file will be prefixed with the characters: **X-**
- The use of spaces within the name should be avoided.

Example: A terrain that is named **PennDOT Road** within the civil design application should be named **S-PennDOT-Road.xml** when translated to the LandXML format.

The guidelines for naming a DXF file are:

- The DXF file should have the same name as the corresponding civil design application file.
- A prefix should not be used.
- The use of spaces within the name should be avoided.

Example: A terrain that is named **PennDOT Road** within the civil design application should be named **PennDOT-Road.dxf** when translated to the DXF format.

### **B3.3.2 LandXML DATA NAMING GUIDELINES**

Control systems used in Automated Machine Guidance (AMG) equipment may restrict the allowable length of a data field name to eight characters or less. Long names within the CADD Model Data may require a Business Partner to edit the data field name prior to use of the data to be compatible with their AMG systems. To eliminate errors caused by renaming of data field names, guidelines for naming the data contained within the LandXML file are:

- The name should be no more than eight (8) characters in length.
- Feature names in the LandXML file should be the same as the corresponding names within the CADD design or civil design application files.

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## **APPENDIX C**

### **COMPUTER AIDED DRAFTING AND DESIGN (CADD) LEGACY NUMERIC LEVELS**

**TABLE C.1**  
**LEVELS FOR ROADWAY DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**

| <b>SHEET</b> | <b>LEVEL</b> | <b>DESCRIPTION</b>                                                                                                                                |
|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| TITLE SHEET  | 1            | ALL INFORMATION                                                                                                                                   |
| INDEX SHEET  | 1            | BORDER AND INDEX ASSOCIATED TEXT (RECORD OF EXISTING ROAD TYPES, STRAIGHT LINE DIAGRAM DATA, LOCATION OF PROJECT ON STATE MAP, TABLE OF CONTENTS) |
|              | 2            | HORIZONTAL ALIGNMENTS                                                                                                                             |
|              | 3            | NORTH ARROW, BAR SCALE                                                                                                                            |
|              | 4            | EDGE OF EXISTING ROADWAYS, ROADWAY BRIDGES, TOWNSHIP ROADS, SIDE ROADS, ETC.                                                                      |
|              | 5            | TEXT FOR LEVEL 4                                                                                                                                  |
|              | 6            | SHEET DIVISION MARKERS, SYMBOLS WITH TEXT                                                                                                         |
|              | 8            | RAILROADS                                                                                                                                         |
|              | 9            | TEXT FOR LEVEL 8                                                                                                                                  |
|              | 10           | POLITICAL SUBDIVISIONS, PROPERTY LINES                                                                                                            |
|              | 11           | TEXT FOR LEVEL 10                                                                                                                                 |
|              | 14           | EDGES OF STREAMS, CREEKS, RIVERS, ETC.                                                                                                            |
|              | 15           | TEXT FOR LEVEL 14                                                                                                                                 |
|              | 32           | CONSTRUCTION CENTERLINES, OTHER PROPOSED ALIGNMENTS                                                                                               |
|              | 33           | TEXT FOR LEVEL 32                                                                                                                                 |
|              | 36           | TEMPORARY ROADWAYS                                                                                                                                |
|              | 37           | TEXT FOR LEVEL 36                                                                                                                                 |
|              | 44           | PROPOSED CHANNEL CHANGES                                                                                                                          |
|              | 45           | TEXT FOR LEVEL 44                                                                                                                                 |

**TABLE C.1  
LEVELS FOR ROADWAY DRAWINGS  
FOR DEPARTMENT CADD USAGE  
(CONTINUED)**

| SHEET                 | LEVEL | DESCRIPTION                                                                                                                               |
|-----------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------|
| TYPICAL SECTION SHEET | 1     | BORDER AND ASSOCIATED TEXT, GENERAL NOTES, UTILITIES, LOCATION MAP                                                                        |
|                       | 2     | ALL LINE WORK FOR TYPICALS AND DETAILS INCLUDING DIMENSION LINES                                                                          |
|                       | 3     | ALL TEXT FOR TYPICALS AND DETAILS                                                                                                         |
| SUMMARY SHEET         | 1     | BORDER AND ASSOCIATED TEXT AND ITEMS                                                                                                      |
|                       | 21    | QUANTITIES FOR SUMMARY SHEET NO. 1 (IF MORE THEN ONE SUMMARY SHEET, QUANTITIES SHALL BE ON LEVELS 22, 23...)                              |
| TABULATION SHEET      | 1     | BORDER AND ASSOCIATED TEXT AND ITEMS                                                                                                      |
|                       | 21    | QUANTITIES FOR TABULATION SHEET NO. 1, STATIONS, AND REMARKS (IF MORE THEN ONE TABULATION SHEET, QUANTITIES SHALL BE ON LEVELS 22, 23...) |
|                       | 62    | BLOCK NUMBERS (NUMBERS DO NOT SHOW ON FINISHED PLAN)                                                                                      |
| DETAIL SHEET EXISTING | 1     | BORDER AND ASSOCIATED TEXT                                                                                                                |
|                       | 2     | SURVEY BASELINES AND PROFILES                                                                                                             |
|                       | 3     | TEXT FOR LEVEL 2 (STATIONS, CURVE DATA, ROAD NAMES, NORTH ARROW, BEARINGS, TIES, ELEVATIONS, BENCH MARKS, BAR SCALE)                      |
|                       | 4     | EXISTING ROAD EDGES, TOWNSHIP ROADS, SIDE ROADS, CURB, MEDIAN BARRIER, ROAD BRIDGES                                                       |
|                       | 5     | TEXT FOR LEVEL 4                                                                                                                          |
|                       | 6     | TREES, WOODS, SHRUBS, HEDGE ROWS                                                                                                          |
|                       | 7     | TEXT FOR LEVEL 6                                                                                                                          |

**TABLE C.1**  
**LEVELS FOR ROADWAY DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| SHEET                                   | LEVEL | DESCRIPTION                                                                                                                               |
|-----------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------|
| DETAIL SHEET<br>EXISTING<br>(Continued) | 8     | RAILROADS, RAILROAD STRUCTURES, EXISTING<br>R/W LINES                                                                                     |
|                                         | 9     | TEXT FOR LEVEL 8                                                                                                                          |
|                                         | 10    | BUILDINGS AND ASSOCIATED ITEMS<br>(SIDEWALKS, WELLS, FENCES, SEPTIC SYSTEMS,<br>MAILBOXES, PROPERTIES, BOROUGH & TOWNSHIP<br>LINES, ETC.) |
|                                         | 11    | TEXT FOR LEVEL 10                                                                                                                         |
|                                         | 12    | MISCELLANEOUS TOPOGRAPHY, GUIDE RAIL,<br>SIGNS, BILLBOARDS                                                                                |
|                                         | 13    | TEXT FOR LEVEL 12                                                                                                                         |
|                                         | 14    | ALL EXISTING DRAINAGE (PIPES, STREAMS<br>INLETS, DITCHES, HEADWALLS, WET AREAS)                                                           |
|                                         | 15    | TEXT FOR LEVEL 14                                                                                                                         |
|                                         | 16    | UNDERGROUND UTILITIES (WATER VALVES,<br>MANHOLES, ETC.)                                                                                   |
|                                         | 17    | TEXT FOR LEVEL 16 AND LEVEL 18                                                                                                            |
|                                         | 18    | ABOVE GROUND UTILITIES                                                                                                                    |
|                                         | 19    | MAPPING GRID AND COORDINATES                                                                                                              |
|                                         | 20    | CONTOURS AND CONTOUR TEXT                                                                                                                 |
| DETAIL SHEET<br>PROPOSED                | 32    | PROPOSED HORIZONTAL AND VERTICAL<br>ALIGNMENTS, RAILROAD REALIGNMENTS                                                                     |
|                                         | 33    | TEXT FOR LEVEL 32 (STATIONS, CURVE DATA,<br>BEARINGS, GRADES, ETC.)                                                                       |
|                                         | 34    | PROPOSED ROAD EDGES, SIDE ROADS,<br>SHOULDERS, ROADWAY BRIDGES                                                                            |
|                                         | 35    | TEXT FOR LEVEL 34                                                                                                                         |
|                                         | 36    | TEMPORARY ROADWAYS                                                                                                                        |

**TABLE C.1**  
**LEVELS FOR ROADWAY DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| <b>SHEET</b>                            | <b>LEVEL</b> | <b>DESCRIPTION</b>                                                                                  |
|-----------------------------------------|--------------|-----------------------------------------------------------------------------------------------------|
| DETAIL SHEET<br>PROPOSED<br>(Continued) | 37           | TEXT FOR LEVEL 36                                                                                   |
|                                         | 38           | REQUIRED R/W LINES, TEMPORARY EASEMENTS,<br>R/W FENCES                                              |
|                                         | 39           | TEXT FOR LEVEL 38 (TO INCLUDE<br>CONDEMNATION AND DEMOLITION MARKERS)                               |
|                                         | 40           | SIDEWALKS AND CURBS                                                                                 |
|                                         | 41           | TEXT FOR LEVEL 40                                                                                   |
|                                         | 42           | MISCELLANEOUS PROPOSED WORK (RETAINING<br>WALLS, SOIL EROSION, GUIDE RAIL, MEDIAN<br>BARRIER, ETC.) |
|                                         | 43           | TEXT FOR LEVEL 42                                                                                   |
|                                         | 44           | PROPOSED DRAINAGE (PIPES, INLETS, DITCHES,<br>STREAM RELOCATIONS, HEADWALLS, ETC.)                  |
|                                         | 45           | TEXT FOR LEVEL 44                                                                                   |
|                                         | 46           | PROPOSED UNDERGROUND UTILITIES                                                                      |
|                                         | 47           | TEXT FOR LEVEL 46 AND LEVEL 48                                                                      |
|                                         | 48           | PROPOSED ABOVE GROUND UTILITIES                                                                     |
|                                         | 50           | PROPOSED CONTOURS AND CONTOUR TEXT                                                                  |
|                                         | 62           | TRAVERSE WITH TEXT AND ANY TEMPORARY<br>ITEMS (REFERENCE POINT CELLS, GRID, ETC.)                   |

**TABLE C.2**  
**LEVELS FOR BRIDGE DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**

| <b>LEVEL</b> | <b>DESCRIPTION</b>                                                               |
|--------------|----------------------------------------------------------------------------------|
| 1            | BRIDGE SHEETS                                                                    |
| 2            | EXISTING HORIZONTAL ALIGNMENT                                                    |
| 3            | GENERAL NOTES, QUANTITIES, BAR SCHEDULE, DETAIL CELLS<br>AND MISCELLANEOUS NOTES |
| 4            | EXISTING ROAD EDGES AND EXISTING BRIDGE PLAN                                     |
| 5            | EXISTING SUBSTRUCTURE PLAN TO BE RETAINED                                        |
| 6            | EXISTING SUBSTRUCTURE PLAN TO BE REMOVED                                         |
| 7            | PROPOSED STRUCTURE MOUNTED GUIDE RAIL -- SECTION                                 |
| 8            | EXISTING RAILROAD PLAN                                                           |
| 9            | STAKE-OUT PLAN                                                                   |
| 10           | EXISTING SIDEWALK (ROADWAY) -- PLAN                                              |
| 11           | TYPICAL EXISTING SUPERSTRUCTURE SECTION                                          |
| 12           | TYPICAL EXISTING DECK SECTION                                                    |
| 13           | TYPICAL PROPOSED DECK SECTION                                                    |
| 14           | EDGES OF STREAMS, CREEKS, RIVERS, ETC.                                           |
| 15           | TYPICAL PROPOSED SUPERSTRUCTURE SECTION                                          |
| 16           | EXISTING UNDERGROUND UTILITIES -- PLAN                                           |
| 17           | REINFORCEMENT -- PROPOSED DECK SECTION                                           |
| 18           | PROPOSED ROCK PLAN                                                               |
| 19           | PROPOSED ROCK SECTION                                                            |
| 20           | EXISTING CONTOURS AND CONTOUR TEXT                                               |
| 21           | OUTLINE -- PROPOSED SUPERSTRUCTURE PLAN                                          |
| 22           | REINFORCEMENT -- PROPOSED SUPERSTRUCTURE PLAN                                    |
| 23           | FRAMING PLAN                                                                     |
| 24           | OUTLINE -- PROPOSED ABUTMENT AND PIER PLAN                                       |

**TABLE C.2**  
**LEVELS FOR BRIDGE DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| <b>LEVEL</b> | <b>DESCRIPTION</b>                                                                        |
|--------------|-------------------------------------------------------------------------------------------|
| 25           | OUTLINE -- FOOTING PLAN                                                                   |
| 26           | REINFORCEMENT -- FOOTING PLAN                                                             |
| 27           | SUBSTRUCTURE PLAN AT BEAM SEAT ELEVATION                                                  |
| 28           | PLAN AT DECK JOINT                                                                        |
| 29           | OUTLINE -- PROPOSED SUBSTRUCTURE ELEVATION                                                |
| 30           | REINFORCEMENT -- PROPOSED SUBSTRUCTURE ELEVATION                                          |
| 31           | ELEVATION FOR GENERAL PLAN SHEET                                                          |
| 32           | PROPOSED HORIZONTAL ALIGNMENT AND RAILROAD REALIGNMENTS                                   |
| 33           | EXISTING GROUND LINE INCLUDING TEXT                                                       |
| 34           | PROPOSED ROAD EDGES AND SHOULDERS                                                         |
| 35           | PROPOSED GROUND LINE INCLUDING TEXT                                                       |
| 36           | OUTLINE -- PROPOSED SUBSTRUCTURE SECTION                                                  |
| 37           | REINFORCEMENT -- PROPOSED SUBSTRUCTURE SECTION                                            |
| 38           | OUTLINE -- PROPOSED WINGWALL PLAN                                                         |
| 39           | (Not Assigned)                                                                            |
| 40           | (Not Assigned)                                                                            |
| 41           | (Not Assigned)                                                                            |
| 42           | PROPOSED STRUCTURE MOUNTED GUIDE RAIL -- PLAN                                             |
| 43           | TEXT AND DIMENSIONS FOR GENERAL PLAN                                                      |
| 44           | PROPOSED DRAINAGE (PIPES, INLETS, STREAM RELOCATIONS, BRIDGE SCUPPERS, DECK DRAINS, ETC.) |
| 45           | TEXT AND DIMENSIONS FOR ELEVATION ON GENERAL PLAN SHEET                                   |
| 46           | PROPOSED UNDERGROUND UTILITIES -- PLAN                                                    |

**TABLE C.2**  
**LEVELS FOR BRIDGE DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| <b>LEVEL</b> | <b>DESCRIPTION</b>                                               |
|--------------|------------------------------------------------------------------|
| 47           | TEXT AND DIMENSIONS FOR TYPICAL EXISTING DECK SECTION            |
| 48           | TEXT AND DIMENSIONS FOR TYPICAL PROPOSED DECK SECTION            |
| 49           | TEXT AND DIMENSIONS FOR STAKE-OUT PLAN                           |
| 50           | PROPOSED CONTOURS AND CONTOUR TEXT                               |
| 51           | TEXT AND DIMENSIONS FOR EXISTING SUBSTRUCTURE PLAN               |
| 52           | TEXT AND DIMENSIONS FOR EXISTING SUBSTRUCTURE PLAN               |
| 53           | TEXT AND DIMENSIONS FOR SUBSTRUCTURE PLAN AT BEAM SEAT ELEVATION |
| 54           | TEXT AND DIMENSIONS FOR FOOTING PLAN                             |
| 55           | TEXT AND DIMENSIONS FOR SUBSTRUCTURE ELEVATION                   |
| 56           | TEXT AND DIMENSIONS FOR SUBSTRUCTURE SECTION                     |
| 57           | TEXT AND DIMENSIONS FOR FRAMING PLAN                             |
| 58           | TEXT AND DIMENSIONS FOR SLAB PLAN                                |
| 59           | TEXT AND DIMENSIONS FOR REINFORCED DECK SECTION                  |
| 60           | TEXT AND DIMENSIONS FOR DECK JOINT PLAN                          |
| 61           | TEXT AND DIMENSIONS FOR SOILS BORING LOCATION PLAN               |
| 62           | PLAN REVISIONS                                                   |
| 63           | PLAN REVISIONS                                                   |

**TABLE C.3**  
**LEVELS FOR CULVERT DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**

| LEVEL | DESCRIPTION                                                                   |
|-------|-------------------------------------------------------------------------------|
| 1     | BRIDGE SHEETS                                                                 |
| 2     | EXISTING HORIZONTAL ALIGNMENT                                                 |
| 3     | GENERAL NOTES, QUANTITIES, BAR SCHEDULE, SCALED CELLS AND MISCELLANEOUS NOTES |
| 4     | EXISTING ROAD EDGES AND EXISTING BRIDGE PLAN                                  |
| 5     | EXISTING STRUCTURE PLAN TO BE REMOVED                                         |
| 6     | EXISTING STRUCTURE PLAN TO BE RETAINED                                        |
| 7     | PROPOSED GUIDE RAIL -- SECTION                                                |
| 8     | EXISTING RAILROAD PLAN                                                        |
| 9     | STAKE-OUT SKETCH                                                              |
| 10    | EXISTING SIDEWALK (ROADWAY) PLAN                                              |
| 11    | OUTLINE -- PROPOSED CULVERT PLAN                                              |
| 12    | OUTLINE -- INLET AND OUTLET PLANS (APRONS & WINGS)                            |
| 13    | REINFORCEMENT -- PROPOSED CAST-IN-PLACE BOX PLAN                              |
| 14    | EDGES OF STREAMS, CREEKS, RIVERS, ETC.                                        |
| 15    | ELEVATION FOR GENERAL PLAN SHEET                                              |
| 16    | EXISTING UNDERGROUND UTILITIES -- PLANS                                       |
| 17    | (Not Assigned)                                                                |
| 18    | PROPOSED ROCK PLAN                                                            |
| 19    | PROPOSED ROCK SECTION                                                         |
| 20    | EXISTING CONTOURS AND CONTOUR TEXT                                            |
| 21    | OUTLINE -- FOOTING PLAN                                                       |
| 22    | REINFORCEMENT FOOTING PLAN                                                    |
| 23    | REINFORCEMENT -- PROPOSED INLET PLAN                                          |
| 24    | REINFORCEMENT -- PROPOSED INLET ELEVATION                                     |

**TABLE C.3**  
**LEVELS FOR CULVERT DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| <b>LEVEL</b> | <b>DESCRIPTION</b>                                       |
|--------------|----------------------------------------------------------|
| 25           | REINFORCEMENT -- PROPOSED OUTLET PLAN                    |
| 26           | REINFORCEMENT -- PROPOSED OUTLET ELEVATION               |
| 27           | OUTLINE -- PROPOSED WING ELEVATION                       |
| 28           | REINFORCEMENT -- PROPOSED WING ELEVATION                 |
| 29           | OUTLINE -- PROPOSED BOX SECTION                          |
| 30           | REINFORCEMENT -- PROPOSED BOX SECTION                    |
| 31           | (Not Assigned)                                           |
| 32           | PROPOSED HORIZONTAL ALIGNMENT AND RAILROAD REALIGNMENTS  |
| 33           | EXISTING GROUND LINE INCLUDING TEXT                      |
| 34           | PROPOSED ROAD EDGES AND SHOULDERS                        |
| 35           | PROPOSED GROUND LINE INCLUDING TEXT                      |
| 36           | (Not Assigned)                                           |
| 37           | (Not Assigned)                                           |
| 38           | PROPOSED COLLAR ELEVATION                                |
| 39           | REINFORCEMENT PROPOSED COLLAR ELEVATION                  |
| 40           | (Not Assigned)                                           |
| 41           | (Not Assigned)                                           |
| 42           | PROPOSED GUIDE RAIL -- PLAN                              |
| 43           | TEXT AND DIMENSIONS FOR GENERAL PLAN                     |
| 44           | PROPOSED DRAINAGE (PIPES, INLETS, STREAM RELOCATIONS)    |
| 45           | TEXT AND DIMENSIONS FOR ELEVATION FOR GENERAL PLAN SHEET |
| 46           | PROPOSED UNDERGROUND UTILITIES -- PLAN                   |
| 47           | TEXT AND DIMENSIONS FOR INLET PLAN                       |

**TABLE C.3**  
**LEVELS FOR CULVERT DRAWINGS**  
**FOR DEPARTMENT CADD USAGE**  
**(CONTINUED)**

| <b>LEVEL</b> | <b>DESCRIPTION</b>                                 |
|--------------|----------------------------------------------------|
| 48           | TEXT AND DIMENSIONS FOR INLET ELEVATION            |
| 49           | TEXT AND DIMENSIONS FOR STAKE-OUT SKETCH           |
| 50           | PROPOSED CONTOURS AND CONTOUR TEXT                 |
| 51           | TEXT AND DIMENSIONS FOR OUTLET PLAN                |
| 52           | TEXT AND DIMENSIONS FOR OUTLET ELEVATION           |
| 53           | TEXT AND DIMENSIONS FOR FOOTING PLAN               |
| 54           | (Not Assigned)                                     |
| 55           | (Not Assigned)                                     |
| 56           | (Not Assigned)                                     |
| 57           | (Not Assigned)                                     |
| 58           | (Not Assigned)                                     |
| 59           | (Not Assigned)                                     |
| 60           | (Not Assigned)                                     |
| 61           | TEXT AND DIMENSIONS FOR SOILS BORING LOCATION PLAN |
| 62           | PLAN REVISIONS                                     |
| 63           | PLAN REVISIONS                                     |

**DESIGN FILE WORKING UNITS**

**ROADWAY (ENGLISH)**

1:1:1000

|              |                             |
|--------------|-----------------------------|
| Master Units | ft                          |
| Sub Units    | none                        |
| 1000         | Positional Units per ft     |
| Working Area | 4,294,967 ft × 4,294,967 ft |

This allows for an accuracy of 0.001 ft.

**BRIDGE (ENGLISH)**

1:12:1000

|              |                         |
|--------------|-------------------------|
| Master Units | ft                      |
| Sub Units    | in                      |
| 12           | in per ft               |
| 1000         | Positional Units per in |
| Working Area | 357,913 ft × 357,913 ft |

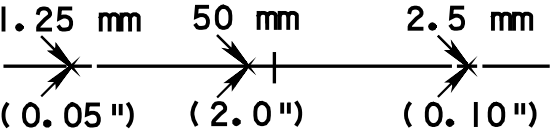
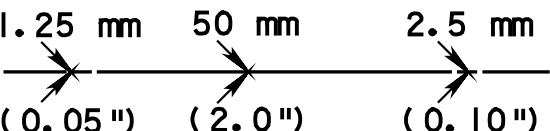
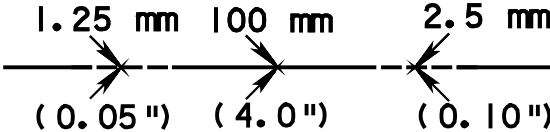
This allows for an accuracy of 0.001 in.

**TABLE C.4**  
**STANDARD ROADWAY TEXT SIZES USING WORKING UNITS OF 1:1:1000**

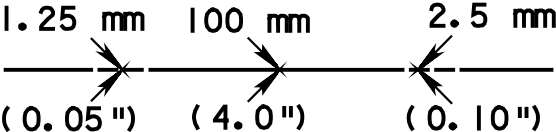
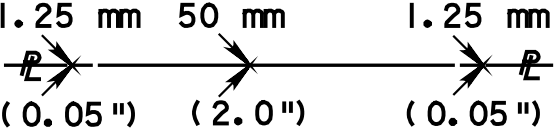
|                         |                                    |       |       |       |       |       |       |        |       |
|-------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|--------|-------|
| <b>TEXT HEIGHT (in)</b> | 0.120                              | 0.140 | 0.175 | 0.200 | 0.240 | 0.290 | 0.350 | 0.425  | 0.500 |
| <b>LINE WIDTH (in)</b>  | 0.015                              | 0.015 | 0.020 | 0.025 | 0.025 | 0.030 | 0.030 | 0.035  | 0.040 |
| <b>LINE WEIGHT</b>      | 2                                  | 2     | 3     | 4     | 4     | 5     | 5     | 6      | 7     |
| <b>ENGLISH SCALE</b>    | <b>EQUIVALENT TEXT HEIGHT (in)</b> |       |       |       |       |       |       |        |       |
| 1" = 5'                 | 0.60                               | 0.70  | 0.875 | 1.00  | 1.20  | 1.45  | 1.75  | 2.125  | 2.50  |
| 1" = 10'                | 1.20                               | 1.40  | 1.75  | 2.00  | 2.40  | 2.90  | 3.50  | 4.25   | 5.00  |
| 1" = 25'                | 3.00                               | 3.50  | 4.375 | 5.00  | 6.00  | 7.25  | 8.75  | 10.625 | 12.50 |
| 1" = 50'                | 6.00                               | 7.00  | 8.75  | 10.00 | 12.00 | 14.50 | 17.50 | 21.25  | 25.00 |
| 1" = 100'               | 12.00                              | 14.00 | 17.50 | 20.00 | 24.00 | 29.00 | 35.00 | 42.50  | 50.00 |

**TABLE C.5**  
**STANDARD BRIDGE TEXT SIZES USING WORKING UNITS OF 1:12:1000**

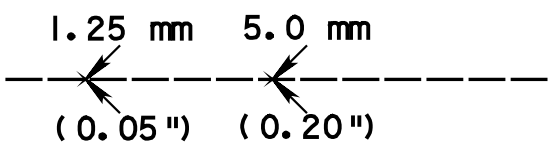
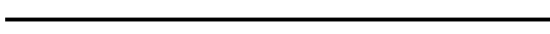
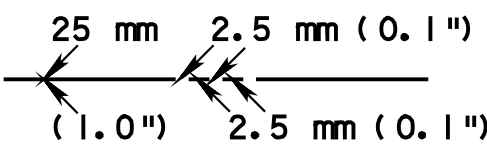
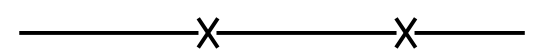
|                             |                                        |       |       |       |       |       |
|-----------------------------|----------------------------------------|-------|-------|-------|-------|-------|
| <b>TEXT<br/>HEIGHT (in)</b> | 0.120                                  | 0.140 | 0.175 | 0.200 | 0.240 | 0.290 |
| <b>LINE<br/>WIDTH (in)</b>  | 0.015                                  | 0.015 | 0.020 | 0.025 | 0.025 | 0.030 |
| <b>LINE WEIGHT</b>          | 2                                      | 2     | 3     | 4     | 4     | 5     |
| <b>ENGLISH<br/>SCALE</b>    | <b>EQUIVALENT TEXT HEIGHT<br/>(in)</b> |       |       |       |       |       |
| 1/8" = 1'-0"                | 0.96                                   | 1.12  | 1.40  | 1.60  | 1.92  | 2.32  |
| 1/4" = 1'-0"                | 0.48                                   | 0.56  | 0.73  | 0.80  | 0.96  | 1.16  |
| 3/8" = 1'-0"                | 0.32                                   | 0.37  | 0.47  | 0.53  | 0.64  | 0.77  |
| 1/2" = 1'-0"                | 0.24                                   | 0.28  | 0.35  | 0.40  | 0.48  | 0.58  |
| 3/4" = 1'-0"                | 0.16                                   | 0.19  | 0.23  | 0.27  | 0.32  | 0.39  |
| 1" = 1'-0"                  | 0.12                                   | 0.14  | 0.175 | 0.20  | 0.24  | 0.29  |
| 1 1/2" = 1'-0"              | 0.08                                   | 0.09  | 0.12  | 0.13  | 0.16  | 0.19  |
| 3" = 1'-0"                  | 0.04                                   | 0.05  | 0.06  | 0.07  | 0.08  | 0.10  |
| 1" = 10'                    | 1.20                                   | 1.40  | 1.75  | 2.00  | 2.40  | 2.90  |
| 1" = 20'                    | 2.40                                   | 2.80  | 3.50  | 4.00  | 4.80  | 5.80  |
| 1" = 25'                    | 3.00                                   | 3.50  | 4.375 | 5.00  | 6.00  | 7.25  |
| 1" = 30'                    | 3.60                                   | 4.20  | 5.25  | 6.00  | 7.20  | 8.70  |
| 1" = 40'                    | 4.80                                   | 5.60  | 7.00  | 8.00  | 9.60  | 11.60 |
| 1" = 50'                    | 6.00                                   | 7.00  | 8.75  | 10.00 | 12.00 | 14.50 |
| 1" = 60'                    | 7.20                                   | 8.40  | 10.50 | 12.00 | 14.40 | 17.40 |
| 1" = 100'                   | 12.00                                  | 14.00 | 17.50 | 20.00 | 24.00 | 29.00 |
| 1" = 150'                   | 18.00                                  | 21.00 | 26.25 | 30.00 | 36.00 | 43.50 |

| LINE WEIGHTS AND SYMBOLS        |                                                                                                                                                                                                                                          |                     |             |                           |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|---------------------------|
| DESCRIPTION                     | SYMBOL                                                                                                                                                                                                                                   | LINE WIDTH          | LINE WEIGHT | REMARKS                   |
| BORDERS                         |                                                                                                                                                        | 0.65 mm<br>(0.025") | 4           |                           |
| CENTERLINES<br>AND<br>BASELINES |     | 0.25 mm<br>(0.01")  | 1           | TO BE LABELED<br>ON PLANS |
| SURVEY<br>CENTERLINES           |     | 0.25 mm<br>(0.01")  | 1           | TO BE LABELED<br>ON PLANS |
| DIMENSION<br>LINES              |                                                                                                                                                      | 0.13 mm<br>(0.005") | 0           |                           |
| LEGAL<br>R/W<br>LINES           |  | 0.51 mm<br>(0.02")  | 3           | TO BE LABELED<br>ON PLANS |

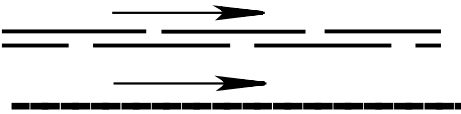
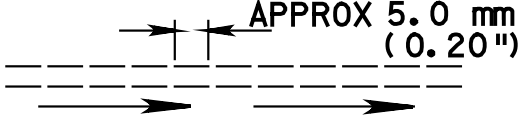
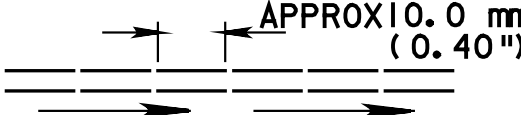
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS        |                                                                                      |                     |             |                        |  |
|---------------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|------------------------|--|
| DESCRIPTION                     | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS                |  |
| REQUIRED R/W LINES              |    | 0.65 mm<br>(0.025") | 4           | TO BE LABELED ON PLANS |  |
| TEMPORARY CONSTRUCTION EASEMENT |    | 0.25 mm<br>(0.01")  | 1           | TO BE LABELED ON PLANS |  |
| PROPERTY LINES                  |    | 0.25 mm<br>(0.01")  | 1           |                        |  |
| REQUIRED LIMIT OF SLOPE LINES   |  | 0.25 mm<br>(0.01")  | 1           | TO BE LABELED ON PLANS |  |
| EDGE OF NEW PAVEMENT            |  | 0.38 mm<br>(0.015") | 2           |                        |  |

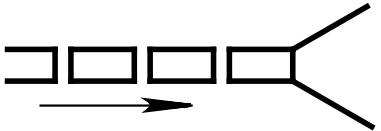
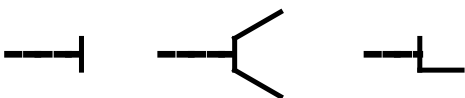
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                              |                                                                                      |                                           |             |                                     |
|-------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------|-------------|-------------------------------------|
| DESCRIPTION                                           | SYMBOL                                                                               | LINE WIDTH                                | LINE WEIGHT | REMARKS                             |
| EDGE OF EXISTING PAVEMENT                             |    | 0.25 mm<br>(0.01")                        | 1           | TO BE LABELED ON PLANS              |
| SHOULDER LINES                                        |    | 0.51 mm<br>(0.02")                        | 3           |                                     |
| CURB EXISTING -<br>PROPOSED -                         |    | 0.25 mm<br>(0.01")<br>0.38 mm<br>(0.015") | 1<br>2      | EXISTING CURB TO BE LABELED ON PLAN |
| STATE, COUNTY,<br>TOWNSHIP, CITY,<br>OR BOROUGH LINES |   | 0.51 mm<br>(0.02")                        | 3           |                                     |
| FENCE                                                 |  | 0.51 mm<br>(0.02")                        | 3           |                                     |

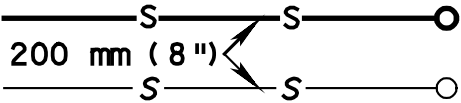
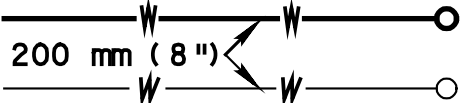
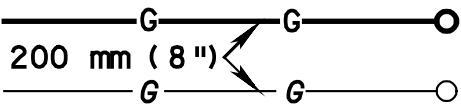
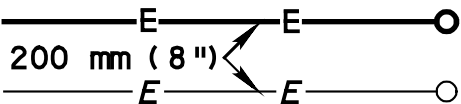
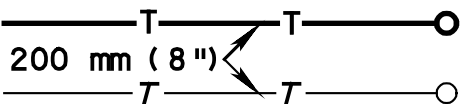
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                 |                                                                                      |                                            |             |                           |
|------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|-------------|---------------------------|
| DESCRIPTION                              | SYMBOL                                                                               | LINE WIDTH                                 | LINE WEIGHT | REMARKS                   |
| BACKFILLING<br>EXISTING<br>CHANNELS      |    | 0.13 mm<br>(0.005")                        | 0           |                           |
| EXISTING<br>INLETS<br>PROPOSED<br>INLETS |    | 0.13 mm<br>(0.005")<br>0.65 mm<br>(0.025") | 0<br>4      |                           |
| EXISTING<br>PIPES<br>PROPOSED<br>PIPES   |    | 0.13 mm<br>(0.005")<br>0.76 mm<br>(0.03")  | 0<br>5      |                           |
| EXISTING<br>DITCHES                      |  | 0.13 mm<br>(0.005")                        | 0           | TO BE LABELED<br>ON PLANS |
| PROPOSED<br>DITCHES                      |  | 0.38 mm<br>(0.015")                        | 2           |                           |

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS |                                                                                      |                     |             |          |
|--------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|----------|
| DESCRIPTION              | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS  |
| RIGHT-OF-WAY MONUMENTS   | ⊕                                                                                    | 0.51 mm<br>(0.02")  | 3           | PROPOSED |
|                          | ⊗                                                                                    |                     |             | EXISTING |
| CULVERTS                 |     | 0.76 mm<br>(0.03")  | 5           |          |
| HEADWALLS                |  | 0.51 mm<br>(0.02")  | 3           |          |
| MANHOLES                 |  | 0.65 mm<br>(0.025") | 4           |          |

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

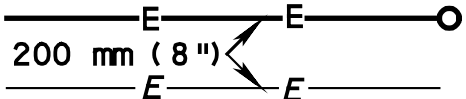
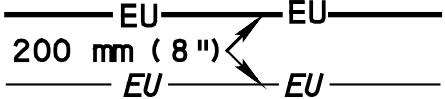
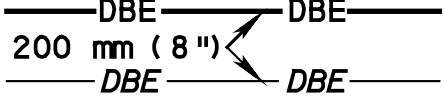
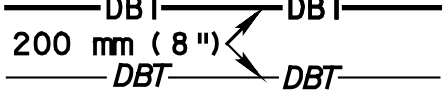
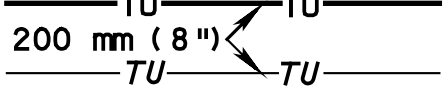
| LINE WEIGHTS AND SYMBOLS           |                                                                                      |                                            |             |                                   |
|------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|-------------|-----------------------------------|
| DESCRIPTION                        | SYMBOL                                                                               | LINE WIDTH                                 | LINE WEIGHT | REMARKS                           |
| SEWER LINE AND MANHOLE             |    | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING (LABEL SIZE) |
| WATER LINE AND VALVE               |    | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING (LABEL SIZE) |
| GAS LINE AND VALVE                 |    | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING (LABEL SIZE) |
| ELECTRIC LINE                      |   | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING              |
| TELEPHONE LINE AND MANHOLE OR POLE |  | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING              |

**NOTES:**

LETTERING FOR PROPOSED UTILITY SYMBOLS IS VERTICAL & 3.5 mm (0.14") IN HEIGHT.

