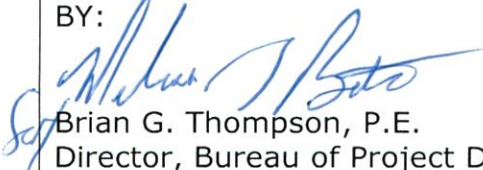


Publication 14M DESIGN MANUAL PART 3 PLANS PRESENTATION

March 2015 Edition
(April 2016 Change No. 1)

OS-299 (7-08)  pennsylvania DEPARTMENT OF TRANSPORTATION	TRANSMITTAL LETTER	PUBLICATION: Publication 14M March 2015 Edition DATE: April 15, 2015
SUBJECT: Design Manual, Part 3 Plans Presentation March 2015 Edition		
INFORMATION AND SPECIAL INSTRUCTIONS: Publication 14M (Plans Presentation) is to be re-issued with this letter. The enclosed March 2015 Edition represents a complete publication. This Edition supersedes the April 2007 Edition and all subsequent changes. The effective date of the March 2015 Edition is April 15, 2015. This release only includes incorporation of outstanding Strike-off Letters issued through February 28, 2015, and those changes are already in effect. Strike-off Letters issued on or after March 1, 2015 are still effective until they are incorporated into this publication.		
CANCEL AND DESTROY THE FOLLOWING: Publication 14M (April 2007 Edition and all associated changes) SOL 482-14-19 (May 19, 2014) NOTE: Publication 14M is only available electronically via the PennDOT website.	ADDITIONAL COPIES ARE AVAILABLE FROM: ☐ PennDOT SALES STORE (717) 787-6746 phone (717) 787-8779 fax ra-penndotsalesstore.state.pa.us ☒ PennDOT website - www.dot.state.pa.us <i>Click on Forms, Publications & Maps</i> ☐ DGS warehouse (PennDOT employees ONLY) APPROVED FOR ISSUANCE BY: LESLIE S. RICHARDS Acting Secretary of Transportation BY:  Brian G. Thompson, P.E. Director, Bureau of Project Delivery, Highway Administration	

OS-299 (7-08) 	TRANSMITTAL LETTER	PUBLICATION: Publication 14M March 2015 Edition Change No. 1 DATE: April 30, 2016
SUBJECT: Design Manual, Part 3 Plans Presentation March 2015 Edition, Change No. 1		
INFORMATION AND SPECIAL INSTRUCTIONS: Incorporate the attached revisions into the March 2015 Edition of Design Manual, Part 3. These new guidelines should be adopted on all new and existing projects as soon as practical without affecting any letting schedules. Projects with letting dates after September 1, 2016 should use the revised procedures and guidelines herein. TABLE OF CONTENTS Updated for consistency with revisions made as described below. CHAPTER 12 COMPUTER AIDED DRAFTING AND DESIGN (CADD) SYSTEM PROCEDURES AND CONFIGURATION -Updated the entire Chapter. Includes the following sections: *Section 12.0 (Introduction) *Section 12.1 (Definitions) *Section 12.2 (Naming of CADD Design Files) *Section 12.3 (CADD Design File Level Convention) *Section 12.4 (CADD Design File Graphic Symbolology) *Section 12.5 (Reference Files and Cell Libraries) *Section 12.6 (Electronic File Exchange of CADD Data Files) *Section 12.7 (Electronic Files and 3D Modeling Implementation) CHAPTER 13 ENGINEERING GRAPHIC STANDARDS *Section 13.0 (Introduction): -Deleted first paragraph referring to the PennDOT CADD Standards Review Committee. -Revised what is now the first paragraph to describe preparation of project plans. -Decreased the listed number of requirements for hard copy plans from six to three. -Added second and third paragraphs regarding CADD workspace, obtaining CADD environment resource files, and referring to Chapter 12 on using CADD to prepare plans. *Section 13.5 (Line Weights and Symbols): -Revised Section to refer to graphic weights, line styles and symbols that are now found in Chapter 12, Appendix C, and Appendix D.		

*Section 13.7 (Plan Review Checklist):

- Deleted Section 13.7.A.2.b (Location of Project on State Map).
- Deleted Section 13.7.B.2.b (Location of Project on State Map).
- Relabeled Section 13.7.B.2.c (Sheet Index) to Section 13.7.B.2.b

APPENDIX B DATA TRANSFER GUIDELINES

- Added this new Appendix to provide guidelines about how 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.

APPENDIX C COMPUTER AIDED DRAFTING AND DESIGN (CADD) LEGACY NUMERIC LEVELS

- Added this new Appendix to identify levels, line widths, and line weights in MicroStation (DGN) files that are to remain active in order to provide backward compatibility with existing designs. This Appendix includes:

- *Table C.1 (Levels for Roadway Drawings for Department CADD Usage)
- *Table C.2 (Levels for Bridge Drawings for Department CADD Usage)
- *Table C.3 (Levels for Culvert Drawings for Department CADD Usage)
- *Table C.4 (Standard Roadway Text Sizes Using Working Units of 1:1:1000)
- *Table C.5 (Standard Bridge Text Sizes Using Working Units of 1:12:1000)
- *Figure C.1 (Line Widths and Line Weights)

APPENDIX D COMPUTER AIDED DRAFTING AND DESIGN (CADD) NAMED LEVELS AND SYMBOLOGY

- Added this new Appendix to identify the Department's named levels for new designs. This Appendix includes:

- *Level Names graphic consisting of a Discipline code, Major code, 1st Minor code, 2nd Minor code, and Status Code.
- *Table D.1 (Discipline Code Descriptors for Named Levels)
- *Table D.2 (Major Code Descriptors for Named Levels)
- *Table D.3 (Minor Code Descriptors for Named Levels)
- *Table D.4 (Status Code Descriptors for Named Levels)
- *Table D.5 (Font Library Styles)
- *Table D.6 (MicroStation Graphic Weights)
- *Figure D.1 (Line Style (Name), Code and Graphic Definition)
- *Figure D.1 (Pattern Fill (Name), Code and Graphic Definition)
- *Level Listing (Name, Description, Style, Wt., and Plot)

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

CANCEL AND DESTROY THE FOLLOWING:

Table of Contents - all pages
Chapter 12 - all pages
Chapter 13 - all pages

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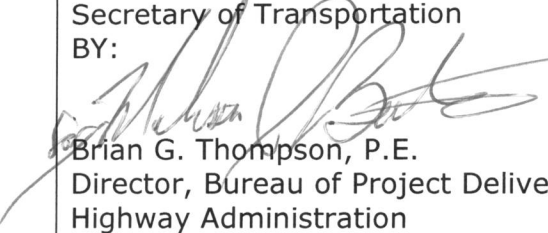
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BY:


Brian G. Thompson, P.E.
Director, Bureau of Project Delivery,
Highway Administration

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 and/or Construction Plans	No Code 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 and Related Utilities Plans	SR_____ Section_____ -W
Right-of-Way Fence Plans	SR_____ Section_____ -F
Landscape Planting Design (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 OF PROJECT	REQUIRED SIGNATURES			
	DISTRICT PLANS ENGINEER**	DISTRICT EXECUTIVE	DEPUTY SECRETARY	SECRETARY OF TRANSPORTATION
<u>STATE PROJECTS</u>				
RIGHT-OF-WAY PLAN	X	X	X	X
CONSTRUCTION PLAN	X	X	X	X
ABBREVIATED CONSTRUCTION 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 Project 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, 863.6 mm × 558.8 mm (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 0.0762 mm (3 mils) in thickness and the vellum for the plan sheets shall be between 60 g/m² and 75 g/m² (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 150 m (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 15 m and 30 m (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 km (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 0.5 m (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 Project Delivery for direction.

F. Bar Scales. Normally, a horizontal scale of 1:250 (1" = 25') shall be used on all projects, particularly in built-up areas, where considerable topographic detail is necessary. A horizontal scale of 1:500 (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., 1:250 (1" = 25'), shall not be used to indicate these values.

Metric Example:



English 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 which he/she is 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

PREPARED BY: (NAME AND ADDRESS) OF CONSULTANT (SEAL) _____ (SIGNATURE) (TITLE) _____ (DATE)

CONSULTANT'S SIGNATURE BLOCK

(SEAL) _____ (SIGNATURE) (TITLE) _____ (DATE)
--

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 1:5000 (1" = 500') and shall show the following data, where applicable:

1. Construction centerline and stations identified at maximum 100 m (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.

Metric Example:

LIMIT OF WORK
STA 20+570.000
SEG 20 OFFSET 23 m
SR 1033 SEC A04
GREENWOOD TOWNSHIP
PERRY COUNTY

English 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.

Metric Example:

STOP WORK
STA 7+330.000
SEG 15 OFFSET 15 m
SR 1033 SEC A04
(Section Number, if applicable,
See [Section 2.1.B.](#))

English 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 km (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 kilometers (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.

Metric**Example:**

Limit of Work Adjacent to Seg 30	7.2 m of 90 mm Bit Surf Crse ID-2 on 255 mm Cr Stone Base Crse
Seg 30 to Seg 120	7.2 m of 90 mm Bit Surf Crse ID-2 on 255 mm Cr Stone Base Crse
Limit of Work Adjacent to Seg 120	7.2 m of 90 mm Bit Surf Crse ID-2 on 300 mm Cr Stone Base Crse

English**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](#).

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Metric Example:

STRAIGHT LINE DIAGRAM DATA			
STATE ROUTE	LIMITS OF CONSTRUCTION		PROPOSED CONSTRUCTION
	CONSTR STA	SEGMENT/OFFSET	
SR 1033	10+530 TO 10+580	10/0 m TO 10/49 m	5.4 m OF 40 mm BIT WEAR CRSE ID-2 ON 130 mm BITUMINOUS CONCRETE BASE COURSE

English Example:

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

Metric Example:	English Example:
<u>SR 0010</u> Segment 10, Offset 43 m = Station 4+678.4 Segment 20 = Station 5+650.1 Segment 30 = Station 6+429.2	<u>SR 0010</u> 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.

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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.

Metric Examples:

(1) THE LEGAL RIGHT-OF-WAY ON SR 1524 FROM THE WEST CHESTER BOROUGH LINE (STATION 0+000.0) TO THE INTERSECTION OF SR 1509 (STATION 0+285.0) IS 18.29 m, 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+000.0 TO STATION 0+285.0 IS 15.24 m 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 6+127.1 TO STATION 6+598.9 IS 15.24 m, 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 10.0 m, 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+000.0 TO STATION 0+279.5 IS 15.24 m 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 ____ m BASED ON THE EXISTING EDGES OF PAVEMENT AND SHOULDER WIDTH. THERE IS NO OTHER PUBLIC RECORD.

English 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 ☐ O 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 WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM, INC., PHONE 1-800-242-1776, SERIAL NO. _____ FOR (list municipality).

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).

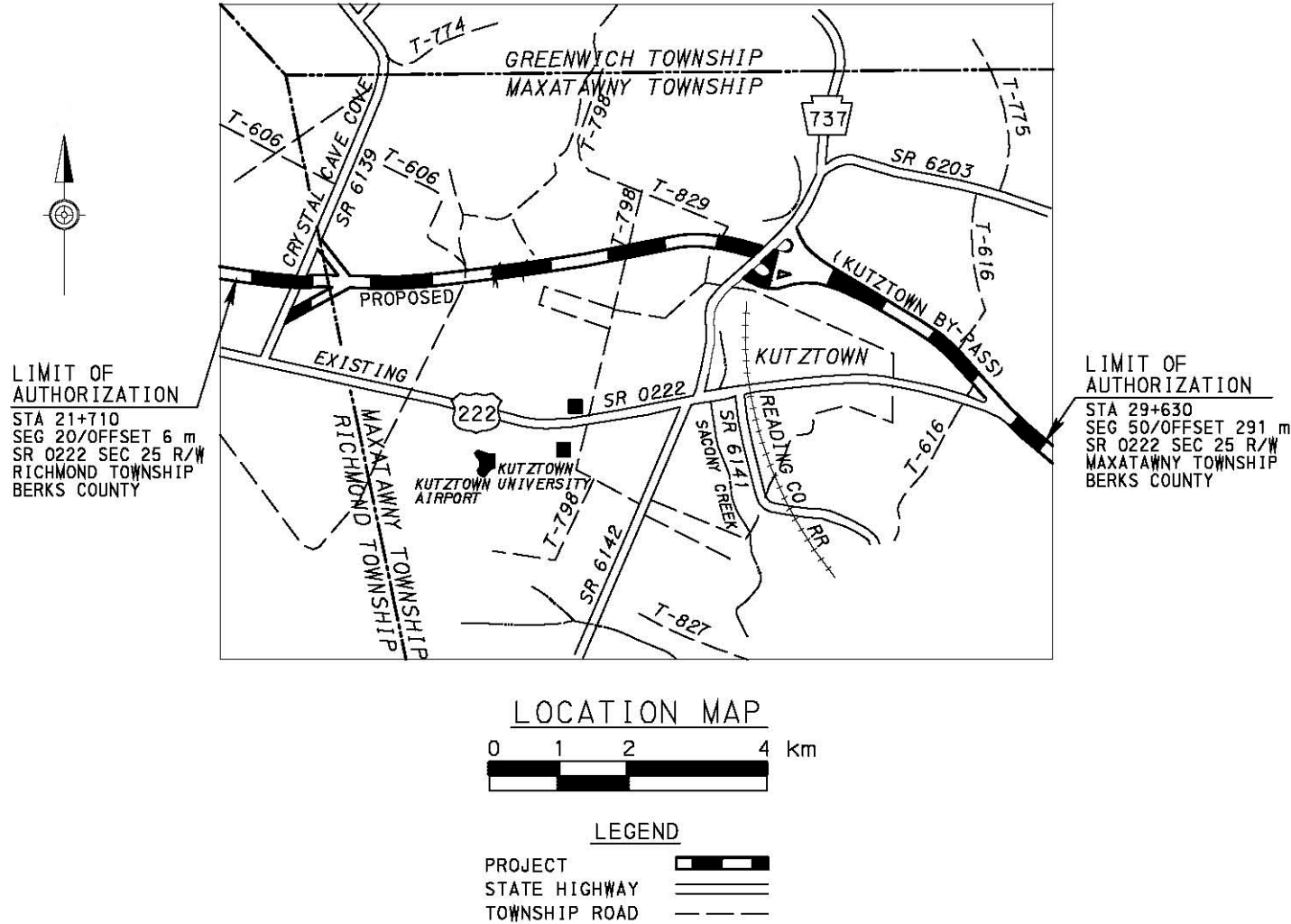
Metric Example:

LIMIT OF WORK
STATION 20+570.000
SEG 50 OFFSET 23 m
SR 1033 SEC A04
GREENWOOD TOWNSHIP
PERRY COUNTY

English 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 (METRIC)
TYPICAL LOCATION MAP**

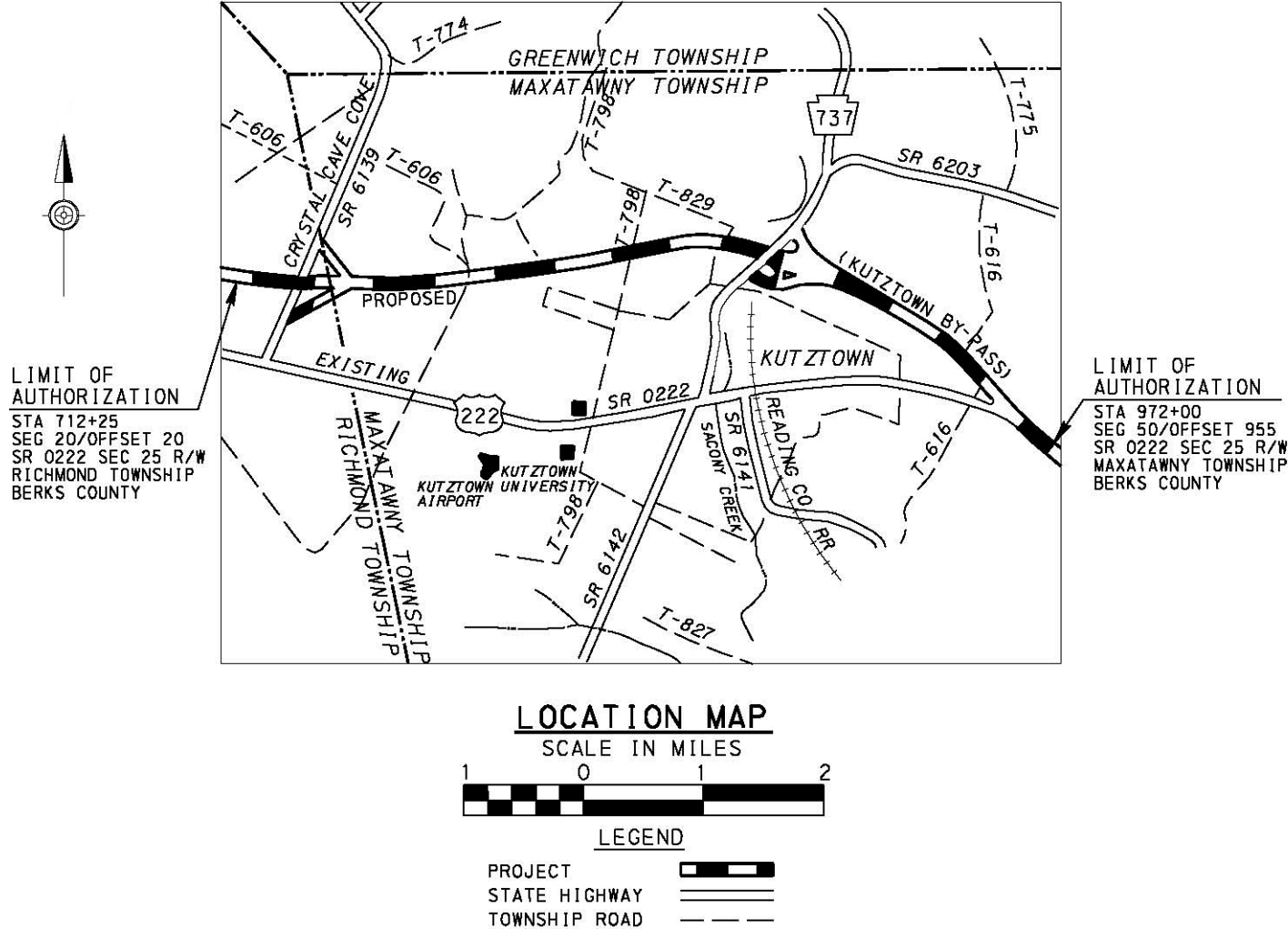


FIGURE 2.5 (ENGLISH)
TYPICAL LOCATION MAP

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 serial number for the project. Each municipality will have a separate serial number.