LETTERING FOR EXISTING UTILITY SYMBOLS IS SLANTED & 3.0 mm (0.12") IN HEIGHT.

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

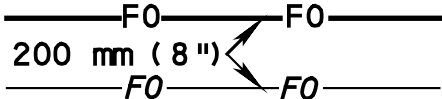
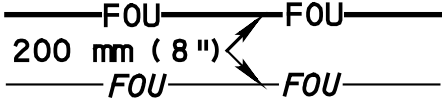
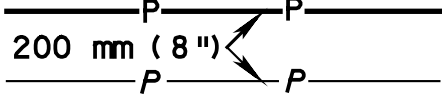
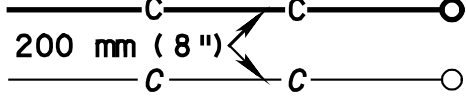
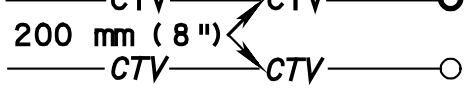
| LINE WEIGHTS AND SYMBOLS |                                                                                      |                     |             |          |
|--------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|----------|
| DESCRIPTION              | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS  |
| ELECTRIC-AERIAL          |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                          |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| ELECTRIC UNDERGROUND     |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                          |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| ELECTRIC-DIRECT BURIED   |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                          |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| TELEPHONE-DIRECT BURIED  |   | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                          |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| TELEPHONE-UNDERGROUND    |  | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                          |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |

**NOTES:**

LETTERING FOR PROPOSED UTILITY SYMBOLS IS VERTICAL & 3.5 mm (0.14") IN HEIGHT.

LETTERING FOR EXISTING UTILITY SYMBOLS IS SLANTED & 3.0 mm (0.12") IN HEIGHT.

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS     |                                                                                      |                     |             |          |
|------------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|----------|
| DESCRIPTION                  | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS  |
| FIBER OPTICS                 |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                              |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| FIBER OPTICS-<br>UNDERGROUND |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                              |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| PETROLEUM-<br>PIPELINE       |    | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                              |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| NEW CONDUIT                  |   | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                              |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |
| CABLE TV                     |  | 0.65 mm<br>(0.025") | 4           | PROPOSED |
|                              |                                                                                      | 0.13 mm<br>(0.005") | 0           | EXISTING |

**NOTES:**

LETTERING FOR PROPOSED UTILITY  
SYMBOLS IS VERTICAL & 3.5 mm (0.14") IN HEIGHT.

LETTERING FOR EXISTING UTILITY SYMBOLS  
IS SLANTED & 3.0 mm (0.12") IN HEIGHT.

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS   |        |                                            |             |                      |
|----------------------------|--------|--------------------------------------------|-------------|----------------------|
| DESCRIPTION                | SYMBOL | LINE WIDTH                                 | LINE WEIGHT | REMARKS              |
| TELEPHONE-AERIAL           |        | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING |
| ELECTRIC UTILITY POLE      |        | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | PROPOSED<br>EXISTING |
| CHANGE PRIVATE TO ELECTRIC |        | 0.65 mm<br>(0.025")<br>0.13 mm<br>(0.005") | 4<br>0      | NEW<br>EXISTING      |
| TELEPHONE-UTILITY POLE     |        | 0.13 mm<br>(0.005")                        | 0           | PROPOSED<br>EXISTING |
| PRIVATE UTILITY POLE       |        | 0.25 mm<br>(0.01")                         | 1           |                      |

**NOTES:**

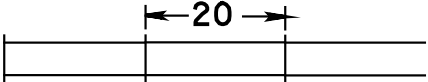
LETTERING FOR PROPOSED UTILITY SYMBOLS IS VERTICAL & 3.5 mm (0.14") IN HEIGHT.

LETTERING FOR EXISTING UTILITY SYMBOLS IS SLANTED & 3.0 mm (0.12") IN HEIGHT.

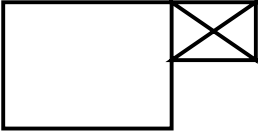
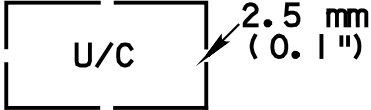
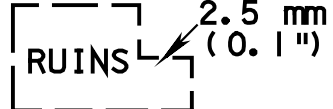
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS |                                                                                      |                     |             |                           |
|--------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|---------------------------|
| DESCRIPTION              | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS                   |
| WELL                     |     | 0.25 mm<br>(0.01")  | 1           | LABEL                     |
| TRAFFIC SIGNAL           |     | 0.13 mm<br>(0.005") | 0           | LABEL EXISTING<br>ON PLAN |
| FIRE HYDRANT             |     | 0.13 mm<br>(0.005") | 0           | LABEL                     |
| PIPE AND<br>END SECTION  |    | 0.76 mm<br>(0.03")  | 5           |                           |
| CRIBBING                 |  | 0.38 mm<br>(0.015") | 2           | LABEL                     |
| SEPTIC<br>TANK           |   | 0.25 mm<br>(0.01")  | 1           | LABEL                     |

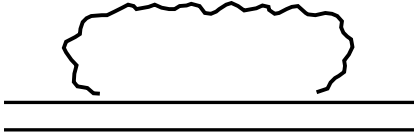
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS       |                                                                                      |                     |             |         |
|--------------------------------|--------------------------------------------------------------------------------------|---------------------|-------------|---------|
| DESCRIPTION                    | SYMBOL                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS |
| RAILROAD CROSSING SIGNAL LIGHT |     | 0.13 mm<br>(0.005") | 0           |         |
| RAILROAD CROSSING GATE         |     | 0.13 mm<br>(0.005") | 0           |         |
| RAILROAD SINGLE TRACK          |    | 0.13 mm<br>(0.005") | 0           |         |
| RAILROAD DOUBLE TRACK          |  | 0.13 mm<br>(0.005") | 0           |         |
| RAILROAD SIGN                  |   | 0.13 mm<br>(0.005") | 0           |         |

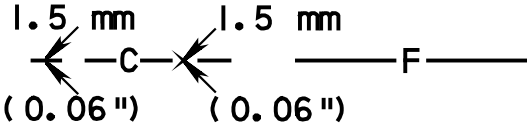
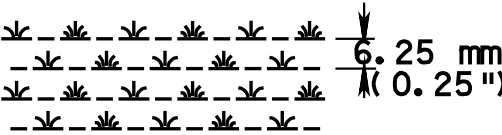
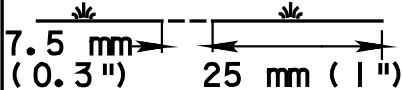
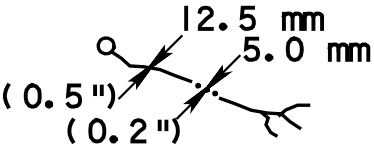
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                                |                                                                                     |                     |             |                   |
|---------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|-------------|-------------------|
| DESCRIPTION                                             | SYMBOL                                                                              | LINE WIDTH          | LINE WEIGHT | REMARKS           |
| BUILDINGS                                               |    | 0.25 mm<br>(0.01")  | 1           | PLOT ROOF OUTLINE |
| PI                                                      | ⊙                                                                                   | 0.13 mm<br>(0.005") | 0           |                   |
| FOUNDATION,<br>NEW BUILDING<br>( UNDER<br>CONSTRUCTION) |   | 0.25 mm<br>(0.01")  | 1           |                   |
| FOUNDATION,<br>OLD RUINS                                |  | 0.25 mm<br>(0.01")  | 1           |                   |
| ROADWAY SIGN<br>POLES                                   |  | 0.25 mm<br>(0.01")  | 1           |                   |

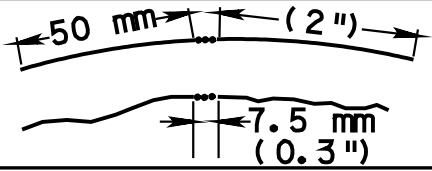
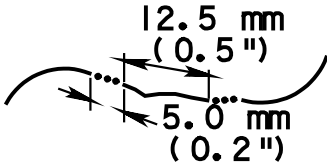
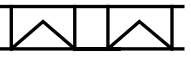
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                                       |                                                                                                        |                    |             |                                                                                       |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------|-------------|---------------------------------------------------------------------------------------|
| DESCRIPTION                                                    | SYMBOL                                                                                                 | LINE WIDTH         | LINE WEIGHT | REMARKS                                                                               |
| WOODED AREA<br>OUTLINE<br>PREDOMINATELY<br>DECIDUOUS<br>TREES  |                      | 0.25 mm<br>(0.01") | I           | OUTLINE NOT REQUIRED<br>ALONG NATURAL FEATURES<br>SUCH AS ROADS,<br>RAILROADS, STREAM |
| WOODED AREA<br>OUTLINE<br>PREDOMINATELY<br>CONIFEROUS<br>TREES |                       | 0.25 mm<br>(0.01") | I           |                                                                                       |
| INDIVIDUAL<br>TREES<br>SHRUB                                   | <br>1/2 SIZE TREE     | 0.25 mm<br>(0.01") | I           |                                                                                       |
| ORCHARDS                                                       | <br>ORCHARD         | 0.25 mm<br>(0.01") | I           | SHOW ONLY PERIMETER<br>TREES AND LABEL                                                |
| NURSERY BEDS                                                   | <br>NURSERY<br>BEDS | 0.25 mm<br>(0.01") | I           | SHOW ONLY PERIMETER<br>AND LABEL                                                      |

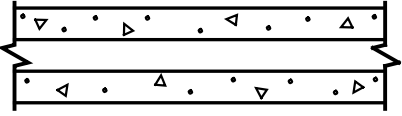
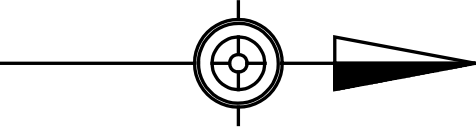
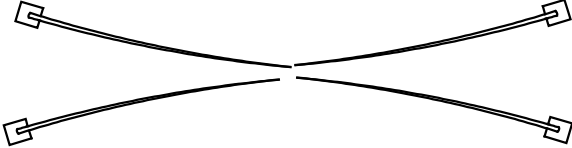
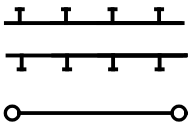
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS               |                                                                                                                                                                                      |                     |             |                                                                                                                                         |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| DESCRIPTION                            | SYMBOL                                                                                                                                                                               | LINE WIDTH          | LINE WEIGHT | REMARKS                                                                                                                                 |
| VINEYARD                               |                                                                                                     | 0.25 mm<br>(0.01")  | 1           | SHOW ONLY PERIMETER AND LABEL                                                                                                           |
| HEDGES                                 |                                                                                                     | 0.25 mm<br>(0.01")  | 1           |                                                                                                                                         |
| CUT/FILL                               |  | 0.25 mm<br>(0.01")  | 1           |                                                                                                                                         |
| WET AREA                               |                                                                                           | 0.13 mm<br>(0.005") | 0           | ALTERNATE<br> |
| SPRING HOLE WITH DISAPPEARING DRAINAGE |                                                           | 0.13 mm<br>(0.005") | 0           |                                                                                                                                         |

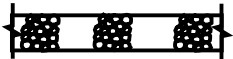
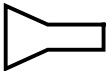
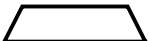
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                          |                                                                                     |                     |             |         |
|---------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|-------------|---------|
| DESCRIPTION                                       | SYMBOL                                                                              | LINE WIDTH          | LINE WEIGHT | REMARKS |
| RIVERS, CREEKS, STREAMS                           |    | 0.25 mm<br>(0.01")  | 1           |         |
| DRAINAGE DRAWS, DITCHES AND RAVINES, NORMALLY DRY |    | 0.25 mm<br>(0.01")  | 1           |         |
| PROPOSED DRIVEWAYS                                |    | 0.38 mm<br>(0.015") | 2           |         |
| BILLBOARD SIGN                                    |  | 0.13 mm<br>(0.005") | 0           |         |
| BILLBOARD DOUBLE                                  |  | 0.13 mm<br>(0.005") | 0           |         |

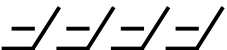
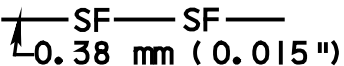
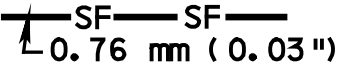
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| LINE WEIGHTS AND SYMBOLS                     |                                                                                     |                                           |             |                           |
|----------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|-------------|---------------------------|
| DESCRIPTION                                  | SYMBOL                                                                              | LINE WIDTH                                | LINE WEIGHT | REMARKS                   |
| PAVED<br>PARALLEL<br>DITCH                   |   | 0.13 mm<br>(0.005")                       | 0           | LABEL EXISTING<br>ON PLAN |
| NORTH ARROW                                  |   | 0.25 mm<br>(0.01")                        | 1           |                           |
| SHEET BREAK<br>INDEX MAP                     |   | 0.51 mm<br>(0.02")<br>0.76 mm<br>(0.03")  | 3/5         |                           |
| GUIDE RAIL LT<br>END<br>TREATMENT<br>RT      |  | 0.13 mm<br>(0.005")                       | 0           |                           |
| GUIDE RAIL LT<br>GUIDE RAIL RT<br>GUIDE RAIL |  | 0.25 mm<br>(0.01")<br>0.13 mm<br>(0.005") | 1<br>0      | PROPOSED<br>EXISTING      |

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

| EROSION CONTROL DEVICES - LINE WEIGHTS AND SYMBOLS |                                                                                     |                                                                                       |                     |             |         |
|----------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------|-------------|---------|
| ITEMS                                              | SYMBOLS                                                                             |                                                                                       | LINE WIDTH          | LINE WEIGHT | REMARKS |
|                                                    | CONSTRUCTION PLANS                                                                  | EROSION CONTROL PLANS                                                                 |                     |             |         |
| ROCK LINING                                        |    |    | 0.25 mm<br>(0.01")  | 1           |         |
| ROCK BASIN                                         |    |    | 0.38 mm<br>(0.015") | 2           |         |
| TEMPORARY SLOPE<br>PIPE DRAIN                      |    |    | 0.38 mm<br>(0.015") | 2           |         |
| PAVED ENERGY<br>DISSIPATOR                         |    |    | 0.38 mm<br>(0.015") | 2           |         |
| ROCK BARRIER                                       |    |    | 0.38 mm<br>(0.015") | 2           |         |
| DIKE                                               |    |    | 0.38 mm<br>(0.015") | 2           |         |
| SEDIMENTATION<br>POND-TYPE 2                       |  |  | 0.38 mm<br>(0.015") | 2           |         |
| SEDIMENTATION<br>POND-TYPE 1                       |  |  | 0.38 mm<br>(0.015") | 2           |         |
| STANDBOXES                                         |  |  | 0.38 mm<br>(0.015") | 2           |         |
| ROCK ENERGY<br>DISSIPATOR                          |  |  | 0.38 mm<br>(0.015") | 2           |         |

LINE WIDTHS AND LINE WEIGHTS - FIG. C.1

| EROSION CONTROL DEVICES - LINE WEIGHTS AND SYMBOLS |                                                                                   |                                                                                     |                     |             |         |
|----------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|-------------|---------|
| ITEMS                                              | SYMBOLS                                                                           |                                                                                     | LINE WIDTH          | LINE WEIGHT | REMARKS |
|                                                    | CONSTRUCTION PLANS                                                                | EROSION CONTROL PLANS                                                               |                     |             |         |
| WATER COURSE<br>EROSION PROTECTION<br>MATTING      |  |  | 0.25 mm<br>(0.01")  | 1           |         |
| TEMPORARY DITCH                                    |  |   | 0.38 mm<br>(0.015") | 2           |         |
| SILT BARRIER<br>FENCE                              |  |                                                                                     | 0.38 mm<br>(0.015") | 2           |         |
| SILT BARRIER<br>FENCE                              |                                                                                   |   | 0.76 mm<br>(0.03")  | 5           |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |
|                                                    |                                                                                   |                                                                                     |                     |             |         |

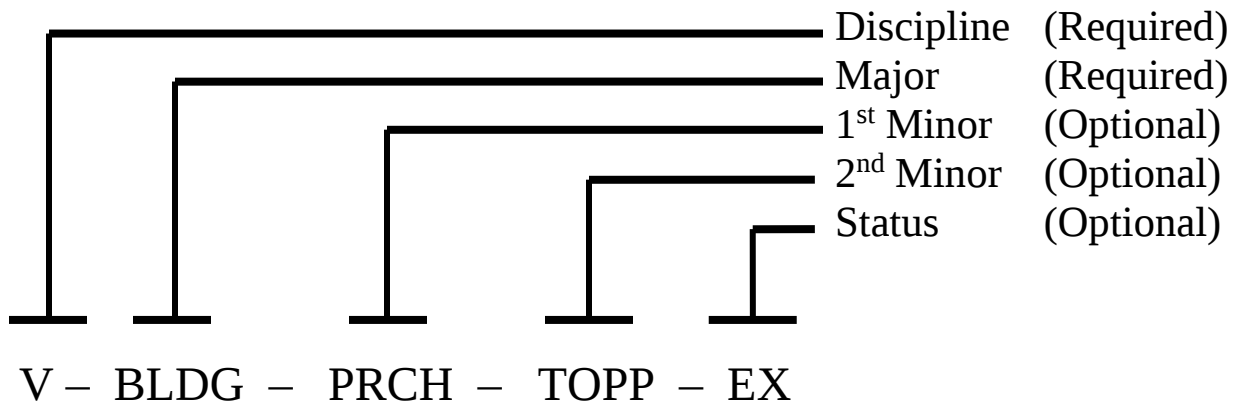
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

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## APPENDIX D

### COMPUTER AIDED DRAFTING AND DESIGN (CADD) NAMED LEVELS AND SYMBOLOLOGY

Level names consist of a **Discipline** code (one or two characters), a **Major** code (four characters), a **1<sup>st</sup> Minor** code (four characters), a **2<sup>nd</sup> Minor** code (four characters) and a **Status** code (two characters). Valid levels must contain a Discipline and Major code while the Minor and Status codes are optional codes to more precisely define the graphic content to be placed on the level. The Department modifies the National CADD Standard® level naming convention by defining the Status code to be two characters as opposed to the standard one character. A listing of the Discipline and Major codes appears in Appendix D.



**NOTE:** In general, V- and VA- levels serve as existing feature levels, C-, T- and S- (and others, if defined) serve as proposed feature levels.  
For example, V-ROAD-EDGE (Survey-Pavement Edge) is an existing feature; C-ROAD-EDGE is a proposed feature.

**TABLE D.1**  
**DISCIPLINE CODE DESCRIPTORS**  
**FOR NAMED LEVELS**

| <b>Discipline Code</b> | <b>Description</b> | <b>Discipline Code</b> | <b>Description</b>                 |
|------------------------|--------------------|------------------------|------------------------------------|
| C                      | Civil Design       | V                      | Survey                             |
| S                      | Structure          | VA                     | Aerial Survey                      |
| T                      | Traffic            | PLT                    | Plotting (Old) Cross Section (Old) |
|                        |                    | XCS                    |                                    |

**TABLE D.2**  
**MAJOR CODE DESCRIPTORS**  
**FOR NAMED LEVELS**

| <b>Major Code</b> | <b>Description</b>    | <b>Major Code</b> | <b>Description</b>                         |
|-------------------|-----------------------|-------------------|--------------------------------------------|
| ABUT              | Abutment              | MPTX              | Maintenance and Protection of Traffic      |
| AFLD              | Airfield              | PIER              | Pier                                       |
| ALGO              | Alignment #           | PRKG              | Parking                                    |
| ANNO              | Annotation            | PROF              | Profile                                    |
| APSL              | Approach Slab         | RAIL              | Railway                                    |
| BARR              | Barrier               | ROAD              | Roadway                                    |
| BEAM              | Beam                  | RWAY              | Right-of-Way                               |
| BLDG              | Building              | SGNL              | Signal                                     |
| BLNO              | Baseline #            | SHLD              | Shoulder                                   |
| BNDY              | Boundary              | SIGN              | Sign                                       |
| BRDG              | Bridge                | SSWR              | Sanitary Sewer                             |
| CHAN              | Channel               | STKE              | Staking                                    |
| CREK              | Creek                 | STRM              | Stream                                     |
| CULV              | Culvert               | SUEI              | Subsurface Utility Engineering Information |
| CURB              | Curb                  | SURF              | Surface Data                               |
| DECK              | Deck                  | SURV              | Survey                                     |
| DRIV              | Driveway              | SWLK              | Sidewalk                                   |
| DTCH              | Ditch                 | TOPO              | Topography                                 |
| EROS              | Erosion               | TRAF              | Traffic                                    |
| FLHA              | Flood Hazard Area     | TRAL              | Trail                                      |
| FOOT              | Footing               | UTIL              | Utility                                    |
| GEOT              | Geotechnical Data     | VEGE              | Vegetation                                 |
| GRAL              | Guiderail             | WALL              | Wall                                       |
| LITE              | Lighting              | WETL              | Wetlands                                   |
| MAPI              | Map Information       | WWAY              | Water Way                                  |
| MILR              | Military Installation | XSEC              | Cross Section                              |

**TABLE D.3**  
**MINOR CODE DESCRIPTORS**  
**FOR NAMED LEVELS**

| <b>Minor Code</b> | <b>Description</b> | <b>Minor Code</b> | <b>Description</b>        |
|-------------------|--------------------|-------------------|---------------------------|
| 010Y              | 10 Year Line       | BSLN              | Baseline                  |
| 025Y              | 25 Year Line       | CANL              | Canal                     |
| 050Y              | 50 Year Line       | CATV              | Cable Television          |
| 100Y              | 100 Year Line      | CELL              | Cell                      |
| 200Y              | 200 Year Line      | CEMR              | Cemetery                  |
| 500Y              | 500 Year Line      | CESS              | Cess Pool                 |
| ABUT              | Abutment           | CHCK              | Check Shot                |
| ACQU              | Acquired           | CHNL              | Channel                   |
| ANNO              | Annotation         | CHRD              | Chord                     |
| ANTN              | Antenna            | CHUT              | Chute                     |
| ARCH              | Arch               | CNTE              | Construction Entrance     |
| AREA              | Area               | CNTR              | Center                    |
| ARST              | Arresting System   | CODE              | Code                      |
| ATAB              | AutoTAB            | COGO              | Coordinate Geometry       |
| ATHL              | Athletic Field     | COMB              | Combined Utilities        |
| ATTN              | Attenuators        | CONC              | Concrete                  |
| AUTO              | Auto               | CONS              | Construction              |
| AXIS              | Axis               | CONT              | Contours                  |
| BACK              | Back               | CRCL              | Circular Element          |
| BANK              | Bank               | CRPL              | Circle Pullout            |
| BARN              | Barn               | CRSH              | Crash                     |
| BARR              | Barrier            | CRWN              | Crown                     |
| BASN              | Basin              | CTLA              | Controlled Area           |
| BEAM              | Beam               | CTPT              | Control Point             |
| BEAR              | Bearing            | CTRL              | Control                   |
| BEDS              | Beds               | CULV              | Culvert                   |
| BLBD              | Billboard          | CURB              | Curb                      |
| BLDR              | Boulder            | DAMM              | Dam                       |
| BNDY              | Boundary           | DATA              | Data                      |
| BOAT              | Boat               | DBBL              | Double                    |
| BOGS              | Boggs              | DECK              | Deck                      |
| BORE              | Bore Hole          | DEPU              | Dead End Point of Utility |
| BOTM              | Bottom             | DETB              | Detention Basin           |
| BOXC              | Box Culvert        | DFLD              | Drain Field               |
| BRDG              | Bridge             | DFLT              | Default                   |
| BRKL              | Break line         | DIMS              | Dimensions                |
| BRSH              | Brush              | DIRT              | Dirt                      |

**TABLE D.3**  
**MINOR CODE DESCRIPTORS**  
**FOR NAMED LEVELS**  
**(CONTINUED)**

| <b>Minor Code</b> | <b>Description</b> | <b>Minor Code</b> | <b>Description</b>       |
|-------------------|--------------------|-------------------|--------------------------|
| DISC              | Discharge Point    | HEAD              | Head                     |
| DRAN              | Drainage           | HEDG              | Hedge                    |
| DRAW              | Draw               | HIDN              | Hidden                   |
| DRYB              | Dry Bed            | HVGL              | Heavy Vertical Grid Line |
| DTCH              | Ditch              | HYDR              | Hydrant                  |
| DUCT              | Duct               | ICTR              | Interconnect Controller  |
| DVDK              | Diversion Dike     | INLT              | Inlet                    |
| EDGE              | Edge               | INPR              | Inlet Protection         |
| ELEV              | Elevation          | INTR              | Interior                 |
| ENDT              | End Treatment      | IRRG              | Irrigation               |
| ENGR              | Energy             | JBOX              | Junction Box             |
| EQPM              | Equipment          | JNTS              | Joints                   |
| EROS              | Erosion            | LAKE              | Lake                     |
| ERRO              | Error              | LANE              | Lane                     |
| EXCA              | Excavation         | LEVE              | Levee                    |
| EXDM              | Expansion Dam      | LGAL              | Legal                    |
| EXTR              | Exterior           | LINE              | Line                     |
| FDPT              | Field Point        | LINR              | Linear                   |
| FENC              | Fence              | LITE              | Lighting                 |
| FIBR              | Fiber Optic        | LLOS              | Legal Limit of Slope     |
| FILL              | Fill               | LMON              | Legal Monument           |
| FLOW              | Flow               | LOOP              | Loop                     |
| FOOT              | Footing            | LOSD              | Limit of SUEI Data       |
| FPLC              | Fireplace          | LOWW              | Low                      |
| FRAM              | Frame              | MAJR              | Major                    |
| GABI              | Gabion             | MANL              | Manual                   |
| GARG              | Garage             | MARK              | Marker or Marking        |
| GATE              | Gate               | MAST              | Mast                     |
| GEOL              | Geological         | MATT              | Matt                     |
| GNRL              | General            | MEDN              | Median                   |
| GOLF              | Golf               | METR              | Meter                    |
| GRAL              | Guiderail          | MHOL              | Manhole                  |
| GRID              | Grid               | MINR              | Minor                    |
| GRND              | Ground             | MISC              | Miscellaneous            |
| GUYW              | Guy Wire           | MLBX              | Mail Box                 |
| HDWL              | Head Wall          | MODL              | NEAT Model Line          |

**TABLE D.3**  
**MINOR CODE DESCRIPTORS**  
**FOR NAMED LEVELS**  
**(CONTINUED)**

| <b>Minor Code</b> | <b>Description</b>    | <b>Minor Code</b> | <b>Description</b>     |
|-------------------|-----------------------|-------------------|------------------------|
| MOUN              | Monument              | POND              | Pond                   |
| MRSH              | Marsh                 | POST              | Post                   |
| MTCH              | Match Line            | POWR              | Power                  |
| MUNI              | Municipal             | PRCH              | Porch                  |
| NAME              | Name                  | PROF              | Profile                |
| NAME              | Name                  | PROP              | Proposed               |
| NDAT              | No Data               | PRVT              | Point on Reverse Curve |
| NETW              | Network               | PTRN              | Pattern                |
| NGAS              | Natural Gas           | PTRO              | Petroleum              |
| NOTE              | Note                  | PVMK              | Pavement Marking       |
| NSBR              | Noise Barrier         | RAMP              | Ramp                   |
| OBSC              | Obscured              | REBR              | Reinforcing Bar        |
| OGTC              | Oil Gas Tank Cap      | REGL              | Regular                |
| OLDG              | Old Ground (Existing) | REQD              | Required               |
| OLSF              | Overland Sheet Flow   | RETN              | Retaining              |
| OPEN              | Open                  | REVI              | Revisions              |
| ORCH              | Orchard               | RNDM              | Random                 |
| OTLN              | Outline               | ROCK              | Rock                   |
| OVHD              | Overhead              | RRAP              | Rip-Rap                |
| OVHG              | Overhang              | RUNW              | Runway                 |
| PANL              | Panel                 | SATD              | Satellite Dish         |
| PARA              | Parapet               | SBED              | Stream Bed             |
| PAVE              | Pavement              | SCAL              | Scale                  |
| PEDS              | Pedestrians           | SDTR              | Sediment Trap          |
| PERC              | Percolation           | SDWK              | Sidewalk               |
| PIER              | Pier                  | SEAL              | Seal                   |
| PILE              | Pile                  | SEAT              | Seat                   |
| PIPE              | Pipe                  | SEPT              | Septic                 |
| PITS              | Pit                   | SGNL              | Signal                 |
| PLAN              | Plan                  | SHEA              | Shear or Bearing       |
| PLNT              | Plant                 | SHED              | Shed                   |
| PLOT              | Plot                  | SHOR              | Shoring                |
| PLTR              | Planter               | SHRB              | Shrub                  |
| PLTS              | Plots                 | SHTS              | Sheets                 |
| PMTR              | Perimeter             | SIGN              | Sign                   |
| PNTS              | Points                | SILO              | Silo                   |
| POLE              | Pole                  | SILT              | Silt                   |

**TABLE D.3**  
**MINOR CODE DESCRIPTORS**  
**FOR NAMED LEVELS**  
**(CONTINUED)**

| <b>Minor Code</b> | <b>Description</b> | <b>Minor Code</b> | <b>Description</b>           |
|-------------------|--------------------|-------------------|------------------------------|
| SLAB              | Slab               | TRAV              | Traverse                     |
| SLOP              | Slope              | TRCH              | Trench                       |
| SNDG              | Sounding           | TREE              | Tree                         |
| SNGL              | Single             | TRIA              | Triangle                     |
| SOCK              | Sock               | TURF              | Turf (Grass)                 |
| SPLW              | Spillway           | TURN              | Turn                         |
| SPRL              | Spiral             | UCON              | Under Construction           |
| SROW              | Stone Row          | UNDR              | Under                        |
| SSLT              | Super Silt         | UQLC              | Utility Quality Level Change |
| STEL              | Steel              | VBFN              | Visual Barrier Fence         |
| STEP              | Step               | VENT              | Vent                         |
| STMP              | Stump              | VINE              | Vine                         |
| STON              | Stone              | VLVE              | Valve                        |
| STOP              | Stop               | VOLS              | Volume Data                  |
| STRC              | Structure          | WALL              | Wall                         |
| STRD              | Strand             | WATR              | Water                        |
| STRG              | Strong             | WDAT              | With Data                    |
| SURV              | Survey             | WDRW              | Woods Row                    |
| SWAL              | Swale              | WEAK              | Weak                         |
| SYMB              | Symbol (Cell)      | WEIR              | Weir                         |
| T120              | Leroy 120          | WELL              | Well                         |
| T175              | Leroy 175          | WHGD              | Wheel Guard                  |
| T200              | Leroy 200          | WING              | Wing                         |
| T240              | Leroy 240          | WOOD              | Woods Line                   |
| TABL              | Table              | WORK              | Work (User, Non-Plotting)    |
| TANK              | Tank               | XFMR              | Transformer                  |
| TCRV              | Template Curves    | XSEC              | Cross Section                |
| TELP              | Telephone          |                   |                              |
| TEMP              | Temporary          |                   |                              |
| TEXT              | Text               |                   |                              |
| TITLE             | Title              |                   |                              |
| TNGT              | Tangent            |                   |                              |
| TOEE              | Toe                |                   |                              |
| TOPP              | Top                |                   |                              |
| TPIT              | Test Pit           |                   |                              |
| TRAK              | Track              |                   |                              |
| TRAP              | Trap               |                   |                              |

**TABLE D.4**  
**STATUS CODE DESCRIPTORS**  
**FOR NAMED LEVELS**

| <b>Status<br/>Code</b> | <b>Description</b> |
|------------------------|--------------------|
| 00                     | 00                 |
| 01                     | 01                 |
| 02                     | 02                 |
| 03                     | 03                 |
| 04                     | 04                 |
| 05                     | 05                 |
| 06                     | 06                 |
| 07                     | 07                 |
| 08                     | 08                 |
| 09                     | 09                 |
| 10                     | 10                 |
| 11                     | 11                 |
| 12                     | 12                 |
| 13                     | 13                 |
| 14                     | 14                 |
| 15                     | 15                 |
| 16                     | 16                 |
| 17                     | 17                 |
| 18                     | 18                 |
| 19                     | 19                 |
| 20                     | 20                 |
| EX                     | Existing           |
| LN                     | Line               |
| LT                     | Left               |
| PT                     | Point              |
| RT                     | Right              |
| TX                     | Text               |

# FONT LIBRARY STYLES

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Font 5, PENNDOT VERTICAL

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Font 25, PENNDOT SLANTED

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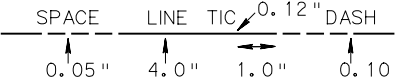
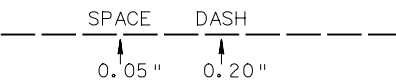
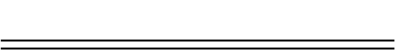
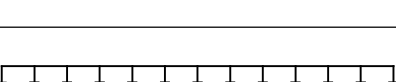
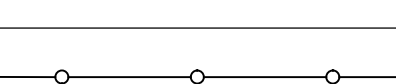
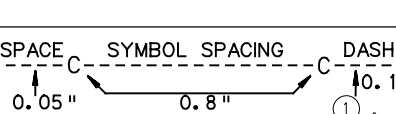
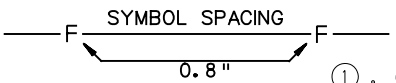
TABLE D.5

| MicroStation Graphic Weights |                |                |        |                |                |
|------------------------------|----------------|----------------|--------|----------------|----------------|
| Inches                       | Graphic Weight | Display Weight | Inches | Graphic Weight | Display Weight |
| 0.007                        | 0              | —————          | 0.085  | 16             | —————          |
| 0.010                        | 1              | —————          | 0.091  | 17             | —————          |
| 0.014                        | 2              | —————          | 0.094  | 18             | —————          |
| 0.020                        | 3              | —————          | 0.100  | 19             | —————          |
| 0.024                        | 4              | —————          | 0.104  | 20             | —————          |
| 0.028                        | 5              | —————          | 0.110  | 21             | —————          |
| 0.033                        | 6              | —————          | 0.114  | 22             | —————          |
| 0.039                        | 7              | —————          | 0.120  | 23             | —————          |
| 0.045                        | 8              | —————          | 0.124  | 24             | —————          |
| 0.049                        | 9              | —————          | 0.130  | 25             | —————          |
| 0.055                        | 10             | —————          | 0.136  | 26             | —————          |
| 0.059                        | 11             | —————          | 0.140  | 27             | —————          |
| 0.065                        | 12             | —————          | 0.146  | 28             | —————          |
| 0.069                        | 13             | —————          | 0.150  | 29             | —————          |
| 0.075                        | 14             | —————          | 0.156  | 30             | —————          |
| 0.079                        | 15             | —————          | 0.159  | 31             | —————          |

**TABLE D.6**

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION |      |                    |         |
|------------------------------------------------|------|--------------------|---------|
| NAME                                           | CODE | GRAPHIC DEFINITION | REMARKS |
| MicroStation                                   | 0    | _____              |         |
| MicroStation                                   | 1    | -----              |         |
| MicroStation                                   | 2    | -----              |         |
| MicroStation                                   | 3    | -----              |         |
| MicroStation                                   | 4    | -----              |         |
| MicroStation                                   | 5    | -----              |         |
| MicroStation                                   | 6    | -----              |         |
| MicroStation                                   | 7    | -----              |         |
|                                                |      |                    |         |

FIGURE D.1

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION |      |                                                                                      |                                              |
|------------------------------------------------|------|--------------------------------------------------------------------------------------|----------------------------------------------|
| NAME                                           | CODE | GRAPHIC DEFINITION                                                                   | REMARKS                                      |
| CENTERLINES                                    | L100 |    |                                              |
| BASELINES                                      | L101 |    |                                              |
| EDGE OF PAVEMENT                               | L102 |    | EXISTING EOP TO BE LABELED ON PLANS          |
| CURB                                           | L103 |    | EXISTING CURB TO BE LABELED ON PLANS         |
| GUIDE RAIL PROPOSED LEFT                       | L104 |    |                                              |
| GUIDE RAIL PROPOSED RIGHT                      | L105 |    |                                              |
| GUIDE RAIL EXISTING                            | L106 |   |                                              |
| CUT                                            | L107 |  | CUT / FILL TRANSITION TO BE LABELED ON PLANS |
| FILL                                           | L108 |  | CUT / FILL TRANSITION TO BE LABELED ON PLANS |
|                                                |      |                                                                                      |                                              |
|                                                |      |                                                                                      |                                              |

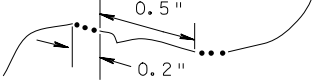
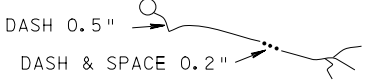
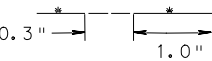
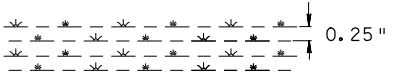
NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED  
② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION |      |                    |                                                                         |
|------------------------------------------------|------|--------------------|-------------------------------------------------------------------------|
| NAME                                           | CODE | GRAPHIC DEFINITION | REMARKS                                                                 |
| LEGAL R/W LINE                                 | L200 |                    | TO BE LABELED ON PLANS                                                  |
| REQUIRED R/W LINES                             | L201 |                    | TO BE LABELED ON PLANS                                                  |
| PROPERTY LINES                                 | L203 |                    |                                                                         |
| MUNICIPAL LINES                                | L204 |                    | STATE, COUNTY, TOWNSHIP, CITY, OR BOROUGH LINES. TO BE LABELED ON PLANS |
|                                                |      |                    |                                                                         |
| FENCE                                          | L230 |                    |                                                                         |
|                                                |      |                    |                                                                         |
| BUILDING FOUNDATION UNDER CONSTRUCTION         | L250 |                    | LABEL ON PLAN U/C                                                       |
| BUILDING FOUNDATION OLD RUINS                  | L251 |                    | LABEL ON PLAN RUINS                                                     |
|                                                |      |                    |                                                                         |
| RAILROAD SINGLE TRACK                          | L260 |                    |                                                                         |

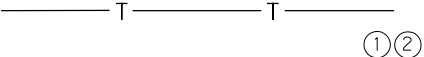
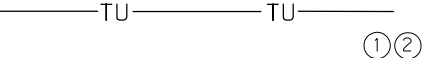
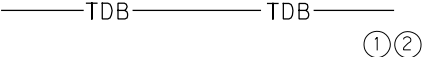
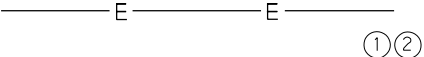
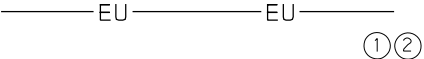
NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED  
② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION   |      |                                                                                      |                                                                                                       |
|--------------------------------------------------|------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| NAME                                             | CODE | GRAPHIC DEFINITION                                                                   | REMARKS                                                                                               |
| RIVER, LAKE, CREEK, STREAM OR POND               | L300 |    | USE LEVEL C-WWAY-EDGE FOR STREAM REALIGNMENT                                                          |
| DRAINAGE DRAWS, DITCHES AND RAVINES NORMALLY DRY | L301 |    |                                                                                                       |
| SWALE                                            | L302 |    |                                                                                                       |
| SPRING HOLE WITH DISAPPEARING DRAINAGE           | L303 |    |                                                                                                       |
| WETLANDS                                         | L304 |    | ALTERNATE PATTERN  |
| TEMPORARY EROSION DITCH                          | L305 |    |                                                                                                       |
| ERROSION FENCE                                   | L306 |   | ①②                                                                                                    |
| ERROSION SILT FENCE                              | L307 |  | ①②                                                                                                    |
|                                                  |      |                                                                                      |                                                                                                       |
|                                                  |      |                                                                                      |                                                                                                       |
|                                                  |      |                                                                                      |                                                                                                       |

NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED  
② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION |      |                                                                                      |                        |
|------------------------------------------------|------|--------------------------------------------------------------------------------------|------------------------|
| NAME                                           | CODE | GRAPHIC DEFINITION                                                                   | REMARKS                |
| TELEPHONE<br>-AERIAL                           | L400 |    |                        |
| TELEPHONE<br>-UNDERGROUND                      | L401 |    | LABEL IF DIRECT BURIAL |
| TELEPHONE<br>-DIRECT BURIED                    | L402 |    |                        |
| FIBER OPTICS<br>-AERIAL                        | L403 |    |                        |
| FIBER OPTICS<br>-UNDERGROUND                   | L404 |    | LABEL IF DIRECT BURIAL |
| FIBER OPTICS<br>-DIRECT BURIED                 | L405 |    |                        |
| CABLE TV<br>-AERIAL                            | L406 |   |                        |
| CABLE TV<br>-UNDERGROUND                       | L407 |  | LABEL IF DIRECT BURIAL |
| CABLE TV<br>-DIRECT BURIED                     | L408 |  |                        |
| ELECTRIC<br>-AERIAL                            | L409 |  |                        |
| ELECTRIC<br>-UNDERGROUND                       | L410 |  | LABEL IF DIRECT BURIAL |

NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED  
 ② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION |      |                         |                                      |
|------------------------------------------------|------|-------------------------|--------------------------------------|
| NAME                                           | CODE | GRAPHIC DEFINITION      | REMARKS                              |
| COMBINED UTILITIES                             | L411 | ———CU———CU———<br>①②     | LABEL PLAN WITH SHARED UTILITIES     |
| CONDUIT                                        | L420 | ———COND———COND———<br>①② | LABEL PLAN WITH SIZE IN INCHES       |
|                                                |      |                         |                                      |
| SEWER LINE                                     | L440 | ———S———S———<br>①②       | LABEL SANITARY OR COMBINED USE SEWER |
| WATER LINE                                     | L450 | ———W———W———<br>①②       |                                      |
| GAS LINE                                       | L460 | ———G———G———<br>①②       | LABEL SIZE ON PLANS                  |
| PETROLEUM PIPELINE                             | L470 | ———P———P———<br>①②       | LABEL SIZE ON PLANS                  |
|                                                |      |                         |                                      |
| STORM WATER PIPE,<br>EXISTING                  | L480 | ———<br>①②               | LABEL SIZE ON PLANS                  |
| STORM WATER PIPE,<br>PROPOSED                  | L481 | ———<br>①②               | LABEL SIZE ON PLANS                  |
| LIMIT OF<br>SUE DATA                           | L490 | ———LOS———LOS———<br>①②   |                                      |

NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED  
② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

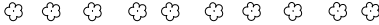
| LINE STYLE (NAME), CODE and GRAPHIC DEFINITION           |      |                                                                                    |                                                                           |
|----------------------------------------------------------|------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| NAME                                                     | CODE | GRAPHIC DEFINITION                                                                 | REMARKS                                                                   |
| WOODED AREA OUTLINE<br>PREDOMINATELY<br>DECIDUOUS TREES  | L500 |  | OUTLINE NOT REQUIRED ALONG FEATURES<br>SUCH AS ROADS , RAILROADS & STREAM |
| WOODED AREA OUTLINE<br>PREDOMINATELY<br>CONIFEROUS TREES | L501 |  | SHOW ONLY PERIMETER AND LABEL<br>EVERGREEN ON PLANS                       |
| ORCHARDS                                                 | L502 |  | SHOW ONLY PERIMETER TREES AND LABEL<br>ORCHARD ON PLANS                   |
| NURSERY BEDS                                             | L503 |  | SHOW ONLY PERIMETER AND LABEL<br>NURSERY BEDS ON PLANS                    |
| VINEYARD                                                 | L504 |  | SHOW ONLY PERIMETER AND LABEL<br>VINEYARD ON PLANS                        |
| HEDGES                                                   | L505 |  |                                                                           |
|                                                          |      |                                                                                    |                                                                           |
|                                                          |      |                                                                                    |                                                                           |
|                                                          |      |                                                                                    |                                                                           |
|                                                          |      |                                                                                    |                                                                           |
|                                                          |      |                                                                                    |                                                                           |

FIGURE D.1

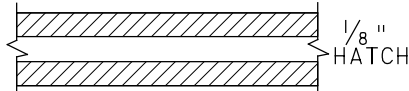
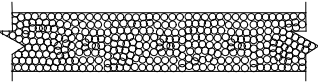
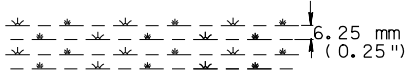
| PATTERN FILL (NAME), CODE and GRAPHIC DEFINITION |      |                                                                                    |                        |
|--------------------------------------------------|------|------------------------------------------------------------------------------------|------------------------|
| NAME                                             | CODE | GRAPHIC DEFINITION                                                                 | REMARKS                |
| EXISTING CHANNEL<br>BACKFILL                     | F100 |  |                        |
| PARALLEL DITCH<br>PAVED                          | F101 |  | LABEL EXISTING ON PLAN |
| ROCK LINING                                      | F102 |  | Tn - n IS STONE SIZE   |
| WETLANDS                                         | F103 |  |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |
|                                                  |      |                                                                                    |                        |

FIGURE D.1

D - 18

| <u>Name</u>      | <u>Description</u>                              | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-------------------------------------------------|--------------|------------|-------------|
| C-ANNO           | Annotation - General Information (Uncontrolled) | 0            | 1          | 1           |
| C-ANNO-ATAB      | Annotation - AutoTab                            | 0            | 2          | 1           |
| C-ANNO-CELL      | Annotation - Cells                              | 0            | 1          | 1           |
| C-ANNO-DIMS      | Annotation - Dimensions                         | 0            | 2          | 1           |
| C-ANNO-LINE-HIDN | Annotation - Hidden Line                        | 0            | 4          | 1           |
| C-ANNO-MISC-JOIN | Annotation - Construction Joints                | 0            | 1          | 1           |
| C-ANNO-MISC-LCON | Annotation - Limits of Construction             | 0            | 1          | 1           |
| C-ANNO-NOTE      | Annotation - Notes                              | 0            | 2          | 1           |
| C-ANNO-PNTS      | Annotation - Points (Non-Plotting)              | 0            | 1          | 0           |
| C-ANNO-PTRN      | Annotation - Pattern                            | 0            | 1          | 1           |
| C-ANNO-SYMB      | Annotation - Symbols                            | 0            | 1          | 1           |
| C-ANNO-TEXT      | Annotation - Annotation text                    | 0            | 2          | 1           |
| C-ANNO-WORK      | Annotation - User Work (Non-Plotting)           | 0            | 1          | 0           |
| C-ALG0           | Alignment 0 - Base level (Uncontrolled)         | 0            | 1          | 1           |
| C-ALG0-COGO      | Alignment 0 - COGO points                       | 0            | 1          | 1           |
| C-ALG0-DIMS      | Alignment 0 - Dimensions, Stationing            | 0            | 2          | 1           |
| C-ALG0-LINE      | Alignment 0 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG0-LINE-CRCL | Alignment 0 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG0-LINE-SPRL | Alignment 0 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG0-LINE-TNGT | Alignment 0 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG0-NOTE      | Alignment 0 - Notes, Curve Data                 | 0            | 2          | 1           |
| C-ALG0-PNTS      | Alignment 0 - Points (Non-Plotting)             | 0            | 1          | 0           |
| C-ALG0-PTRN      | Alignment 0 - Pattern                           | 0            | 1          | 1           |
| C-ALG0-SYMB      | Alignment 0 - Symbols                           | 0            | 1          | 1           |
| C-ALG0-TEXT      | Alignment 0 - Annotation text                   | 0            | 2          | 1           |
| C-ALG0-WORK      | Alignment 0 - User work (Non-Plotting)          | 0            | 1          | 0           |
| C-ALG1           | Alignment 1 - Base level (Uncontrolled)         | 0            | 1          | 1           |
| C-ALG1-COGO      | Alignment 1 - COGO points                       | 0            | 1          | 1           |
| C-ALG1-DIMS      | Alignment 1 - Dimensions, Stationing            | 0            | 2          | 1           |
| C-ALG1-LINE      | Alignment 1 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG1-LINE-CRCL | Alignment 1 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG1-LINE-SPRL | Alignment 1 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG1-LINE-TNGT | Alignment 1 - Center/Base Line                  | L100         | 1          | 1           |
| C-ALG1-NOTE      | Alignment 1 - Notes, Curve Data                 | 0            | 2          | 1           |
| C-ALG1-PNTS      | Alignment 1 - Points (Non-Plotting)             | 0            | 1          | 0           |
| C-ALG1-PTRN      | Alignment 1 - Pattern                           | 0            | 1          | 1           |
| C-ALG1-SYMB      | Alignment 1 - Symbols                           | 0            | 1          | 1           |
| C-ALG1-TEXT      | Alignment 1 - Annotation text                   | 0            | 2          | 1           |

D - 19

| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| C-ALG1-WORK      | Alignment 1 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG2           | Alignment 2 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG2-COGO      | Alignment 2 - COGO points               | 0            | 1          | 1           |
| C-ALG2-DIMS      | Alignment 2 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG2-LINE      | Alignment 2 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG2-LINE-CRCL | Alignment 2 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG2-LINE-SPRL | Alignment 2 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG2-LINE-TNGT | Alignment 2 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG2-NOTE      | Alignment 2 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG2-PNTS      | Alignment 2 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG2-PTRN      | Alignment 2 - Pattern                   | 0            | 1          | 1           |
| C-ALG2-SYMB      | Alignment 2 - Symbols                   | 0            | 1          | 1           |
| C-ALG2-TEXT      | Alignment 2 - Annotation text           | 0            | 2          | 1           |
| C-ALG2-WORK      | Alignment 2 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG3           | Alignment 3 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG3-COGO      | Alignment 3 - COGO points               | 0            | 1          | 1           |
| C-ALG3-DIMS      | Alignment 3 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG3-LINE      | Alignment 3 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG3-LINE-CRCL | Alignment 3 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG3-LINE-SPRL | Alignment 3 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG3-LINE-TNGT | Alignment 3 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG3-NOTE      | Alignment 3 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG3-PNTS      | Alignment 3 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG3-PTRN      | Alignment 3 - Pattern                   | 0            | 1          | 1           |
| C-ALG3-SYMB      | Alignment 3 - Symbols                   | 0            | 1          | 1           |
| C-ALG3-TEXT      | Alignment 3 - Annotation text           | 0            | 2          | 1           |
| C-ALG3-WORK      | Alignment 3 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG4           | Alignment 4 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG4-COGO      | Alignment 4 - COGO points               | 0            | 1          | 1           |
| C-ALG4-DIMS      | Alignment 4 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG4-LINE      | Alignment 4 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG4-LINE-CRCL | Alignment 4 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG4-LINE-SPRL | Alignment 4 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG4-LINE-TNGT | Alignment 4 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG4-NOTE      | Alignment 4 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG4-PNTS      | Alignment 4 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG4-PTRN      | Alignment 4 - Pattern                   | 0            | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| C-ALG4-SYMB      | Alignment 4 - Symbols                   | 0            | 1          | 1           |
| C-ALG4-TEXT      | Alignment 4 - Annotation text           | 0            | 2          | 1           |
| C-ALG4-WORK      | Alignment 4 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG5           | Alignment 5 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG5-COGO      | Alignment 5 - COGO points               | 0            | 1          | 1           |
| C-ALG5-DIMS      | Alignment 5 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG5-LINE      | Alignment 5 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG5-LINE-CRCL | Alignment 5 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG5-LINE-SPRL | Alignment 5 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG5-LINE-TNGT | Alignment 5 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG5-NOTE      | Alignment 5 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG5-PNTS      | Alignment 5 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG5-PTRN      | Alignment 5 - Pattern                   | 0            | 1          | 1           |
| C-ALG5-SYMB      | Alignment 5 - Symbols                   | 0            | 1          | 1           |
| C-ALG5-TEXT      | Alignment 5 - Annotation text           | 0            | 2          | 1           |
| C-ALG5-WORK      | Alignment 5 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG6           | Alignment 6 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG6-COGO      | Alignment 6 - COGO points               | 0            | 1          | 1           |
| C-ALG6-DIMS      | Alignment 6 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG6-LINE      | Alignment 6 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG6-LINE-CRCL | Alignment 6 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG6-LINE-SPRL | Alignment 6 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG6-LINE-TNGT | Alignment 6 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG6-NOTE      | Alignment 6 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG6-PNTS      | Alignment 6 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG6-PTRN      | Alignment 6 - Pattern                   | 0            | 1          | 1           |
| C-ALG6-SYMB      | Alignment 6 - Symbols                   | 0            | 1          | 1           |
| C-ALG6-TEXT      | Alignment 6 - Annotation text           | 0            | 2          | 1           |
| C-ALG6-WORK      | Alignment 6 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG7           | Alignment 7 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG7-COGO      | Alignment 7 - COGO points               | 0            | 1          | 1           |
| C-ALG7-DIMS      | Alignment 7 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-ALG7-LINE      | Alignment 7 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG7-LINE-CRCL | Alignment 7 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG7-LINE-SPRL | Alignment 7 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG7-LINE-TNGT | Alignment 7 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG7-NOTE      | Alignment 7 - Notes, Curve Data         | 0            | 2          | 1           |

| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| C-ALG7-PNTS      | Alignment 7 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG7-PTRN      | Alignment 7 - Pattern                   | 0            | 1          | 1           |
| C-ALG7-SYMB      | Alignment 7 - Symbols                   | 0            | 1          | 1           |
| C-ALG7-TEXT      | Alignment 7 - Annotation text           | 0            | 2          | 1           |
| C-ALG7-WORK      | Alignment 7 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG8           | Alignment 8 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG8-COGO      | Alignment 8 - COGO points               | 0            | 1          | 1           |
| C-ALG8-DIMS      | Alignment 8 - Dimensions, Stationing    | 0            | 1          | 1           |
| C-ALG8-LINE      | Alignment 8 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG8-LINE-CRCL | Alignment 8 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG8-LINE-SPRL | Alignment 8 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG8-LINE-TNGT | Alignment 8 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG8-NOTE      | Alignment 8 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG8-PNTS      | Alignment 8 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG8-PTRN      | Alignment 8 - Pattern                   | 0            | 1          | 1           |
| C-ALG8-SYMB      | Alignment 8 - Symbols                   | 0            | 1          | 1           |
| C-ALG8-TEXT      | Alignment 8 - Annotation text           | 0            | 2          | 1           |
| C-ALG8-WORK      | Alignment 8 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-ALG9           | Alignment 9 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-ALG9-COGO      | Alignment 9 - COGO points               | 0            | 1          | 1           |
| C-ALG9-DIMS      | Alignment 9 - Dimensions, Stationing    | 0            | 1          | 1           |
| C-ALG9-LINE      | Alignment 9 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG9-LINE-CRCL | Alignment 9 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG9-LINE-SPRL | Alignment 9 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG9-LINE-TNGT | Alignment 9 - Center/Base Line          | L100         | 1          | 1           |
| C-ALG9-NOTE      | Alignment 9 - Notes, Curve Data         | 0            | 2          | 1           |
| C-ALG9-PNTS      | Alignment 9 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-ALG9-PTRN      | Alignment 9 - Pattern                   | 0            | 1          | 1           |
| C-ALG9-SYMB      | Alignment 9 - Symbols                   | 0            | 1          | 1           |
| C-ALG9-TEXT      | Alignment 9 - Annotation text           | 0            | 2          | 1           |
| C-ALG9-WORK      | Alignment 9 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BARR           | Barriers - Base level (Uncontrolled)    | 0            | 1          | 1           |
| C-BARR-DIMS      | Barriers - Dimensions                   | 0            | 2          | 1           |
| C-BARR-ENDT      | Barriers - End Treatments               | 0            | 1          | 1           |
| C-BARR-LINE      | Barriers - Linear Elements              | 0            | 1          | 1           |
| C-BARR-NOTE      | Barriers - Notes                        | 0            | 2          | 1           |
| C-BARR-PNTS      | Barriers - Points (Non-Plotting)        | 0            | 1          | 0           |

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| <u>Name</u> | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|-----------------------------------------|--------------|------------|-------------|
| C-BARR-PTRN | Barriers - Pattern                      | 0            | 1          | 1           |
| C-BARR-SYMB | Barriers - Symbols                      | 0            | 1          | 1           |
| C-BARR-TEXT | Barriers - Text                         | 0            | 2          | 1           |
| C-BARR-VBFN | Barriers - Visual Barrier Fence         | 0            | 1          | 1           |
| C-BARR-WORK | Barriers - User Work (Non-Plotting)     | 0            | 1          | 0           |
| C-BLDG      | Buildings - Base level (Uncontrolled)   | 0            | 1          | 1           |
| C-BLDG-DIMS | Buildings - Dimensions                  | 0            | 2          | 1           |
| C-BLDG-NOTE | Buildings - Notes                       | 0            | 2          | 1           |
| C-BLDG-OTLN | Buildings - Structure outlines          | 0            | 1          | 1           |
| C-BLDG-PNTS | Buildings - Points (Non-Plotting)       | 0            | 1          | 0           |
| C-BLDG-PTRN | Buildings - Pattern                     | 0            | 1          | 1           |
| C-BLDG-SYMB | Buildings - Symbols                     | 0            | 1          | 1           |
| C-BLDG-TEXT | Buildings - TEXT                        | 0            | 2          | 1           |
| C-BLDG-WORK | Buildings - User Work (Non-Plotting)    | 0            | 1          | 0           |
| C-BLN0      | Base Line 0 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN0-COGO | Base Line 0 - COGO points               | 0            | 1          | 1           |
| C-BLN0-DIMS | Base Line 0 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN0-LINE | Base Line 0 - Center/L101               | L101         | 1          | 1           |
| C-BLN0-NOTE | Base Line 0 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN0-PNTS | Base Line 0 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN0-PTRN | Base Line 0 - Pattern                   | 0            | 1          | 1           |
| C-BLN0-SYMB | Base Line 0 - Symbols                   | 0            | 1          | 1           |
| C-BLN0-TEXT | Base Line 0 - Annotation text           | 0            | 2          | 1           |
| C-BLN0-WORK | Base Line 0 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN1      | Base Line 1 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN1-COGO | Base Line 1 - COGO points               | 0            | 1          | 1           |
| C-BLN1-DIMS | Base Line 1 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN1-LINE | Base Line 1 - Center/L101               | L101         | 1          | 1           |
| C-BLN1-NOTE | Base Line 1 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN1-PNTS | Base Line 1 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN1-PTRN | Base Line 1 - Pattern                   | 0            | 1          | 1           |
| C-BLN1-SYMB | Base Line 1 - Symbols                   | 0            | 1          | 1           |
| C-BLN1-TEXT | Base Line 1 - Annotation text           | 0            | 2          | 1           |
| C-BLN1-WORK | Base Line 1 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN2      | Base Line 2 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN2-COGO | Base Line 2 - COGO points               | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|-----------------------------------------|--------------|------------|-------------|
| C-BLN2-DIMS | Base Line 2 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN2-LINE | Base Line 2 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN2-NOTE | Base Line 2 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN2-PNTS | Base Line 2 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN2-PTRN | Base Line 2 - Pattern                   | 0            | 1          | 1           |
| C-BLN2-SYMB | Base Line 2 - Symbols                   | 0            | 1          | 1           |
| C-BLN2-TEXT | Base Line 2 - Annotation text           | 0            | 2          | 1           |
| C-BLN2-WORK | Base Line 2 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN3      | Base Line 3 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN3-COGO | Base Line 3 - COGO points               | 0            | 1          | 1           |
| C-BLN3-DIMS | Base Line 3 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN3-LINE | Base Line 3 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN3-NOTE | Base Line 3 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN3-PNTS | Base Line 3 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN3-PTRN | Base Line 3 - Pattern                   | 0            | 1          | 1           |
| C-BLN3-SYMB | Base Line 3 - Symbols                   | 0            | 1          | 1           |
| C-BLN3-TEXT | Base Line 3 - Annotation text           | 0            | 2          | 1           |
| C-BLN3-WORK | Base Line 3 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN4      | Base Line 4 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN4-COGO | Base Line 4 - COGO points               | 0            | 1          | 1           |
| C-BLN4-DIMS | Base Line 4 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN4-LINE | Base Line 4 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN4-NOTE | Base Line 4 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN4-PNTS | Base Line 4 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN4-PTRN | Base Line 4 - Pattern                   | 0            | 1          | 1           |
| C-BLN4-SYMB | Base Line 4 - Symbols                   | 0            | 1          | 1           |
| C-BLN4-TEXT | Base Line 4 - Annotation text           | 0            | 2          | 1           |
| C-BLN4-WORK | Base Line 4 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN5      | Base Line 5 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN5-COGO | Base Line 5 - COGO points               | 0            | 1          | 1           |
| C-BLN5-DIMS | Base Line 5 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN5-LINE | Base Line 5 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN5-NOTE | Base Line 5 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN5-PNTS | Base Line 5 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN5-PTRN | Base Line 5 - Pattern                   | 0            | 1          | 1           |
| C-BLN5-SYMB | Base Line 5 - Symbols                   | 0            | 1          | 1           |
| C-BLN5-TEXT | Base Line 5 - Annotation text           | 0            | 2          | 1           |