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 1:2000 (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 METERS OF EXCAVATION						CUBIC METERS OF COMPLETED EMBANKMENT*	CUBIC METERS OF BORROW EXCAVATION	CUBIC METERS OF SELECT BORROW	CUBIC METERS OF WASTE
CLASS 1	CLASS 1A	CLASS 1B	CLASS 2	CLASS 3 **	CLASS 4				

*INCLUDES ALL BORROW ITEMS

** _____ m³ 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 _____ m³ 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 (METRIC)
EXAMPLE OF EARTHWORK SUMMARY**

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 (ENGLISH)
EXAMPLE OF EARTHWORK SUMMARY**

SUMMARY OF PROJECT COORDINATES

BASED ON _____ * _____ COORDINATE SYSTEM

RTE	STATION	POINT	COORDINATES		BEARING
			NORTH	EAST	
SR _____ (Indicate Baseline)	0+000.000	BEGIN STA	371 524.00303	31 524.00303	
	0+152.400	PC	371 646.51101	31 614.65402	N36°-30'-00"E
	0+243.840	PI	371 720.01501	31 669.04501	N36°-30'-00"E
	0+331.891	PT	371 764.04102	31 745.29901	N60°-00'-00"E
	0+426.721	POT	371 811.45612	31 827.42402	N60°-00'-00"E
	0+472.441	END STA	371 834.31601	31 867.01910	N60°-00'-00"E
SR _____ (Indicate Baseline)					

*Note: Example shown is based on "Assumed" Coordinates System. Recommended minimum values are N 370 000.00 and E 30 000.00.

Note: Five (5) place coordinates are used for computational purposes only and do not imply a precision beyond three (3) places.

FIGURE 2.7 (METRIC)
SAMPLE FORMAT FOR SUMMARY OF
PROJECT COORDINATES INFORMATION

SUMMARY OF PROJECT COORDINATES

BASED ON _____ * _____ COORDINATE SYSTEM

RTE	STATION	POINT	COORDINATES		BEARING
			NORTH	EAST	
SR _____ (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 _____ (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 (ENGLISH)
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 7M (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.

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QUANTITY	ITEM NUMBER	DESCRIPTION	DESIGN NUMBER	FOR TAB SEE SHEET
	UNIT			
EITHER	2601 1019	450 MM REINFORCED CONCRETE PIPE, TYPE A, 18 M - 0.5 M FILL	2	28
	M			
AND	2616 1203	CONCRETE END SECTIONS FOR 450 MM PIPE		
	EACH			
OR	2601 3053	450 MM COATED CORRUGATED GALVANIZED STEEL PIPE, TYPE I, POLYMER COATED, (68 MM × 13 MM CORRUGATIONS), 1.63 MM THICKNESS		
	M			
AND	2616 0303	GALVANIZED STEEL END SECTIONS, POLYMER COATED, 1.63 MM THICKNESS FOR 450 MM PIPE		
	EACH			

**FIGURE 2.8 (METRIC)
PIPE ALTERNATES LISTING
ON SUMMARY OF QUANTITIES SHEET**

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

**FIGURE 2.8 (ENGLISH)
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 300 m (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 Project 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 10 m (25 ft). The use of match lines without an overlap shall be approved on an individual case basis by the Bureau of Project 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 1.5 km² (0.5 mi²) 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 kilometers (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 20 m (50 ft) intervals and critical points for 150 m (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 m (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-65.276 (G-214.16). Profile grade elevations shall be shown at all full stations, plus 20 m stations such as +020, +040, etc. (plus 50 ft stations such as +50) and at the vertical and horizontal control points such as PVC's, PVI'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 20 m stations such as +020, +040, etc. (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 10 m stations such as +010, +020, etc. (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 km (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: 3.6 m STONE DRIVEWAY (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 3.0 m (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 2 m (6 ft), usually new cross sections shall be taken in the field on the construction centerline.

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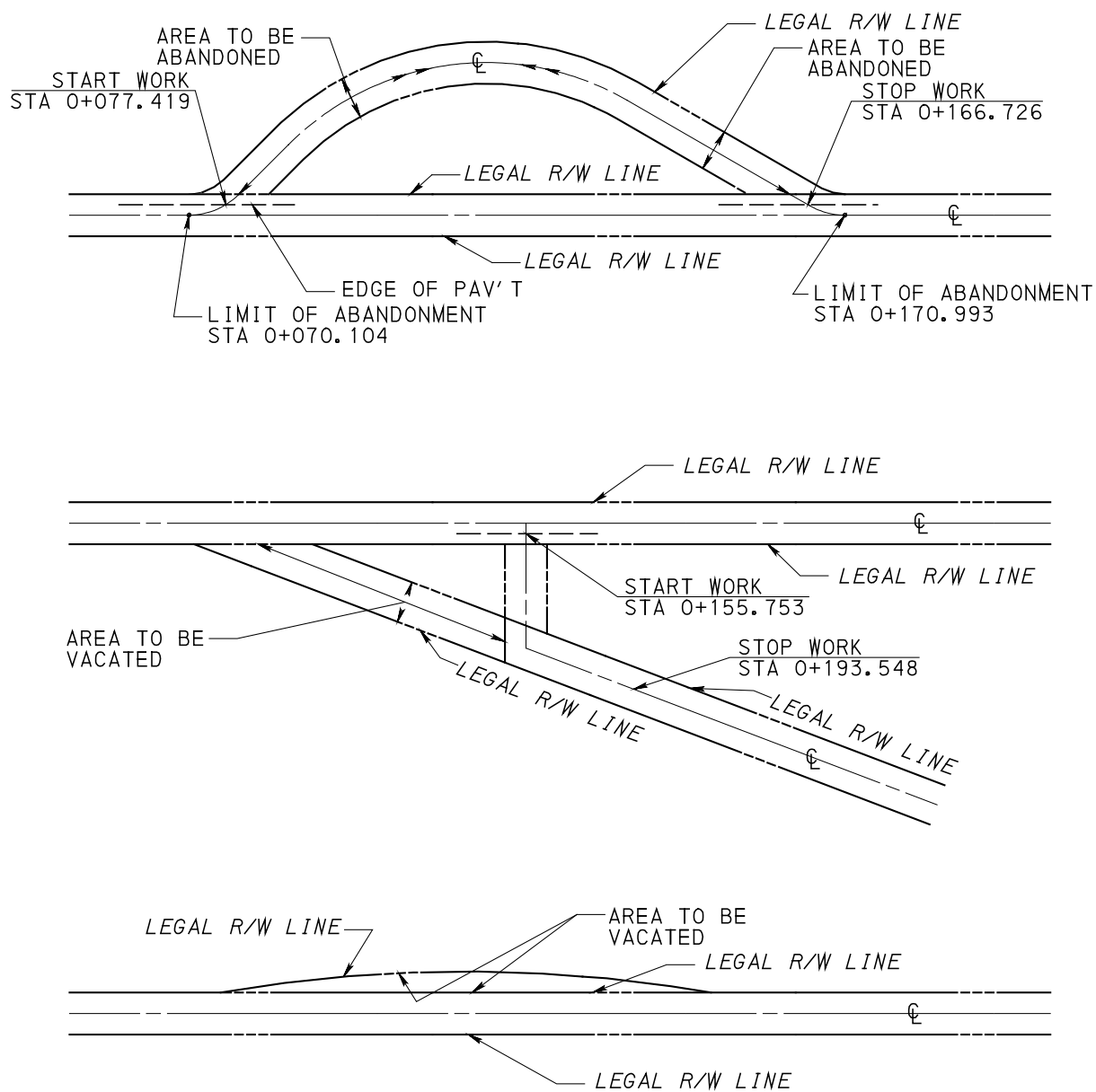


FIGURE 2.9 (METRIC)
EXAMPLES OF PLAN PRESENTATION FOR
ABANDONMENTS AND VACATIONS

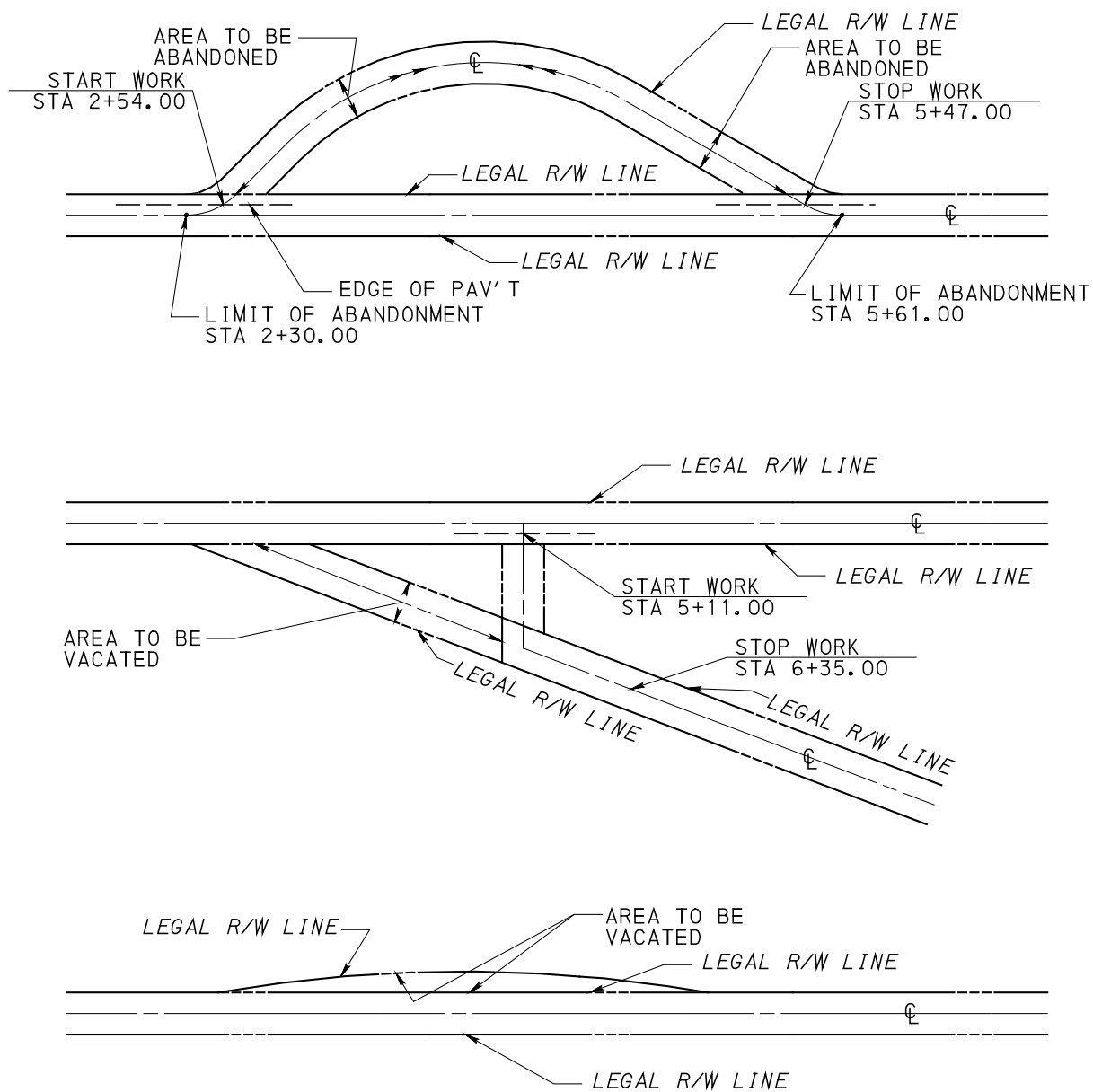
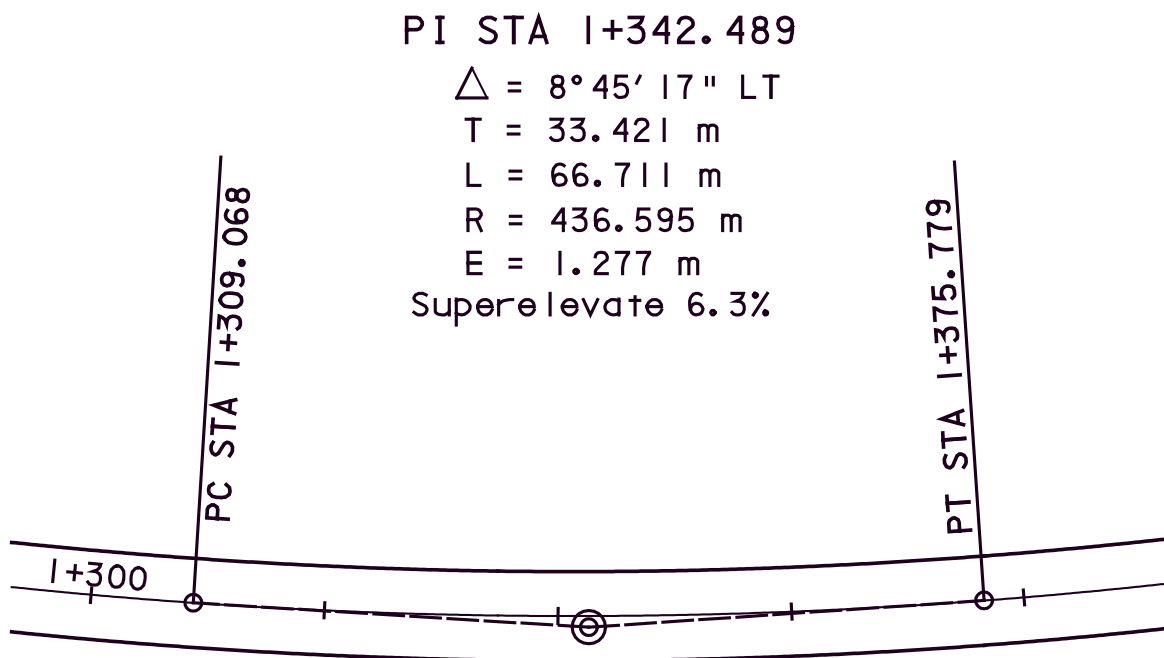


FIGURE 2.9 (ENGLISH)
EXAMPLES OF PLAN PRESENTATION FOR
ABANDONMENTS AND VACATIONS



ALTERNATE METHOD:

PI STA 1+342.489

 $\Delta = 8^{\circ}45'17''$ LT $T = 33.421$ m $L = 66.711$ m $R = 436.595$ m $E = 1.277$ m