| <u>Name</u> | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|-----------------------------------------|--------------|------------|-------------|
| C-BLN5-WORK | Base Line 5 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN6      | Base Line 6 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN6-COGO | Base Line 6 - COGO points               | 0            | 1          | 1           |
| C-BLN6-DIMS | Base Line 6 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN6-LINE | Base Line 6 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN6-NOTE | Base Line 6 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN6-PNTS | Base Line 6 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN6-PTRN | Base Line 6 - Pattern                   | 0            | 1          | 1           |
| C-BLN6-SYMB | Base Line 6 - Symbols                   | 0            | 1          | 1           |
| C-BLN6-TEXT | Base Line 6 - Annotation text           | 0            | 2          | 1           |
| C-BLN6-WORK | Base Line 6 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN7      | Base Line 7 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN7-COGO | Base Line 7 - COGO points               | 0            | 1          | 1           |
| C-BLN7-DIMS | Base Line 7 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN7-LINE | Base Line 7 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN7-NOTE | Base Line 7 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN7-PNTS | Base Line 7 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN7-PTRN | Base Line 7 - Pattern                   | 0            | 1          | 1           |
| C-BLN7-SYMB | Base Line 7 - Symbols                   | 0            | 1          | 1           |
| C-BLN7-TEXT | Base Line 7 - Annotation text           | 0            | 2          | 1           |
| C-BLN7-WORK | Base Line 7 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN8      | Base Line 8 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN8-COGO | Base Line 8 - COGO points               | 0            | 1          | 1           |
| C-BLN8-DIMS | Base Line 8 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN8-LINE | Base Line 8 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN8-NOTE | Base Line 8 - Notes, Curve Data         | 0            | 2          | 1           |
| C-BLN8-PNTS | Base Line 8 - Points (Non-Plotting)     | 0            | 1          | 0           |
| C-BLN8-PTRN | Base Line 8 - Pattern                   | 0            | 1          | 1           |
| C-BLN8-SYMB | Base Line 8 - Symbols                   | 0            | 1          | 1           |
| C-BLN8-TEXT | Base Line 8 - Annotation text           | 0            | 2          | 1           |
| C-BLN8-WORK | Base Line 8 - User work (Non-Plotting)  | 0            | 1          | 0           |
| C-BLN9      | Base Line 9 - Base level (Uncontrolled) | 0            | 1          | 1           |
| C-BLN9-COGO | Base Line 9 - COGO points               | 0            | 1          | 1           |
| C-BLN9-DIMS | Base Line 9 - Dimensions, Stationing    | 0            | 2          | 1           |
| C-BLN9-LINE | Base Line 9 - Center/Base Line          | L101         | 1          | 1           |
| C-BLN9-NOTE | Base Line 9 - Notes, Curve Data         | 0            | 2          | 1           |

| <u>Name</u>      | <u>Description</u>                                                | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-------------------------------------------------------------------|--------------|------------|-------------|
| C-BLN9-PNTS      | Base Line 9 - Points (Non-Plotting)                               | 0            | 1          | 0           |
| C-BLN9-PTRN      | Base Line 9 - Pattern                                             | 0            | 1          | 1           |
| C-BLN9-SYMB      | Base Line 9 - Symbols                                             | 0            | 1          | 1           |
| C-BLN9-TEXT      | Base Line 9 - Annotation text                                     | 0            | 2          | 1           |
| C-BLN9-WORK      | Base Line 9 - User work (Non-Plotting)                            | 0            | 1          | 0           |
| C-CATV           | Cable TV                                                          | 0            | 1          | 1           |
| C-CATV-BERM      | Cable TV - Berm for liquids retention                             | 0            | 1          | 1           |
| C-CATV-DIMS      | Cable TV - Dimensions                                             | 0            | 2          | 1           |
| C-CATV-DUCT      | Cable TV - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-CATV-EQPM      | Cable TV - Equipment and Pad                                      | 0            | 1          | 1           |
| C-CATV-GUYS      | Cable TV - Guying equipment                                       | 0            | 1          | 1           |
| C-CATV-HYDR      | Cable TV - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-CATV-JBOX      | Cable TV - Junction Box                                           | 0            | 1          | 1           |
| C-CATV-LINE      | Cable TV - Lines                                                  | L406         | 4          | 1           |
| C-CATV-LINE-DBUR | Cable TV - Direct Buried Underground Lines                        | L408         | 4          | 1           |
| C-CATV-LINE-OVHD | Cable TV - Overhead Lines                                         | L406         | 4          | 1           |
| C-CATV-LINE-UNDR | Cable TV - Underground Lines                                      | L407         | 4          | 1           |
| C-CATV-MARK      | Cable TV - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-CATV-METR      | Cable TV - Meters and instrumentation                             | 0            | 1          | 1           |
| C-CATV-MHOL      | Cable TV - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-CATV-NOTE      | Cable TV - Notes                                                  | 0            | 2          | 1           |
| C-CATV-PERC      | Cable TV - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-CATV-PITS      | Cable TV - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-CATV-PLNT      | Cable TV - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-CATV-PNTS      | Cable TV - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-CATV-POLE      | Cable TV - Pole                                                   | 0            | 1          | 1           |
| C-CATV-PTRN      | Cable TV - Pattern                                                | 0            | 1          | 1           |
| C-CATV-SITE      | Cable TV - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-CATV-SYMB      | Cable TV - Symbols                                                | 0            | 1          | 1           |
| C-CATV-TEXT      | Cable TV - Text                                                   | 0            | 2          | 1           |
| C-CATV-TRCH      | Cable TV - Fuel line trench                                       | 0            | 1          | 1           |
| C-CATV-WELL      | Cable TV - Wells                                                  | 0            | 1          | 1           |
| C-CATV-WORK      | Cable TV - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-CATV-XFMR      | Cable TV - Transformers                                           | 0            | 1          | 1           |
| C-CHAN           | Channels (Navigable)                                              | 0            | 1          | 1           |
| C-CHAN-DIMS      | Channels - Dimensions                                             | 0            | 2          | 1           |
| C-CHAN-EDGE      | Channels - Edge                                                   | 0            | 1          | 1           |
| C-CHAN-LINE      | Channels - Line                                                   | L300         | 1          | 1           |

| <u>Name</u> | <u>Description</u>                         | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|--------------------------------------------|--------------|------------|-------------|
| C-CHAN-NOTE | Channels - Notes                           | 0            | 2          | 1           |
| C-CHAN-PNTS | Channels - Points (Non-Plotting)           | 0            | 1          | 0           |
| C-CHAN-PTRN | Channels - Pattern                         | 0            | 1          | 1           |
| C-CHAN-SYMB | Channels - Symbols                         | 0            | 1          | 1           |
| C-CHAN-TEXT | Channels - Text                            | 0            | 2          | 1           |
| C-CHAN-WORK | Channels - User Work (Non-Plotting)        | 0            | 1          | 0           |
| C-CREK      | Creek, Stream, Pond or Minor Water Courses | 0            | 1          | 1           |
| C-CREK-DIMS | Creek - Dimensions                         | 0            | 2          | 1           |
| C-CREK-EDGE | Creek - Edge                               | L300         | 1          | 1           |
| C-CREK-LINE | Creek - Line                               | L300         | 1          | 1           |
| C-CREK-NOTE | Creek - Notes                              | 0            | 2          | 1           |
| C-CREK-PNTS | Creek - Points (Non-Plotting)              | 0            | 1          | 0           |
| C-CREK-PTRN | Creek - Pattern                            | 0            | 1          | 1           |
| C-CREK-SYMB | Creek - Symbols                            | 0            | 1          | 1           |
| C-CREK-TEXT | Creek - Text                               | 0            | 2          | 1           |
| C-CREK-WORK | Creek - User Work (Non-Plotting)           | 0            | 1          | 0           |
| C-CURB      | Curbs and Gutters                          | 0            | 1          | 1           |
| C-CURB-BACK | Curbs - Back of Curb                       | 0            | 2          | 1           |
| C-CURB-BOTM | Curbs - Bottom of Curb                     | 0            | 2          | 1           |
| C-CURB-DIMS | Curbs - Dimensions                         | 0            | 2          | 1           |
| C-CURB-NOTE | Curbs - Note                               | 0            | 2          | 1           |
| C-CURB-PNTS | Curbs - Points (Non-Plotting)              | 0            | 1          | 0           |
| C-CURB-PTRN | Curbs - Pattern                            | 0            | 1          | 1           |
| C-CURB-SYMB | Curbs - Symbols                            | 0            | 1          | 1           |
| C-CURB-TEXT | Curbs - Text                               | 0            | 2          | 1           |
| C-CURB-TOPP | Curbs - Top of Curb                        | 0            | 2          | 1           |
| C-CURB-UNDR | Curbs - Bottom - non plotting              | 0            | 1          | 1           |
| C-CURB-WORK | Curbs - User Work (Non-Plotting)           | 0            | 1          | 0           |
| C-DRIV      | Driveways                                  | 0            | 1          | 1           |
| C-DRIV-DIMS | Driveways - Dimensions                     | 0            | 2          | 1           |
| C-DRIV-EDGE | Driveways - Edge of                        | L102         | 1          | 1           |
| C-DRIV-LINE | Driveways - Lines                          | L101         | 1          | 1           |
| C-DRIV-NOTE | Driveways - Notes                          | 0            | 2          | 1           |
| C-DRIV-PNTS | Driveways - Points (Non-Plotting)          | 0            | 1          | 0           |
| C-DRIV-PTRN | Driveways - Pattern                        | 0            | 1          | 1           |
| C-DRIV-SYMB | Driveways - Symbols                        | 0            | 1          | 1           |
| C-DRIV-TEXT | Driveways - Text                           | 0            | 2          | 1           |

| <u>Name</u>      | <u>Description</u>                                       | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|----------------------------------------------------------|--------------|------------|-------------|
| C-DRIV-WORK      | Driveways - User Work (Non-Plotting)                     | 0            | 1          | 0           |
| C-DTCH           | Ditch, Swale or Wash                                     | 0            | 1          | 1           |
| C-DTCH -SWAL     | Ditch - Swale                                            | L302         | 1          | 1           |
| C-DTCH-BOTM      | Ditch: Bottom of Ditch                                   | L301         | 1          | 1           |
| C-DTCH-CNTR      | Ditch: Centerline of Ditch                               | L302         | 1          | 1           |
| C-DTCH-DIMS      | Ditch - Dimensions                                       | 0            | 2          | 1           |
| C-DTCH-DRAW      | Ditch - Draw                                             | 0            | 1          | 1           |
| C-DTCH-NOTE      | Ditch - Note                                             | 0            | 2          | 1           |
| C-DTCH-PAVE      | Ditch - Paved                                            | 0            | 1          | 1           |
| C-DTCH-PNTS      | Ditch - Points (Non-Plotting)                            | 0            | 1          | 0           |
| C-DTCH-PTRN      | Ditch - Pattern                                          | 0            | 1          | 1           |
| C-DTCH-SYMB      | Ditch - Symbols                                          | 0            | 1          | 1           |
| C-DTCH-TEXT      | Ditch - Text                                             | 0            | 2          | 1           |
| C-DTCH-TOPD      | Ditch - Top of Ditch                                     | 0            | 1          | 1           |
| C-DTCH-WORK      | Ditch - User Work (Non-Plotting)                         | 0            | 1          | 0           |
| C-EROS           | Erosion and Sediment Control Devices                     | 0            | 1          | 1           |
| C-EROS-BARR      | Erosion - Vapor/Capillary water barriers                 | 0            | 1          | 1           |
| C-EROS-CNTE      | Erosion - Construction Entrance                          | 0            | 1          | 1           |
| C-EROS-DIMS      | Erosion - Dimensions                                     | 0            | 2          | 1           |
| C-EROS-DISC      | Erosion - Discharge Point                                | 0            | 1          | 1           |
| C-EROS-DTCH      | Erosion - Ditch                                          | 0            | 1          | 1           |
| C-EROS-DTCH-TEMP | Erosion - Temporary Ditch                                | L305         | 1          | 1           |
| C-EROS-DVVK      | Erosion - Diversion Dike                                 | 0            | 1          | 1           |
| C-EROS-FENC      | Erosion - Protective Fence                               | L306         | 1          | 1           |
| C-EROS-GABN      | Erosion - Gabions                                        | 0            | 1          | 1           |
| C-EROS-INPR      | Erosion - Inlet Protection                               | 0            | 1          | 1           |
| C-EROS-LEVE      | Erosion - Levee                                          | 0            | 1          | 1           |
| C-EROS-MATT      | Erosion - Matt                                           | 0            | 1          | 1           |
| C-EROS-NOTE      | Erosion - Notes                                          | 0            | 2          | 1           |
| C-EROS-OLSF      | Erosion - Over Land Sheet Flow                           | 0            | 1          | 1           |
| C-EROS-PIPE-TEMP | Erosion - Temporary Pipe                                 | L481         | 1          | 1           |
| C-EROS-PNTS      | Erosion - Points (Non-Plotting)                          | 0            | 1          | 0           |
| C-EROS-PTRN      | Erosion - Pattern                                        | 0            | 1          | 1           |
| C-EROS-RRAP      | Erosion - Riprap, Stone Protection, Jetties, Breakwaters | 0            | 1          | 1           |
| C-EROS-SDTR      | Erosion - Sediment Trap                                  | 0            | 1          | 1           |
| C-EROS-SILT      | Erosion - Silt control devices                           | 0            | 1          | 1           |
| C-EROS-SILT-BASN | Erosion - Silt Basin                                     | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                         | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------------------------|--------------|------------|-------------|
| C-EROS-SILT-FENC | Erosion - Silt Fence                                       | L307         | 1          | 1           |
| C-EROS-SILT-SOCK | Erosion - Silt Sock                                        | 0            | 1          | 1           |
| C-EROS-SILT-TRAP | Erosion - Silt Trap                                        | 0            | 1          | 1           |
| C-EROS-SSLT      | Erosion - Super Silt Fence                                 | 0            | 1          | 1           |
| C-EROS-SYMB      | Erosion - Symbols                                          | 0            | 1          | 1           |
| C-EROS-TEXT      | Erosion - Text                                             | 0            | 2          | 1           |
| C-EROS-TOEB      | Erosion - Toe / Bottom of Berm                             | 0            | 1          | 1           |
| C-EROS-TOPB      | Erosion - Top of Berm                                      | 0            | 1          | 1           |
| C-EROS-WEIR      | Erosion - Weirs                                            | 0            | 1          | 1           |
| C-EROS-WORK      | Erosion - User Work (Non-Plotting)                         | 0            | 1          | 0           |
| C-ESMT           | Easements                                                  | 0            | 1          | 1           |
| C-ESMT-CDAT      | Easements - Property Lines, Curve Data                     | 0            | 1          | 1           |
| C-ESMT-CONS-TEMP | Easements - Temporary Construction Easement                | 0            | 1          | 1           |
| C-ESMT-DIMS      | Easements - Dimensions                                     | 0            | 2          | 1           |
| C-ESMT-LGAL      | Easements - Required Legal Easement lines                  | 0            | 1          | 1           |
| C-ESMT-LINE      | Easements - Property Lines                                 | 0            | 1          | 1           |
| C-ESMT-NOTE      | Easements - Notes                                          | 0            | 2          | 1           |
| C-ESMT-PNTS      | Easements - Points (Non-Plotting)                          | 0            | 1          | 0           |
| C-ESMT-PTRN      | Easements - Pattern                                        | 0            | 1          | 1           |
| C-ESMT-RWAY      | Easement - Legal R/W Lines                                 | L200         | 1          | 1           |
| C-ESMT-RWAY-ACQU | Easement - Required R/W Lines                              | L201         | 4          | 1           |
| C-ESMT-SYMB      | Easements - Symbols                                        | 0            | 1          | 1           |
| C-ESMT-TEXT      | Easements - Text                                           | 0            | 2          | 1           |
| C-ESMT-WORK      | Easements - User Work (Non-Plotting)                       | 0            | 1          | 0           |
| C-FIBR           | Fiber Optic                                                | 0            | 1          | 1           |
| C-FIBR-BERM      | Fiber Optic - Berm for liquids retention                   | 0            | 1          | 1           |
| C-FIBR-DIMS      | Fiber Optic - Dimensions                                   | 0            | 2          | 1           |
| C-FIBR-DUCT      | Fiber Optic - Ducts and conduits (vacant) for future lines | 0            | 1          | 1           |
| C-FIBR-EQPM      | Fiber Optic - Equipment and Pad                            | 0            | 1          | 1           |
| C-FIBR-GUYS      | Fiber Optic - Guying equipment                             | 0            | 1          | 1           |
| C-FIBR-HYDR      | Fiber Optic - Hydrants and Fire Department connections     | 0            | 1          | 1           |
| C-FIBR-JBOX      | Fiber Optic - Junction Box                                 | 0            | 1          | 1           |
| C-FIBR-LINE      | Fiber Optic - Lines                                        | L403         | 1          | 1           |
| C-FIBR-LINE-DBUR | Fiber Optic - Direct Buried Underground Lines              | L405         | 1          | 1           |
| C-FIBR-LINE-OVHD | Fiber Optic - Overhead Lines                               | L403         | 1          | 1           |
| C-FIBR-LINE-UNDR | Fiber Optic - Underground Lines                            | L404         | 1          | 1           |
| C-FIBR-MARK      | Fiber Optic - Cell - Above Ground Markers                  | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                                                   | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|----------------------------------------------------------------------|--------------|------------|-------------|
| C-FIBR-METR | Fiber Optic - Meters and instrumentation                             | 0            | 1          | 1           |
| C-FIBR-MHOL | Fiber Optic - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-FIBR-NOTE | Fiber Optic - Notes                                                  | 0            | 2          | 1           |
| C-FIBR-PERC | Fiber Optic - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-FIBR-PITS | Fiber Optic - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-FIBR-PLNT | Fiber Optic - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-FIBR-PNTS | Fiber Optic - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-FIBR-POLE | Fiber Optic - Pole                                                   | 0            | 1          | 1           |
| C-FIBR-PTRN | Fiber Optic - Pattern                                                | 0            | 1          | 1           |
| C-FIBR-SITE | Fiber Optic - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-FIBR-SYMB | Fiber Optic - Symbols                                                | 0            | 1          | 1           |
| C-FIBR-TEXT | Fiber Optic - Text                                                   | 0            | 2          | 1           |
| C-FIBR-TRCH | Fiber Optic - Fuel line trench                                       | 0            | 1          | 1           |
| C-FIBR-WELL | Fiber Optic - Wells                                                  | 0            | 1          | 1           |
| C-FIBR-WORK | Fiber Optic - User Work (Non-Plotting)                               | 0            | 1          | 1           |
| C-FIBR-XFMR | Fiber Optic - Transformers                                           | 0            | 1          | 0           |
| C-FLHA      | Flood Hazard Area                                                    | 0            | 1          | 1           |
| C-FLHA-010Y | Flood Hazard Area - 10 Year Mark                                     | 0            | 1          | 1           |
| C-FLHA-025Y | Flood Hazard Area - 25 Year Mark                                     | 0            | 1          | 1           |
| C-FLHA-050Y | Flood Hazard Area - 50 Year Mark                                     | 0            | 1          | 1           |
| C-FLHA-100Y | Flood Hazard Area - 100 Year Mark                                    | 0            | 1          | 1           |
| C-FLHA-200Y | Flood Hazard Area - 200 year mark                                    | 0            | 1          | 1           |
| C-FLHA-500Y | Flood Hazard Area - 500 Year Mark                                    | 0            | 1          | 1           |
| C-FLHA-DIMS | Flood Hazard Area - Dimensions                                       | 0            | 1          | 1           |
| C-FLHA-NOTE | Flood Hazard Area - Notes                                            | 0            | 2          | 1           |
| C-FLHA-PNTS | Flood Hazard Area - Points (Non-Plotting)                            | 0            | 1          | 0           |
| C-FLHA-PTRN | Flood Hazard Area - Pattern                                          | 0            | 1          | 1           |
| C-FLHA-SYMB | Flood Hazard Area - Symbols                                          | 0            | 1          | 1           |
| C-FLHA-TEXT | Flood Hazard Area - Text                                             | 0            | 2          | 1           |
| C-FLHA-WORK | Flood Hazard Area - User Work (Non-Plotting)                         | 0            | 1          | 0           |
| C-GEOT      | Geotech                                                              | 0            | 1          | 1           |
| C-GEOT-DIMS | Geotech - Dimensions                                                 | 0            | 1          | 1           |
| C-GEOT-NOTE | Geotech - Notes                                                      | 0            | 2          | 1           |
| C-GEOT-PNTS | Geotech - Points (Non-Plotting)                                      | 0            | 1          | 0           |
| C-GEOT-PTRN | Geotech - Pattern                                                    | 0            | 1          | 1           |
| C-GEOT-SYMB | Geotech - Symbols                                                    | 0            | 1          | 1           |
| C-GEOT-TEXT | Geotech - Text                                                       | 0            | 2          | 1           |
| C-GEOT-WORK | Geotech - User Work (Non-Plotting)                                   | 0            | 1          | 0           |

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| <u>Name</u>      | <u>Description</u>                                                   | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|----------------------------------------------------------------------|--------------|------------|-------------|
| C-GRAL           | Guide rail                                                           | 0            | 1          | 1           |
| C-GRAL-DIMS      | Guide rail - Dimensions                                              | 0            | 2          | 1           |
| C-GRAL-ENDT      | Guide rail - End treatment                                           | 0            | 1          | 1           |
| C-GRAL-EXIS      | Guide rail - Existing                                                | L106         | 1          | 1           |
| C-GRAL-MARK      | Guide rail - Markers and Reflectors                                  | 0            | 1          | 1           |
| C-GRAL-NOTE      | Guide rail - Notes                                                   | 0            | 2          | 1           |
| C-GRAL-PNTS      | Guide rail - Points (Non-Plotting)                                   | 0            | 1          | 0           |
| C-GRAL-PROP      | Guide rail - Proposed                                                | 0            | 1          | 1           |
| C-GRAL-PROP-LEFT | Guide rail - Proposed left side                                      | L104         | 2          | 1           |
| C-GRAL-PROP-RGHT | Guide rail - Proposed right side                                     | L105         | 2          | 1           |
| C-GRAL-PTRN      | Guide rail - Pattern                                                 | 0            | 1          | 1           |
| C-GRAL-SYMB      | Guide rail - Symbols                                                 | 0            | 1          | 1           |
| C-GRAL-TEXT      | Guide rail - Text                                                    | 0            | 2          | 1           |
| C-GRAL-WORK      | Guide rail - User Work (Non-Plotting)                                | 0            | 1          | 0           |
| C-MILR           | Military Ranges                                                      | 0            | 1          | 1           |
| C-NGAS           | Natural Gas                                                          | 0            | 1          | 1           |
| C-NGAS-BERM      | Natural Gas - Berm for liquids retention                             | 0            | 1          | 1           |
| C-NGAS-DIMS      | Natural Gas - Dimensions                                             | 0            | 2          | 1           |
| C-NGAS-DUCT      | Natural Gas - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-NGAS-EQPM      | Natural Gas - Equipment and Pad                                      | 0            | 1          | 1           |
| C-NGAS-GUYS      | Natural Gas - Guying equipment                                       | 0            | 1          | 1           |
| C-NGAS-HYDR      | Natural Gas - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-NGAS-JBOX      | Natural Gas - Junction Box                                           | 0            | 1          | 1           |
| C-NGAS-LINE      | Natural Gas - Lines                                                  | L460         | 4          | 1           |
| C-NGAS-LINE-DBUR | Natural Gas - Direct Buried Underground Lines                        | L460         | 4          | 1           |
| C-NGAS-LINE-OVHD | Natural Gas - Overhead Lines                                         | L460         | 1          | 1           |
| C-NGAS-LINE-UNDR | Natural Gas - Underground Lines                                      | L460         | 4          | 1           |
| C-NGAS-MARK      | Natural Gas - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-NGAS-METR      | Natural Gas - Meters and instrumentation                             | 0            | 1          | 1           |
| C-NGAS-MHOL      | Natural Gas - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-NGAS-NOTE      | Natural Gas - Notes                                                  | 0            | 2          | 1           |
| C-NGAS-PERC      | Natural Gas - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-NGAS-PITS      | Natural Gas - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-NGAS-PLNT      | Natural Gas - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-NGAS-PLNTS     | Natural Gas - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-NGAS-POLE      | Natural Gas - Pole                                                   | 0            | 1          | 1           |
| C-NGAS-PTRN      | Natural Gas - Pattern                                                | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                             | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|----------------------------------------------------------------|--------------|------------|-------------|
| C-NGAS-SITE      | Natural Gas - Line - Site (Interior boundary)                  | 0            | 1          | 1           |
| C-NGAS-SYMB      | Natural Gas - Symbols                                          | 0            | 1          | 1           |
| C-NGAS-TEXT      | Natural Gas - Text                                             | 0            | 2          | 1           |
| C-NGAS-TRCH      | Natural Gas - Fuel line trench                                 | 0            | 1          | 1           |
| C-NGAS-WELL      | Natural Gas - Wells                                            | 0            | 1          | 1           |
| C-NGAS-WORK      | Natural Gas - User Work (Non-Plotting)                         | 0            | 1          | 0           |
| C-NGAS-XFMR      | Natural Gas - Transformers                                     | 0            | 1          | 1           |
| C-POWR           | Power                                                          | 0            | 1          | 1           |
| C-POWR-BERM      | Power - Berm for liquids retention                             | 0            | 1          | 1           |
| C-POWR-COND      | Power - Conduits                                               | L420         | 4          | 1           |
| C-POWR-DIMS      | Power - Dimensions                                             | 0            | 2          | 1           |
| C-POWR-DUCT      | Power - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-POWR-EQPM      | Power - Equipment and Pad                                      | 0            | 1          | 1           |
| C-POWR-GUYS      | Power - Guying equipment                                       | 0            | 1          | 1           |
| C-POWR-HYDR      | Power - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-POWR-JBOX      | Power - Junction Box                                           | 0            | 1          | 1           |
| C-POWR-LINE      | Power - Lines                                                  | L409         | 4          | 1           |
| C-POWR-LINE-DBUR | Power - Direct Buried Underground Lines                        | L410         | 4          | 1           |
| C-POWR-LINE-OVHD | Power - Overhead Lines                                         | L409         | 4          | 1           |
| C-POWR-LINE-UNDR | Power - Underground Lines                                      | L410         | 4          | 1           |
| C-POWR-MARK      | Power - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-POWR-METR      | Power - Meters and instrumentation                             | 0            | 1          | 1           |
| C-POWR-MHOL      | Power - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-POWR-NOTE      | Power - Notes                                                  | 0            | 2          | 1           |
| C-POWR-PERC      | Power - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-POWR-PITS      | Power - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-POWR-PLNT      | Power - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-POWR-PNTS      | Power - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-POWR-POLE      | Power - Pole                                                   | 0            | 1          | 1           |
| C-POWR-PTRN      | Power - Pattern                                                | 0            | 1          | 1           |
| C-POWR-SITE      | Power - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-POWR-SYMB      | Power - Symbols                                                | 0            | 1          | 1           |
| C-POWR-TEXT      | Power - Text                                                   | 0            | 2          | 1           |
| C-POWR-TRCH      | Power - Fuel line trench                                       | 0            | 1          | 1           |
| C-POWR-WELL      | Power - Wells                                                  | 0            | 1          | 1           |
| C-POWR-WORK      | Power - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-POWR-XFMR      | Power - Transformers                                           | 0            | 1          | 1           |
| C-PRKG           | Parking Lots                                                   | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                       | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|----------------------------------------------------------|--------------|------------|-------------|
| C-PRKG-DIMS      | Parking Lots - Dimensions                                | 0            | 1          | 1           |
| C-PRKG-EDGE      | Parking Lots - Edge of                                   | 0            | 1          | 1           |
| C-PRKG-LINE      | Parking Lots - Line                                      | 0            | 1          | 1           |
| C-PRKG-NOTE      | Parking Lots - Note                                      | 0            | 2          | 1           |
| C-PRKG-PNTS      | Parking Lots - Points (Non-Plotting)                     | 0            | 1          | 0           |
| C-PRKG-PTRN      | Parking Lots - Pattern                                   | 0            | 1          | 1           |
| C-PRKG-SYMB      | Parking Lots - Symbols                                   | 0            | 1          | 1           |
| C-PRKG-TEXT      | Parking Lots - Text                                      | 0            | 2          | 1           |
| C-PRKG-WORK      | Parking Lots - User Work (Non-Plotting)                  | 0            | 1          | 0           |
| C-PROF           | Profile                                                  | 0            | 1          | 1           |
| C-PROF-AXIS      | Profile - Axis                                           | 0            | 1          | 1           |
| C-PROF-AXIS-TEXT | Profile - Axis - Text                                    | 0            | 1          | 1           |
| C-PROF-AXIS-TITL | Profile - Axis - Title                                   | 0            | 1          | 1           |
| C-PROF-DIMS      | Profile - Dimensions                                     | 0            | 1          | 1           |
| C-PROF-FRAM      | Profile - Frame                                          | 0            | 1          | 1           |
| C-PROF-GRID      | Profile - Grid                                           | 0            | 1          | 1           |
| C-PROF-GRID-MAJR | Profile - Grid - Major                                   | 0            | 1          | 1           |
| C-PROF-GRID-MINR | Profile - Grid - Minor                                   | 0            | 1          | 1           |
| C-PROF-NOTE      | Profile - Notes                                          | 0            | 1          | 1           |
| C-PROF-PNTS      | Profile - Points (Non-Plotting)                          | 0            | 1          | 0           |
| C-PROF-PTRN      | Profile - Pattern                                        | 0            | 1          | 1           |
| C-PROF-SYMB      | Profile - Symbols                                        | 0            | 1          | 1           |
| C-PROF-TEXT      | Profile - Text                                           | 0            | 2          | 1           |
| C-PROF-WORK      | Profile - User Work (Non-Plotting)                       | 0            | 1          | 0           |
| C-PTRO           | Petroleum                                                | 0            | 1          | 1           |
| C-PTRO-BERM      | Petroleum - Berm for liquids retention                   | 0            | 1          | 1           |
| C-PTRO-DIMS      | Petroleum - Dimensions                                   | 0            | 2          | 1           |
| C-PTRO-DUCT      | Petroleum - Ducts and conduits (vacant) for future lines | 0            | 1          | 1           |
| C-PTRO-EQPM      | Petroleum - Equipment and Pad                            | 0            | 1          | 1           |
| C-PTRO-GUYS      | Petroleum - Guying equipment                             | 0            | 1          | 1           |
| C-PTRO-HYDR      | Petroleum - Hydrants and Fire Department connections     | 0            | 1          | 1           |
| C-PTRO-JBOX      | Petroleum - Junction Box                                 | 0            | 1          | 1           |
| C-PTRO-LINE      | Petroleum - Lines                                        | L470         | 4          | 1           |
| C-PTRO-LINE-DBUR | Petroleum - Direct Buried Underground Lines              | L470         | 4          | 1           |
| C-PTRO-LINE-OVHD | Petroleum - Overhead Lines                               | L470         | 4          | 1           |
| C-PTRO-LINE-UNDR | Petroleum - Underground Lines                            | L470         | 4          | 1           |
| C-PTRO-MARK      | Petroleum - Cell - Above Ground Markers                  | 0            | 1          | 1           |
| C-PTRO-METR      | Petroleum - Meters and instrumentation                   | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                                                 | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|--------------------------------------------------------------------|--------------|------------|-------------|
| C-PTRO-MHOL | Petroleum - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-PTRO-NOTE | Petroleum - Notes                                                  | 0            | 2          | 1           |
| C-PTRO-PERC | Petroleum - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-PTRO-PITS | Petroleum - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-PTRO-PLNT | Petroleum - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-PTRO-PNTS | Petroleum - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-PTRO-POLE | Petroleum - Pole                                                   | 0            | 1          | 1           |
| C-PTRO-PTRN | Petroleum - Pattern                                                | 0            | 1          | 1           |
| C-PTRO-SITE | Petroleum - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-PTRO-SYMB | Petroleum - Symbols                                                | 0            | 1          | 1           |
| C-PTRO-TEXT | Petroleum - Text                                                   | 0            | 2          | 1           |
| C-PTRO-TRCH | Petroleum - Fuel line trench                                       | 0            | 1          | 1           |
| C-PTRO-WELL | Petroleum - Wells                                                  | 0            | 1          | 1           |
| C-PTRO-WORK | Petroleum - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-PTRO-XFMR | Petroleum - Transformers                                           | 0            | 1          | 1           |
| C-RAIL      | Railroad                                                           | 0            | 1          | 1           |
| C-RAIL-DIMS | Railroad - Dimensions                                              | 0            | 2          | 1           |
| C-RAIL-EQPM | Railroad - Equipment                                               | 0            | 1          | 1           |
| C-RAIL-NOTE | Railroad - Notes                                                   | 0            | 2          | 1           |
| C-RAIL-PNTS | Railroad - Points (Non-Plotting)                                   | 0            | 1          | 0           |
| C-RAIL-PTRN | Railroad - Pattern                                                 | 0            | 1          | 1           |
| C-RAIL-SGNL | Railroad - Crossing Signal Light                                   | 0            | 1          | 1           |
| C-RAIL-SIGN | Railroad - Sign                                                    | 0            | 1          | 1           |
| C-RAIL-SYMB | Railroad - Symbols                                                 | 0            | 1          | 1           |
| C-RAIL-TEXT | Railroad - Text                                                    | 0            | 2          | 1           |
| C-RAIL-TRAK | Railroad - Single Track                                            | L260         | 1          | 1           |
| C-RAIL-WORK | Railroad - User Work (Non-Plotting)                                | 0            | 1          | 0           |
| C-ROAD      | Roadway                                                            | 0            | 1          | 1           |
| C-ROAD-BNCH | Roadway - Benching                                                 | 0            | 1          | 1           |
| C-ROAD-BRDG | Roadway - Bridge Structure Outline                                 | 0            | 1          | 1           |
| C-ROAD-CNTR | Roadway - Centerline (Non-Patterned)                               | L100         | 1          | 1           |
| C-ROAD-DIMS | Roadway - Dimensions                                               | 0            | 2          | 1           |
| C-ROAD-EDGE | Roadway - Edge of Roadway (Pavement)                               | L100         | 2          | 1           |
| C-ROAD-HING | Roadway - Hinge Point                                              | 0            | 1          | 1           |
| C-ROAD-JNTS | Roadway - Joints - Expansion, Centerline etc.                      | 0            | 1          | 1           |
| C-ROAD-LANE | Roadway - Edge of Lane                                             | 0            | 1          | 1           |
| C-ROAD-MEDN | Roadway - Edge of Median                                           | 0            | 1          | 1           |
| C-ROAD-MISC | Roadway - Miscellaneous Items                                      | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                                            | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|---------------------------------------------------------------|--------------|------------|-------------|
| C-ROAD-NOTE | Roadway - Notes                                               | 0            | 2          | 1           |
| C-ROAD-PNTS | Roadway - Points (Non-Plotting)                               | 0            | 1          | 0           |
| C-ROAD-PTRN | Roadway - Pattern                                             | 0            | 1          | 1           |
| C-ROAD-SYMB | Roadway - Symbols                                             | 0            | 1          | 1           |
| C-ROAD-TEXT | Roadway - Text                                                | 0            | 2          | 1           |
| C-ROAD-TOEB | Roadway - Toe of Bank or Berm                                 | 0            | 1          | 1           |
| C-ROAD-TOPB | Roadway - Top of Bank or Berm                                 | 0            | 1          | 1           |
| C-ROAD-WORK | Roadway - User Work (Non-Plotting)                            | 0            | 1          | 0           |
| C-RWAY      | Right of Way                                                  | 0            | 1          | 1           |
| C-RWAY-CTLA | Right of Way - Controlled Access                              | 0            | 3          | 1           |
| C-RWAY-DIMS | Right of Way - Dimensions                                     | 0            | 2          | 1           |
| C-RWAY-FENC | Roadway - Right-Of-Way Fence                                  | 0            | 3          | 1           |
| C-RWAY-LGAL | Right of Way - (Copy of) placed as Legal ROW                  | L200         | 3          | 1           |
| C-RWAY-LLOS | Right of Way - Legal Limit of Slope                           | 0            | 1          | 1           |
| C-RWAY-LMON | Right of Way - Monument                                       | 0            | 1          | 1           |
| C-RWAY-NOTE | Right of Way - Notes                                          | 0            | 2          | 1           |
| C-RWAY-PNTS | Right of Way - Points (Non-Plotting)                          | 0            | 1          | 0           |
| C-RWAY-PTRN | Right of Way - Pattern                                        | 0            | 1          | 1           |
| C-RWAY-RROW | Right of Way - Required                                       | L201         | 4          | 1           |
| C-RWAY-SYMB | Right of Way - Symbols                                        | 0            | 1          | 1           |
| C-RWAY-TEXT | Right of Way - Text                                           | 0            | 2          | 1           |
| C-RWAY-WORK | Right of Way - User Work (Non-Plotting)                       | 0            | 1          | 0           |
| C-SHDR      | Shoulders                                                     | 0            | 1          | 1           |
| C-SHDR-BOTM | Shoulders - Bottom of Shoulder                                | 0            | 1          | 1           |
| C-SHDR-DIMS | Shoulders - Dimensions                                        | 0            | 2          | 1           |
| C-SHDR-EDGE | Shoulders - Edge of Shoulder                                  | 0            | 3          | 1           |
| C-SHDR-NOTE | Shoulders - Notes                                             | 0            | 2          | 1           |
| C-SHDR-PNTS | Shoulders - Points (Non-Plotting)                             | 0            | 1          | 0           |
| C-SHDR-PTRN | Shoulders - Pattern                                           | 0            | 1          | 1           |
| C-SHDR-SYMB | Shoulders - Symbols                                           | 0            | 1          | 1           |
| C-SHDR-TEXT | Shoulders - Text                                              | 0            | 2          | 1           |
| C-SHDR-WORK | Shoulders - User Work (Non-Plotting)                          | 0            | 1          | 0           |
| C-SSWR      | Sanitary Sewer                                                | 0            | 1          | 1           |
| C-SSWR-BERM | Sanitary Sewer - Berm for liquids retention                   | 0            | 1          | 1           |
| C-SSWR-DIMS | Sanitary Sewer - Dimensions                                   | 0            | 2          | 1           |
| C-SSWR-DUCT | Sanitary Sewer - Ducts and conduits (vacant) for future lines | 0            | 1          | 1           |
| C-SSWR-EQPM | Sanitary Sewer - Equipment and Pad                            | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-------------------------------------------------------------------------|--------------|------------|-------------|
| C-SSWR-GUYS      | Sanitary Sewer - Guying equipment                                       | 0            | 1          | 1           |
| C-SSWR-HYDR      | Sanitary Sewer - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-SSWR-JBOX      | Sanitary Sewer - Junction Box                                           | 0            | 1          | 1           |
| C-SSWR-LINE      | Sanitary Sewer - Lines                                                  | L440         | 5          | 1           |
| C-SSWR-LINE-DBUR | Sanitary sewer - Direct Buried Underground Lines                        | L440         | 5          | 1           |
| C-SSWR-LINE-OVHD | Sanitary Sewer - Overhead Lines                                         | L440         | 5          | 1           |
| C-SSWR-LINE-UNDR | Sanitary Sewer - Underground Lines                                      | L440         | 5          | 1           |
| C-SSWR-MARK      | Sanitary Sewer - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-SSWR-METR      | Sanitary Sewer - Meters and instrumentation                             | 0            | 1          | 1           |
| C-SSWR-MHOL      | Sanitary Sewer - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-SSWR-NOTE      | Sanitary Sewer - Notes                                                  | 0            | 2          | 1           |
| C-SSWR-PERC      | Sanitary Sewer - Perc                                                   | 0            | 1          | 1           |
| C-SSWR-PIPE      | Sanitary Sewer - Pipe                                                   | L440         | 5          | 1           |
| C-SSWR-PITS      | Sanitary Sewer - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-SSWR-PLNT      | Sanitary Sewer - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-SSWR-PNTS      | Sanitary Sewer - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-SSWR-POLE      | Sanitary Sewer - Pole                                                   | 0            | 1          | 1           |
| C-SSWR-PTRN      | Sanitary Sewer - Pattern                                                | 0            | 1          | 1           |
| C-SSWR-SEPT      | Sanitary Sewer - Septic Tank                                            | 0            | 1          | 1           |
| C-SSWR-SITE      | Sanitary Sewer - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-SSWR-SYMB      | Sanitary Sewer - Symbols                                                | 0            | 1          | 1           |
| C-SSWR-TEXT      | Sanitary Sewer - Text                                                   | 0            | 2          | 1           |
| C-SSWR-TRCH      | Sanitary Sewer - Fuel line trench                                       | 0            | 1          | 1           |
| C-SSWR-WELL      | Sanitary Sewer - Wells                                                  | 0            | 1          | 1           |
| C-SSWR-WORK      | Sanitary Sewer - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-SSWR-XFMR      | Sanitary Sewer - Transformers                                           | 0            | 1          | 1           |
| C-STRM           | Storm Water Drainage                                                    | 0            | 1          | 1           |
| C-STRM-AREA      | Storm Water - Area                                                      | 0            | 1          | 1           |
| C-STRM-CHUT      | Storm Water - Chutes and Energy dissipator                              | 0            | 1          | 1           |
| C-STRM-CHUT-PAVE | Storm Water - Paved energy dissipator                                   | 0            | 1          | 1           |
| C-STRM-CHUT-ROCK | Storm Water - Rock energy dissipator                                    | 0            | 1          | 1           |
| C-STRM-CULV      | Storm Water - Culvert                                                   | 0            | 1          | 1           |
| C-STRM-CULV-BOXC | Storm Water - Culvert Box                                               | 0            | 1          | 1           |
| C-STRM-CULV-OPEN | Storm Water - Culvert Open                                              | 0            | 1          | 1           |
| C-STRM-DETB      | Storm Water - Detention Basins                                          | 0            | 1          | 1           |
| C-STRM-DIMS      | Storm Water - Dimensions                                                | 0            | 2          | 1           |
| C-STRM-DTCH      | Storm Water - Ditch                                                     | L301         | 1          | 1           |
| C-STRM-HDWL      | Storm Water - Headwalls and End walls                                   | 0            | 1          | 1           |
| C-STRM-INLT      | Storm Water - Inlets (curb, surface, and catch basins)                  | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                             | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------------|--------------|------------|-------------|
| C-STRM-MARK      | Storm Water - Surface Markers/Signs            | 0            | 1          | 1           |
| C-STRM-MHOL      | Storm Water - Manhole                          | 0            | 1          | 1           |
| C-STRM-NOTE      | Storm Water - Notes                            | 0            | 2          | 1           |
| C-STRM-PIPE      | Storm Water - Piping                           | L481         | 5          | 1           |
| C-STRM-PIPE-ABOV | Storm Water - Piping, Above Ground             | L481         | 5          | 1           |
| C-STRM-PIPE-TEMP | Storm Water - Piping, Temporary slope drainage | L481         | 5          | 1           |
| C-STRM-PIPE-UNDR | Storm Water - Piping, Below Ground             | L481         | 5          | 1           |
| C-STRM-PNTS      | Storm Water - Points (Non-Plotting)            | 0            | 1          | 0           |
| C-STRM-PTRN      | Storm Water - Pattern                          | 0            | 1          | 1           |
| C-STRM-STRC      | Storm Water - Structures                       | 0            | 1          | 1           |
| C-STRM-SYMB      | Storm Water - Symbols                          | 0            | 1          | 1           |
| C-STRM-TEXT      | Storm Water - Text                             | 0            | 2          | 1           |
| C-STRM-WORK      | Storm Water - User Work (Non-Plotting)         | 0            | 1          | 0           |
| C-SURF           | Surface                                        | 0            | 1          | 1           |
| C-SURF-BNDY      | Surface - Boundary                             | 0            | 1          | 1           |
| C-SURF-BNDY-EXTR | Surface - Exterior Boundaries                  | 0            | 1          | 1           |
| C-SURF-BNDY-INTR | Surface - Interior Boundaries                  | 0            | 1          | 1           |
| C-SURF-CONT      | Surface - Contours                             | 0            | 1          | 1           |
| C-SURF-CONT-MAJR | Surface - Contours Major                       | 3            | 1          | 1           |
| C-SURF-CONT-MINR | Surface - Contours Minor                       | 2            | 1          | 1           |
| C-SURF-CONT-SPOT | Surface - Contours Spot Elevations             | 0            | 1          | 1           |
| C-SURF-DIMS      | Surface - Dimensions                           | 0            | 1          | 1           |
| C-SURF-ELEV      | Surface - Triangle Elevations                  | 0            | 1          | 1           |
| C-SURF-FALT      | Surface - Fault / Break lines                  | 0            | 1          | 1           |
| C-SURF-LN00      | Surface - Line 00                              | 0            | 1          | 1           |
| C-SURF-LN01      | Surface - Line 01                              | 0            | 1          | 1           |
| C-SURF-LN02      | Surface - Line 02                              | 0            | 1          | 1           |
| C-SURF-LN03      | Surface - Line 03                              | 0            | 1          | 1           |
| C-SURF-LN04      | Surface - Line 04                              | 0            | 1          | 1           |
| C-SURF-LN05      | Surface - Line 05                              | 0            | 1          | 1           |
| C-SURF-LN06      | Surface - Line 06                              | 0            | 1          | 1           |
| C-SURF-LN07      | Surface - Line 07                              | 0            | 1          | 1           |
| C-SURF-LN08      | Surface - Line 08                              | 0            | 1          | 1           |
| C-SURF-LN09      | Surface - Line 09                              | 0            | 1          | 1           |
| C-SURF-LN10      | Surface - Line 10                              | 0            | 1          | 1           |
| C-SURF-LN11      | Surface - Line 11                              | 0            | 1          | 1           |
| C-SURF-LN12      | Surface - Line 12                              | 0            | 1          | 1           |
| C-SURF-LN13      | Surface - Line 13                              | 0            | 1          | 1           |
| C-SURF-LN14      | Surface - Line 14                              | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                               | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|--------------------------------------------------|--------------|------------|-------------|
| C-SURF-LN15 | Surface - Line 15                                | 0            | 1          | 1           |
| C-SURF-LN16 | Surface - Line 16                                | 0            | 1          | 1           |
| C-SURF-LN17 | Surface - Line 17                                | 0            | 1          | 1           |
| C-SURF-LN18 | Surface - Line 18                                | 0            | 1          | 1           |
| C-SURF-LN19 | Surface - Line 19                                | 0            | 1          | 1           |
| C-SURF-LN20 | Surface - Line 20                                | 0            | 1          | 1           |
| C-SURF-NOTE | Surface - Notes                                  | 0            | 1          | 1           |
| C-SURF-PMTR | Surface - Perimeter                              | 0            | 1          | 1           |
| C-SURF-PNTS | Surface - Points (Non-Plotting)                  | 0            | 1          | 0           |
| C-SURF-PTRN | Surface - Pattern                                | 0            | 1          | 1           |
| C-SURF-SLOP | Surface - Triangle Slopes                        | 0            | 1          | 1           |
| C-SURF-SYMB | Surface - Symbols                                | 0            | 1          | 1           |
| C-SURF-TEXT | Surface - Text                                   | 0            | 2          | 1           |
| C-SURF-TRIA | Surface - Triangles                              | 0            | 1          | 1           |
| C-SURF-WORK | Surface - User Work (Non-Plotting)               | 0            | 1          | 0           |
| C-SURV      | Survey Control Points                            | 0            | 1          | 1           |
| C-SURV-CTPT | Proposed survey control points                   | 0            | 1          | 1           |
| C-SURV-DIMS | Survey Control Points - Dimensions               | 0            | 1          | 1           |
| C-SURV-NOTE | Survey Control Points - Notes                    | 0            | 1          | 1           |
| C-SURV-PNTS | Survey Control Points - Points (Non-Plotting)    | 0            | 1          | 0           |
| C-SURV-PTRN | Survey Control Points - Pattern                  | 0            | 1          | 1           |
| C-SURV-SYMB | Survey Control Points - Symbols                  | 0            | 1          | 1           |
| C-SURV-TEXT | Survey Control Points - Text                     | 0            | 2          | 1           |
| C-SURV-WORK | Survey Control Points - User Work (Non-Plotting) | 0            | 1          | 0           |
| C-SWLK      | Sidewalks                                        | 0            | 1          | 1           |
| C-SWLK-DIMS | Sidewalks - Dimensions                           | 0            | 2          | 1           |
| C-SWLK-EDGE | Sidewalks - Edge of                              | 0            | 1          | 1           |
| C-SWLK-NOTE | Sidewalks - Notes                                | 0            | 2          | 1           |
| C-SWLK-PNTS | Sidewalks - Points (Non-Plotting)                | 0            | 1          | 1           |
| C-SWLK-PTRN | Sidewalks - Pattern                              | 0            | 1          | 1           |
| C-SWLK-RAMP | Sidewalks - Handicap Ramp                        | 0            | 1          | 1           |
| C-SWLK-SYMB | Sidewalks - Symbols                              | 0            | 1          | 1           |
| C-SWLK-TEXT | Sidewalks - Text                                 | 0            | 2          | 1           |
| C-SWLK-UNDR | Sidewalks - NON-PLOTTING                         | 0            | 1          | 1           |
| C-SWLK-WORK | Sidewalks - User Work (Non-Plotting)             | 0            | 1          | 0           |
| C-TELP      | Telephone                                        | 0            | 1          | 1           |
| C-TELP-BERM | Telephone - Berm for liquids retention           | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                                 | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------------|--------------|------------|-------------|
| C-TELP-DIMS      | Telephone - Dimensions                                             | 0            | 2          | 1           |
| C-TELP-DUCT      | Telephone - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-TELP-EQPM      | Telephone - Equipment and Pad                                      | 0            | 1          | 1           |
| C-TELP-GUYS      | Telephone - Guying equipment                                       | 0            | 1          | 1           |
| C-TELP-HYDR      | Telephone - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-TELP-JBOX      | Telephone - Junction Box                                           | 0            | 1          | 1           |
| C-TELP-LINE      | Telephone - Lines                                                  | L400         | 1          | 1           |
| C-TELP-LINE-DBUR | Telephone - Direct Buried Underground Lines                        | L402         | 4          | 1           |
| C-TELP-LINE-OVHD | Telephone - Overhead Lines                                         | L400         | 4          | 1           |
| C-TELP-MARK      | Telephone - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-TELP-METR      | Telephone - Meters and instrumentation                             | 0            | 1          | 1           |
| C-TELP-MHOL      | Telephone - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-TELP-NOTE      | Telephone - Notes                                                  | 0            | 2          | 1           |
| C-TELP-PERC      | Telephone - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-TELP-PITS      | Telephone - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-TELP-PLNT      | Telephone - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-TELP-PNTS      | Telephone - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-TELP-POLE      | Telephone - Pole                                                   | 0            | 1          | 1           |
| C-TELP-PTRN      | Telephone - Pattern                                                | 0            | 1          | 1           |
| C-TELP-SITE      | Telephone - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-TELP-SYMB      | Telephone - Symbols                                                | 0            | 1          | 1           |
| C-TELP-TEXT      | Telephone - Text                                                   | 0            | 2          | 1           |
| C-TELP-TRCH      | Telephone - Fuel line trench                                       | 0            | 1          | 1           |
| C-TELP-WELL      | Telephone - Wells                                                  | 0            | 1          | 1           |
| C-TELP-WORK      | Telephone - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-TELP-XFMR      | Telephone - Transformers                                           | 0            | 1          | 1           |
| C-TOPO           | Topography                                                         | 0            | 1          | 1           |
| C-TOPO-BKLN      | Topography - Break lines                                           | 0            | 1          | 1           |
| C-TOPO-BLBD-DBBL | Topography - Billboard Double                                      | 0            | 1          | 1           |
| C-TOPO-BLBD-SNGL | Topography - Billboard Single                                      | 0            | 1          | 1           |
| C-TOPO-CUTT      | Topography - Cut                                                   | 0            | 1          | 1           |
| C-TOPO-DIMS      | Topography - Dimensions                                            | 0            | 2          | 1           |
| C-TOPO-FENC      | Topography - Fence                                                 | L230         | 1          | 1           |
| C-TOPO-FILL      | Topography - Fill                                                  | L108         | 1          | 1           |
| C-TOPO-NOTE      | Topography - Notes                                                 | 0            | 2          | 1           |
| C-TOPO-PNTS      | Topography - Points (Non-Plotting)                                 | 0            | 1          | 0           |
| C-TOPO-PTRN      | Topography - Pattern                                               | 0            | 1          | 1           |
| C-TOPO-SYMB      | Topography - Symbols                                               | 0            | 1          | 1           |
| C-TOPO-TEXT      | Topography - Text                                                  | 0            | 2          | 1           |

| <u>Name</u>      | <u>Description</u>                                               | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------------------------------|--------------|------------|-------------|
| C-TOPO-WORK      | Topography - User Work (Non-Plotting)                            | 0            | 1          | 0           |
| C-TRAL           | Trails or Paths                                                  | 0            | 1          | 1           |
| C-TRAL-DIMS      | Trails - Dimensions                                              | 0            | 2          | 1           |
| C-TRAL-EDGE      | Trails - Edge of                                                 | 0            | 1          | 1           |
| C-TRAL-LINE      | Trails - Lines                                                   | 0            | 1          | 1           |
| C-TRAL-NOTE      | Trails - Notes                                                   | 0            | 2          | 1           |
| C-TRAL-PNTS      | Trails - Points (Non-Plotting)                                   | 0            | 1          | 0           |
| C-TRAL-PTRN      | Trails - Pattern                                                 | 0            | 1          | 1           |
| C-TRAL-SYMB      | Trails - Symbols                                                 | 0            | 1          | 1           |
| C-TRAL-TEXT      | Trails - Text                                                    | 0            | 2          | 1           |
| C-TRAL-WORK      | Trails - User Work (Non-Plotting)                                | 0            | 1          | 0           |
| C-UTIL           | Utility                                                          | 0            | 1          | 1           |
| C-UTIL-BERM      | Utility - Berm for liquids retention                             | 0            | 1          | 1           |
| C-UTIL-COMB      | Utility - Combined                                               | 0            | 4          | 1           |
| C-UTIL-DIMS      | Utility - Dimensions                                             | 0            | 2          | 1           |
| C-UTIL-DUCT      | Utility - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-UTIL-EQPM      | Utility - Equipment and Pad                                      | 0            | 1          | 1           |
| C-UTIL-GUYS      | Utility - Guying equipment                                       | 0            | 1          | 1           |
| C-UTIL-HYDR      | Utility - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-UTIL-JBOX      | Utility - Junction Box                                           | 0            | 1          | 1           |
| C-UTIL-LINE      | Utility - Lines                                                  | 0            | 1          | 1           |
| C-UTIL-LINE-DBUR | Utility - Direct Buried Underground Lines                        | 0            | 1          | 1           |
| C-UTIL-LINE-OVHD | Utility - Overhead Lines                                         | 0            | 1          | 1           |
| C-UTIL-LINE-UNDR | Utility - Underground Lines                                      | 0            | 1          | 1           |
| C-UTIL-MARK      | Utility - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-UTIL-METR      | Utility - Meters and instrumentation                             | 0            | 1          | 1           |
| C-UTIL-MHOL      | Utility - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-UTIL-NOTE      | Utility - Notes                                                  | 0            | 2          | 1           |
| C-UTIL-PERC      | Utility - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-UTIL-PITS      | Utility - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-UTIL-PLNT      | Utility - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-UTIL-PNTS      | Utility - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-UTIL-POLE      | Utility - Pole                                                   | 0            | 1          | 1           |
| C-UTIL-PTRN      | Utility - Pattern                                                | 0            | 1          | 1           |
| C-UTIL-SITE      | Utility - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-UTIL-SYMB      | Utility - Symbols                                                | 0            | 1          | 1           |
| C-UTIL-TEXT      | Utility - Text                                                   | 0            | 2          | 1           |
| C-UTIL-TRCH      | Utility - Fuel line trench                                       | 0            | 1          | 1           |

| <u>Name</u> | <u>Description</u>                                                     | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|------------------------------------------------------------------------|--------------|------------|-------------|
| C-UTIL-VLVE | Utility - Valve                                                        | 0            | 1          | 1           |
| C-UTIL-WELL | Utility - Wells                                                        | 0            | 1          | 1           |
| C-UTIL-WORK | Utility - User Work (Non-Plotting)                                     | 0            | 1          | 0           |
| C-UTIL-XFMR | Utility - Transformers                                                 | 0            | 1          | 1           |
| C-VEGE      | Vegetation                                                             | 0            | 1          | 1           |
| C-VEGE-BEDS | Vegetation - Planting beds                                             | L503         | 1          | 1           |
| C-VEGE-BUSH | Vegetation - Bushes and shrubs (e.g., evergreen, deciduous, etc.)      | L500         | 1          | 1           |
| C-VEGE-DIMS | Vegetation - Dimensions                                                | 0            | 1          | 1           |
| C-VEGE-HEDG | Vegetation - Hedge                                                     | L505         | 1          | 1           |
| C-VEGE-IRRG | Vegetation - Irrigation System                                         | 0            | 1          | 1           |
| C-VEGE-NOTE | Vegetation - Notes                                                     | 0            | 2          | 1           |
| C-VEGE-ORCH | Vegetation - Orchard                                                   | L502         | 1          | 1           |
| C-VEGE-PLNT | Vegetation - Planters and planting structures                          | 0            | 1          | 1           |
| C-VEGE-PLTS | Vegetation - Planting plants (e.g., ornamental annuals and perennials) | 0            | 1          | 1           |
| C-VEGE-PNTS | Vegetation - Points (Non-Plotting)                                     | 0            | 1          | 0           |
| C-VEGE-PTRN | Vegetation - Pattern                                                   | 0            | 1          | 1           |
| C-VEGE-SYMB | Vegetation - Symbols                                                   | 0            | 1          | 1           |
| C-VEGE-TEXT | Vegetation - Text                                                      | 0            | 2          | 1           |
| C-VEGE-TREE | Vegetation - Trees (e.g., evergreen, deciduous, etc.)                  | L500         | 1          | 1           |
| C-VEGE-TURF | Vegetation - Lawn areas (turfing limits)                               | L503         | 1          | 1           |
| C-VEGE-VINE | Vegetation - Vine                                                      | L504         | 1          | 1           |
| C-VEGE-WOOD | Vegetation - Woods line                                                | L501         | 1          | 1           |
| C-VEGE-WORK | Vegetation - User Work (Non-Plotting)                                  | 0            | 1          | 0           |
| C-WALL      | Wall (General, as shown on Civil plans)                                | 0            | 1          | 1           |
| C-WALL-BARR | Wall - Barrier WALL                                                    | 0            | 1          | 1           |
| C-WALL-CTLJ | Wall - Control Joints                                                  | 0            | 1          | 1           |
| C-WALL-DIMS | Wall - Dimensions                                                      | 0            | 1          | 1           |
| C-WALL-NOTE | Wall - Notes                                                           | 0            | 2          | 1           |
| C-WALL-NSBR | Wall - Noise Barrier                                                   | 0            | 1          | 1           |
| C-WALL-PNTS | Wall - Points (Non-Plotting)                                           | 0            | 1          | 0           |
| C-WALL-PTRN | Wall - Pattern                                                         | 0            | 1          | 1           |
| C-WALL-RTWL | Wall - Retaining                                                       | 0            | 1          | 1           |
| C-WALL-SHEA | Wall - Structural Bearing or Shear                                     | 0            | 1          | 1           |
| C-WALL-STON | Wall - Stone Wall                                                      | 0            | 1          | 1           |
| C-WALL-SYMB | Wall - Symbols                                                         | 0            | 1          | 1           |
| C-WALL-TEXT | Wall - Text                                                            | 0            | 2          | 1           |
| C-WALL-WORK | Wall - User Work (Non-Plotting)                                        | 0            | 1          | 0           |

| <u>Name</u>      | <u>Description</u>                                             | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|----------------------------------------------------------------|--------------|------------|-------------|
| C-WATR           | Water                                                          | 0            | 1          | 1           |
| C-WATR-BERM      | Water - Berm for liquids retention                             | 0            | 1          | 1           |
| C-WATR-DIMS      | Water - Dimensions                                             | 0            | 2          | 1           |
| C-WATR-DUCT      | Water - Ducts and conduits (vacant) for future lines           | 0            | 1          | 1           |
| C-WATR-EQPM      | Water - Equipment and Pad                                      | 0            | 1          | 1           |
| C-WATR-GUYS      | Water - Guying equipment                                       | 0            | 1          | 1           |
| C-WATR-HYDR      | Water - Hydrants and Fire Department connections               | 0            | 1          | 1           |
| C-WATR-JBOX      | Water - Junction Box                                           | 0            | 1          | 1           |
| C-WATR-LINE      | Water - Lines                                                  | L450         | 4          | 1           |
| C-WATR-LINE-DBUR | Water - Direct Buried Underground Lines                        | L450         | 4          | 1           |
| C-WATR-LINE-OVHD | Water - Overhead Lines                                         | L450         | 4          | 1           |
| C-WATR-LINE-UNDR | Water - Underground Lines                                      | L450         | 4          | 1           |
| C-WATR-MARK      | Water - Cell - Above Ground Markers                            | 0            | 1          | 1           |
| C-WATR-METR      | Water - Meters and instrumentation                             | 0            | 1          | 1           |
| C-WATR-MHOL      | Water - Manholes and junction boxes                            | 0            | 1          | 1           |
| C-WATR-NOTE      | Water - Notes                                                  | 0            | 2          | 1           |
| C-WATR-PERC      | Water - Perc Test Holes and Pits                               | 0            | 1          | 1           |
| C-WATR-PITS      | Water - Pits for vents, valves and other equipment             | 0            | 1          | 1           |
| C-WATR-PLNT      | Water - Plants, pumping stations, storage tanks and reservoirs | 0            | 1          | 1           |
| C-WATR-PNTS      | Water - Points (Non-Plotting)                                  | 0            | 1          | 0           |
| C-WATR-POLE      | Water - Pole                                                   | 0            | 1          | 1           |
| C-WATR-PTRN      | Water - Pattern                                                | 0            | 1          | 1           |
| C-WATR-SITE      | Water - Line - Site (Interior boundary)                        | 0            | 1          | 1           |
| C-WATR-SYMB      | Water - Symbols                                                | 0            | 1          | 1           |
| C-WATR-TEXT      | Water - Text                                                   | 0            | 2          | 1           |
| C-WATR-TRCH      | Water - Fuel line trench                                       | 0            | 1          | 1           |
| C-WATR-WELL      | Water - Wells                                                  | 0            | 1          | 1           |
| C-WATR-WORK      | Water - User Work (Non-Plotting)                               | 0            | 1          | 0           |
| C-WATR-XFMR      | Water - Transformers                                           | 0            | 1          | 1           |
| C-WETL           | Wetlands                                                       | 0            | 1          | 1           |
| C-WETL-BOGS      | Wetlands - Bogs                                                | 0            | 1          | 1           |
| C-WETL-DIMS      | Wetlands - Dimensions                                          | 0            | 2          | 1           |
| C-WETL-MRSH      | Wetlands - Marshes                                             | L304         | 1          | 1           |
| C-WETL-NOTE      | Wetlands - Notes                                               | 0            | 2          | 1           |
| C-WETL-OTLN      | Wetlands - Outline                                             | L304         | 1          | 1           |
| C-WETL-PNTS      | Wetlands - Points (Non-Plotting)                               | 0            | 1          | 0           |
| C-WETL-PTRN      | Wetlands - Pattern                                             | 0            | 1          | 1           |
| C-WETL-SYMB      | Wetlands - Symbols                                             | 0            | 1          | 1           |
| C-WETL-TEXT      | Wetlands - Text                                                | 0            | 2          | 1           |