PC STA 1+309.068

PT STA 1+375.779

Superelevate 6.3%

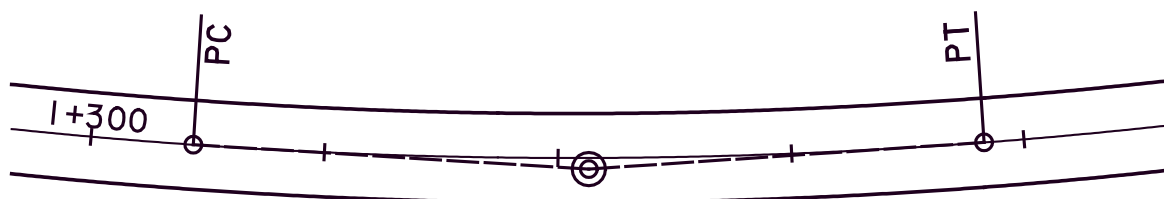
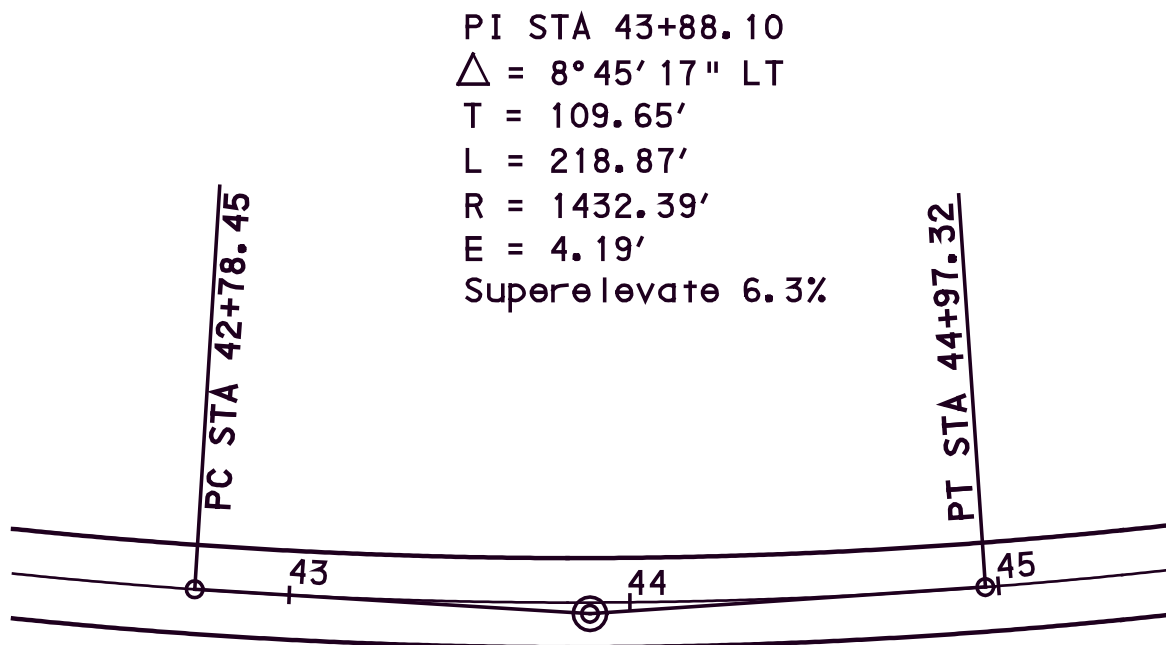


FIGURE 2.10 (METRIC)
HORIZONTAL CURVE DATA PRESENTATION



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%

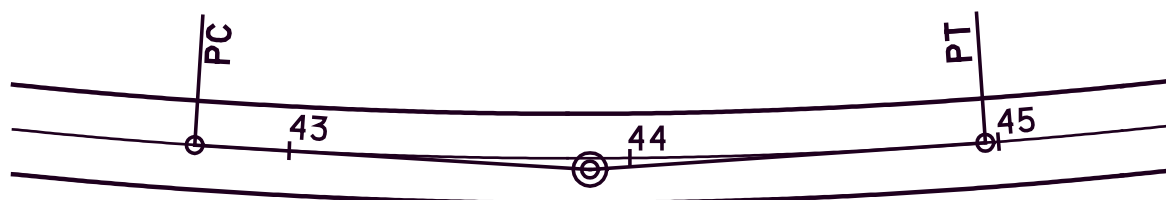


FIGURE 2.10 (ENGLISH)
HORIZONTAL CURVE DATA PRESENTATION

EXAMPLE: CORRELATION BETWEEN CROSS SECTION AND GRADE PROFILE FOR AN OFFICE LINE SHIFT.

* IT MAY NOT BE NECESSARY TO PROVIDE THE INTERPOLATED ELEVATION IF THE GROUND IS RELATIVELY FLAT.

CONSTR $\mathcal{C}$ SURVEY $\mathcal{C}$

0.357 m

17+211.291 CONSTR
17+220
132

(A) G-132.332

(E) (C)

(A) CONSTR $\mathcal{C}$ GRADE
(B) CONSTR $\mathcal{C}$ EQUIV STA FROM SURVEY $\mathcal{C}$
(C) ELEV TAKEN IN THE FIELD
(D) SURVEY $\mathcal{C}$ STA
(E) INTERPOLATED GROUND ELEV

-2.26%

DRIVE RT

DATUM: 120

G-133.039
131.24
G-133.026

17+200

G-132.587

130.65
G-132.332
G-132.135

+211.291
+220

130.42
G-131.985

+240

G-131.683
130.19
G-131.640

+260

G-131.231
129.69
G-131.087
129.41
G-130.945

+280

G-130.779

17+300

G-130.327

Construction $\mathcal{C}$ Stationing

PT EQUIV STA 17+280.000 BK = STA 17+285.000 AHD

**FIGURE 2.11 (METRIC)
METHOD FOR INDICATING EQUIVALENT
STATIONS AND ELEVATIONS ON A PROFILE**

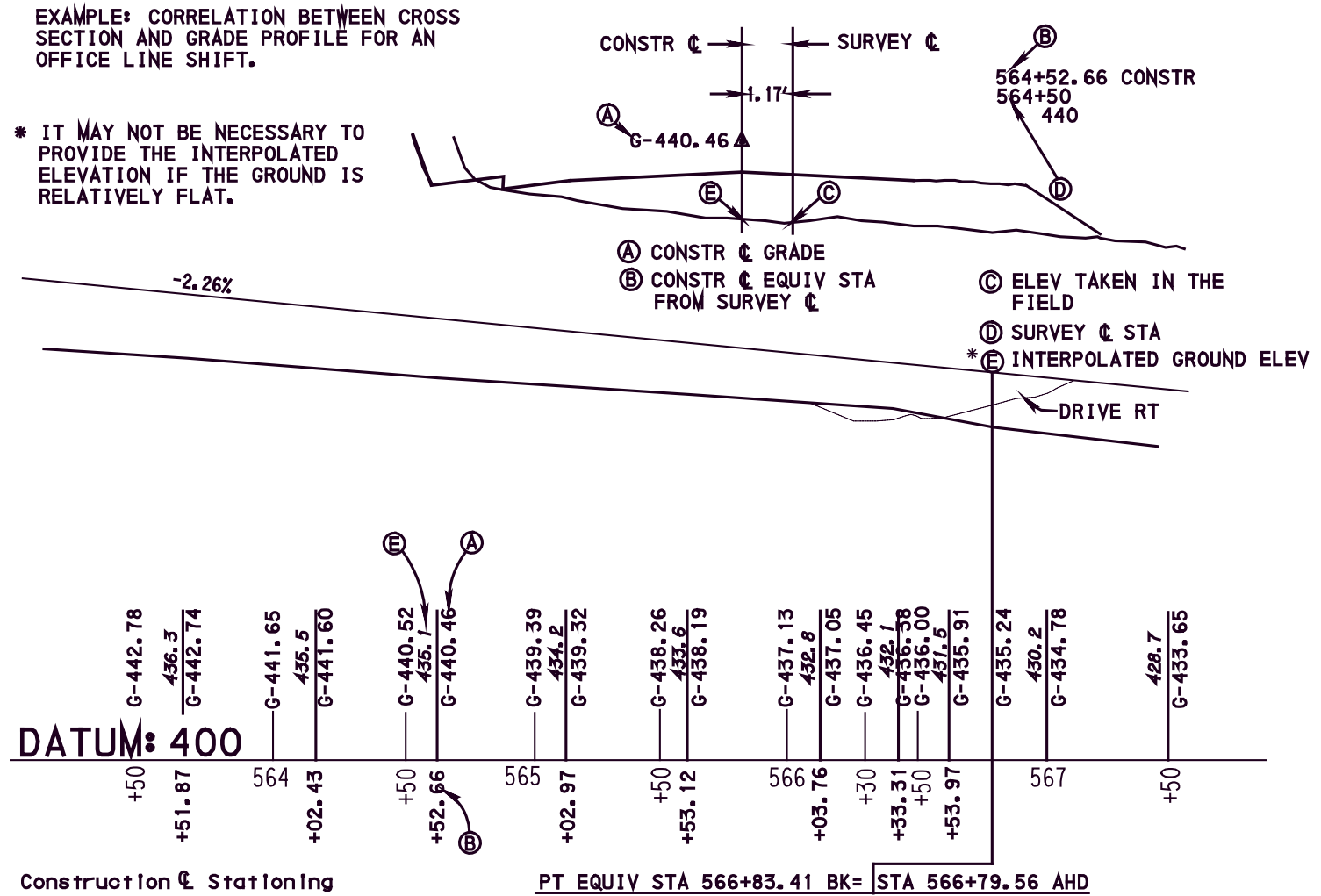


FIGURE 2.11 (ENGLISH)
METHOD FOR INDICATING EQUIVALENT
STATIONS AND ELEVATIONS ON A PROFILE

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 (Δ)
- Delta, Simple Curve (Δ_c)
- Radius, Simple Curve (R_c)
- Length, Simple Curve (L_c)
- Spiral Angle (θ_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.

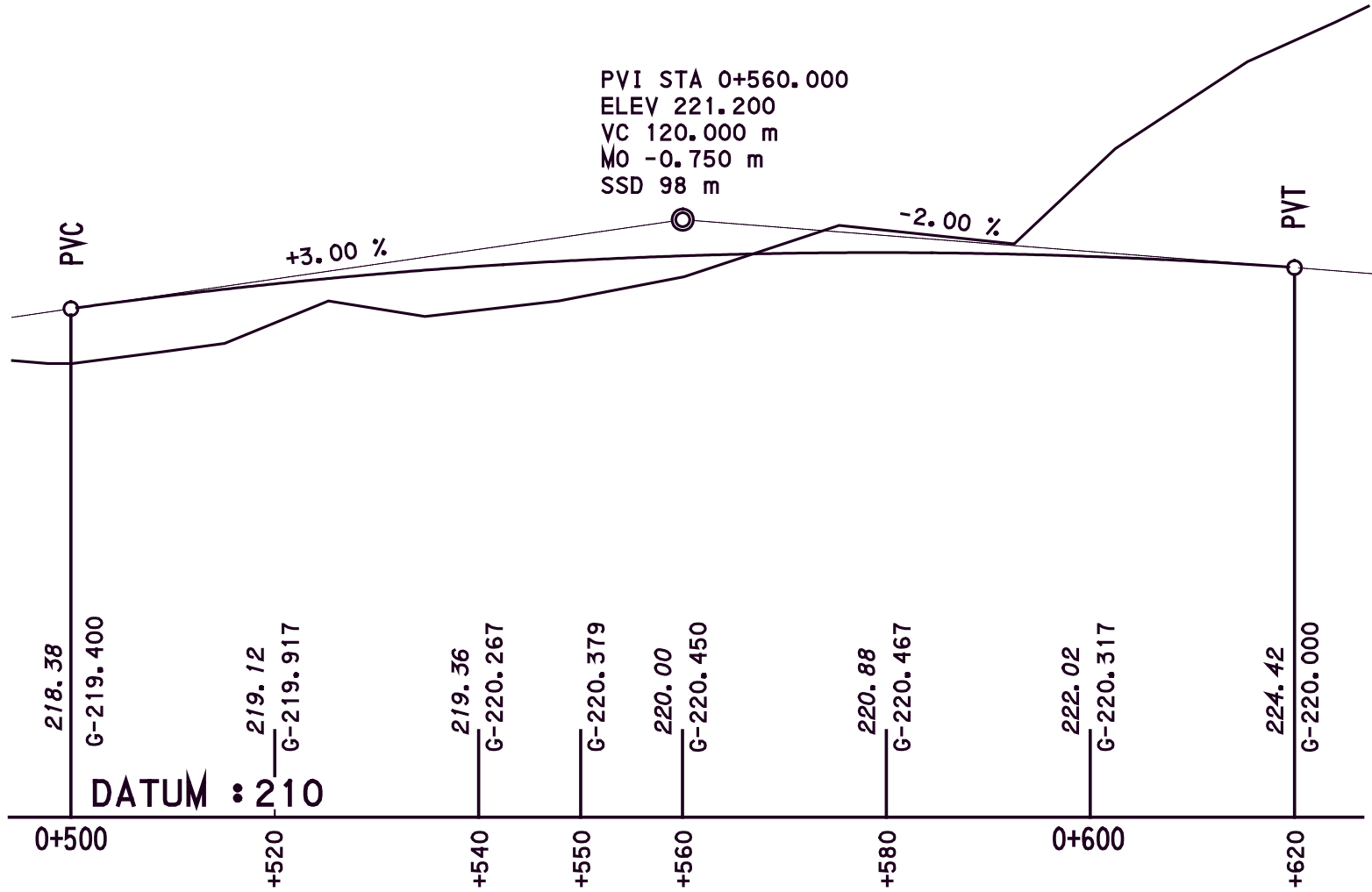


FIGURE 2.12 (METRIC)
PRESENTATION OF
VERTICAL CURVE DATA

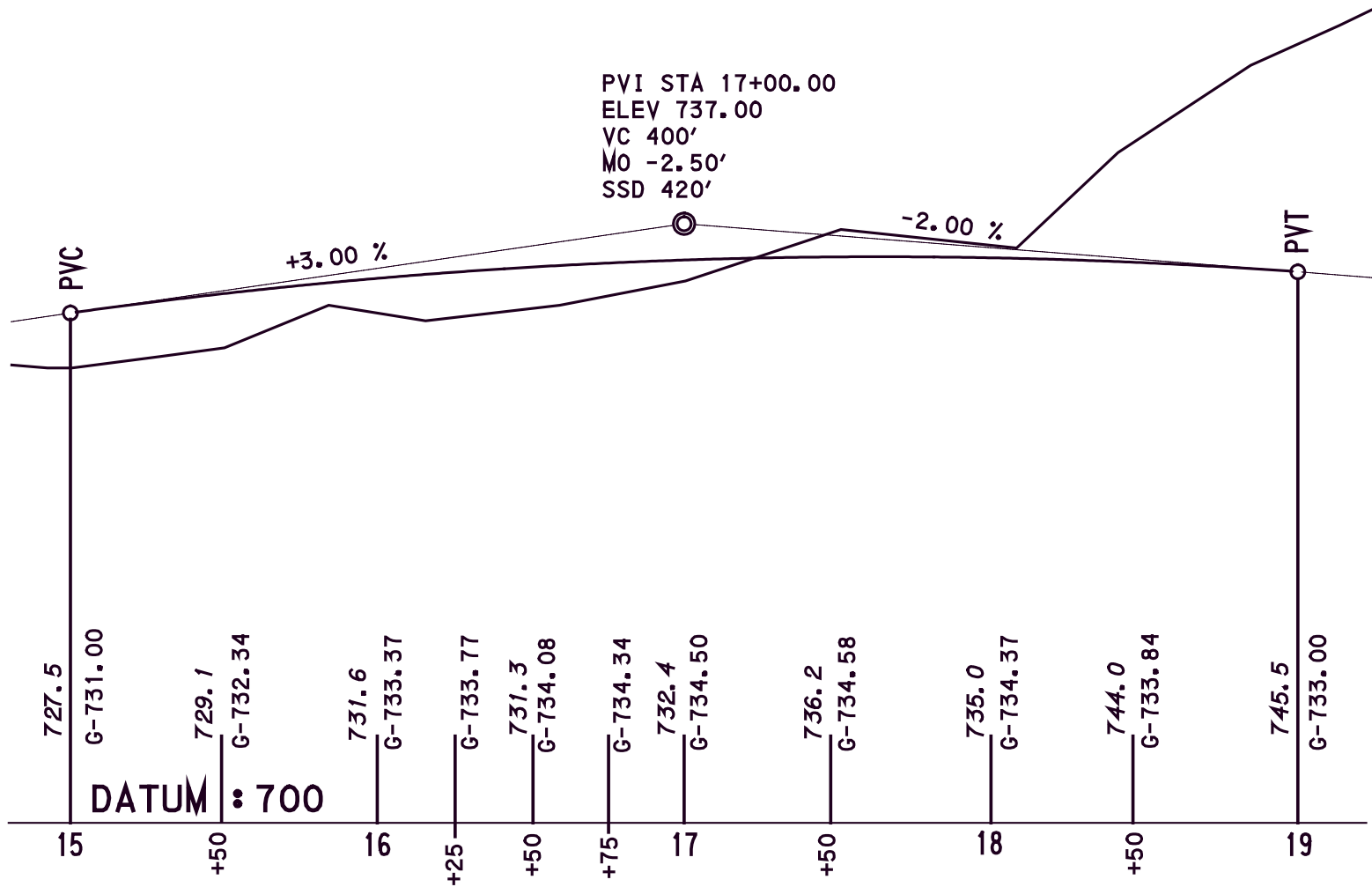


FIGURE 2.12 (ENGLISH)
PRESENTATION OF
VERTICAL CURVE DATA

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 1:2000 (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 100 m (500 ft) interval with "ticks" at 20 m (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.