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| <u>Name</u>      | <u>Description</u>                       | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------|--------------|------------|-------------|
| C-WETL-WORK      | Wetlands - User Work (Non-Plotting)      | 0            | 1          | 0           |
| C-XSEC           | Cross Section                            | 0            | 1          | 1           |
| C-XSEC-AXIS      | Cross Section - Axis                     | 0            | 1          | 1           |
| C-XSEC-AXIS-TEXT | Cross Section - Axis - Text              | 0            | 1          | 1           |
| C-XSEC-AXIS-TITL | Cross Section - Axis - Title             | 0            | 1          | 1           |
| C-XSEC-CELL      | Cross Section - Cells                    | 0            | 1          | 1           |
| C-XSEC-DIMS      | Cross Section - Dimensions               | 0            | 1          | 1           |
| C-XSEC-FRAM      | Cross Section - Frame                    | 0            | 1          | 1           |
| C-XSEC-GRID      | Cross Section - Grid                     | 0            | 1          | 1           |
| C-XSEC-GRID-BLTX | Cross Section - Grid - Base Line Text    | 0            | 1          | 1           |
| C-XSEC-GRID-CLTX | Cross Section - Grid - Center Line Text  | 0            | 1          | 1           |
| C-XSEC-GRID-HVGL | Cross Section - Grid - Center Line Text  | 0            | 1          | 1           |
| C-XSEC-GRID-MAJR | Cross Section - Grid major lines         | 0            | 1          | 1           |
| C-XSEC-GRID-MINR | Cross Section - Grid minor lines         | 0            | 1          | 1           |
| C-XSEC-LINE      | Cross Section - Lines                    | 0            | 1          | 1           |
| C-XSEC-NAME      | Cross Section - Name                     | 0            | 1          | 1           |
| C-XSEC-NAME-TEXT | Cross Section - Name Text                | 0            | 1          | 1           |
| C-XSEC-NOTE      | Cross Section - Notes                    | 0            | 1          | 1           |
| C-XSEC-PNTS      | Cross Section - Points (Non-Plotting)    | 0            | 1          | 0           |
| C-XSEC-PTRN      | Cross Section - Pattern                  | 0            | 1          | 1           |
| C-XSEC-SYMB      | Cross Section - Symbols                  | 0            | 1          | 1           |
| C-XSEC-TEXT      | Cross Section - Text                     | 0            | 1          | 1           |
| C-XSEC-WORK      | Cross Section - User Work (Non-Plotting) | 0            | 1          | 0           |
| Default          |                                          | 0            | 0          | 1           |
| PLT-BNDY         |                                          | 7            | 0          | 1           |
| S-ABUT           | Abutment                                 | 0            | 0          | 1           |
| S-ABUT-CNTR      | Abutment centerlines                     | 4            | 1          | 1           |
| S-ABUT-CONC      | Abutment Concrete Lines                  | 0            | 2          | 1           |
| S-ABUT-DRAN      | Abutment Drainage                        | 0            | 2          | 1           |
| S-ABUT-DRAN-EXST | Abutment Existing Drainage               | 0            | 0          | 1           |
| S-ABUT-EXST-CONC | Abutment Existing Concrete               | 0            | 1          | 1           |
| S-ABUT-EXST-REBR | Abutment Existing Rebar                  | 2            | 2          | 1           |
| S-ABUT-HATC      | Abutment Hatching                        | 0            | 1          | 1           |
| S-ABUT-HIDL      | Abutment Hidden Line                     | 2            | 1          | 1           |
| S-ABUT-MISC      | Abutment Miscellaneous                   | 0            | 0          | 1           |
| S-ABUT-PILE      | Abutment Piling                          | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|---------------------------------------------------------|--------------|------------|-------------|
| S-ABUT-PTRN-01   | Abutment Patterning                                     | 0            | 1          | 1           |
| S-ABUT-PTRN-02   | Abutment Patterning                                     | 0            | 1          | 1           |
| S-ABUT-REBR      | Abutment Rebar                                          | 0            | 3          | 1           |
| S-ABUT-WORK      | Abutment User Work / Scratch (Non-Plotting)             | 0            | 0          | 0           |
| S-ANNO           | Structure Annotation                                    | 0            | 0          | 1           |
| S-ANNO-ATAB      | Structure Auto Tab Import                               | 0            | 0          | 1           |
| S-ANNO-CELL      | Structure Misc. Cells                                   | 0            | 0          | 1           |
| S-ANNO-DIMS-AUTO | Structure automatic dimensioning                        | 0            | 1          | 1           |
| S-ANNO-DIMS-MANL | Structure dimensions, extension lines & arrows          | 0            | 1          | 1           |
| S-ANNO-SCAL-01   | Structure bar scale cells                               | 0            | 2          | 1           |
| S-ANNO-SCAL-02   | Structure bar scale cells                               | 0            | 2          | 1           |
| S-ANNO-SCAL-03   | Structure bar scale cells                               | 0            | 2          | 1           |
| S-ANNO-SEAL      | Structure PE Seal                                       | 0            | 2          | 1           |
| S-ANNO-SHTS      | Structure Sheet Cells                                   | 0            | 0          | 1           |
| S-ANNO-SYMB      | Structure Symbols (cells)                               | 0            | 2          | 1           |
| S-ANNO-T120-01   | Structure lero y 120 text                               | 0            | 2          | 1           |
| S-ANNO-T120-02   | Structure lero y 120 text                               | 0            | 2          | 1           |
| S-ANNO-T120-03   | Structure lero y 120 text                               | 0            | 2          | 1           |
| S-ANNO-T175      | Structure lero y 175 text                               | 0            | 3          | 1           |
| S-ANNO-T200-01   | Structure lero y 200 text                               | 0            | 4          | 1           |
| S-ANNO-T200-02   | Structure lero y 200 text                               | 0            | 4          | 1           |
| S-ANNO-T200-03   | Structure lero y 200 text                               | 0            | 4          | 1           |
| S-ANNO-T240      | Structure lero y 240 text                               | 0            | 4          | 1           |
| S-ANNO-TABL      | Structure Tables                                        | 0            | 0          | 1           |
| S-ANNO-TEXT-EXST | Structure Text - Existing                               | 0            | 0          | 1           |
| S-ANNO-WORK      | Structure Annotation User Work / Scratch (Non-Plotting) | 0            | 0          | 0           |
| S-ANNO-XMRK      | Structure Cross Section Marks                           | 0            | 0          | 1           |
| S-APSL           | Approach Slab                                           | 0            | 0          | 1           |
| S-APSL-CNTR      | Approach Slab centerlines                               | 4            | 1          | 1           |
| S-APSL-CONC      | Approach Slab Concrete Lines                            | 0            | 2          | 1           |
| S-APSL-EXST-CONC | Approach Slab Existing Concrete                         | 0            | 1          | 1           |
| S-APSL-EXST-REBR | Approach Slab Existing Rebar                            | 0            | 2          | 1           |
| S-APSL-HATC      | Approach Slab hatching                                  | 0            | 1          | 1           |
| S-APSL-HIDL      | Approach Slab Hidden Line                               | 2            | 1          | 1           |
| S-APSL-MISC      | Approach Slab Miscellaneous                             | 0            | 0          | 1           |
| S-APSL-PTRN-01   | Approach Slab Patterning                                | 0            | 1          | 1           |
| S-APSL-PTRN-02   | Approach Slab Patterning                                | 0            | 1          | 1           |
| S-APSL-REBR-01   | Approach Slab Rebar                                     | 0            | 3          | 1           |

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| <u>Name</u>      | <u>Description</u>                                  | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------------------|--------------|------------|-------------|
| S-APSL-REBR-02   | Approach Slab Rebar                                 | 0            | 3          | 1           |
| S-APSL-WORK      | Approach Slab User Work / Scratch (Non-Plotting)    | 0            | 0          | 0           |
| S-BEAM           | Beam                                                | 0            | 0          | 1           |
| S-BEAM-BEAR      | Beam Bearings                                       | 0            | 0          | 1           |
| S-BEAM-CNTR      | Beam centerlines                                    | 4            | 1          | 1           |
| S-BEAM-CONC      | Beam Concrete Lines                                 | 0            | 2          | 1           |
| S-BEAM-EXST-CONC | Beam Existing Concrete                              | 0            | 1          | 1           |
| S-BEAM-EXST-REBR | Beam Existing Rebar                                 | 0            | 2          | 1           |
| S-BEAM-HATC      | Beam Hatching                                       | 0            | 1          | 1           |
| S-BEAM-HIDL      | Beam Hidden Line                                    | 2            | 1          | 1           |
| S-BEAM-MISC      | Beam Miscellaneous                                  | 0            | 0          | 1           |
| S-BEAM-PTRN-01   | Beam Patterning                                     | 0            | 1          | 1           |
| S-BEAM-PTRN-02   | Beam Patterning                                     | 0            | 1          | 1           |
| S-BEAM-REBR      | Beam Rebar                                          | 0            | 3          | 1           |
| S-BEAM-STEL      | Beam Steel (non-rebar)                              | 0            | 0          | 1           |
| S-BEAM-STRD      | Beam Strand                                         | 0            | 0          | 1           |
| S-BEAM-WORK      | Beam User Work / Scratch (Non-Plotting)             | 0            | 0          | 0           |
| S-BRDG           | Structure Roadway Features                          | 0            | 0          | 1           |
| S-BRDG-BARR      | Structure Barrier                                   | 0            | 2          | 1           |
| S-BRDG-BORE      | Structure Core Boring                               | 0            | 0          | 1           |
| S-BRDG-EROS      | Structure Erosion & Sediment Controls               | 0            | 0          | 1           |
| S-BRDG-EXCA-01   | Structure Excavation 01                             | 0            | 3          | 1           |
| S-BRDG-EXCA-02   | Structure Excavation 02                             | 0            | 3          | 1           |
| S-BRDG-EXCA-03   | Structure Excavation 03                             | 0            | 3          | 1           |
| S-BRDG-GRAL      | Structure Guide Rail                                | 0            | 0          | 1           |
| S-BRDG-LITE      | Structure Lighting                                  | 0            | 0          | 1           |
| S-BRDG-MISC-01   | Structure Miscellaneous 01                          | 0            | 0          | 1           |
| S-BRDG-MISC-02   | Structure Miscellaneous 02                          | 0            | 0          | 1           |
| S-BRDG-MISC-03   | Structure Miscellaneous 03                          | 0            | 0          | 1           |
| S-BRDG-REVI      | Structure Revisions                                 | 0            | 0          | 1           |
| S-BRDG-SHOR      | Structure Shoring                                   | 0            | 4          | 1           |
| S-BRDG-WORK      | Structure Bridge User Work / Scratch (Non-Plotting) | 0            | 0          | 0           |
| S-CULV           | Box Culvert                                         | 0            | 0          | 1           |
| S-CULV-CELL      | Box Culvert Cells                                   | 0            | 0          | 1           |
| S-CULV-CNTR      | Box Culvert Centerlines                             | 4            | 1          | 1           |
| S-CULV-CONC      | Box Culvert Concrete Lines                          | 0            | 2          | 1           |
| S-CULV-DRAIN     | Box Culvert Drainage - Proposed                     | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                             | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------------|--------------|------------|-------------|
| S-CULV-DRAN-EXST | Box Culvert Drainage - Existing                | 0            | 0          | 1           |
| S-CULV-EXST-CONC | Box Culvert Existing Concrete                  | 0            | 1          | 1           |
| S-CULV-EXST-REBR | Box Culvert Existing Rebar                     | 0            | 2          | 1           |
| S-CULV-HATC      | Box Culvert Hatching                           | 2            | 1          | 1           |
| S-CULV-HIDL      | Box Culvert Hidden Line                        | 0            | 1          | 1           |
| S-CULV-MISC      | Box Culvert Miscellaneous                      | 0            | 0          | 1           |
| S-CULV-PTRN-01   | Box Culvert Patterning                         | 0            | 1          | 1           |
| S-CULV-PTRN-02   | Box Culvert Patterning                         | 0            | 1          | 1           |
| S-CULV-REBR-01   | Box Culvert Rebar                              | 0            | 3          | 1           |
| S-CULV-REBR-02   | Box Culvert Rebar                              | 0            | 3          | 1           |
| S-CULV-WORK      | Box Culvert User Work / Scratch (Non-Plotting) | 0            | 0          | 0           |
| S-DECK           | Deck                                           | 0            | 0          | 1           |
| S-DECK-CNTR      | Deck Centerlines                               | 4            | 1          | 1           |
| S-DECK-CONC      | Deck Concrete Lines                            | 0            | 2          | 1           |
| S-DECK-DRAN      | Deck Drainage - Proposed                       | 0            | 0          | 1           |
| S-DECK-DRAN-EXST | Deck Drainage - Existing                       | 0            | 0          | 1           |
| S-DECK-EXDM      | Deck Expansion Dams                            | 0            | 0          | 1           |
| S-DECK-EXST-CONC | Deck Existing Concrete                         | 0            | 1          | 1           |
| S-DECK-EXST-REBR | Deck Existing Rebar                            | 0            | 2          | 1           |
| S-DECK-HATC      | Deck Hatching                                  | 0            | 1          | 1           |
| S-DECK-HIDL      | Deck Hidden Line                               | 2            | 1          | 1           |
| S-DECK-MISC      | Deck Miscellaneous                             | 0            | 0          | 1           |
| S-DECK-PTRN-01   | Deck Patterning                                | 0            | 1          | 1           |
| S-DECK-PTRN-02   | Deck Patterning                                | 0            | 1          | 1           |
| S-DECK-REBR-01   | Deck Rebar                                     | 0            | 3          | 1           |
| S-DECK-REBR-02   | Deck Rebar                                     | 0            | 3          | 1           |
| S-DECK-WORK      | Deck User Work / Scratch (Non-Plotting)        | 0            | 0          | 0           |
| S-FOOT           | Footing                                        | 0            | 0          | 1           |
| S-FOOT-CNTR      | Footing Centerlines                            | 4            | 1          | 1           |
| S-FOOT-CONC      | Footing Concrete Lines                         | 0            | 2          | 1           |
| S-FOOT-EXST-CONC | Footing Existing Concrete                      | 0            | 1          | 1           |
| S-FOOT-EXST-REBR | Footing Existing Rebar                         | 0            | 2          | 1           |
| S-FOOT-HATC      | Footing Hatching                               | 0            | 1          | 1           |
| S-FOOT-HIDL      | Footing Hidden Line                            | 2            | 1          | 1           |
| S-FOOT-MISC      | Footing Miscellaneous                          | 0            | 0          | 1           |
| S-FOOT-PILE      | Footing Piling                                 | 0            | 0          | 1           |
| S-FOOT-PTRN-01   | Footing Patterning                             | 0            | 1          | 1           |
| S-FOOT-PTRN-02   | Footing Patterning                             | 0            | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                                     | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------|--------------|------------|-------------|
| S-FOOT-REBR-01   | Footing Rebar                                          | 0            | 3          | 1           |
| S-FOOT-REBR-02   | Footing Rebar                                          | 0            | 3          | 1           |
| S-FOOT-WORK      | Footing User Work / Scratch (Non-Plotting)             | 0            | 0          | 0           |
| S-PIER           | Pier                                                   | 0            | 0          | 1           |
| S-PIER-CNTR      | Pier Centerlines                                       | 4            | 1          | 1           |
| S-PIER-CONC      | Pier Concrete Lines                                    | 0            | 2          | 1           |
| S-PIER-EXST-CONC | Pier Existing Concrete                                 | 0            | 1          | 1           |
| S-PIER-EXST-REBR | Pier Existing Rebar                                    | 0            | 2          | 1           |
| S-PIER-HATC      | Pier Hatching                                          | 0            | 1          | 1           |
| S-PIER-HIDL      | Pier Hidden Line                                       | 2            | 1          | 1           |
| S-PIER-MISC      | Pier Miscellaneous                                     | 0            | 0          | 1           |
| S-PIER-PTRN-01   | Pier Patterning                                        | 0            | 1          | 1           |
| S-PIER-PTRN-02   | Pier Patterning                                        | 0            | 1          | 1           |
| S-PIER-REBR      | Pier Rebar                                             | 0            | 3          | 1           |
| S-PIER-WORK      | Pier User Work / Scratch (Non-Plotting)                | 0            | 0          | 0           |
| S-RWAY           | Right of Way                                           | 0            | 0          | 1           |
| S-RWAY-LGAL      | Right of Way - Legal (Existing)                        | L200         | 3          | 1           |
| S-RWAY-MISC      | Right of Way - Miscellaneous                           | 0            | 0          | 1           |
| S-RWAY-REQD      | Right of Way - Required                                | L201         | 4          | 1           |
| S-RWAY-TEMP      | Right of Way - Temporary Construction Easement         | 0            | 1          | 1           |
| S-RWAY-WORK      | Right of Way - User Work / Scratch (Non-Plotting)      | 0            | 0          | 0           |
| S-STKE           | Structure Stake-Out                                    | 0            | 0          | 1           |
| S-STKE-BLIN      | Structure Stake-Out L101s                              | 0            | 1          | 1           |
| S-STKE-CELL      | Structure Stake-Out Cells                              | 0            | 2          | 1           |
| S-STKE-CNTR      | Structure Stake-Out Centerlines                        | 4            | 1          | 1           |
| S-STKE-CONC      | Structure Stake-Out Concrete Lines                     | 0            | 2          | 1           |
| S-STKE-DIMS-AUTO | Structure Stake-Out Dimensions - Automatic             | 0            | 1          | 1           |
| S-STKE-DIMS-MANL | Structure Stake-Out Dimensions - Manual                | 0            | 1          | 1           |
| S-STKE-MISC      | Structure Stake-Out Miscellaneous                      | 0            | 0          | 1           |
| S-STKE-TEXT      | Structure Stake-Out Text                               | 0            | 2          | 1           |
| S-STKE-WORK      | Structure Stake-Out User Work / Scratch (Non-Plotting) | 0            | 0          | 0           |
| S-TOPO           | Topo                                                   | 0            | 0          | 1           |
| S-TOPO-CONT      | Topo - Surface Contours                                | 0            | 1          | 1           |
| S-TOPO-CONT-EXST | Topo - Surface Contours - Existing                     | 0            | 1          | 1           |
| S-TOPO-GRND      | Topo - Ground Lines                                    | 0            | 1          | 1           |
| S-TOPO-MISC      | Topo - Miscellaneous                                   | 0            | 0          | 1           |

| <u>Name</u> | <u>Description</u>                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|----------------------------------------------|--------------|------------|-------------|
| S-TOPO-ROCK | Topo - Rock Line                             | 0            | 1          | 1           |
| S-TOPO-SBED | Topo - Stream Bed                            | 0            | 1          | 1           |
| S-TOPO-WORK | Topo - User Work / Scratch (Non-Plotting)    | 0            | 0          | 0           |
| S-UTIL      | Utilities                                    | 0            | 0          | 1           |
| S-UTIL-CATV | Utilities - Cable TV                         | 0            | 4          | 1           |
| S-UTIL-COMB | Utilities - Combined                         | 0            | 4          | 1           |
| S-UTIL-COND | Utilities - Conduit                          | 0            | 4          | 1           |
| S-UTIL-EXST | Utilities - Existing                         | 0            | 1          | 1           |
| S-UTIL-FIBR | Utilities - Fiber Optic                      | 0            | 4          | 1           |
| S-UTIL-NGAS | Utilities - Natural Gas                      | 0            | 4          | 1           |
| S-UTIL-POWR | Utilities - Power / Electric                 | 0            | 4          | 1           |
| S-UTIL-PTRO | Utilities - Petroleum                        | 0            | 4          | 1           |
| S-UTIL-TELP | Utilities - Telephone                        | 0            | 4          | 1           |
| S-UTIL-WORK | Utilities User Work / Scratch (Non-Plotting) | 0            | 0          | 0           |
| T-LITE      | Traffic Lighting                             | 0            | 1          | 1           |
| T-LITE-DIMS | Traffic Lighting - Dimensions                | 0            | 1          | 1           |
| T-LITE-EQPM | Traffic Lighting - Equipment and Pads        | 0            | 1          | 1           |
| T-LITE-JBOX | Traffic Lighting - Conduits / Junction Boxes | 0            | 1          | 1           |
| T-LITE-MAST | Traffic Lighting - Mast Arm                  | 0            | 1          | 1           |
| T-LITE-NOTE | Traffic Lighting - Note                      | 0            | 2          | 1           |
| T-LITE-PNTS | Traffic Lighting - Points (Non-Plotting)     | 0            | 1          | 1           |
| T-LITE-POLE | Traffic Lighting - Pole                      | 0            | 1          | 1           |
| T-LITE-PTRN | Traffic Lighting - Pattern                   | 0            | 1          | 1           |
| T-LITE-SYMB | Traffic Lighting - Symbols                   | 0            | 1          | 1           |
| T-LITE-TCRV | Traffic Lighting - Template Curves           | 0            | 1          | 1           |
| T-LITE-TEXT | Traffic Lighting - Text                      | 0            | 2          | 1           |
| T-LITE-WORK | Traffic Lighting - User Work (Non-Plotting)  | 0            | 1          | 0           |
| T-MPTX      | Maintenance and Protection of Traffic        | 0            | 1          | 1           |
| T-MPTX-ARST | MPTX - Arresting Systems                     | 0            | 1          | 1           |
| T-MPTX-ATTN | MPTX - Attenuators                           | 0            | 1          | 1           |
| T-MPTX-BARR | MPTX - Barriers; Temporary                   | 0            | 1          | 1           |
| T-MPTX-BLDG | MPTX - Gate House, Guard House               | 0            | 1          | 1           |
| T-MPTX-CRSH | MPTX - Collision Symbols                     | 0            | 1          | 1           |
| T-MPTX-DIMS | MPTX - Dimensions                            | 0            | 1          | 1           |
| T-MPTX-EQPM | MPTX - Equipment, Temporary; Barrels         | 0            | 1          | 1           |
| T-MPTX-FLOW | MPTX - Flow Arrows, Turning Movement         | 0            | 1          | 1           |
| T-MPTX-NOTE | MPTX - Notes                                 | 0            | 2          | 1           |

| <u>Name</u> | <u>Description</u>                                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------|---------------------------------------------------------|--------------|------------|-------------|
| T-MPTX-PNTS | MPTX - Points (Non-Plotting)                            | 0            | 1          | 0           |
| T-MPTX-PTRN | MPTX - Pattern                                          | 0            | 1          | 1           |
| T-MPTX-PVMK | MPTX - Pavement Markings                                | 0            | 1          | 1           |
| T-MPTX-SYMB | MPTX - Symbols                                          | 0            | 1          | 1           |
| T-MPTX-TEXT | MPTX - Text                                             | 0            | 2          | 1           |
| T-MPTX-TURN | MPTX - Turning Templates                                | 0            | 1          | 1           |
| T-MPTX-VOLS | MPTX - Volume Data                                      | 0            | 1          | 1           |
| T-MPTX-WORK | MPTX - User Work (Non-Plotting)                         | 0            | 1          | 0           |
| T-SGNL      | Traffic Signals                                         | 0            | 1          | 1           |
| T-SGNL-CRPL | Traffic Signals - Circle Pullout                        | 0            | 1          | 1           |
| T-SGNL-DIMS | Traffic Signals - Dimensions                            | 0            | 2          | 1           |
| T-SGNL-EQPM | Traffic Signals - Equipment and Pads                    | 0            | 1          | 1           |
| T-SGNL-HEAD | Traffic Signals - Signal Head                           | 0            | 1          | 1           |
| T-SGNL-ICTR | Traffic Signals - Interconnect Controller               | 0            | 1          | 1           |
| T-SGNL-IJBX | Traffic Signals - Interconnect Junction Box and Conduit | 0            | 1          | 1           |
| T-SGNL-JBOX | Traffic Signals - Junction Box and Conduit              | 0            | 1          | 1           |
| T-SGNL-LOOP | Traffic Signals - Loop Detector                         | 0            | 1          | 1           |
| T-SGNL-MAST | Traffic Signals - Mast Arm and Signal Head              | 0            | 1          | 1           |
| T-SGNL-MRKG | Traffic Signals - Misc Pavement Marking Lines           | 0            | 1          | 1           |
| T-SGNL-NOTE | Traffic Signals - Notes                                 | 0            | 2          | 1           |
| T-SGNL-PFDN | Traffic Signals - Pole Foundation                       | 0            | 1          | 1           |
| T-SGNL-PNTS | Traffic Signals - Points (Non-Plotting)                 | 0            | 1          | 0           |
| T-SGNL-POLE | Traffic Signals - Pole and/or Controller                | 0            | 1          | 1           |
| T-SGNL-PTRN | Traffic Signals - Pattern                               | 0            | 1          | 1           |
| T-SGNL-SIGN | Traffic Signals - Post Mounted Sign                     | 0            | 1          | 1           |
| T-SGNL-SYMB | Traffic Signals - Symbols                               | 0            | 1          | 1           |
| T-SGNL-TEXT | Traffic Signals - Text                                  | 0            | 2          | 1           |
| T-SGNL-WORK | Traffic Signals - User Work (Non-Plotting)              | 0            | 1          | 0           |
| T-SIGN      | Traffic Signing (possibly superseded by traffic levels) | 0            | 1          | 1           |
| T-SIGN-DIMS | Traffic Signing - Dimensions                            | 0            | 1          | 1           |
| T-SIGN-FNDN | Traffic Signing - Sign Structure Foundation             | 0            | 1          | 1           |
| T-SIGN-NOTE | Traffic Signing - Notes                                 | 0            | 2          | 1           |
| T-SIGN-PANL | Traffic Signing - Sign Panel                            | 0            | 1          | 1           |
| T-SIGN-PNTS | Traffic Signing - Points (Non-Plotting)                 | 0            | 1          | 0           |
| T-SIGN-POLE | Traffic Signing - Pole                                  | 0            | 1          | 1           |
| T-SIGN-PTRN | Traffic Signing - Pattern                               | 0            | 1          | 1           |
| T-SIGN-STRC | Traffic Signing - Sign Structure                        | 0            | 1          | 1           |
| T-SIGN-SYMB | Traffic Signing - Symbols                               | 0            | 1          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| T-SIGN-TEXT       | Traffic Signing - Text                                       | 0            | 2          | 1           |
| T-SIGN-WORK       | Traffic Signing - User Work (Non-Plotting)                   | 0            | 1          | 0           |
| VA-AFLD           | AIRFIELD                                                     | 0            | 0          | 1           |
| VA-AFLD-LITE      | AIRFIELD LIGHTS                                              | 0            | 0          | 1           |
| VA-AFLD-RUNW      | RUNWAY                                                       | 0            | 0          | 1           |
| VA-AFLD-SIGN      | AIRFIELD SIGNS                                               | 0            | 0          | 1           |
| VA-ALGN           | Alignments                                                   | 0            | 0          | 1           |
| VA-ALGN-DATA      | Alignment coordinates and curve data                         | 0            | 2          | 1           |
| VA-ALGN-LINE      | Alignment line                                               | L100         | 1          | 1           |
| VA-ALGN-MAJR      | Alignment major stationing and tick marks                    | 0            | 2          | 1           |
| VA-ALGN-MARK      | Alignment tick marks                                         | 0            | 1          | 1           |
| VA-ALGN-MINR      | Alignment minor stationing and tick marks                    | 0            | 2          | 1           |
| VA-ALGN-STAT      | Alignment stationing and tick marks, alignment PI stations   | 0            | 2          | 1           |
| VA-ALGN-SYMB      | Alignment symbols (PIs)                                      | 0            | 0          | 1           |
| VA-ALGN-TEXT      | Alignment text, annotation with associated leaders           | 0            | 2          | 1           |
| VA-BLDG           | BUILDING                                                     | 0            | 0          | 1           |
| VA-BLDG-ANNO      | BUILDING ANNOTATION                                          | 0            | 2          | 1           |
| VA-BLDG-BARN      | BUILDING BARN                                                | 0            | 1          | 1           |
| VA-BLDG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-BLDG-FPLC      | BUILDING FIREPLACE                                           | 0            | 1          | 1           |
| VA-BLDG-GARG      | BUILDING GARAGE                                              | 0            | 1          | 1           |
| VA-BLDG-OTLN      | BUILDING OUTLINE                                             | 0            | 1          | 1           |
| VA-BLDG-OVHG      | BUILDING OVERHANG                                            | 0            | 1          | 1           |
| VA-BLDG-PRCH      | BUILDING PORCH                                               | 0            | 1          | 1           |
| VA-BLDG-PRCH-BOTM | BUILDING PORCH BOTTOM                                        | 0            | 1          | 1           |
| VA-BLDG-PRCH-TOPP | BUILDING PORCH TOP                                           | 0            | 1          | 1           |
| VA-BLDG-SDWK      | TOPO SIDEWALK                                                | 0            | 1          | 1           |
| VA-BLDG-SHED      | BUILDING SHED                                                | 0            | 1          | 1           |
| VA-BLDG-SILO      | BUILDING SILO                                                | 0            | 1          | 1           |
| VA-BLDG-SLAB      | BUILDING CONCRETE SLAB                                       | 0            | 1          | 1           |
| VA-BLDG-STEP      | BUILDING STEP                                                | 0            | 1          | 1           |
| VA-BLDG-TANK      | BUILDING TANKS                                               | 0            | 1          | 1           |
| VA-BNDY           | BOUNDARY LINES (UNCONTROLLED)                                | 0            | 0          | 1           |
| VA-BNDY-ANNO      | BOUNDARY LINES, ANNOTATION                                   | 0            | 2          | 1           |
| VA-BNDY-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-BNDY-LINE      | DEEDPLOT LEVEL                                               | L203         | 1          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-BNDY-MUNI      | BOUNDARY LINES, MUNICIPAL                                    | L204         | 3          | 1           |
| VA-BRDG           | BRIDGE (UNCONTROLLED)                                        | 0            | 0          | 1           |
| VA-BRDG-ABUT-BOTM | BRIDGE ABUTMENT BOTTOM                                       | 0            | 1          | 1           |
| VA-BRDG-ABUT-TOPP | BRIDGE ABUTMENT TOP                                          | 0            | 1          | 1           |
| VA-BRDG-ANNO      | BRIDGE ANNOTATION                                            | 0            | 2          | 1           |
| VA-BRDG-AWNG      | BRIDGE ABUTMENT AND WINGS                                    | 0            | 1          | 1           |
| VA-BRDG-BEAM-BOTM | BRIDGE BEAM BOTTOM LINE                                      | 0            | 1          | 1           |
| VA-BRDG-BEAM-SEAT | BRIDGE BEAM SEAT                                             | 0            | 1          | 1           |
| VA-BRDG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-BRDG-CHRD-LOWW | BRIDGE LOW CHORD                                             | 0            | 1          | 1           |
| VA-BRDG-CRWN      | BRIDGE CROWN                                                 | 0            | 1          | 1           |
| VA-BRDG-CURB-BOTM | BRIDGE CURB BOTTOM                                           | 0            | 1          | 1           |
| VA-BRDG-CURB-TOPP | BRIDGE CURB TOP                                              | 0            | 1          | 1           |
| VA-BRDG-DECK      | BRIDGE DECK                                                  | 0            | 1          | 1           |
| VA-BRDG-DKJT      | BRIDGE DECK JOINT                                            | 0            | 1          | 1           |
| VA-BRDG-FTNG      | BRIDGE FOOTING                                               | 0            | 1          | 1           |
| VA-BRDG-GNRL      | BRIDGE GENERAL                                               | 0            | 1          | 1           |
| VA-BRDG-PARA-BOTM | BRIDGE PARAPET BOTTOM                                        | 0            | 1          | 1           |
| VA-BRDG-PARA-TOPP | BRIDGE PARAPET TOP                                           | 0            | 1          | 1           |
| VA-BRDG-PEDS-TOPP | BRIDGE PEDESTAL                                              | 0            | 1          | 1           |
| VA-BRDG-PIER      | BRIDGE PIER                                                  | 0            | 1          | 1           |
| VA-BRDG-PIER-BOTM | BRIDGE PIER BOTTOM                                           | 0            | 1          | 1           |
| VA-BRDG-PIER-TOPP | BRIDGE PIER TOP                                              | 0            | 1          | 1           |
| VA-BRDG-SDWK      | BRIDGE SIDEWALK                                              | 0            | 1          | 1           |
| VA-BRDG-WHGD      | ROAD WHEEL GUARD                                             | 0            | 1          | 1           |
| VA-BRDG-WING-BOTM | BRIDGE WING                                                  | 0            | 1          | 1           |
| VA-BRDG-WING-TOPP | BRIDGE WING                                                  | 0            | 1          | 1           |
| VA-CATV           | CABLE TV                                                     | 0            | 0          | 1           |
| VA-CATV-ANNO      | CABLE TV ANNOTATION                                          | 0            | 2          | 1           |
| VA-CATV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-CATV-LINE      | CABTV UNDERGROUND LINE                                       | L407         | 0          | 1           |
| VA-CATV-MARK      | CABLE TV MARKER                                              | 0            | 0          | 1           |
| VA-CATV-OVHD      | CABLE TV OVERHEAD                                            | L406         | 0          | 1           |
| VA-DRIV           | DRIVEWAY                                                     | 0            | 0          | 1           |
| VA-DRIV-ANNO      | DRIVEWAY ANNOTATION                                          | 0            | 2          | 1           |
| VA-DRIV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-DRIV-EDGE      | DRIVEWAY EDGE                                                | 0            | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-DTCH          | DITCH                                                        | 0            | 0          | 1           |
| VA-DTCH-ANNO     | DITCH ANNOTATION                                             | 2            | 0          | 1           |
| VA-DTCH-BOTM     | DITCH BOTTOM                                                 | L301         | 0          | 1           |
| VA-DTCH-CELL     | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-DTCH-DRAW     | DITCH DRAW                                                   | 0            | 0          | 1           |
| VA-DTCH-PAVE     | DITCH PAVE                                                   | 0            | 0          | 1           |
| VA-DTCH-SWAL     | DITCH TOP                                                    | L302         | 0          | 1           |
| VA-DTCH-TOPD     | DITCH TOP                                                    | 0            | 0          | 1           |
| VA-ESMT          | EASEMENT                                                     | 0            | 0          | 1           |
| VA-ESMT-ANNO     | EASEMENT ANNOTATION                                          | 0            | 2          | 1           |
| VA-ESMT-CELL     | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-ESMT-LINE     | PROPERTY LINES - DEEDPLOT LEVEL                              | 4            | 1          | 1           |
| VA-ESMT-RWAY     | LEGAL RIGHT OF WAY LINES                                     | L200         | 3          | 1           |
| VA-FIBR          | FIBER OPTIC                                                  | 0            | 0          | 1           |
| VA-FIBR-ANNO     | FIBER OPTIC ANNOTATION                                       | 0            | 2          | 1           |
| VA-FIBR-CELL     | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-FIBR-MHOL     | FIBER OPTIC MANHOLE                                          | 0            | 0          | 1           |
| VA-FIBR-OHVD     | FIBER OPTIC OVERHEAD                                         | L409         | 0          | 1           |
| VA-FIBR-POLE     | FIBER OPTIC POLE                                             | 0            | 0          | 1           |
| VA-FIBR-UNDR     | FIBER OPTIC UNDERGROUND                                      | L410         | 0          | 1           |
| VA-GRAL          | GUIDE RAIL                                                   | 0            | 0          | 1           |
| VA-GRAL-ANNO     | GUIDE RAIL ANNOTATION                                        | 0            | 2          | 1           |
| VA-GRAL-CELL     | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-GRAL-LINE     | GUIDE RAIL LINE                                              | L406         | 1          | 1           |
| VA-GRAL-STRG     | GUIDE RAIL STRONG POST                                       | L406         | 1          | 1           |
| VA-GRAL-WEAK     | GUIDE RAIL WEAK POST                                         | L406         | 1          | 1           |
| V-ALG0           | Alignment 0 - Base level (Uncontrolled)                      | 0            | 1          | 1           |
| V-ALG0-COGO      | Alignment 0 - COGO points                                    | 0            | 1          | 1           |
| V-ALG0-DIMS      | Alignment 0 - Dimensions, Stationing                         | 0            | 2          | 1           |
| V-ALG0-LINE      | Alignment 0 - Center/Base Line                               | L100         | 1          | 1           |
| V-ALG0-LINE-CRCL | Alignment 0 - Center/Base Line                               | L100         | 1          | 1           |
| V-ALG0-LINE-SPRL | Alignment 0 - Center/Base Line                               | L100         | 1          | 1           |
| V-ALG0-LINE-TNGT | Alignment 0 - Center/Base Line                               | L100         | 1          | 1           |
| V-ALG0-NOTE      | Alignment 0 - Notes, Curve Data                              | 0            | 2          | 1           |
| V-ALG0-PNTS      | Alignment 0 - Points (Non-Plotting)                          | 0            | 1          | 0           |

| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| V-ALG0-PTRN      | Alignment 0 - Pattern                   | 0            | 1          | 1           |
| V-ALG0-SYMB      | Alignment 0 - Symbols                   | 0            | 1          | 1           |
| V-ALG0-TEXT      | Alignment 0 - Annotation text           | 0            | 2          | 1           |
| V-ALG0-WORK      | Alignment 0 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG1           | Alignment 1 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG1-COGO      | Alignment 1 - COGO points               | 0            | 1          | 1           |
| V-ALG1-DIMS      | Alignment 1 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG1-LINE      | Alignment 1 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG1-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG1-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG1-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG1-NOTE      | Alignment 1 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG1-PNTS      | Alignment 1 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG1-PTRN      | Alignment 1 - Pattern                   | 0            | 1          | 1           |
| V-ALG1-SYMB      | Alignment 1 - Symbols                   | 0            | 1          | 1           |
| V-ALG1-TEXT      | Alignment 1 - Annotation text           | 0            | 2          | 1           |
| V-ALG1-WORK      | Alignment 1 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG2           | Alignment 2 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG2-COGO      | Alignment 2 - COGO points               | 0            | 1          | 1           |
| V-ALG2-DIMS      | Alignment 2 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG2-LINE      | Alignment 2 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG2-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG2-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG2-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG2-NOTE      | Alignment 2 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG2-PNTS      | Alignment 2 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG2-PTRN      | Alignment 2 - Pattern                   | 0            | 1          | 1           |
| V-ALG2-SYMB      | Alignment 2 - Symbols                   | 0            | 1          | 1           |
| V-ALG2-TEXT      | Alignment 2 - Annotation text           | 0            | 2          | 1           |
| V-ALG2-WORK      | Alignment 2 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG3           | Alignment 3 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG3-COGO      | Alignment 3 - COGO points               | 0            | 1          | 1           |
| V-ALG3-DIMS      | Alignment 3 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG3-LINE      | Alignment 3 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG3-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG3-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG3-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |

| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| V-ALG3-NOTE      | Alignment 3 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG3-PNTS      | Alignment 3 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG3-PTRN      | Alignment 3 - Pattern                   | 0            | 1          | 1           |
| V-ALG3-SYMB      | Alignment 3 - Symbols                   | 0            | 1          | 1           |
| V-ALG3-TEXT      | Alignment 3 - Annotation text           | 0            | 2          | 1           |
| V-ALG3-WORK      | Alignment 3 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG4           | Alignment 4 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG4-COGO      | Alignment 4 - COGO points               | 0            | 1          | 1           |
| V-ALG4-DIMS      | Alignment 4 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG4-LINE      | Alignment 4 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG4-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG4-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG4-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG4-NOTE      | Alignment 4 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG4-PNTS      | Alignment 4 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG4-PTRN      | Alignment 4 - Pattern                   | 0            | 1          | 1           |
| V-ALG4-SYMB      | Alignment 4 - Symbols                   | 0            | 1          | 1           |
| V-ALG4-TEXT      | Alignment 4 - Annotation text           | 0            | 2          | 1           |
| V-ALG4-WORK      | Alignment 4 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG5           | Alignment 5 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG5-COGO      | Alignment 5 - COGO points               | 0            | 1          | 1           |
| V-ALG5-DIMS      | Alignment 5 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG5-LINE      | Alignment 5 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG5-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG5-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG5-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG5-NOTE      | Alignment 5 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG5-PNTS      | Alignment 5 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG5-PTRN      | Alignment 5 - Pattern                   | 0            | 1          | 1           |
| V-ALG5-SYMB      | Alignment 5 - Symbols                   | 0            | 1          | 1           |
| V-ALG5-TEXT      | Alignment 5 - Annotation text           | 0            | 2          | 1           |
| V-ALG5-WORK      | Alignment 5 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG6           | Alignment 6 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG6-COGO      | Alignment 6 - COGO points               | 0            | 1          | 1           |
| V-ALG6-DIMS      | Alignment 6 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG6-LINE      | Alignment 6 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG6-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                      | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|-----------------------------------------|--------------|------------|-------------|
| V-ALG6-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG6-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG6-NOTE      | Alignment 6 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG6-PNTS      | Alignment 6 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG6-PTRN      | Alignment 6 - Pattern                   | 0            | 1          | 1           |
| V-ALG6-SYMB      | Alignment 6 - Symbols                   | 0            | 1          | 1           |
| V-ALG6-TEXT      | Alignment 6 - Annotation text           | 0            | 2          | 1           |
| V-ALG6-WORK      | Alignment 6 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG7           | Alignment 7 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG7-COGO      | Alignment 7 - COGO points               | 0            | 1          | 1           |
| V-ALG7-DIMS      | Alignment 7 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG7-LINE      | Alignment 7 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG7-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG7-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG7-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG7-NOTE      | Alignment 7 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG7-PNTS      | Alignment 7 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG7-PTRN      | Alignment 7 - Pattern                   | 0            | 1          | 1           |
| V-ALG7-SYMB      | Alignment 7 - Symbols                   | 0            | 1          | 1           |
| V-ALG7-TEXT      | Alignment 7 - Annotation text           | 0            | 2          | 1           |
| V-ALG7-WORK      | Alignment 7 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG8           | Alignment 8 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG8-COGO      | Alignment 8 - COGO points               | 0            | 1          | 1           |
| V-ALG8-DIMS      | Alignment 8 - Dimensions, Stationing    | 0            | 2          | 1           |
| V-ALG8-LINE      | Alignment 8 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG8-LINE-CRCL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG8-LINE-SPRL | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG8-LINE-TNGT | Alignment 0 - Center/Base Line          | L100         | 1          | 1           |
| V-ALG8-NOTE      | Alignment 8 - Notes, Curve Data         | 0            | 2          | 1           |
| V-ALG8-PNTS      | Alignment 8 - Points (Non-Plotting)     | 0            | 1          | 0           |
| V-ALG8-PTRN      | Alignment 8 - Pattern                   | 0            | 1          | 1           |
| V-ALG8-SYMB      | Alignment 8 - Symbols                   | 0            | 1          | 1           |
| V-ALG8-TEXT      | Alignment 8 - Annotation text           | 0            | 2          | 1           |
| V-ALG8-WORK      | Alignment 8 - User work (Non-Plotting)  | 0            | 1          | 0           |
| V-ALG9           | Alignment 9 - Base level (Uncontrolled) | 0            | 1          | 1           |
| V-ALG9-COGO      | Alignment 9 - COGO points               | 0            | 1          | 1           |
| V-ALG9-DIMS      | Alignment 9 - Dimensions, Stationing    | 0            | 2          | 1           |

| <u>Name</u>      | <u>Description</u>                                         | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|------------------------------------------------------------|--------------|------------|-------------|
| V-ALG9-LINE      | Alignment 9 - Center/Base Line                             | L100         | 1          | 1           |
| V-ALG9-LINE-CRCL | Alignment 0 - Center/Base Line                             | L100         | 1          | 1           |
| V-ALG9-LINE-SPRL | Alignment 0 - Center/Base Line                             | L100         | 1          | 1           |
| V-ALG9-LINE-TNGT | Alignment 0 - Center/Base Line                             | L100         | 1          | 1           |
| V-ALG9-NOTE      | Alignment 9 - Notes, Curve Data                            | 0            | 2          | 1           |
| V-ALG9-PNTS      | Alignment 9 - Points (Non-Plotting)                        | 0            | 1          | 0           |
| V-ALG9-PTRN      | Alignment 9 - Pattern                                      | 0            | 1          | 1           |
| V-ALG9-SYMB      | Alignment 9 - Symbols                                      | 0            | 1          | 1           |
| V-ALG9-TEXT      | Alignment 9 - Annotation text                              | 0            | 2          | 1           |
| V-ALG9-WORK      | Alignment 9 - User work (Non-Plotting)                     | 0            | 1          | 0           |
| V-ALGN           | Alignments                                                 | 0            | 0          | 1           |
| V-ALGN-CELL      | Alignment Cells                                            | 0            | 0          | 1           |
| V-ALGN-COGO      | Alignment Cogo Points                                      | 0            | 0          | 1           |
| V-ALGN-DATA      | Alignment coordinates and curve data                       | 0            | 2          | 1           |
| V-ALGN-LINE-01   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-02   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-03   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-04   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-05   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-06   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-07   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-08   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-09   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-10   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-11   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-LINE-12   | Alignment line                                             | L100         | 1          | 1           |
| V-ALGN-MAJR      | Alignment major stationing and tick marks                  | 0            | 2          | 1           |
| V-ALGN-MARK      | Alignment tick marks                                       | 0            | 1          | 1           |
| V-ALGN-MINR      | Alignment minor stationing and tick marks                  | 0            | 2          | 1           |
| V-ALGN-PNTS      | Alignment point symbols                                    | 0            | 0          | 1           |
| V-ALGN-STAT      | Alignment stationing and tick marks, alignment PI stations | 0            | 2          | 1           |
| V-ALGN-SYMB      | Alignment symbols (PIs)                                    | 0            | 0          | 1           |
| V-ALGN-TEXT      | Alignment text, annotation with associated leaders         | 0            | 2          | 1           |
| VA-MAPI          | MAP INFORMATION                                            | 0            | 0          | 1           |
| VA-MAPI-ANNO     | MAP ANNOTATION                                             | 0            | 2          | 1           |
| VA-MAPI-DTML     | MAP INFORMATION: DTM LIMIT LINE                            | 0            | 0          | 1           |
| VA-MAPI-MAPL     | MAP INFORMATION: MAPPING LIMITS LINE                       | 0            | 0          | 1           |
| VA-MAPI-MODL     | MAP INFORMATION: NEAT MODEL LINE                           | 0            | 0          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-MAPI-MTCH      | MAP INFORMATION: MATCH LINE                                  | 0            | 0          | 1           |
| VA-MAPI-SHLD      | MAP INFORMATION: ROAD NAMES, SHIELDS                         | 0            | 0          | 1           |
| VA-MAPI-TBLK      | MAP INFORMATION: TITLE BLOCK                                 | 0            | 0          | 1           |
| VA-NGAS           | NATURAL GAS                                                  | 0            | 0          | 1           |
| VA-NGAS-ANNO      | NATURAL GAS ANNOTATION                                       | 0            | 2          | 1           |
| VA-NGAS-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-NGAS-LINE      | NATURAL GAS LINE                                             | L460         | 0          | 1           |
| VA-NGAS-MARK      | NATURAL GAS MARKER                                           | 0            | 0          | 1           |
| VA-NGAS-METR      | NATURAL GAS METER                                            | 0            | 0          | 1           |
| VA-NGAS-MHOL      | NATURAL GAS MAN HOLE                                         | 0            | 0          | 1           |
| VA-NGAS-VLVE      | NATURAL GAS VALVE                                            | 0            | 0          | 1           |
| VA-NGAS-VLVE-STOP | NATURAL GAS VALVE STOP                                       | 0            | 0          | 1           |
| VA-NGAS-WELL      | NATURAL GAS WELL                                             | 0            | 0          | 1           |
| V-ANNO            | Annotation - General Information                             | 0            | 2          | 1           |
| V-ANNO-CELL       | Annotation - Cells                                           | 0            | 0          | 1           |
| V-ANNO-DIMS       | Annotation - Dimensions                                      | 0            | 2          | 1           |
| V-ANNO-LINE-HIDN  | Annotation - Hidden Line                                     | 0            | 0          | 1           |
| V-ANNO-PTRN       | Annotation - Pattern                                         | 0            | 0          | 1           |
| V-ANNO-SYMB       | Annotation - Symbols                                         | 0            | 0          | 1           |
| V-ANNO-TEXT       | Annotation - Annotation text                                 | 0            | 2          | 1           |
| V-ANNO-WORK       | Annotation - User Work (Non-Plotting)                        | 0            | 0          | 0           |
| VA-POWR           | POWER                                                        | 0            | 0          | 1           |
| VA-POWR-ANNO      | POWER ANNOTATION                                             | 0            | 2          | 1           |
| VA-POWR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-POWR-MHOL      | POWER MANHOLE                                                | 0            | 0          | 1           |
| VA-POWR-OHVD      | POWER OVERHEAD                                               | L409         | 0          | 1           |
| VA-POWR-POLE      | POWER POLE                                                   | 0            | 0          | 1           |
| VA-POWR-UNDR      | POWER UNDERGROUND                                            | L410         | 0          | 1           |
| VA-PRKG           | PARKING                                                      | 0            | 0          | 1           |
| VA-PRKG-ANNO      | PARKING ANNOTATION                                           | 0            | 2          | 1           |
| VA-PRKG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-PRKG-EDGE      | PARKING EDGE                                                 | L102         | 0          | 1           |
| VA-PRKG-METR      | PARKING METER                                                | 0            | 0          | 1           |
| VA-PTRO           | PETROLEUM                                                    | 0            | 0          | 1           |
| VA-PTRO-ANNO      | PETROLEUM ANNOTATION                                         | 0            | 2          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-PTRO-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-PTRO-ISLN      | PETROLEUM ISLAND                                             | 0            | 0          | 1           |
| VA-RAIL           | RAILROAD                                                     | 0            | 0          | 1           |
| VA-RAIL-ANNO      | RAIL ANNOTATION                                              | 0            | 2          | 1           |
| VA-RAIL-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-RAIL-CNTR      | RAILROAD CENTERLINE                                          | L100         | 0          | 1           |
| VA-RAIL-EQPM      | RAILROAD CROSSING GATE                                       | 0            | 0          | 1           |
| VA-RAIL-SGNL      | RAILROAD SIGNALS                                             | 0            | 0          | 1           |
| VA-RAIL-SIGN      | RAILROAD SIGNS                                               | 0            | 0          | 1           |
| VA-RAIL-TRAK      | RAILROAD TRACK, TOP OF RAIL                                  | L260         | 0          | 1           |
| VA-ROAD           | ROAD                                                         | 0            | 0          | 1           |
| VA-ROAD-ANNO      | ROAD ANNOTATION                                              | 0            | 2          | 1           |
| VA-ROAD-BARR-BOTM | ROAD MEDIAN BARRIER BOTTOM                                   | 0            | 0          | 1           |
| VA-ROAD-BARR-TOPP | ROAD MEDIAN BARRIER TOP                                      | 0            | 0          | 1           |
| VA-ROAD-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-ROAD-CRWN      | ROAD CROWN                                                   | 0            | 0          | 1           |
| VA-ROAD-CURB      | ROAD CURB                                                    | 0            | 1          | 1           |
| VA-ROAD-CURB-BOTM | ROAD CURB BOTTOM                                             | 0            | 1          | 1           |
| VA-ROAD-CURB-MOUN | ROAD CURB MOUNTABLE                                          | 0            | 1          | 1           |
| VA-ROAD-CURB-TOPP | ROAD CURB TOP                                                | 0            | 1          | 1           |
| VA-ROAD-EDGE      | ROAD EDGE                                                    | L102         | 1          | 1           |
| VA-ROAD-EDGE-DIRT | ROAD EDGE DIRT                                               | L102         | 1          | 1           |
| VA-ROAD-LINE      | ROAD LINE                                                    | 0            | 0          | 1           |
| VA-ROAD-MRKG      | ROAD MARKING                                                 | 0            | 1          | 1           |
| VA-ROAD-SHLD      | ROAD SHOULDER                                                | 0            | 3          | 1           |
| VA-ROAD-SHLD-DIRT | ROAD SHOULDER DIRT                                           | 0            | 3          | 1           |
| VA-SITE           | SITE OUTLINES                                                | 0            | 0          | 1           |
| VA-SITE-ATHL      | SITE OUTLINES: ATHLETIC FIELD                                | 0            | 0          | 1           |
| VA-SITE-CEMR      | SITE OUTLINES: CEMETERY                                      | 0            | 0          | 1           |
| VA-SITE-GOLF      | SITE OUTLINES: GOLF COURSE                                   | 0            | 0          | 1           |
| VA-SITE-UCON      | SITE OUTLINES: AREA UNDER CONSTRUCTION                       | 0            | 0          | 1           |
| VA-SSWR           | SANITARY SEWER                                               | 0            | 0          | 1           |
| VA-SSWR-ANNO      | SANITARY SEWER ANNOTATION                                    | 0            | 2          | 1           |
| VA-SSWR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-SSWR-CESS      | SANITARY SEWER CESSPOOL                                      | 0            | 0          | 1           |
| VA-SSWR-DFLD      | SANITARY SEWER DRAIN FIELD                                   | 0            | 0          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-SSWR-MHOL      | SANITARY SEWER MANHOLE                                       | 0            | 0          | 1           |
| VA-SSWR-PERC      | SANITARY SEWER PERC HOLE                                     | 0            | 0          | 1           |
| VA-SSWR-PIPE      | SANITARY SEWER PIPE                                          | L440         | 0          | 1           |
| VA-SSWR-SEPT      | SANITARY SEWER SEPTIC TANK                                   | 0            | 0          | 1           |
| VA-SSWR-STPT      | SANITARY SEWER SOIL TEST PIT                                 | 0            | 0          | 1           |
| VA-SSWR-VENT      | SANITARY SEWER VENT                                          | 0            | 0          | 1           |
| VA-STRM           | STORM WATER STRM                                             | 0            | 0          | 1           |
| VA-STRM-ANNO      | STORM WATER ANNOTATION                                       | 0            | 2          | 1           |
| VA-STRM-ARCH      | STORM WATER ARCH PIPE                                        | L480         | 0          | 1           |
| VA-STRM-BXCL      | STORM WATER BOX CULVERT                                      | 0            | 0          | 1           |
| VA-STRM-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-STRM-HDWL      | STORM WATER HEAD WALL                                        | 0            | 0          | 1           |
| VA-STRM-INLT      | STORM WATER INLET                                            | 0            | 0          | 1           |
| VA-STRM-MHOL      | STORM WATER MANHOLE                                          | 0            | 0          | 1           |
| VA-STRM-PIPE      | STORM WATER PIPE                                             | L480         | 0          | 1           |
| VA-STRM-STRC      | STORM WATER END SECTION                                      | 0            | 0          | 1           |
| VA-SUEI           | SUBSURFACE UTILITY ENGINEERING DATA                          | 0            | 0          | 1           |
| VA-SUEI-DEPU      | DEAD END POINT OF UTILITY                                    | 0            | 0          | 1           |
| VA-SUEI-LOSD      | LIMIT OF SUE DATA                                            | L490         | 0          | 1           |
| VA-SUEI-STPL      | SUE TEST PIT LOCATION                                        | 0            | 0          | 1           |
| VA-SUEI-UQLC      | SUE - UTILITY QUALITY LEVEL CHANGE                           | 0            | 0          | 1           |
| VA-SURF           | SURFACE                                                      | 0            | 0          | 1           |
| VA-SURF-BRKL      | SURFACE, INROADS CREATED BREAKLINES                          | 0            | 0          | 1           |
| VA-SURF-CONT-ANNO | CONTOURS ANNOTATION                                          | 0            | 0          | 1           |
| VA-SURF-CONT-MAJR | CONTOURS MAJOR                                               | 0            | 0          | 1           |
| VA-SURF-CONT-MINR | CONTOURS MINOR                                               | 0            | 0          | 1           |
| VA-SURF-CONT-SPOT | CONTOURS SPOT ELEVATIONS                                     | 0            | 0          | 1           |
| VA-SURF-PMTR      | SURFACE PERIMETER                                            | 0            | 0          | 1           |
| VA-SURF-PROF      | SURFACE PROFILED                                             | 0            | 0          | 1           |
| VA-SURF-RNDM      | SURFACE, INROADS CREATED RANDOM POINTS                       | 0            | 0          | 1           |
| VA-SURF-TRIG      | SURFACE TRIANGLES                                            | 0            | 0          | 1           |
| VA-SURV           | SURVEY                                                       | 0            | 0          | 1           |
| VA-SURV-ANNO      | SURVEY ANNOTATION                                            | 0            | 0          | 1           |
| VA-SURV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-SURV-CHCK      | SURVEY CHECK SHOTS                                           | 0            | 0          | 1           |
| VA-SURV-CONS-BSLN | SURVEY CONSTRUCTION BASE LINE                                | L101         | 0          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-SURV-CTPT      | SURVEY PLAN AXLE, BENCHMARKS, MONUMENTS, CONSTRUCTION PTS    | 0            | 0          | 1           |
| VA-SURV-DATA      | SURVEY DATA                                                  | 0            | 0          | 1           |
| VA-SURV-DATA-CODE | SURVEY DATA POINT CODES - INROADS SURVEY                     | 0            | 0          | 1           |
| VA-SURV-DATA-ELEV | SURVEY DATA POINT ELEVATIONS - INROADS SURVEY                | 0            | 0          | 1           |
| VA-SURV-DATA-ERRO | SURVEY DATA POINT ERRORS - INROADS SURVEY                    | 0            | 0          | 1           |
| VA-SURV-DATA-NAME | SURVEY DATA POINT NAMES - INROADS SURVEY                     | 0            | 0          | 1           |
| VA-SURV-DATA-NETW | SURVEY DATA NETWORK - INROADS SURVEY                         | 0            | 0          | 1           |
| VA-SURV-DATA-NOTE | SURVEY DATA NOTES - INROADS SURVEY                           | 0            | 0          | 1           |
| VA-SURV-DATA-SYMB | SURVEY DATA SYMBOLS - INROADS SURVEY                         | 0            | 0          | 1           |
| VA-SURV-DEFT      | SURVEY DEFAULT SHOT                                          | 0            | 0          | 1           |
| VA-SURV-DEFT-LINR | SURVEY DEFAULT LINEAR                                        | 0            | 0          | 1           |
| VA-SURV-FDPT      | SURVEY CONTROL POINTS                                        | 0            | 0          | 1           |
| VA-SURV-PLAN-BSLN | SURVEY PLAN BASE LINE                                        | 0            | 0          | 1           |
| VA-SURV-PLAN-CNTR | SURVEY PLAN CENTER LINE                                      | 0            | 0          | 1           |
| VA-SURV-PLAN-PNTS | SURVEY PLAN POINTS                                           | 0            | 0          | 1           |
| VA-SURV-TRAV      | SURVEY TRAVERSE POINTS                                       | 0            | 0          | 1           |
| VA-TELP           | TELEPHONE                                                    | 0            | 0          | 1           |
| VA-TELP-ANNO      | TELEPHONE ANNOTATION                                         | 0            | 0          | 1           |
| VA-TELP-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-TELP-LINE      | TELEPHONE UNDERGROUND LINE                                   | 0            | 0          | 1           |
| VA-TELP-MARK      | TELEPHONE MARKER                                             | 0            | 0          | 1           |
| VA-TELP-MHOL      | TELEPHONE MANHOLE                                            | 0            | 0          | 1           |
| VA-TELP-OHVD      | TELEPHONE OVERHEAD                                           | 0            | 0          | 1           |
| VA-TELP-POLE      | TELEPHONE POLE                                               | 0            | 0          | 1           |
| VA-TOPO           | TOPO                                                         | 0            | 0          | 1           |
| VA-TOPO-ANNO      | TOPO ANNOTATION                                              | 0            | 0          | 1           |
| VA-TOPO-ANTN      | TOPO BORE HOLE                                               | 0            | 0          | 1           |
| VA-TOPO-ARLB      | TOPO AREA LABEL                                              | 0            | 0          | 1           |
| VA-TOPO-BANK-BOTM | TOPO BANK BOTTOM                                             | 0            | 0          | 1           |
| VA-TOPO-BANK-TOPP | TOPO BANK TOP                                                | 0            | 0          | 1           |
| VA-TOPO-BLBD-DBBL | TOPO BILLBOARD DOUBLE                                        | 0            | 0          | 1           |
| VA-TOPO-BLBD-SNGL | TOPO BILLBOARD SINGLE                                        | 0            | 0          | 1           |
| VA-TOPO-BLDR      | TOPO BOULDERS                                                | 0            | 0          | 1           |
| VA-TOPO-BORE      | TOPO BORE HOLE                                               | 0            | 0          | 1           |
| VA-TOPO-BRKL      | TOPO BREAKLINES                                              | 0            | 0          | 1           |
| VA-TOPO-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-TOPO-FENC      | TOPO FENCE                                                   | 0            | 0          | 1           |
| VA-TOPO-GABI      | TOPO GABIONS                                                 | 0            | 0          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-TOPO-GATE      | TOPO GATES                                                   | 0            | 0          | 1           |
| VA-TOPO-MLBX      | TOPO MAILBOX                                                 | 0            | 0          | 1           |
| VA-TOPO-OBSC-NODT | TOPO OBSCURED AREA NO DATA                                   | 0            | 0          | 1           |
| VA-TOPO-OBSC-WDAT | TOPO OBSCURED AREA WITH DATA                                 | 0            | 0          | 1           |
| VA-TOPO-OLDG      | TOPO OLD GROUND                                              | 0            | 0          | 1           |
| VA-TOPO-PNTS-REGL | SURVEY REGULAR POINTS                                        | 0            | 0          | 1           |
| VA-TOPO-POLE-POST | TOPO POLE POST                                               | 0            | 0          | 1           |
| VA-TOPO-ROCK      | TOPO ROCKS                                                   | 0            | 0          | 1           |
| VA-TOPO-RRAP      | TOPO RIPRAP                                                  | 0            | 0          | 1           |
| VA-TOPO-SATD      | SATELLITE DISH                                               | 0            | 0          | 1           |
| VA-TOPO-SIGN      | TOPO SIGN                                                    | 0            | 0          | 1           |
| VA-TOPO-SROW      | TOPO STONE ROW                                               | 0            | 0          | 1           |
| VA-TOPO-WALL-BOTM | TOPO WALL BOTTOM                                             | 0            | 0          | 1           |
| VA-TOPO-WALL-RETN | TOPO WALL RETENSION                                          | 0            | 0          | 1           |
| VA-TOPO-WALL-TOPP | TOPO WALL TOP                                                | 0            | 0          | 1           |
| VA-TRAF           | TRAFFIC                                                      | 0            | 0          | 1           |
| VA-TRAF-ANNO      | TRAFFIC ANNOTATION                                           | 0            | 0          | 1           |
| VA-TRAF-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-TRAF-SIGS      | TRAFFIC SIGNAL                                               | 0            | 0          | 1           |
| VA-UTIL           | UNIDENTIFIED UTILITY                                         | 0            | 0          | 1           |
| VA-UTIL-ANNO      | UNIDENTIFIED UTILITY ANNOTATION                              | 0            | 0          | 1           |
| VA-UTIL-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-UTIL-COMB      | UNIDENTIFIED COMBINED UTILITIES                              | 0            | 0          | 1           |
| VA-UTIL-GUYP      | UNIDENTIFIED UTILITY POLE GUYS                               | 0            | 0          | 1           |
| VA-UTIL-GUYS      | UNIDENTIFIED UTILITY GUYS                                    | 0            | 0          | 1           |
| VA-UTIL-JBOX      | UNIDENTIFIED UTILITY JUNCTION BOX                            | 0            | 0          | 1           |
| VA-UTIL-MHOL      | UNIDENTIFIED UTILITY MANHOLE                                 | 0            | 0          | 1           |
| VA-UTIL-OGTC      | UNIDENTIFIED UTILITY OIL/GAS TANK CAP                        | 0            | 0          | 1           |
| VA-UTIL-OHVD      | UNIDENTIFIED UTILITY OVERHEAD                                | 0            | 0          | 1           |
| VA-UTIL-OVHD      | UNIDENTIFIED UTILITY OVERHEAD                                | 0            | 0          | 1           |
| VA-UTIL-POLE      | UNIDENTIFIED UTILITY PIPE                                    | 0            | 0          | 1           |
| VA-UTIL-POLE-LITE | UNIDENTIFIED UTILITY POLE LITE                               | 0            | 0          | 1           |
| VA-UTIL-POLE-PRVT | UNIDENTIFIED UTILITY PRIVATE POLE                            | 0            | 0          | 1           |
| VA-UTIL-TANK      | UNIDENTIFIED UTILITY TANK                                    | 0            | 0          | 1           |
| VA-UTIL-VLVE      | UNIDENTIFIED UTILITY VALVE                                   | 0            | 0          | 1           |
| VA-VEGE           | VEGETATION                                                   | 0            | 0          | 1           |
| VA-VEGE-ANNO      | VEGETATION ANNOTATION                                        | 0            | 0          | 1           |