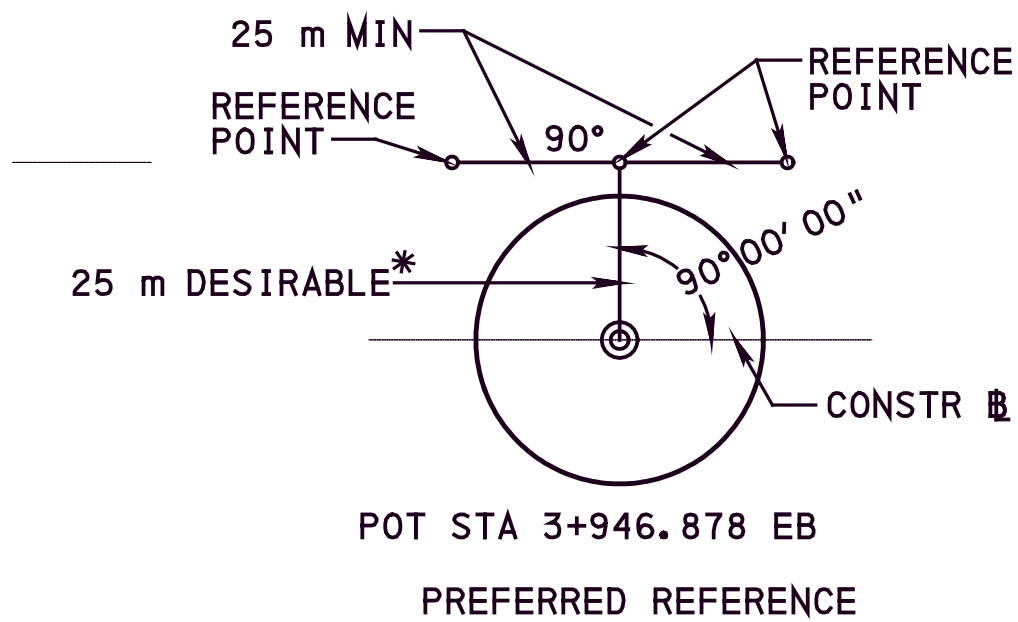
X. Reference Circles. Reference circles shall be 40 mm (1.5 in) in diameter and shall be placed vertically over the control point 10 mm (0.5 in) below the top border of the plan sheet, when possible. If space is not available on the plan sheet, the reference circles may be placed on a separate sheet 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.

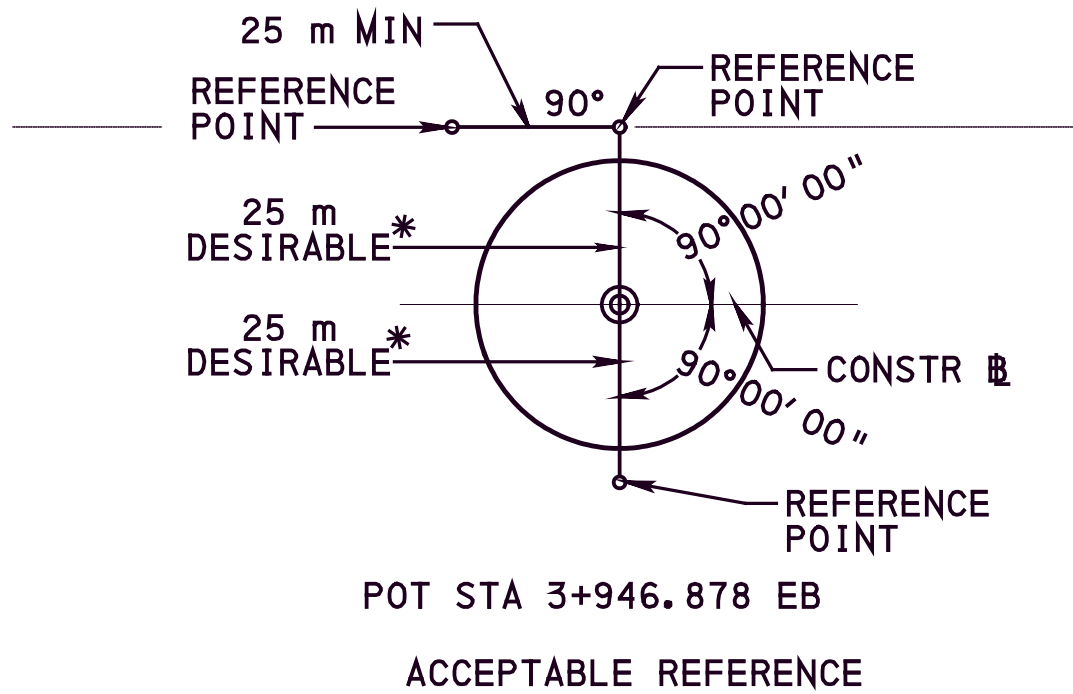
The following information shall be shown in conjunction with the reference circles:

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.

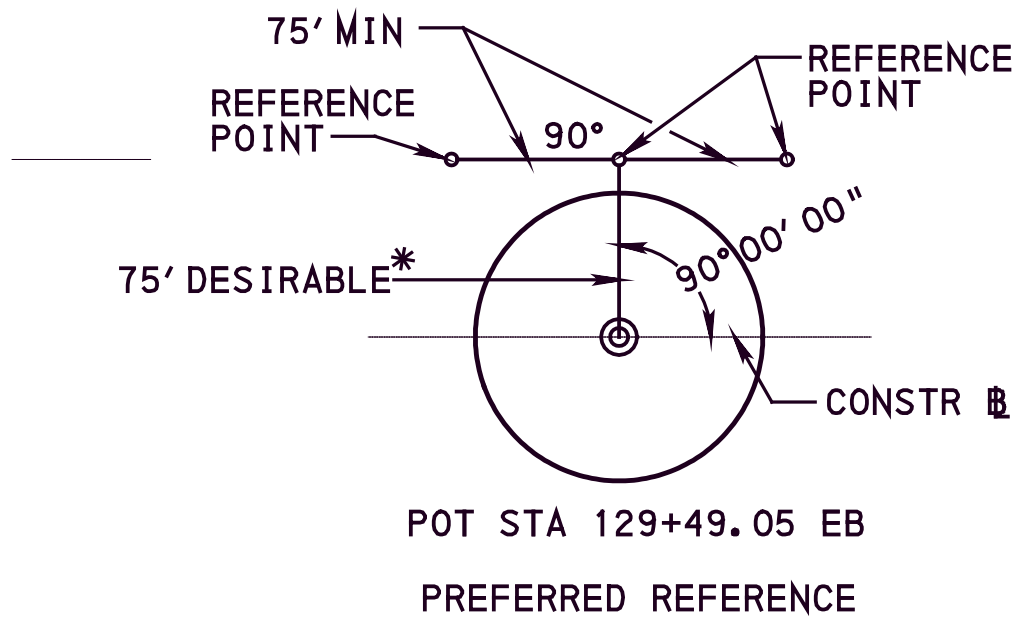
See [Figure 2.13](#) for preferred and acceptable reference circle details.



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



**FIGURE 2.13 (METRIC)
PREFERRED AND ACCEPTABLE
REFERENCE CIRCLE DETAILS**



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

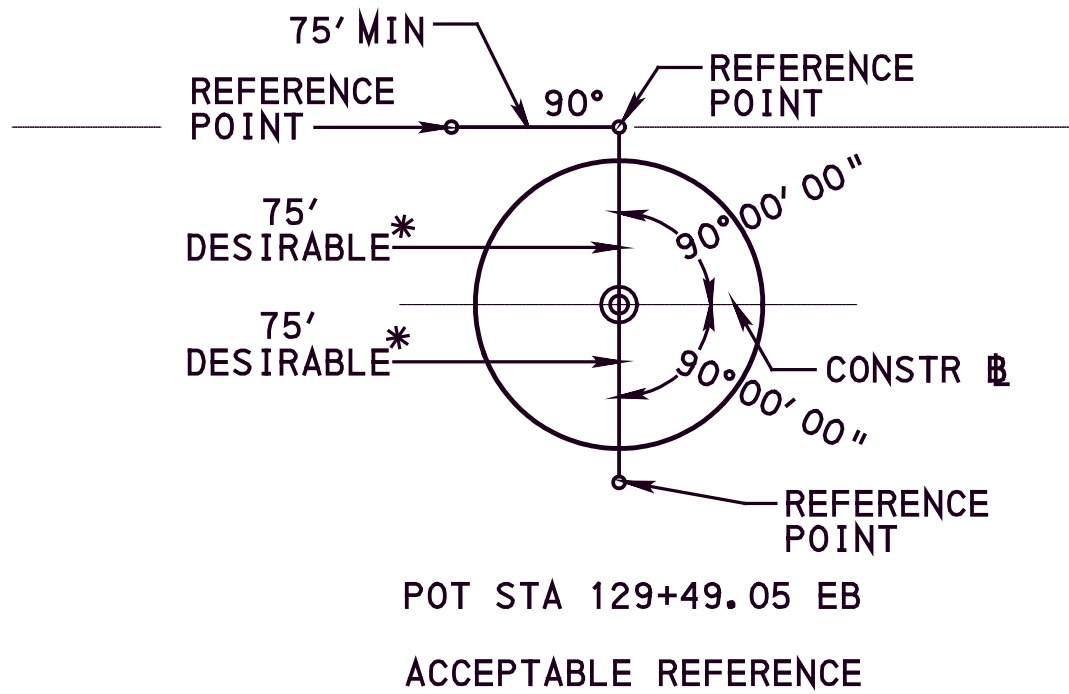


FIGURE 2.13 (ENGLISH)
PREFERRED AND ACCEPTABLE
REFERENCE CIRCLE DETAILS

Y. Bench Marks. All bench mark data shall be shown along the upper edge of the Plan Sheet 10 mm (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 600 mm Oak (Spike in 24" Oak), etc.).

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

BM #25 ELEV 314.718 71 m RT STA 7+711.5 EBL RR SPIKE IN ROOT 2.5 m OAK FLAGGED
--

**FIGURE 2.14 (METRIC)
SAMPLE BENCH MARK
DATA PRESENTATION**

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

**FIGURE 2.14 (ENGLISH)
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 man-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, 863.6 mm × 558.8 mm (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 1:50 (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 1:100 (1" = 10'). Where the 1:100 (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.

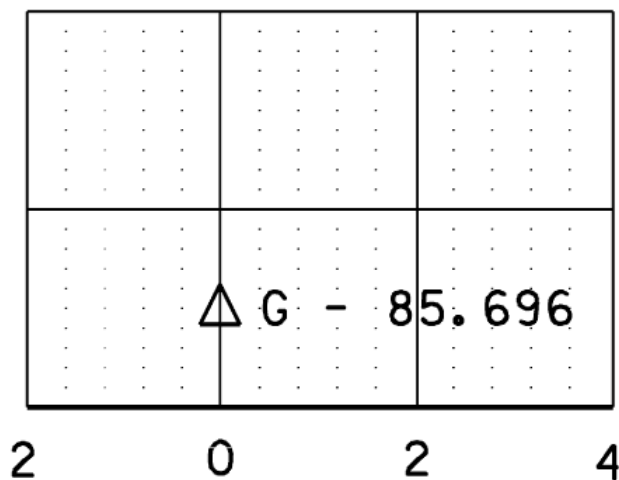
A heavy horizontal grid line shall be selected as an elevation datum line on an even 2 m (5 ft) elevation (4 m (10 ft) as required) for each section. Sections shall be spaced with due regard to plotting the proposed template to avoid overlapping adjacent sections.

Cross sections are generally prepared at 20 m (50 ft) intervals; however, cross sections at 10 m (25 ft) intervals should be considered in developed areas and where the existing ground is non-uniform. Cross sections at shorter intervals (<10 m (<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 man-made structures have been plotted and checked, the proposed cross section shall be drawn.

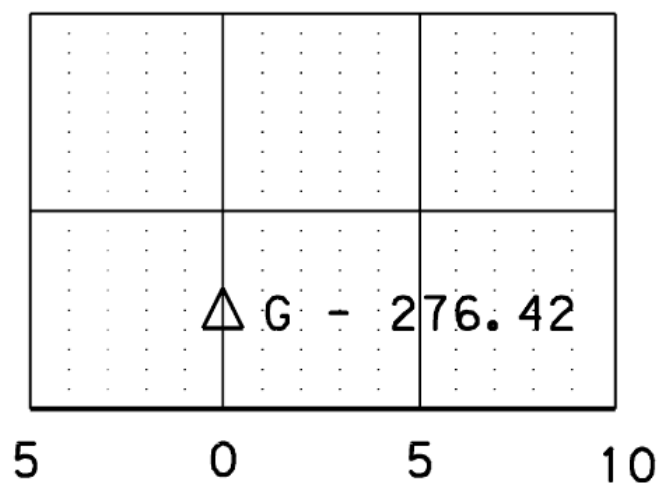
Generally, just the location, elevation and description of an item shall be shown on the Computation Sheets which shall be submitted with the plans. The following information shall be shown on the sections:

1. Proposed Grade Line Elevation. Plot elevation as a point and enclose with a triangle on sections as indicated below. Label "G-85.696" ("G-276.42"). This grade will correspond with the profile grade for each station.

Metric Example:



English 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:

Metric Example:

STA 3+298.064 5.664 m LT
1 EA TYPE S TOP UNIT AND GRATE
1 EA STANDARD INLET BOX, HEIGHT ≤ 3 M
INVERT ELEV 183.30

English Example:

STA 10+08.25 18.90' LT
1 EA TYPE S TOP UNIT AND GRATE
1 EA STANDARD INLET BOX, HEIGHT $\leq 10'$
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: $S = \pm 0.000$ ($S = \pm 0.00$) with reference to the profile grade.

Two-Lane Highways: $S = \pm 0.000$ ($S = \pm 0.00$) 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.

Metric Examples:

Cumberland County
SR 1023 Section A04
Station 0+000.0 to Station 14+180.0 (Limits of Work)
Total Sheets 353

Cross Sections

Main Line
Station 0+000.0 to Station 2+758.4
Sheets 2 thru 200
Bundle 1 of 2

Cumberland County
SR 1023 Section A04
Station 0+000.0 to Station 14+180.0 (Limits of Work)
Total Sheets 353

Cross Sections

Miscellaneous
Cherry Land - Station 0+304.8 to Station 0+500.0
Township Road 510 - Station 0+000.0 to Station 0+103.6
Ball Run Relocated - Station 0+152.4 to Station 0+493.8
Sheets 201 thru 353
Bundle 2 of 2

Metric Examples:

Westmoreland County
SR 0030 Section 02R
Station 0+000 to 165+150 (Limits of Work)
Total sheets 80

SR 0030 Station 0+050 to Station 164+850 2 thru 70
SR 1020 Station 0+000 to 25+000 71 thru 75
Township Road 510 Station 5+100 to Station 12+350 76 thru 80

English 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

English 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 20 mm (0.75 in) from the left hand side and reinforced. Holes shall be located at the center and at 50 mm (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 594 mm × 40 mm (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.

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, 863.6 mm × 558.8 mm (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 _____	
COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION DRAWINGS FOR CONSTRUCTION OF STATE ROUTE _____ SECTION _____ _____ COUNTY _____ _____ (TOWNSHIP, BOROUGH OR CITY) FROM STA _____ TO STA _____ LENGTH _____ km FROM SEG _____ OFFSET _____ m TO SEG _____ OFFSET _____ m ECMS NO. _____	
<u>DESIGN DESIGNATION</u> HIGHWAY CLASSIFICATION _____ DESIGN SPEED _____ PAVEMENT WIDTH _____ SHOULDER WIDTH _____ <u>TRAFFIC DATA</u> CURRENT ADT _____ DESIGN YEAR ADT _____ DHV _____ D _____ T _____	
RECOMMENDED _____ DATE _____ _____ DEPUTY SECRETARY APPROVED _____ DATE _____ _____ SECRETARY OF TRANSPORTATION (ON BEHALF OF THE GOVERNOR AS WELL AS HERSELF)	DATE _____ _____ ASST DIST EXECUTIVE RECOMMENDED DATE _____ _____ DISTRICT EXECUTIVE

FIGURE 2.15 (METRIC)
SAMPLE OF 11 in x 8.5 in
CONSTRUCTION PLAN TITLE SHEET

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

FIGURE 2.15 (ENGLISH)
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 15 mm (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.

10. 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 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

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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, 863.6 mm × 558.8 mm (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 20 m (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 and Professional Land Surveyor shall be responsible for providing completed plans. The Designer is responsible to verify that the proposed design and impacts to property owners are properly shown, and the Professional Land Surveyor shall verify that the land surveying aspects of the plan are satisfactory. The Designer and Surveyor will document their verifications by completing and signing the Right-of-Way Plan Review Checklist. The signed checklist will be submitted along with the Final Right-of-Way Plan that is to be checked for conformance with Publication 14M, Design Manual Part 3. See Publication 10X, Design Manual Part 1X, *Appendices to Design Manuals 1, 1A, 1B, and 1C*, Appendix BB for the Right-of-Way Plan Review Checklist.

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 Project Delivery, Highway Delivery Division, Utilities and Right-of-Way Section. 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) _____ _____ (SIGNATURE) _____ (TITLE OF RESPONSIBLE OFFICIAL)
ATTESTED _____ (DATE) _____ _____ (SIGNATURE) _____ (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 1:2000 (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.