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| <u>Name</u>       | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|-------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-VEGE-BEDS      | VEGETATION BEDS                                              | 0            | 0          | 1           |
| VA-VEGE-BRSH      | VEGETATION BRUSH LINE                                        | 0            | 0          | 1           |
| VA-VEGE-BUSH      | VEGETATION BUSH                                              | 0            | 0          | 1           |
| VA-VEGE-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-VEGE-HEDG      | VEGETATION HEDGE                                             | 0            | 0          | 1           |
| VA-VEGE-ORCH      | VEGETATION ORCHARD                                           | 0            | 0          | 1           |
| VA-VEGE-PLTR      | VEGETATION PLANTER                                           | 0            | 0          | 1           |
| VA-VEGE-SHRB      | VEGETATION SHRUB                                             | 0            | 0          | 1           |
| VA-VEGE-STMP      | VEGETATION STUMP                                             | 0            | 0          | 1           |
| VA-VEGE-TREE      | VEGETATION TREE                                              | 0            | 0          | 1           |
| VA-VEGE-TRER      | VEGETATION TREE ROW                                          | 0            | 0          | 1           |
| VA-VEGE-VINE      | VEGETATION VINEYARD                                          | 0            | 0          | 1           |
| VA-VEGE-WDRW      | VEGETATION WOODS ROW                                         | 0            | 0          | 1           |
| VA-VEGE-WODE      | VEGETATION, EDGE OF WOODS                                    | 0            | 0          | 1           |
| VA-VEGE-WTLN      | VEGETATION WET LAND DELINIATION                              | 0            | 0          | 1           |
| VA-WATR           | DOMESTIC WATER                                               | 0            | 0          | 1           |
| VA-WATR-ANNO      | DOMESTIC WATER ANNOTATION                                    | 0            | 0          | 1           |
| VA-WATR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-WATR-CIST      | DOMESTIC WATER CISTERN                                       | 0            | 0          | 1           |
| VA-WATR-FHYD      | DOMESTIC WATER FIRE HYDRANT                                  | 0            | 0          | 1           |
| VA-WATR-LINE      | DOMESTIC WATER LINE                                          | 0            | 0          | 1           |
| VA-WATR-METR      | DOMESTIC WATER METER                                         | 0            | 0          | 1           |
| VA-WATR-POOL      | DOMESTIC WATER POOL                                          | 0            | 0          | 1           |
| VA-WATR-SPRG      | DOMESTIC WATER SPRING EDGE                                   | 0            | 0          | 1           |
| VA-WATR-VLVE      | DOMESTIC WATER VALVE                                         | 0            | 0          | 1           |
| VA-WATR-VLVE-STOP | DOMESTIC WATER VALVE STOP                                    | 0            | 0          | 1           |
| VA-WATR-WELL      | DOMESTIC WATER WELL                                          | 0            | 0          | 1           |
| VA-WWAY           | WATER-WAYS                                                   | 0            | 0          | 1           |
| VA-WWAY-ANNO      | WATER-WAY ANNOTATION                                         | 0            | 0          | 1           |
| VA-WWAY-BOAT      | BOAT LAUNCH                                                  | 0            | 0          | 1           |
| VA-WWAY-CANL      | WATER-WAY CANAL                                              | 0            | 0          | 1           |
| VA-WWAY-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| VA-WWAY-CREK      | WATER-WAY CREEK                                              | 0            | 0          | 1           |
| VA-WWAY-DAMM      | WATER-WAY DAM                                                | 0            | 0          | 1           |
| VA-WWAY-DRYB      | DRY CREEK BED                                                | 0            | 0          | 1           |
| VA-WWAY-LAKE      | LAKE                                                         | 0            | 0          | 1           |
| VA-WWAY-LEVE      | WATER-WAY LEVEE                                              | 0            | 0          | 1           |
| VA-WWAY-POND      | POND                                                         | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| VA-WWAY-RIVR     | WATER-WAY RIVER                                              | 0            | 0          | 1           |
| VA-WWAY-RRAP     | WATER-WAY EROSION RIPRAP ROCK LINING                         | 0            | 0          | 1           |
| VA-WWAY-SNDG     | WATER-WAY SOUNDING                                           | 0            | 0          | 1           |
| VA-WWAY-SPLW     | WATER-WAY SPILLWAY                                           | 0            | 0          | 1           |
| VA-WWAY-STRM     | WATER-WAY STREAM                                             | 0            | 0          | 1           |
| VA-WWAY-WATR     | WATER-WAY WATER                                              | 0            | 0          | 1           |
| V-BLDG           | BUILDING                                                     | 0            | 1          | 1           |
| V-BLDG-ANNO      | BUILDING ANNOTATION                                          | 0            | 2          | 1           |
| V-BLDG-BARN      | BUILDING BARN                                                | 0            | 1          | 1           |
| V-BLDG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 1          | 1           |
| V-BLDG-FPLC      | BUILDING FIREPLACE                                           | 0            | 1          | 1           |
| V-BLDG-GARG      | BUILDING GARAGE                                              | 0            | 1          | 1           |
| V-BLDG-OTLN      | BUILDING OUTLINE                                             | 0            | 1          | 1           |
| V-BLDG-OVHG      | BUILDING OVERHANG                                            | 0            | 1          | 1           |
| V-BLDG-PRCH      | BUILDING PORCH                                               | 0            | 1          | 1           |
| V-BLDG-PRCH-BOTM | BUILDING PORCH BOTTOM                                        | 0            | 1          | 1           |
| V-BLDG-PRCH-TOPP | BUILDING PORCH TOP                                           | 0            | 1          | 1           |
| V-BLDG-SDWK      | TOPO SIDEWALK                                                | 0            | 1          | 1           |
| V-BLDG-SHED      | BUILDING SHED                                                | 0            | 1          | 1           |
| V-BLDG-SILO      | BUILDING SILO                                                | 0            | 1          | 1           |
| V-BLDG-SLAB      | BUILDING CONCRETE SLAB                                       | 0            | 1          | 1           |
| V-BLDG-STEP      | BUILDING STEP                                                | 0            | 1          | 1           |
| V-BLDG-TANK      | BUILDING TANKS                                               | 0            | 1          | 1           |
| V-BNDY           | BOUNDARY LINES (UNCONTROLLED)                                | 0            | 0          | 1           |
| V-BNDY-ANNO      | BOUNDARY LINES, ANNOTATION                                   | 0            | 2          | 1           |
| V-BNDY-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-BNDY-LINE      | DEEDPLOT LEVEL                                               | L203         | 1          | 1           |
| V-BNDY-MUNI      | BOUNDARY LINES, MUNICIPAL                                    | L204         | 3          | 1           |
| V-BRDG           | BRIDGE (UNCONTROLLED)                                        | 0            | 0          | 1           |
| V-BRDG-ABUT-BOTM | BRIDGE ABUTMENT BOTTOM                                       | 0            | 1          | 1           |
| V-BRDG-ABUT-TOPP | BRIDGE ABUTMENT TOP                                          | 0            | 1          | 1           |
| V-BRDG-ANNO      | BRIDGE ANNOTATION                                            | 0            | 2          | 1           |
| V-BRDG-AWNG      | BRIDGE ABUTMENT AND WINGS                                    | 0            | 1          | 1           |
| V-BRDG-BEAM-BOTM | BRIDGE BEAM BOTTOM LINE                                      | 0            | 1          | 1           |
| V-BRDG-BEAM-SEAT | BRIDGE BEAM SEAT                                             | 0            | 1          | 1           |
| V-BRDG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-BRDG-CHRD-LOWW | BRIDGE LOW CHORD                                             | 0            | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-BRDG-CRWN      | BRIDGE CROWN                                                 | 0            | 1          | 1           |
| V-BRDG-CURB-BOTM | BRIDGE CURB BOTTOM                                           | 0            | 1          | 1           |
| V-BRDG-CURB-TOPP | BRIDGE CURB TOP                                              | 0            | 1          | 1           |
| V-BRDG-DECK      | BRIDGE DECK                                                  | 0            | 1          | 1           |
| V-BRDG-DKJT      | BRIDGE DECK JOINT                                            | 0            | 1          | 1           |
| V-BRDG-FTNG      | BRIDGE FOOTING                                               | 0            | 1          | 1           |
| V-BRDG-GNRL      | BRIDGE GENERAL                                               | 0            | 1          | 1           |
| V-BRDG-PARA-BOTM | BRIDGE PARAPET BOTTOM                                        | 0            | 1          | 1           |
| V-BRDG-PARA-TOPP | BRIDGE PARAPET TOP                                           | 0            | 1          | 1           |
| V-BRDG-PEDS-TOPP | BRIDGE PEDESTAL                                              | 0            | 1          | 1           |
| V-BRDG-PIER      | BRIDGE PIER                                                  | 0            | 1          | 1           |
| V-BRDG-PIER-BOTM | BRIDGE PIER BOTTOM                                           | 0            | 1          | 1           |
| V-BRDG-PIER-TOPP | BRIDGE PIER TOP                                              | 0            | 1          | 1           |
| V-BRDG-SDWK      | BRIDGE SIDEWALK                                              | 0            | 1          | 1           |
| V-BRDG-WHGD      | ROAD WHEEL GUARD                                             | 0            | 1          | 1           |
| V-BRDG-WING-BOTM | BRIDGE WING                                                  | 0            | 1          | 1           |
| V-BRDG-WING-TOPP | BRIDGE WING                                                  | 0            | 1          | 1           |
| V-CATV           | CABLE TV                                                     | 0            | 0          | 1           |
| V-CATV-ANNO      | CABLE TV ANNOTATION                                          | 0            | 2          | 1           |
| V-CATV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-CATV-LINE      | CABTV LINE                                                   | L407         | 1          | 1           |
| V-CATV-MARK      | CABLE TV MARKER                                              | 0            | 1          | 1           |
| V-CATV-OVHD      | CABLE TV OVERHEAD                                            | L406         | 1          | 1           |
| V-CATV-UNDR      | CABLE TV UNDERGROUND                                         | L407         | 1          | 1           |
| V-DRIV           | DRIVEWAY                                                     | 0            | 0          | 1           |
| V-DRIV-ANNO      | DRIVEWAY ANNOTATION                                          | 0            | 2          | 1           |
| V-DRIV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-DRIV-EDGE      | DRIVEWAY EDGE                                                | 0            | 1          | 1           |
| V-DTCH           | DITCH                                                        | 0            | 1          | 1           |
| V-DTCH-ANNO      | DITCH ANNOTATION                                             | 0            | 2          | 1           |
| V-DTCH-BOTM      | DITCH BOTTOM                                                 | L301         | 1          | 1           |
| V-DTCH-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-DTCH-DRAW      | DITCH DRAW                                                   | 0            | 1          | 1           |
| V-DTCH-PAVE      | DITCH PAVE                                                   | 0            | 1          | 1           |
| V-DTCH-SWAL      | DITCH TOP                                                    | L302         | 1          | 1           |
| V-DTCH-TOPD      | DITCH TOP                                                    | 0            | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-ESMT           | EASEMENT                                                     | 0            | 0          | 1           |
| V-ESMT-ANNO      | EASEMENT ANNOTATION                                          | 0            | 2          | 1           |
| V-ESMT-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-ESMT-LINE      | PROPERTY LINES - DEEDPLOT LEVEL                              | L203         | 1          | 1           |
| V-ESMT-RWAY      | LEGAL RIGHT OF WAY LINES                                     | L200         | 3          | 1           |
| V-FIBR           | FIBER OPTIC                                                  | 0            | 1          | 1           |
| V-FIBR-ANNO      | FIBER OPTIC ANNOTATION                                       | 0            | 2          | 1           |
| V-FIBR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-FIBR-DBUR      | FIBER OPTIC MANHOLE                                          | 0            | 1          | 1           |
| V-FIBR-MHOL      | FIBER OPTIC DIRECT BURIED                                    | 0            | 0          | 1           |
| V-FIBR-OVHD      | FIBER OPTIC OVERHEAD                                         | L403         | 1          | 1           |
| V-FIBR-POLE      | FIBER OPTIC POLE                                             | 0            | 0          | 1           |
| V-FIBR-UNDR      | FIBER OPTIC UNDERGROUND                                      | L404         | 1          | 1           |
| V-GRAL-ANNO      | GUIDE RAIL ANNOTATION                                        | 0            | 2          | 1           |
| V-GRAL-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-GRAL-LINE      | GUIDE RAIL LINE                                              | L106         | 1          | 1           |
| V-GRAL-STRG      | GUIDE RAIL STRONG POST                                       | L106         | 1          | 1           |
| V-GRAL-WEAK      | GUIDE RAIL WEAK POST                                         | L106         | 1          | 1           |
| V-NGAS           | NATURAL GAS                                                  | 0            | 1          | 1           |
| V-NGAS-ANNO      | NATURAL GAS ANNOTATION                                       | 0            | 2          | 1           |
| V-NGAS-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-NGAS-LINE      | NATURAL GAS LINE                                             | L460         | 1          | 1           |
| V-NGAS-MARK      | NATURAL GAS MARKER                                           | 0            | 0          | 1           |
| V-NGAS-METR      | NATURAL GAS METER                                            | 0            | 0          | 1           |
| V-NGAS-MHOL      | NATURAL GAS MAN HOLE                                         | 0            | 0          | 1           |
| V-NGAS-VLVE      | NATURAL GAS VALVE                                            | 0            | 0          | 1           |
| V-NGAS-VLVE-STOP | NATURAL GAS VALVE STOP                                       | 0            | 0          | 1           |
| V-NGAS-WELL      | NATURAL GAS WELL                                             | 0            | 0          | 1           |
| V-POWR           | POWER                                                        | 0            | 0          | 1           |
| V-POWR-ANNO      | POWER ANNOTATION                                             | 0            | 2          | 1           |
| V-POWR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-POWR-COND      | POWER CONDUIT                                                | 0            | 1          | 1           |
| V-POWR-DBUR      | POWER DIRECT BURIED                                          | 0            | 1          | 1           |
| V-POWR-MHOL      | POWER MANHOLE                                                | 0            | 0          | 1           |
| V-POWR-OHVD      | POWER OVERHEAD                                               | L409         | 0          | 1           |
| V-POWR-OVHD      | POWER OVERHEAD                                               | L409         | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-POWR-POLE      | POWER POLE                                                   | 0            | 0          | 1           |
| V-POWR-UNDR      | POWER UNDERGROUND                                            | L410         | 1          | 1           |
| V-PRKG           | PARKING                                                      | 0            | 0          | 1           |
| V-PRKG-ANNO      | PARKING ANNOTATION                                           | 0            | 2          | 1           |
| V-PRKG-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-PRKG-EDGE      | PARKING EDGE                                                 | L102         | 1          | 1           |
| V-PRKG-METR      | PARKING METER                                                | 0            | 0          | 1           |
| V-PTRO           | PETROLEUM                                                    | 0            | 0          | 1           |
| V-PTRO-ANNO      | PETROLEUM ANNOTATION                                         | 0            | 2          | 1           |
| V-PTRO-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-PTRO-ISLN      | PETROLEUM ISLAND                                             | 0            | 1          | 1           |
| V-PTRO-UNDR      | PETROLEUM LINE UNDERGROUND                                   | L460         | 1          | 1           |
| V-RAIL           | RAILROAD                                                     | 0            | 0          | 1           |
| V-RAIL-ANNO      | RAIL ANNOTATION                                              | 0            | 2          | 1           |
| V-RAIL-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-RAIL-CNTR      | RAILROAD CENTERLINE                                          | L100         | 1          | 1           |
| V-RAIL-EQPM      | RAILROAD CROSSING GATE                                       | 0            | 0          | 1           |
| V-RAIL-SGNL      | RAILROAD SIGNALS                                             | 0            | 0          | 1           |
| V-RAIL-SIGN      | RAILROAD SIGNS                                               | 0            | 0          | 1           |
| V-RAIL-TRAK      | RAILROAD TRACK, TOP OF RAIL                                  | L260         | 1          | 1           |
| V-ROAD           | ROAD                                                         | 0            | 0          | 1           |
| V-ROAD-ANNO      | ROAD ANNOTATION                                              | 0            | 2          | 1           |
| V-ROAD-BARR-BOTM | ROAD MEDIAN BARRIER BOTTOM                                   | 0            | 1          | 1           |
| V-ROAD-BARR-TOPP | ROAD MEDIAN BARRIER TOP                                      | 0            | 1          | 1           |
| V-ROAD-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-ROAD-CRWN      | ROAD CROWN                                                   | 0            | 1          | 1           |
| V-ROAD-CURB      | ROAD CURB                                                    | L103         | 1          | 1           |
| V-ROAD-CURB-BOTM | ROAD CURB BOTTOM                                             | 0            | 1          | 1           |
| V-ROAD-CURB-MOUN | ROAD CURB MOUNTABLE                                          | L103         | 1          | 1           |
| V-ROAD-CURB-TOPP | ROAD CURB TOP                                                | 0            | 1          | 1           |
| V-ROAD-EDGE      | ROAD EDGE                                                    | L102         | 1          | 1           |
| V-ROAD-EDGE-DIRT | ROAD EDGE DIRT                                               | L102         | 1          | 1           |
| V-ROAD-LINE      | ROAD LINE                                                    | 0            | 1          | 1           |
| V-ROAD-MRKG      | ROAD MARKING                                                 | 0            | 1          | 1           |
| V-ROAD-SHLD      | ROAD SHOULDER                                                | 0            | 1          | 1           |
| V-ROAD-SHLD-DIRT | ROAD SHOULDER DIRT                                           | 0            | 1          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-SSWR           | SANITARY SEWER                                               | 0            | 0          | 1           |
| V-SSWR-ANNO      | SANITARY SEWER ANNOTATION                                    | 0            | 2          | 1           |
| V-SSWR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-SSWR-CESS      | SANITARY SEWER CESSPOOL                                      | 0            | 0          | 1           |
| V-SSWR-DFLD      | SANITARY SEWER DRAIN FIELD                                   | 0            | 1          | 1           |
| V-SSWR-MHOL      | SANITARY SEWER MANHOLE                                       | 0            | 0          | 1           |
| V-SSWR-PERC      | SANITARY SEWER PERC HOLE                                     | 0            | 0          | 1           |
| V-SSWR-PIPE      | SANITARY SEWER PIPE                                          | L440         | 1          | 1           |
| V-SSWR-SEPT      | SANITARY SEWER SEPTIC TANK                                   | 0            | 0          | 1           |
| V-SSWR-STPT      | SANITARY SEWER SOIL TEST PIT                                 | 0            | 0          | 1           |
| V-SSWR-VENT      | SANITARY SEWER VENT                                          | 0            | 0          | 1           |
| V-STRM           | STORM WATER STRM                                             | 0            | 0          | 1           |
| V-STRM-ANNO      | STORM WATER ANNOTATION                                       | 0            | 2          | 1           |
| V-STRM-ARCH      | STORM WATER ARCH PIPE                                        | L480         | 0          | 1           |
| V-STRM-BXCL      | STORM WATER BOX CULVERT                                      | 0            | 2          | 1           |
| V-STRM-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-STRM-HDWL      | STORM WATER HEAD WALL                                        | 0            | 2          | 1           |
| V-STRM-INLT      | STORM WATER INLET                                            | 0            | 1          | 1           |
| V-STRM-MHOL      | STORM WATER MANHOLE                                          | 0            | 0          | 1           |
| V-STRM-PIPE      | STORM WATER PIPE                                             | L480         | 1          | 1           |
| V-STRM-STRC      | STORM WATER END SECTION                                      | 0            | 0          | 1           |
| V-SUEI           | SUBSURFACE UTILITY ENGINEERING DATA                          | 0            | 0          | 1           |
| V-SUEI-DEPU      | DEAD END POINT OF UTILITY                                    | 0            | 0          | 1           |
| V-SUEI-LOSD      | LIMIT OF SUE DATA                                            | L490         | 2          | 1           |
| V-SUEI-STPL      | SUE TEST PIT LOCATION                                        | 0            | 0          | 1           |
| V-SUEI-UQLC      | SUE - UTILITY QUALITY LEVEL CHANGE                           | 0            | 0          | 1           |
| V-SURF           | SURFACE                                                      | 0            | 0          | 1           |
| V-SURF-BRKL      | SURFACE, INROADS CREATED BREAKLINES                          | 0            | 0          | 1           |
| V-SURF-CONT-ANNO | CONTOURS ANNOTATION                                          | 0            | 2          | 1           |
| V-SURF-CONT-MAJR | CONTOURS MAJOR                                               | 0            | 1          | 1           |
| V-SURF-CONT-MINR | CONTOURS MINOR                                               | 0            | 0          | 1           |
| V-SURF-CONT-SPOT | CONTOURS SPOT ELEVATIONS                                     | 0            | 0          | 1           |
| V-SURF-PMTR      | SURFACE PERIMETER                                            | 2            | 2          | 1           |
| V-SURF-PROF      | SURFACE PROFILED                                             | 0            | 0          | 1           |
| V-SURF-RNDM      | SURFACE, INROADS CREATED RANDOM POINTS                       | 0            | 0          | 1           |
| V-SURF-TRIG      | SURFACE TRIANGLES                                            | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-SURV           | SURVEY                                                       | 0            | 0          | 1           |
| V-SURV-ANNO      | SURVEY ANNOTATION                                            | 0            | 2          | 1           |
| V-SURV-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-SURV-CHCK      | SURVEY CHECK SHOTS                                           | 0            | 0          | 1           |
| V-SURV-CONS-BSLN | SURVEY CONSTRUCTION BASE LINE                                | L101         | 1          | 1           |
| V-SURV-CTPT      | SURVEY PLAN AXLE, BENCHMARKS, MONUMENTS, CONSTRUCTION PTS    | 0            | 0          | 1           |
| V-SURV-DATA      | SURVEY DATA                                                  | 0            | 0          | 1           |
| V-SURV-DATA-CODE | SURVEY DATA POINT CODES - INROADS SURVEY                     | 0            | 0          | 1           |
| V-SURV-DATA-ELEV | SURVEY DATA POINT ELEVATIONS - INROADS SURVEY                | 0            | 0          | 1           |
| V-SURV-DATA-ERRO | SURVEY DATA POINT ERRORS - INROADS SURVEY                    | 0            | 0          | 1           |
| V-SURV-DATA-NAME | SURVEY DATA POINT NAMES - INROADS SURVEY                     | 0            | 0          | 1           |
| V-SURV-DATA-NETW | SURVEY DATA NETWORK - INROADS SURVEY                         | 0            | 0          | 1           |
| V-SURV-DATA-NOTE | SURVEY DATA NOTES - INROADS SURVEY                           | 0            | 2          | 1           |
| V-SURV-DATA-SYMB | SURVEY DATA SYMBOLS - INROADS SURVEY                         | 0            | 0          | 1           |
| V-SURV-DEFT      | SURVEY DEFAULT SHOT                                          | 0            | 0          | 1           |
| V-SURV-DEFT-LINR | SURVEY DEFAULT LINEAR                                        | 0            | 0          | 1           |
| V-SURV-FDPT      | SURVEY CONTROL POINTS                                        | 0            | 0          | 1           |
| V-SURV-PLAN-BSLN | SURVEY PLAN BASE LINE                                        | L101         | 1          | 1           |
| V-SURV-PLAN-CNTR | SURVEY PLAN CENTER LINE                                      | L102         | 1          | 1           |
| V-SURV-PLAN-PNTS | SURVEY PLAN POINTS                                           | 0            | 0          | 1           |
| V-SURV-TRAV      | SURVEY TRAVERSE POINTS                                       | 0            | 0          | 1           |
| V-TELP           | TELEPHONE                                                    | 0            | 0          | 1           |
| V-TELP-ANNO      | TELEPHONE ANNOTATION                                         | 0            | 2          | 1           |
| V-TELP-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-TELP-DBUR      | TELEPHONE DIRECT BURIED LINE                                 | L402         | 1          | 1           |
| V-TELP-LINE      | TELEPHONE LINE                                               | L400         | 1          | 1           |
| V-TELP-MARK      | TELEPHONE MARKER                                             | 0            | 0          | 1           |
| V-TELP-MHOL      | TELEPHONE MANHOLE                                            | 0            | 0          | 1           |
| V-TELP-OHVD      | TELEPHONE OVERHEAD                                           | 0            | 0          | 1           |
| V-TELP-OVHD      | TELEPHONE OVERHEAD                                           | L400         | 1          | 1           |
| V-TELP-POLE      | TELEPHONE POLE                                               | 0            | 0          | 1           |
| V-TELP-UNDR      | TELEPHONE UNDERGROUND LINE                                   | L401         | 1          | 1           |
| V-TOPO           | TOPO                                                         | 0            | 0          | 1           |
| V-TOPO-ANNO      | TOPO ANNOTATION                                              | 0            | 2          | 1           |
| V-TOPO-ARLB      | TOPO AREA LABEL                                              | 0            | 2          | 1           |
| V-TOPO-BANK-BOTM | TOPO BANK BOTTOM                                             | 0            | 0          | 1           |
| V-TOPO-BANK-TOPP | TOPO BANK TOP                                                | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-TOPO-BLBD-DBBL | TOPO BILLBOARD DOUBLE                                        | 0            | 0          | 1           |
| V-TOPO-BLBD-SNGL | TOPO BILLBOARD SINGLE                                        | 0            | 0          | 1           |
| V-TOPO-BLDR      | TOPO BOULDERS                                                | 0            | 0          | 1           |
| V-TOPO-BORE      | TOPO BORE HOLE                                               | 0            | 0          | 1           |
| V-TOPO-BRKL      | TOPO BREAKLINES                                              | 0            | 0          | 1           |
| V-TOPO-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-TOPO-FENC      | TOPO FENCE                                                   | L230         | 1          | 1           |
| V-TOPO-GABI      | TOPO GABIONS                                                 | 0            | 0          | 1           |
| V-TOPO-GATE      | TOPO GATES                                                   | L230         | 0          | 1           |
| V-TOPO-MLBX      | TOPO MAILBOX                                                 | 0            | 0          | 1           |
| V-TOPO-OLDG      | TOPO OLD GROUND                                              | 0            | 0          | 1           |
| V-TOPO-PNTS-REGL | SURVEY REGULAR POINTS                                        | 0            | 0          | 1           |
| V-TOPO-POLE-POST | TOPO POLE POST                                               | 0            | 0          | 1           |
| V-TOPO-ROCK      | TOPO ROCKS                                                   | 0            | 0          | 1           |
| V-TOPO-RRAP      | TOPO RIPRAP                                                  | 0            | 0          | 1           |
| V-TOPO-SIGN      | TOPO SIGN                                                    | 0            | 0          | 1           |
| V-TOPO-SROW      | TOPO STONE ROW                                               | 0            | 0          | 1           |
| V-TOPO-WALL-BOTM | TOPO WALL BOTTOM                                             | 0            | 0          | 1           |
| V-TOPO-WALL-RETN | TOPO WALL RETENSION                                          | 0            | 0          | 1           |
| V-TOPO-WALL-TOPP | TOPO WALL TOP                                                | 0            | 0          | 1           |
| V-TRAF           | TRAFFIC                                                      | 0            | 0          | 1           |
| V-TRAF-ANNO      | TRAFFIC ANNOTATION                                           | 0            | 2          | 1           |
| V-TRAF-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-TRAF-SIGS      | TRAFFIC SIGNAL                                               | 0            | 0          | 1           |
| V-UTIL           | UNIDENTIFIED UTILITY                                         | 0            | 0          | 1           |
| V-UTIL-ANNO      | UNIDENTIFIED UTILITY ANNOTATION                              | 0            | 2          | 1           |
| V-UTIL-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-UTIL-COMB      | UNIDENTIFIED COMBINED UTILITIES                              | 0            | 1          | 1           |
| V-UTIL-GUYP      | UNIDENTIFIED UTILITY POLE GUYS                               | 0            | 0          | 1           |
| V-UTIL-GUYS      | UNIDENTIFIED UTILITY GUYS                                    | 0            | 0          | 1           |
| V-UTIL-JBOX      | UNIDENTIFIED UTILITY JUNCTION BOX                            | 0            | 0          | 1           |
| V-UTIL-MHOL      | UNIDENTIFIED UTILITY MANHOLE                                 | 0            | 0          | 1           |
| V-UTIL-OGTC      | UNIDENTIFIED UTILITY OIL/GAS TANK CAP                        | 0            | 0          | 1           |
| V-UTIL-OHVD      | UNIDENTIFIED UTILITY OVERHEAD                                | 0            | 0          | 1           |
| V-UTIL-OVHD      | UNIDENTIFIED UTILITY OVERHEAD                                | L411         | 0          | 1           |
| V-UTIL-POLE      | UNIDENTIFIED UTILITY PIPE                                    | 0            | 0          | 1           |
| V-UTIL-POLE-LITE | UNIDENTIFIED UTILITY POLE LITE                               | 0            | 0          | 1           |
| V-UTIL-POLE-PRVT | UNIDENTIFIED UTILITY PRIVATE POLE                            | 0            | 0          | 1           |

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| <u>Name</u>      | <u>Description</u>                                           | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|------------------|--------------------------------------------------------------|--------------|------------|-------------|
| V-UTIL-TANK      | UNIDENTIFIED UTILITY TANK                                    | 0            | 0          | 1           |
| V-UTIL-VLVE      | UNIDENTIFIED UTILITY VALVE                                   | 0            | 0          | 1           |
| V-VEGE           | VEGETATION                                                   | 0            | 0          | 1           |
| V-VEGE-ANNO      | VEGETATION ANNOTATION                                        | 0            | 2          | 1           |
| V-VEGE-BEDS      | VEGETATION BEDS                                              | L503         | 1          | 1           |
| V-VEGE-BRSH      | VEGETATION BRUSH LINE                                        | 0            | 1          | 1           |
| V-VEGE-BUSH      | VEGETATION BUSH                                              | 0            | 0          | 1           |
| V-VEGE-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-VEGE-HEDG      | VEGETATION HEDGE                                             | L505         | 1          | 1           |
| V-VEGE-ORCH      | VEGETATION ORCHARD                                           | L503         | 1          | 1           |
| V-VEGE-PLTR      | VEGETATION PLANTER                                           | 0            | 0          | 1           |
| V-VEGE-SHRB      | VEGETATION SHRUB                                             | 0            | 0          | 1           |
| V-VEGE-STMP      | VEGETATION STUMP                                             | 0            | 0          | 1           |
| V-VEGE-TREE      | VEGETATION TREE                                              | 0            | 0          | 1           |
| V-VEGE-TRER      | VEGETATION TREE ROW                                          | L502         | 1          | 1           |
| V-VEGE-VINE      | VEGETATION VINEYARD                                          | L504         | 1          | 1           |
| V-VEGE-WDRW      | VEGETATION WOODS ROW                                         | L500         | 1          | 1           |
| V-VEGE-WODE      | VEGETATION, EDGE OF WOODS                                    | L500         | 1          | 1           |
| V-VEGE-WTLN      | VEGETATION WET LAND DELINIATION                              | L304         | 0          | 1           |
| V-WATR           | DOMESTIC WATER                                               | 0            | 0          | 1           |
| V-WATR-ANNO      | DOMESTIC WATER ANNOTATION                                    | 0            | 2          | 1           |
| V-WATR-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-WATR-CIST      | DOMESTIC WATER CISTERN                                       | 0            | 0          | 1           |
| V-WATR-FHYD      | DOMESTIC WATER FIRE HYDRANT                                  | 0            | 0          | 1           |
| V-WATR-LINE      | DOMESTIC WATER LINE                                          | L450         | 1          | 1           |
| V-WATR-METR      | DOMESTIC WATER METER                                         | 0            | 0          | 1           |
| V-WATR-POOL      | DOMESTIC WATER POOL                                          | 0            | 1          | 1           |
| V-WATR-SPRG      | DOMESTIC WATER SPRING EDGE                                   | L303         | 1          | 1           |
| V-WATR-VLVE      | DOMESTIC WATER VALVE                                         | 0            | 0          | 1           |
| V-WATR-VLVE-STOP | DOMESTIC WATER VALVE STOP                                    | 0            | 0          | 1           |
| V-WATR-WELL      | DOMESTIC WATER WELL                                          | 0            | 0          | 1           |
| V-WWAY           | WATER-WAYS                                                   | 0            | 0          | 1           |
| V-WWAY-ANNO      | WATER-WAY ANNOTATION                                         | 0            | 2          | 1           |
| V-WWAY-CANL      | WATER-WAY CANAL                                              | 0            | 1          | 1           |
| V-WWAY-CELL      | ALL LINEAR FEATURES POINT CELLS WILL BE PLACED ON THIS LEVEL | 0            | 0          | 1           |
| V-WWAY-CREK      | WATER-WAY CREEK C                                            | L300         | 1          | 1           |
| V-WWAY-LAKE      | LAKE                                                         | L300         | 1          | 1           |

| <u>Name</u>   | <u>Description</u>                    | <u>Style</u> | <u>Wt.</u> | <u>Plot</u> |
|---------------|---------------------------------------|--------------|------------|-------------|
| V-WWAY-LEVE   | WATER-WAY LEVEE                       | 0            | 1          | 1           |
| V-WWAY-POND   | POND                                  | L300         | 1          | 1           |
| V-WWAY-RIVR   | WATER-WAY RIVER                       | L300         | 1          | 1           |
| V-WWAY-RRAP   | WATER-WAY EROSION RIPRAP ROCK LINING  | 0            | 1          | 1           |
| V-WWAY-SNDG   | WATER-WAY SOUNDING                    | 0            | 1          | 1           |
| V-WWAY-STRM   | WATER-WAY STREAM                      | L300         | 1          | 1           |
| V-WWAY-WATR   | WATER-WAY WATER                       | L300         | 1          | 1           |
| XCS-FRAM      | XCS-CROSS SECTION FRAME               | 0            | 0          | 1           |
| XCS-GRID-BLTX | XCS-CROSS SECTION BASE LINE TEXT      | 0            | 0          | 1           |
| XCS-GRID-CLTX | XCS-CROSS SECTION CENTERLINE TEXT     | 0            | 0          | 1           |
| XCS-GRID-HVGL | XCS-CROSS SECTION HEAVY VERTICAL LINE | 0            | 0          | 1           |
| XCS-GRID-MAJ  | XCS-CROSS SECTION MAJOR GRID LINE     | 0            | 0          | 1           |
| XCS-GRID-MIN  | XCS-CROSS SECTION MINOR GRID LINE     | 0            | 0          | 1           |