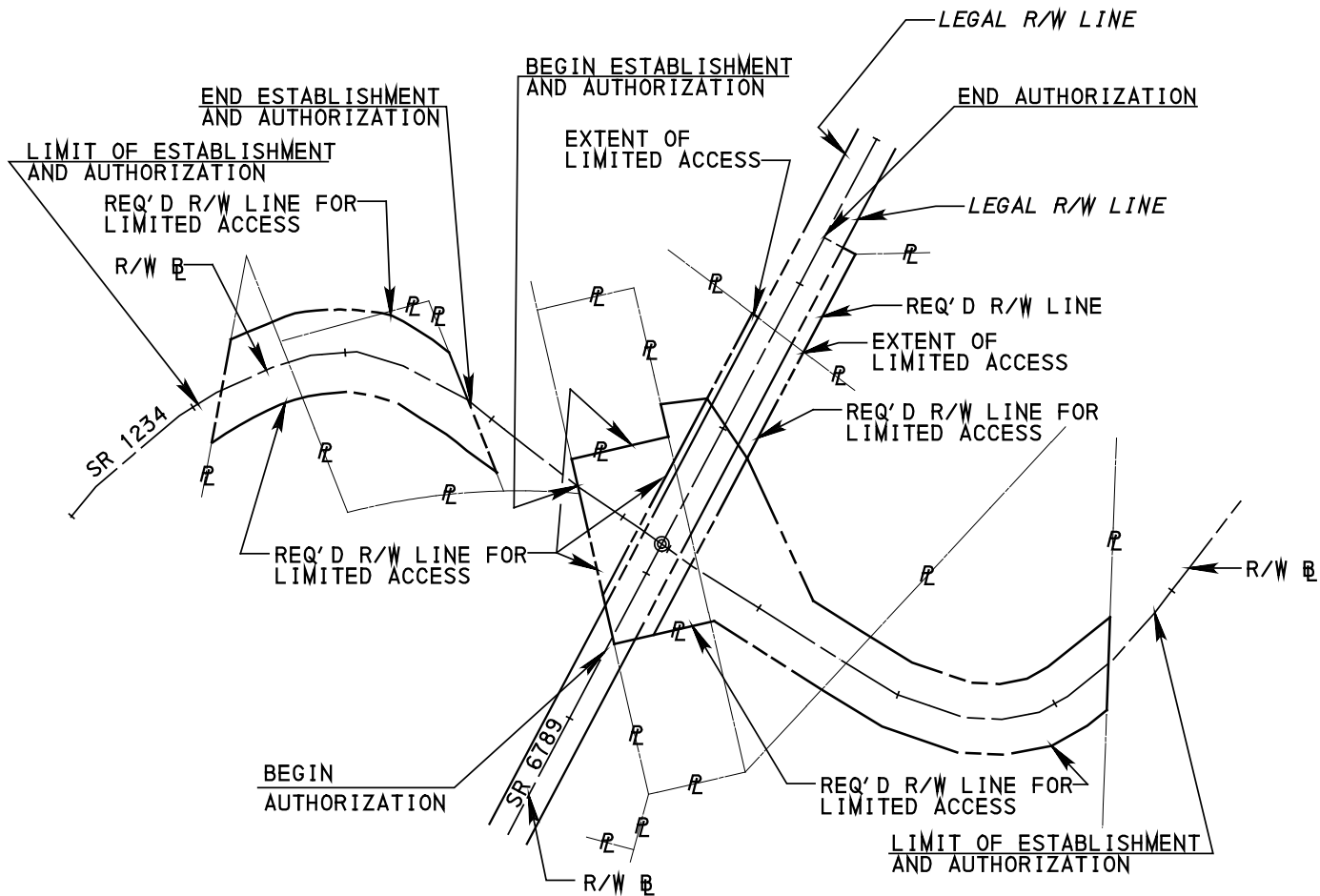
In the preparation of Gap Plans, it is permissible to omit sheets where no acquisition is involved; however, the Index Map should show the entire project. Examples of a Gap Plan and a Final Plan on a project are presented in [Figures 3.2](#) and [3.3](#), respectively.

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 Project 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

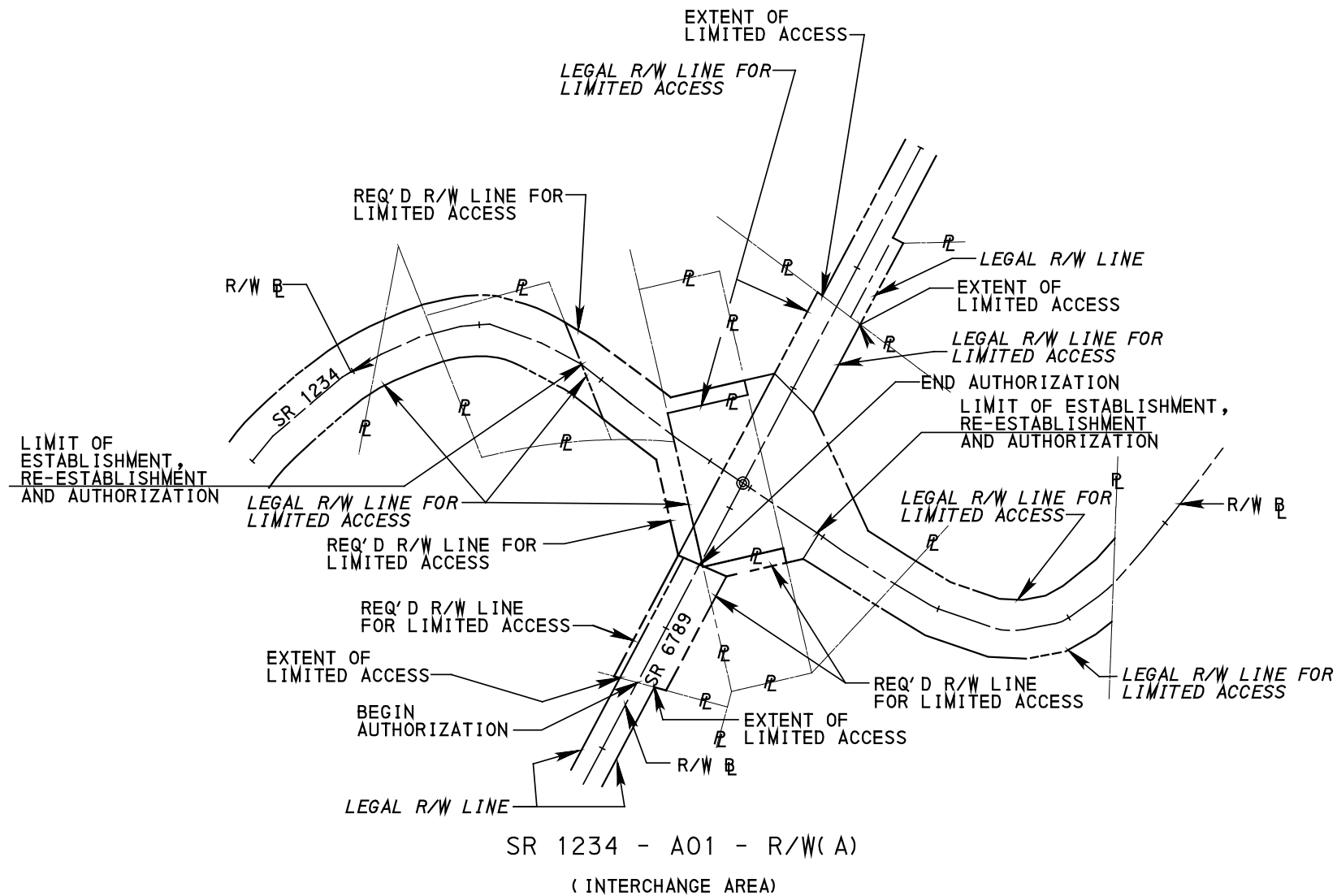


FIGURE 3.3
EXAMPLE OF FINAL PLAN

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 Project 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 Project 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 Project 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 Project 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.

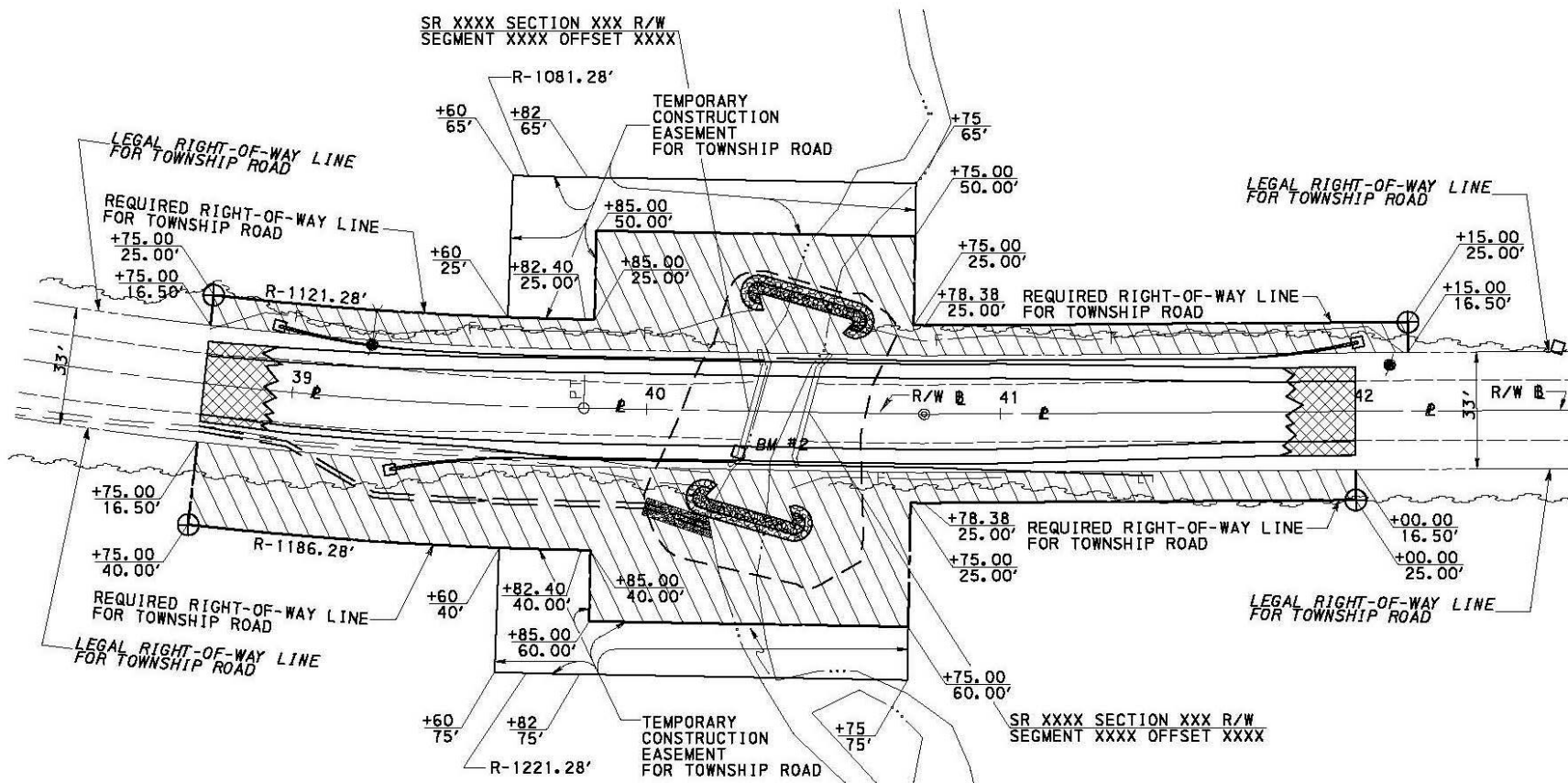
Consequently, any required Right-of-Way for these projects should be acquired as Required Right-of-Way for Township Road (or City/Borough /Town Street).

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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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 feet 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, Utilities and Right-of-Way Section, Highway Delivery 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+000.000 (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 affect 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 1:250 (1" = 25') shall be used on all projects, particularly in built-up areas, where considerable topographic detail is necessary. Horizontal scales of 1:500 (1" = 50') or 1:200 (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., 1:250 (1" = 25'), etc., shall not be used to indicate these values:

Metric:**English:**

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](#).

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

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 Project Delivery, Highway Delivery Division, Utilities and Right-of-Way Section, Grade Crossing Unit, 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 herself 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:

Metric Example:

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 _____ m TO SEG _____ OFFSET _____ m

English Example:

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 herself 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.

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

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 _____ m TO SEG _____ OFFSET _____ m

English Example:

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 herself 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. Metric Conversion Factor. Beneath the Identification Block provide the conversion factor which was used to convert feet to meters. The recommended factor is 1 ft = 0.30480061 m.

K. MPMS Number. Beneath the title block, add the MPMS number.

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 1:5000 (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 100 m (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 km (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 kilometers (mileages) to intersecting Traffic Routes or State Routes.
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 Project Delivery, Highway Delivery Division, Utilities and Right-of-Way Section 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.

Metric Example:

LIMIT OF ESTABLISHMENT AND/OR AUTHORIZATION
STA 20+570.000
SEGMENT _____ OFFSET _____ m (if applicable)
SR 1033 SEC C04 R/W
GREENWOOD TOWNSHIP
PERRY COUNTY

English 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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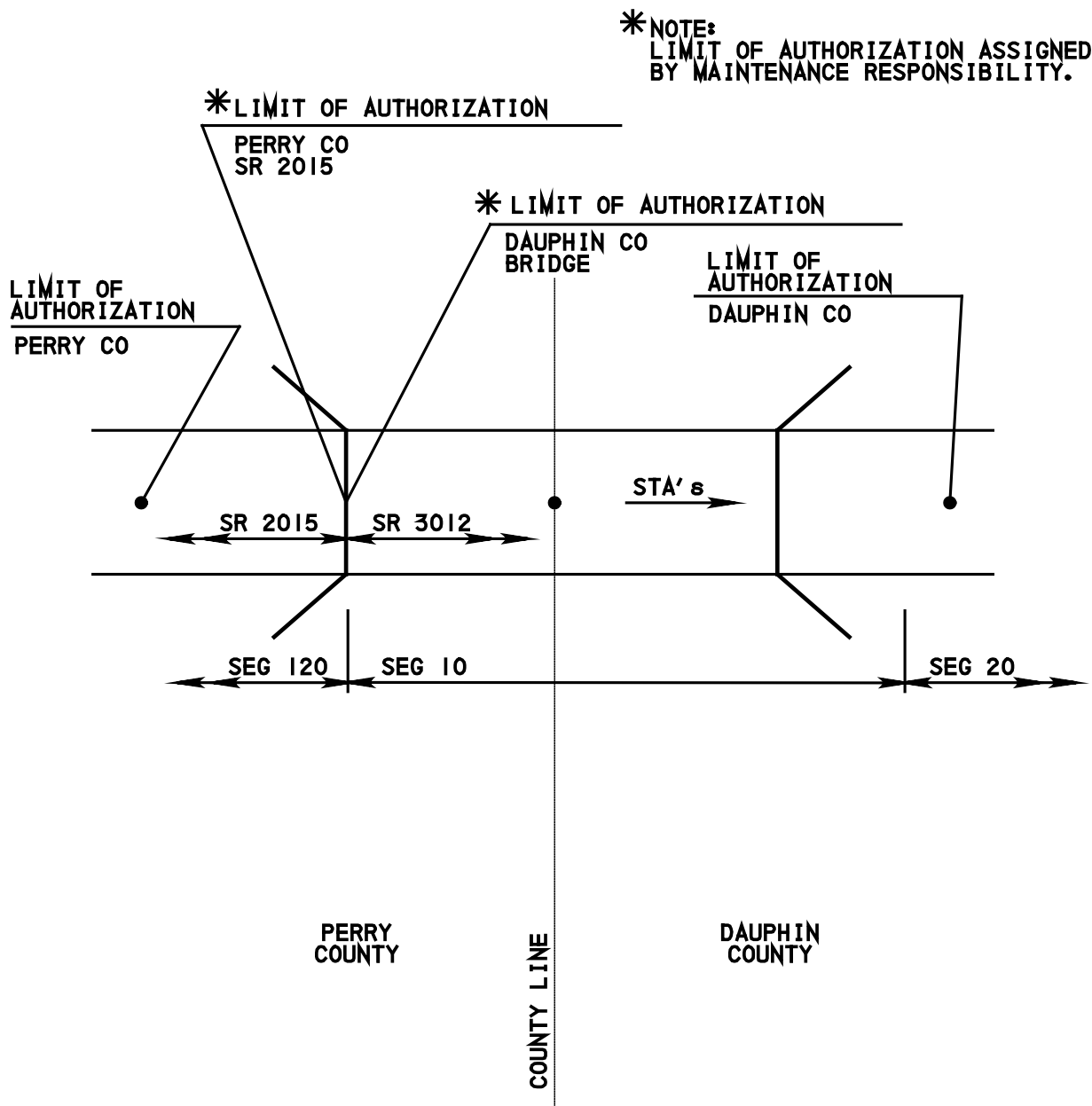


FIGURE 3.5
LIMIT OF AUTHORIZATION DESIGNATION

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 0.001 km (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 kilometers (miles), and placed below the map. Also indicate the following data on the Location Map:

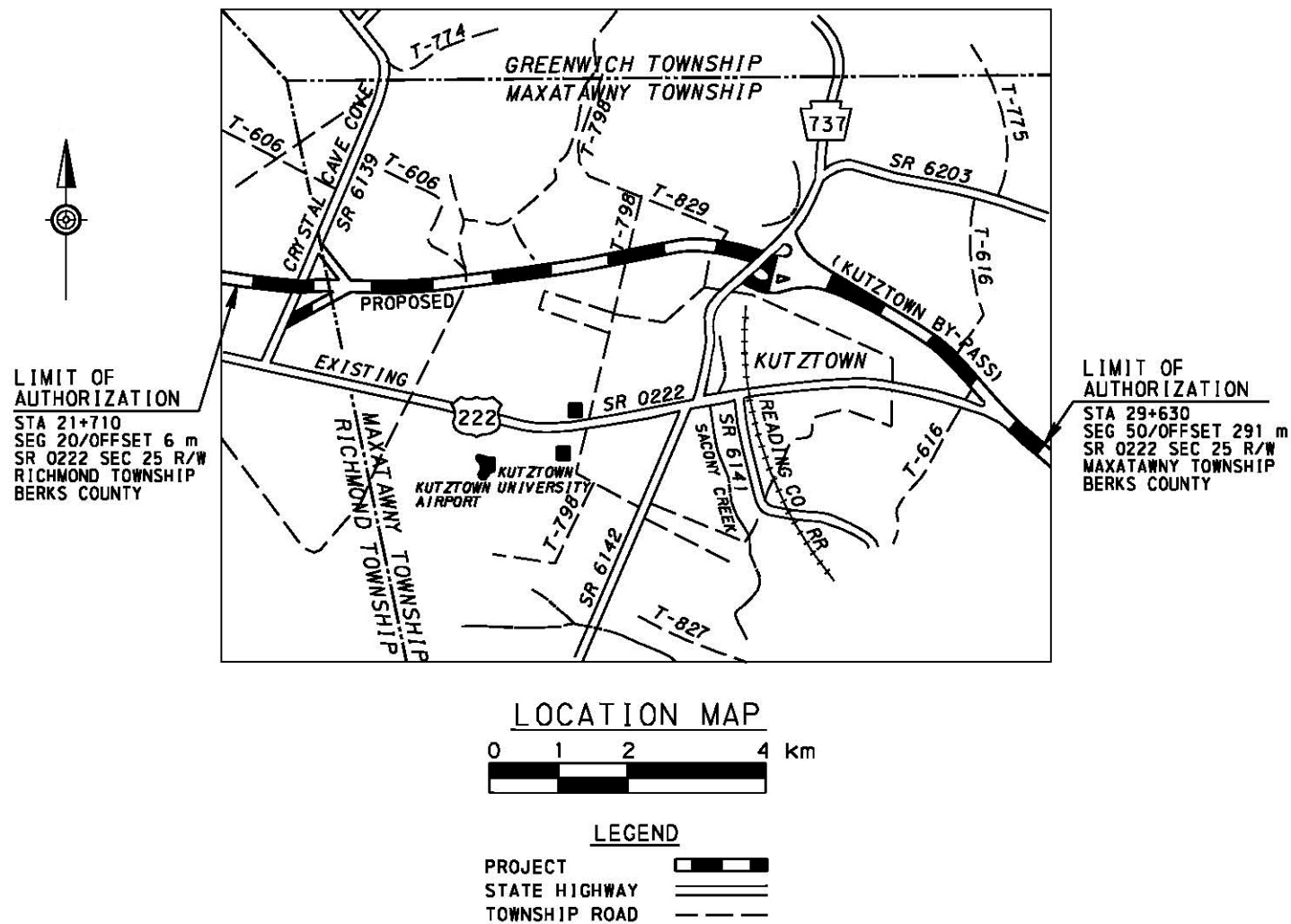
1. Label and place a Legend below the Location Map as shown in [Chapter 15, Section 15.2, Plate B-XIII](#).
2. All adjacent and intersecting State Routes, Traffic Routes and Township Roads by number.
3. If a City map is used, streets should be shown and named.
4. Cities, towns and physical features such 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](#).

INTENTIONALLY BLANK



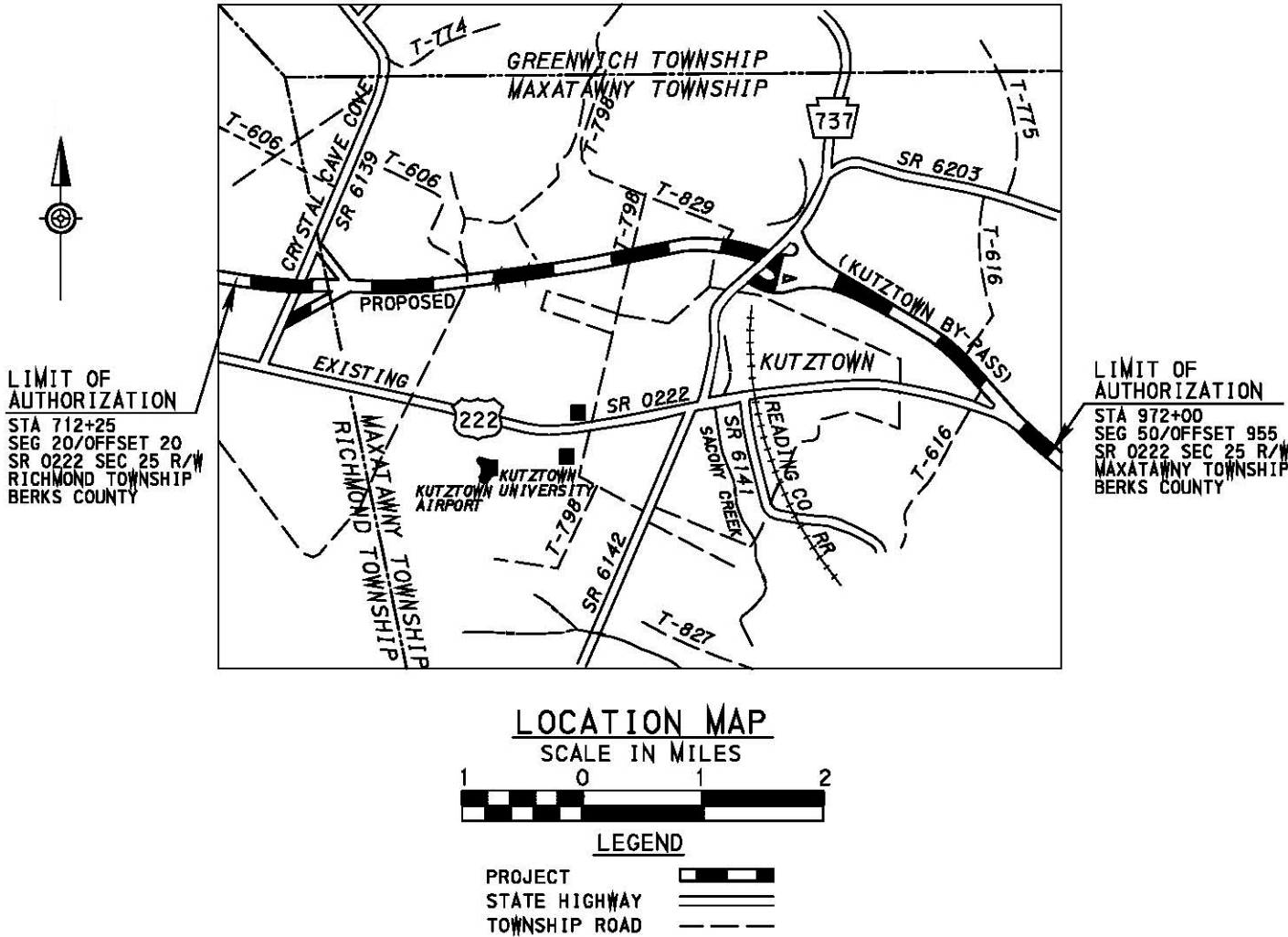


FIGURE 3.7 (ENGLISH)
TYPICAL LOCATION MAP

	DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
					OF	
	REVISION 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 serial number for the project. Each municipality will have a separate serial number.

An up-to-date list of the Public Utilities, obtained from each County Courthouse within the District limits, shall be kept on hand by the District to show correct names and addresses for all Public Utilities.

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.

Metric Examples:

- a. THE LEGAL RIGHT-OF-WAY ON SR 1524 FROM THE WEST CHESTER BOROUGH LINE (STATION 0+000.0) TO THE INTERSECTION OF SR 1059 (STATION 0+285.0) IS 60 FEET (18.29 m), 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+000.0 TO STATION 0+285.0 IS 50 FEET (15.24 m) 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 6+127.1 TO STATION 6+588.9 IS 50 FEET (15.24 m), 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 (10.06 m), 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+000.0 TO STATION 0+279.5 IS 50 FEET (15.24 m) 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 6+127.1 TO STATION 6+598.9, IS 30 FEET (9.14 m) 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+279 TO STA. 1+123 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.

English 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.

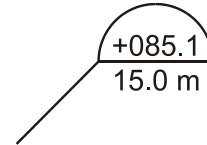
See [Section 3.1.I](#) discussing when it is appropriate to survey property lines.

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

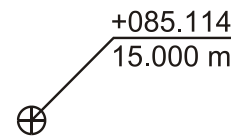
5. Other Notes, Where Applicable:

- a. BUILDINGS AND STRUCTURES MARKED C 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 O ARE ENCROACHMENTS WHICH ARE THE RESPONSIBILITY OF THE PROPERTY OWNERS TO REMOVE.

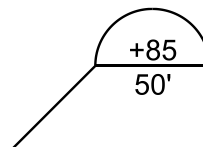
- c. **Metric:** THE HALF CIRCLED NUMBER INDICATES A SCALED DIMENSION.



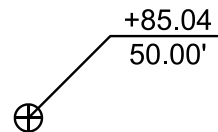
INDICATES MONUMENTED DIMENSIONS.



English: 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:

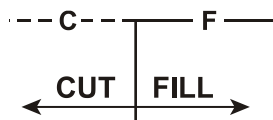
Metric Example:

SR 0076 IS A NHS ROUTE FROM STATION 0+000.0 TO STATION 0+388.9.

English Example:

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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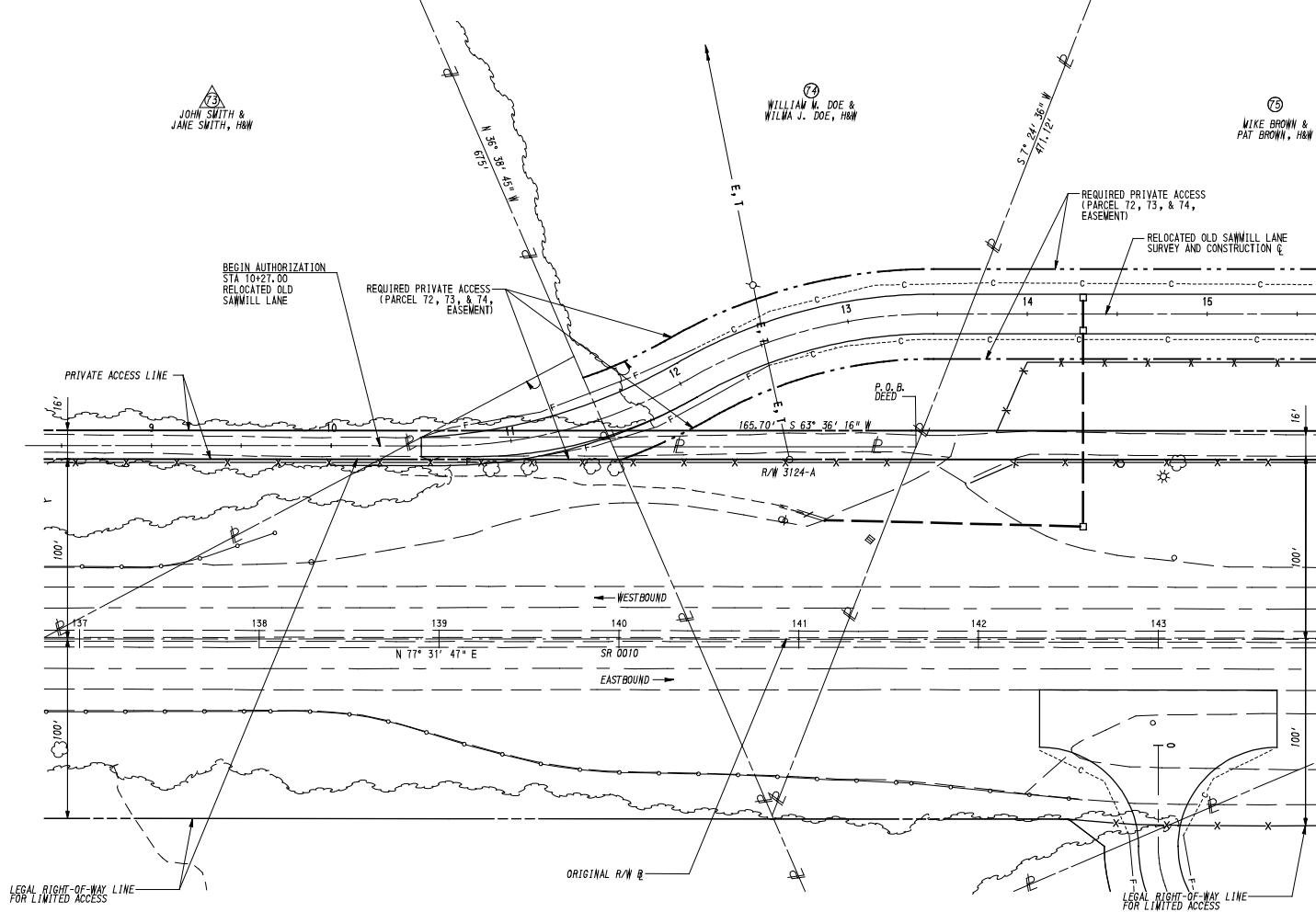


FIGURE 3.9
EXAMPLE FOR PRIVATE ACCESS

- 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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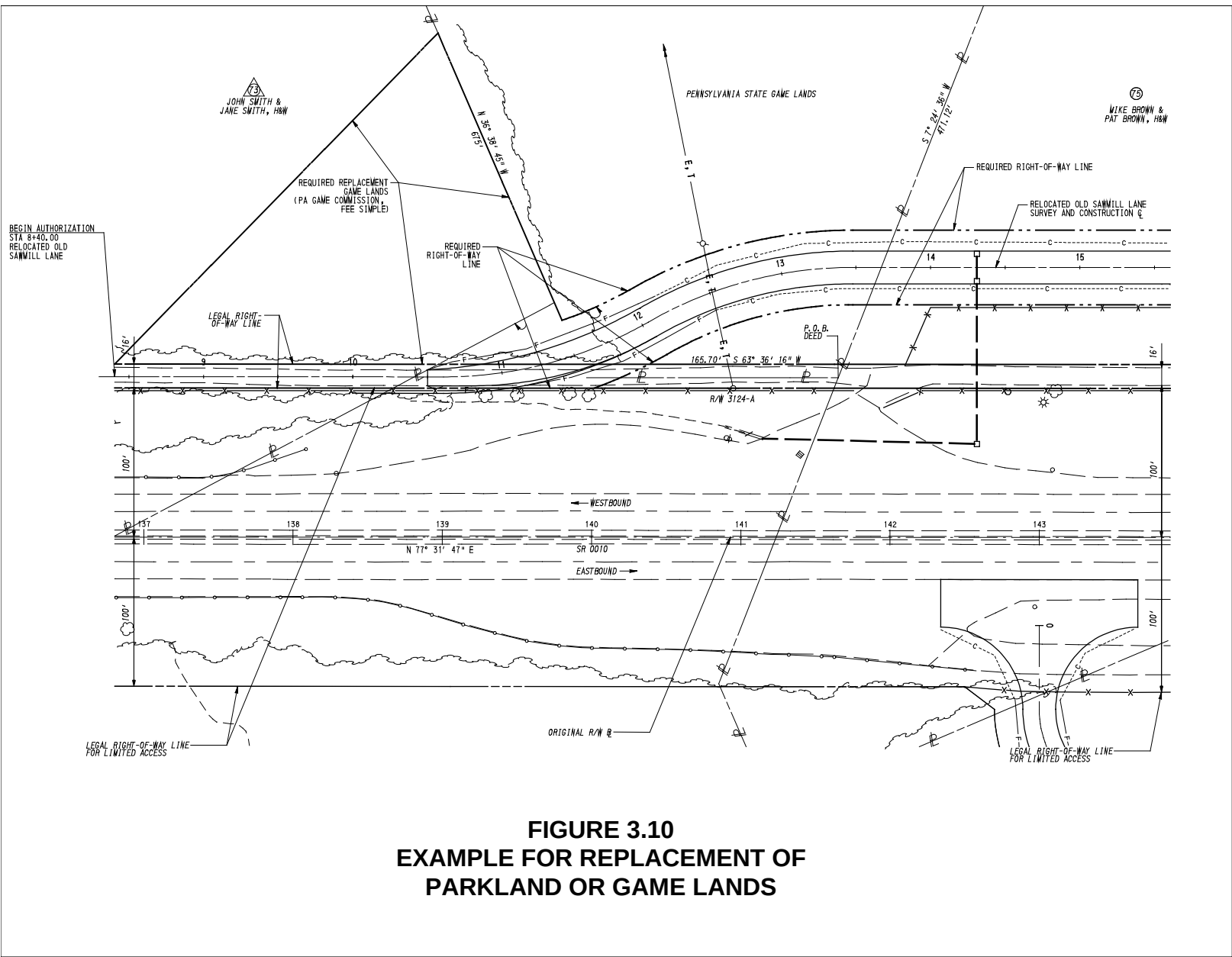


FIGURE 3.10
EXAMPLE FOR REPLACEMENT OF
PARKLAND OR GAME LANDS

- 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:

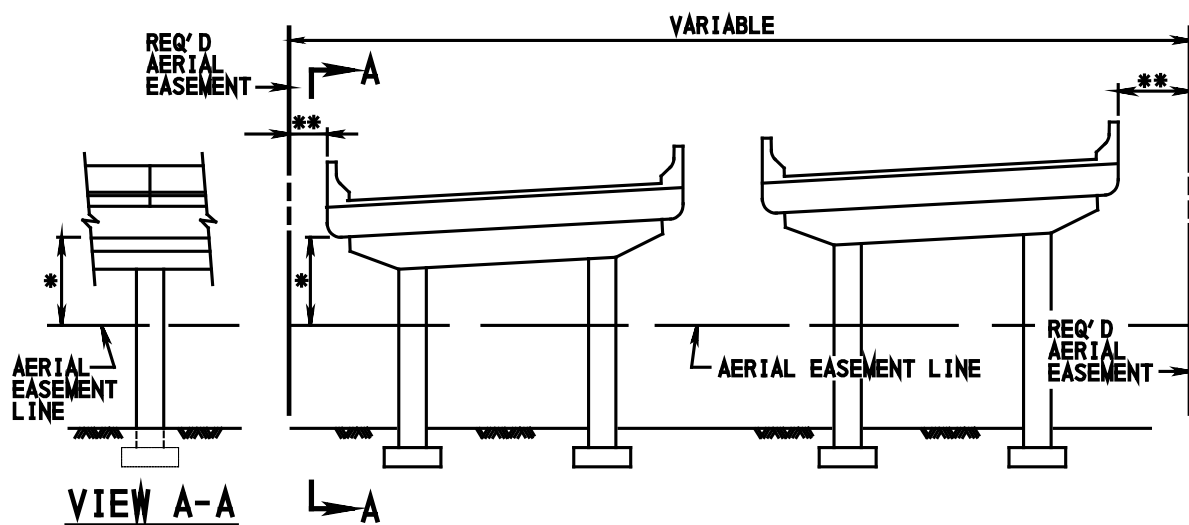
WHERE AN AERIAL EASEMENT IS ACQUIRED, IT SHALL INCLUDE AN EASEMENT IN THE AIR FOR THE ACCOMMODATION OF THE ELEVATED HIGHWAY STRUCTURE UNLIMITED IN VERTICAL DIMENSION ABOVE THE STRUCTURE, A SURFACE EASEMENT UNLIMITED IN VERTICAL DIMENSION FOR THE ACCOMMODATION OF PIERS AND OTHER APPURTENANCES AND A TEMPORARY 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 (0.65 m (2 ft) MINIMUM)

** ACTUAL DIMENSION (4.60 m (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. **Metric Plans.** Add the note: **SEGMENT OFFSETS ARE MEASURED IN METERS.**

- v. **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 0.6 m (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:

Metric: Dual units with the converted dimension, meters, in brackets
(English: English 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 90 m (300 ft) or more in rural areas and 30 m (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 1.0 m to 1.5 m (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. For metric Right-of-Way Plans, indicate the legal width in dual units with the converted dimensions (meters) in brackets. (For English Right-of-Way Plans, indicate the legal width in feet.) 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 1:2000 (1" = 200'), profile elevations shall be shown at intervals of not more than 60 m (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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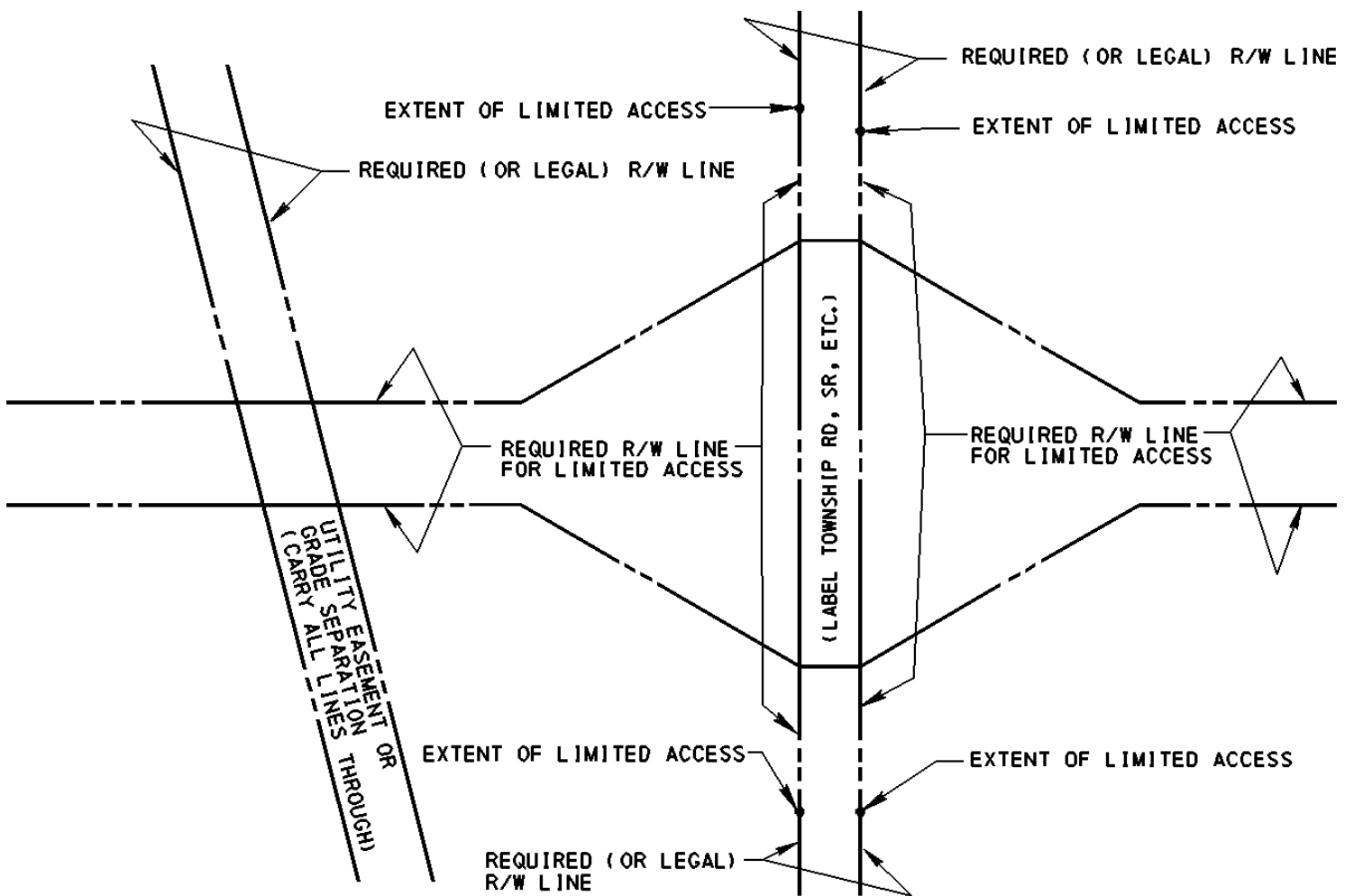
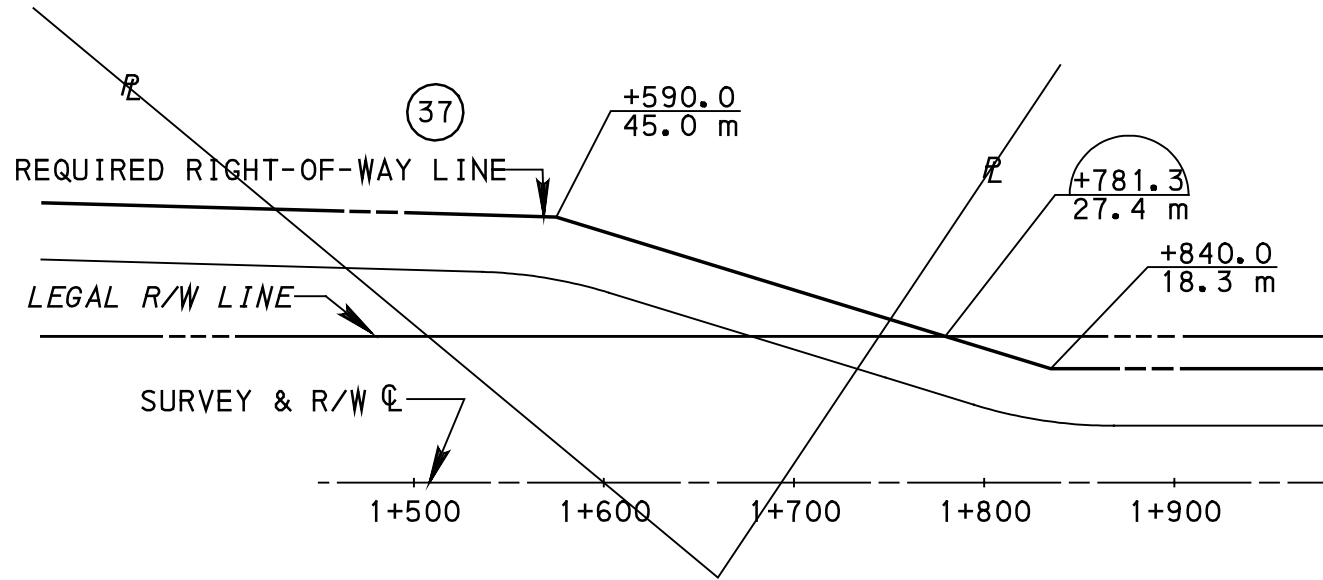
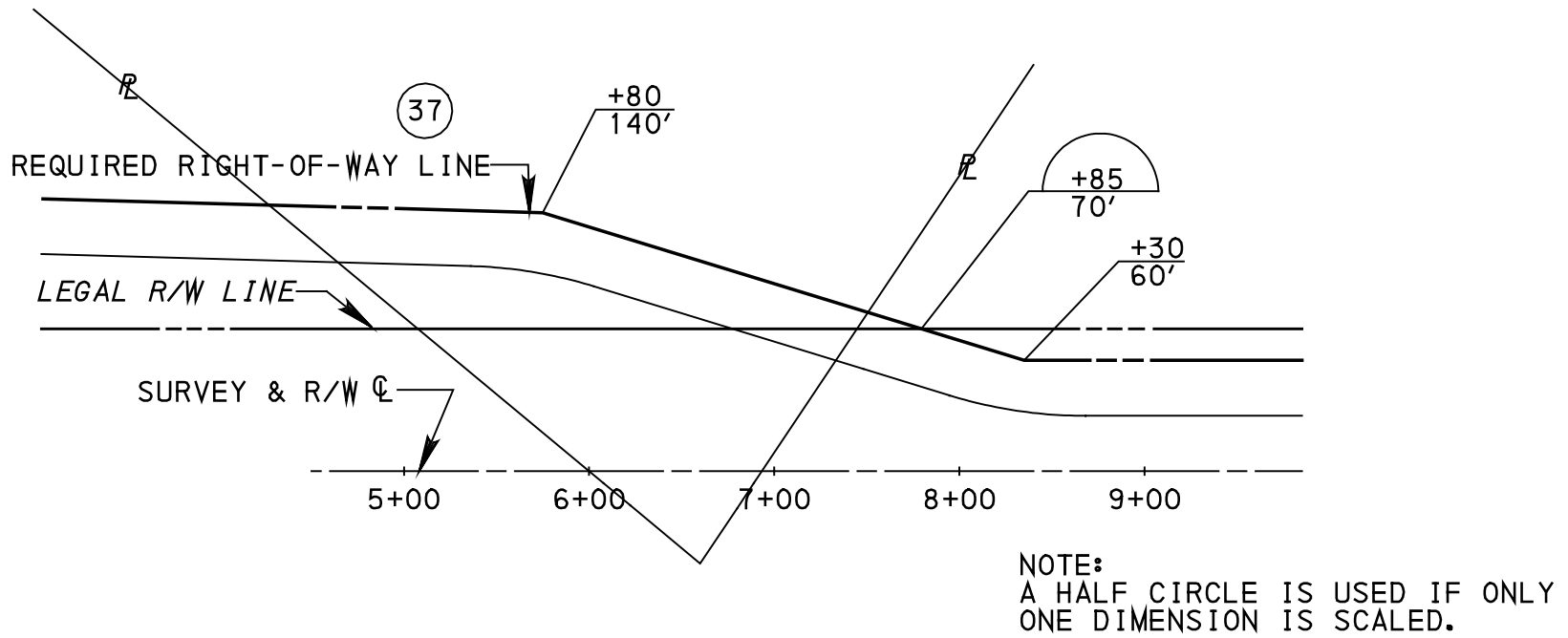


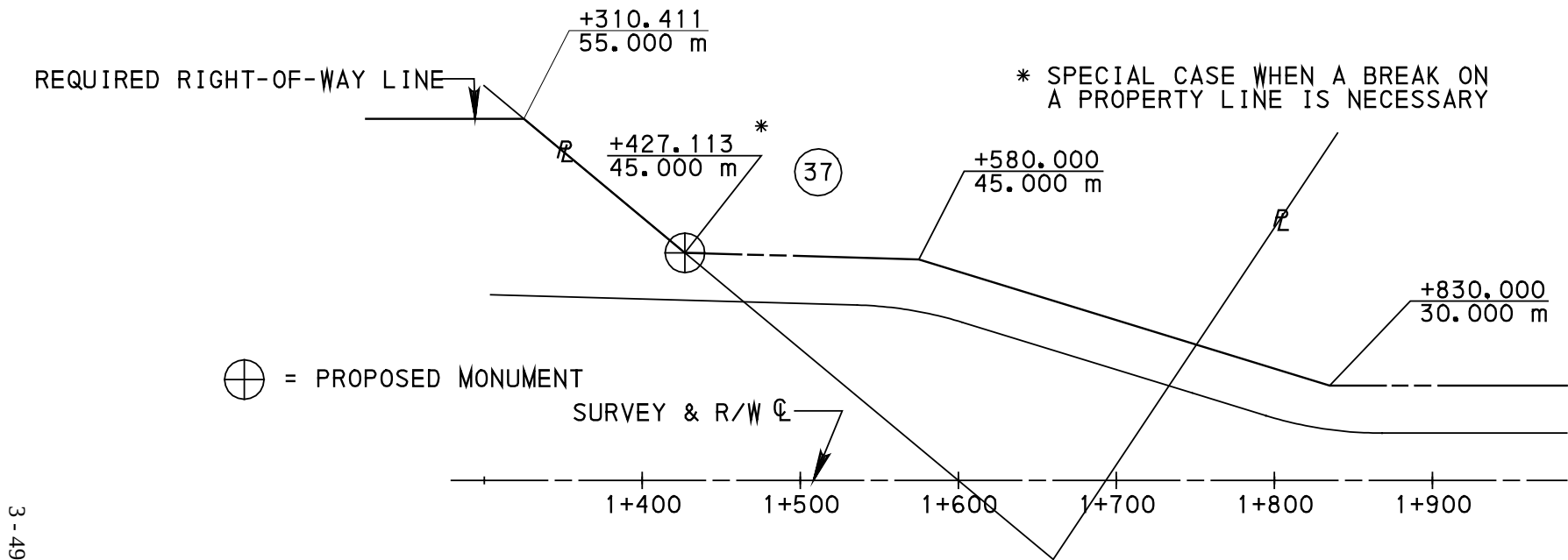
FIGURE 3.12
EXAMPLE OF INTERSECTING
RIGHT-OF-WAY LINES



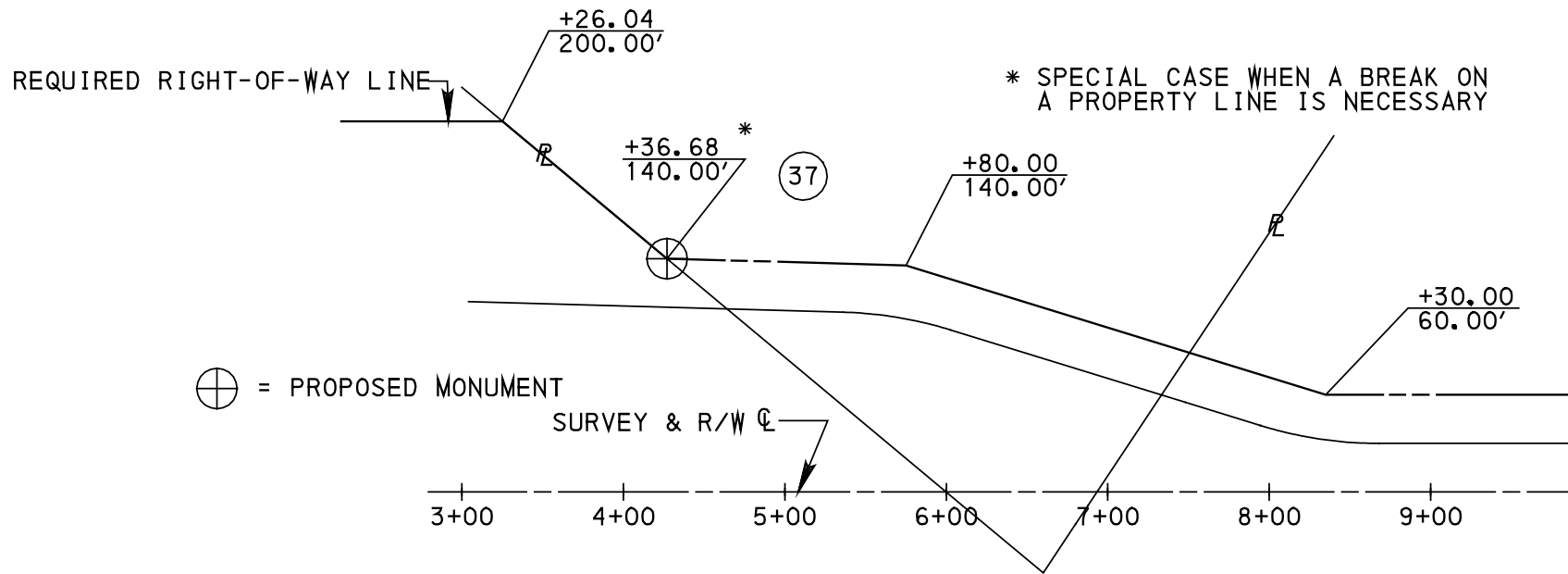
**FIGURE 3.13a (METRIC)
EXAMPLE OF BREAKS IN
REQUIRED RIGHT-OF-WAY
WITH ONLY R/W BASELINE MONUMENTED**



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



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

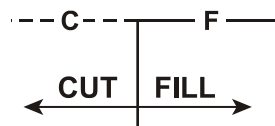


**FIGURE 3.13b (ENGLISH)
EXAMPLE OF BREAKS IN
REQUIRED RIGHT-OF-WAY
WITH R/W AND BASELINE MONUMENTED**

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 his 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 1:2000 (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 100 m (500 ft) interval with "ticks" at 20 m (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 his 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 Project Delivery, Highway Delivery Division, Utilities and Right-of-Way Section 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 meters when the area of the parcel is less than 1 ha. (Use square feet when the area of the parcel is less than 2 acres.)
 - (ii)** Use hectares when the area of the parcel is 1 ha or greater. (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 ft² 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. On metric (English) plans, list areas in metric and English (English) units.

- (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 Project Delivery, Highway Delivery Division, Utilities and Right-of-Way Section.

(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 ERECTED 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 – 1.491 ha (3.684 ACRES) (EXISTING FLOWAGE AREA – 1.107 ha (2.736 ACRES))

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 _____ m (_____ 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 30 m (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 10 m (50 ft) intervals in built-up areas and at 20 m (100 ft) intervals in open country by placing in a circle, opposite the appropriate station, a figure representing the difference, in meters (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 meters (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 meters (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 meters (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 meters (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 man-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.

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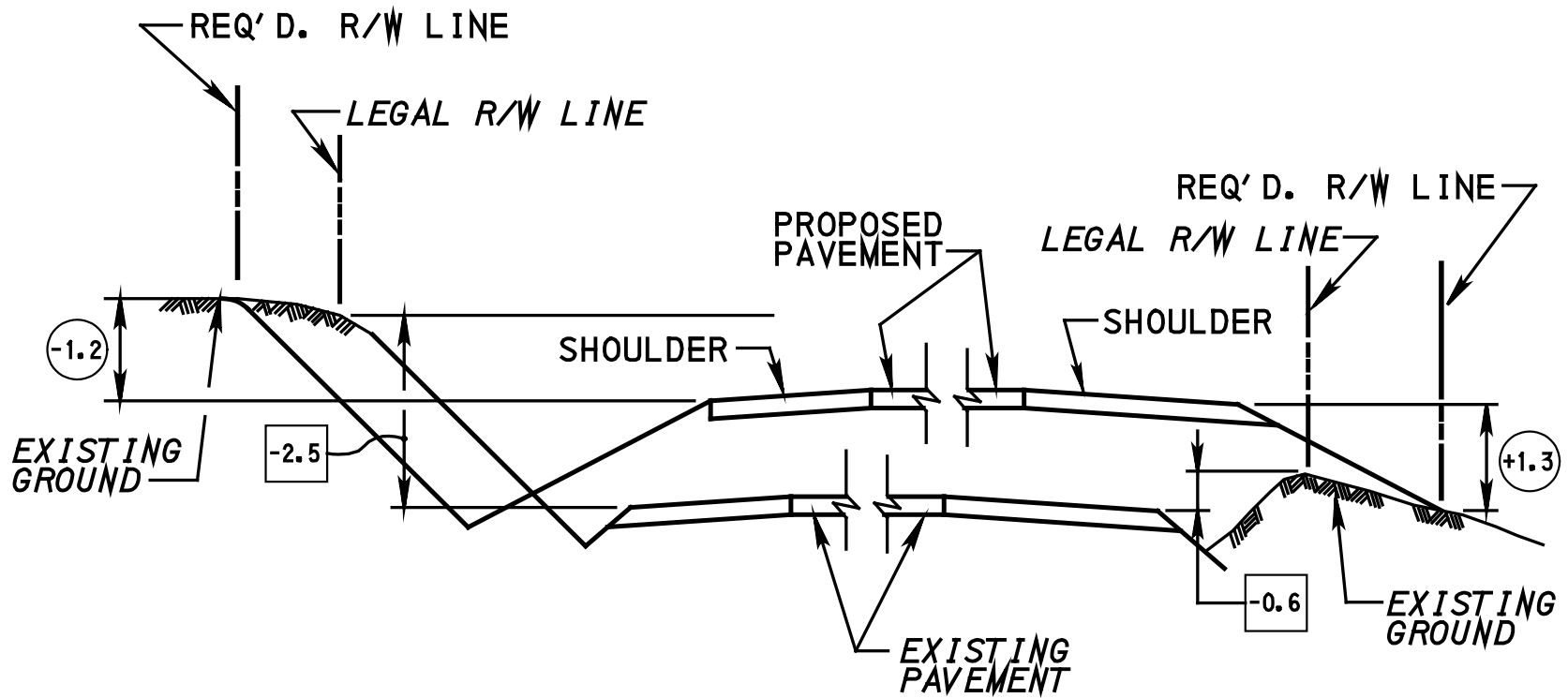


FIGURE 3.14 (METRIC)
INDICATION OF PHYSICAL DATA
FOR CUT AND FILLS

3 - 66

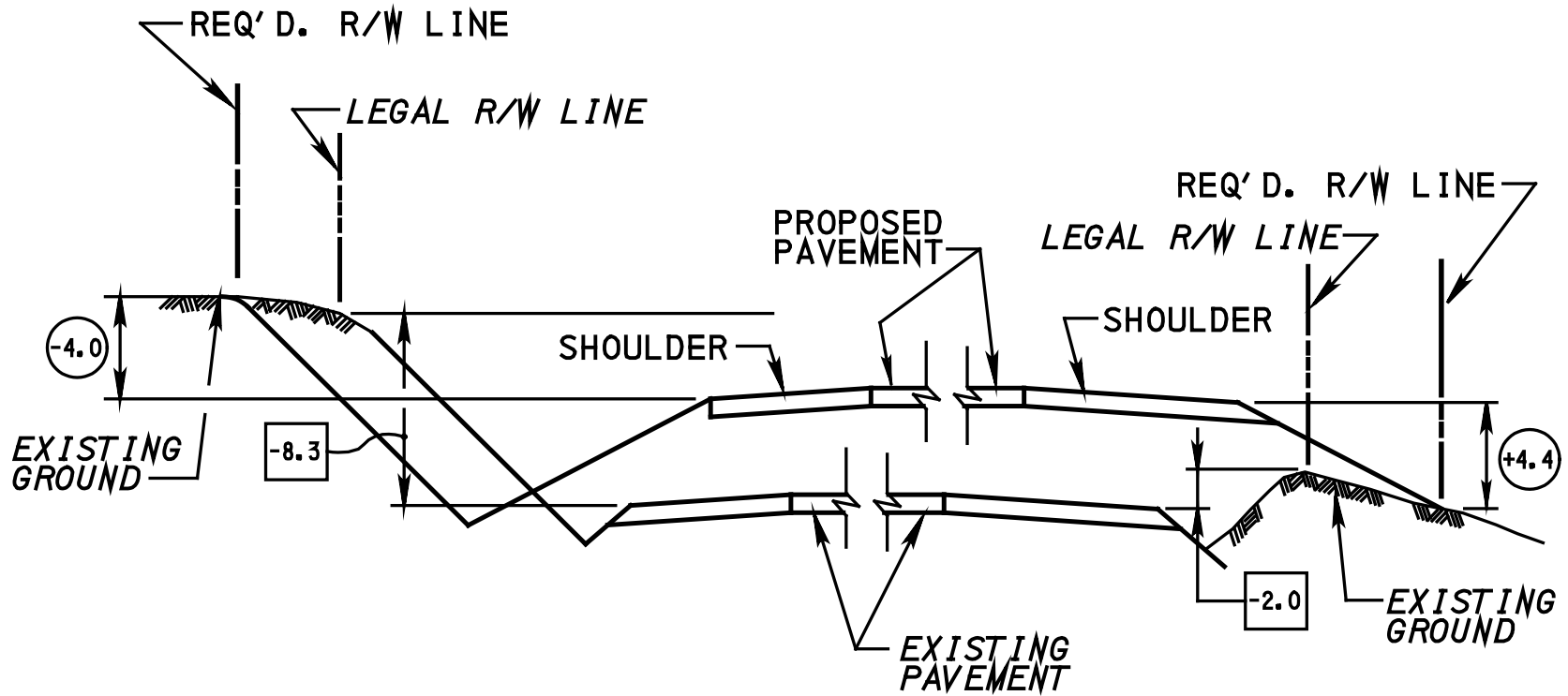


FIGURE 3.14 (ENGLISH)
INDICATION OF PHYSICAL DATA
FOR CUT AND FILLS

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 558.8 mm × 431.8 mm (either 22 in × 17 in) or the standard ANSI D size, 863.6 mm × 558.8 mm (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 1:1000 (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 1117.6 mm × 863.6 mm (44 in × 34 in) or 1117.6 mm × 1727.2 mm (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.\(12\)](#).

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

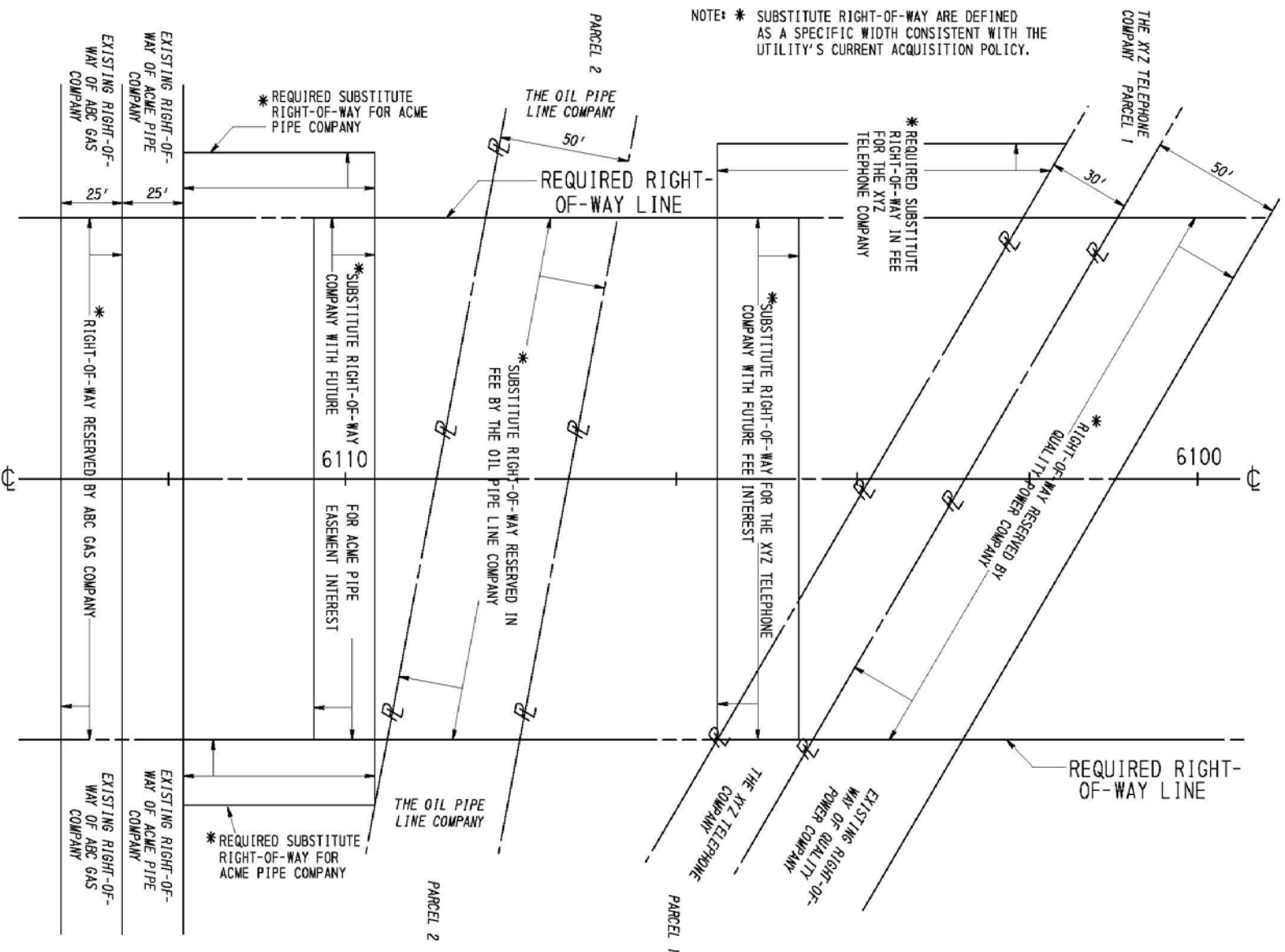
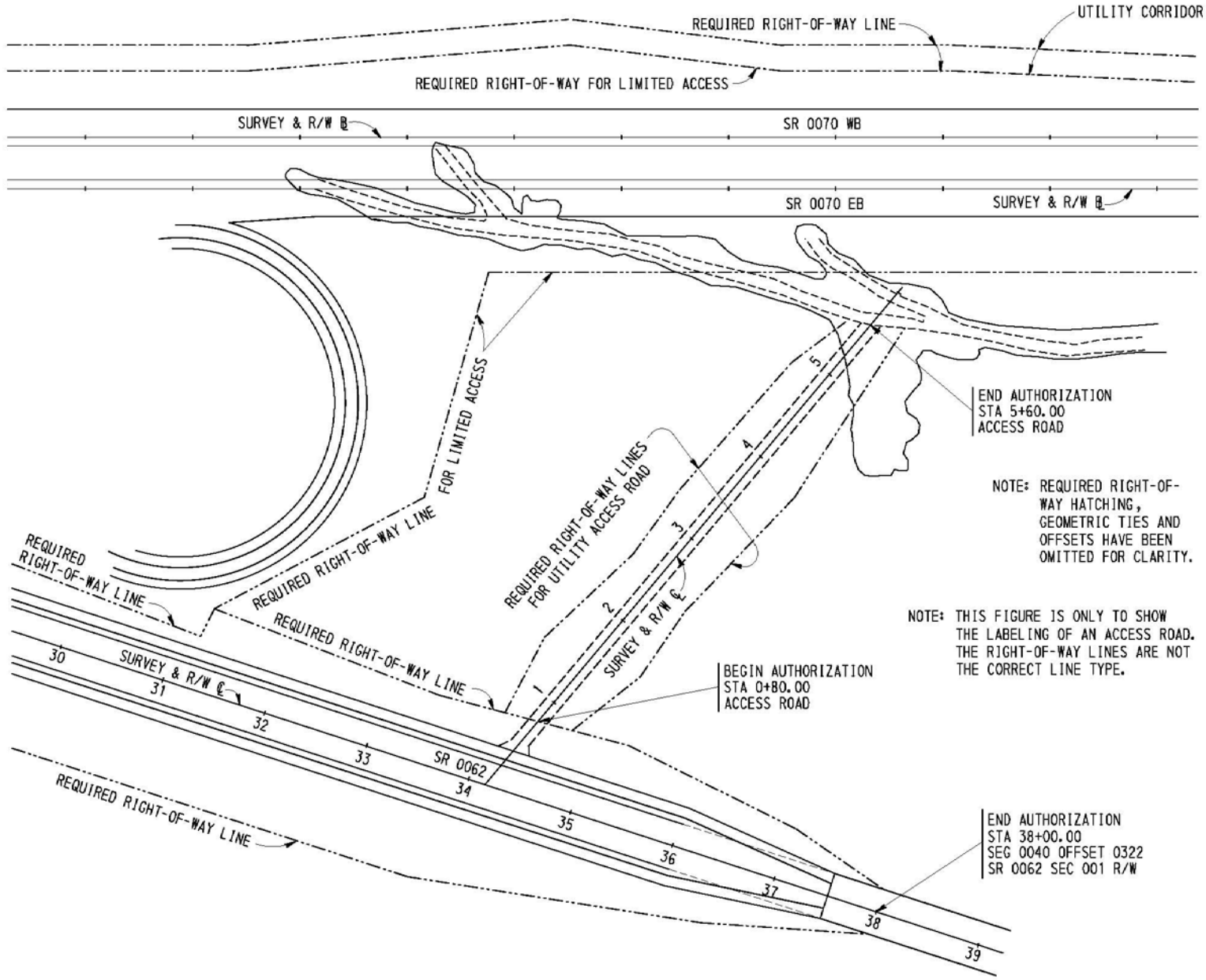


FIGURE 3.16
PLAN TERMINOLOGY FOR UTILITY ACCESS ROADS



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 10.058 m (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 10.058 m (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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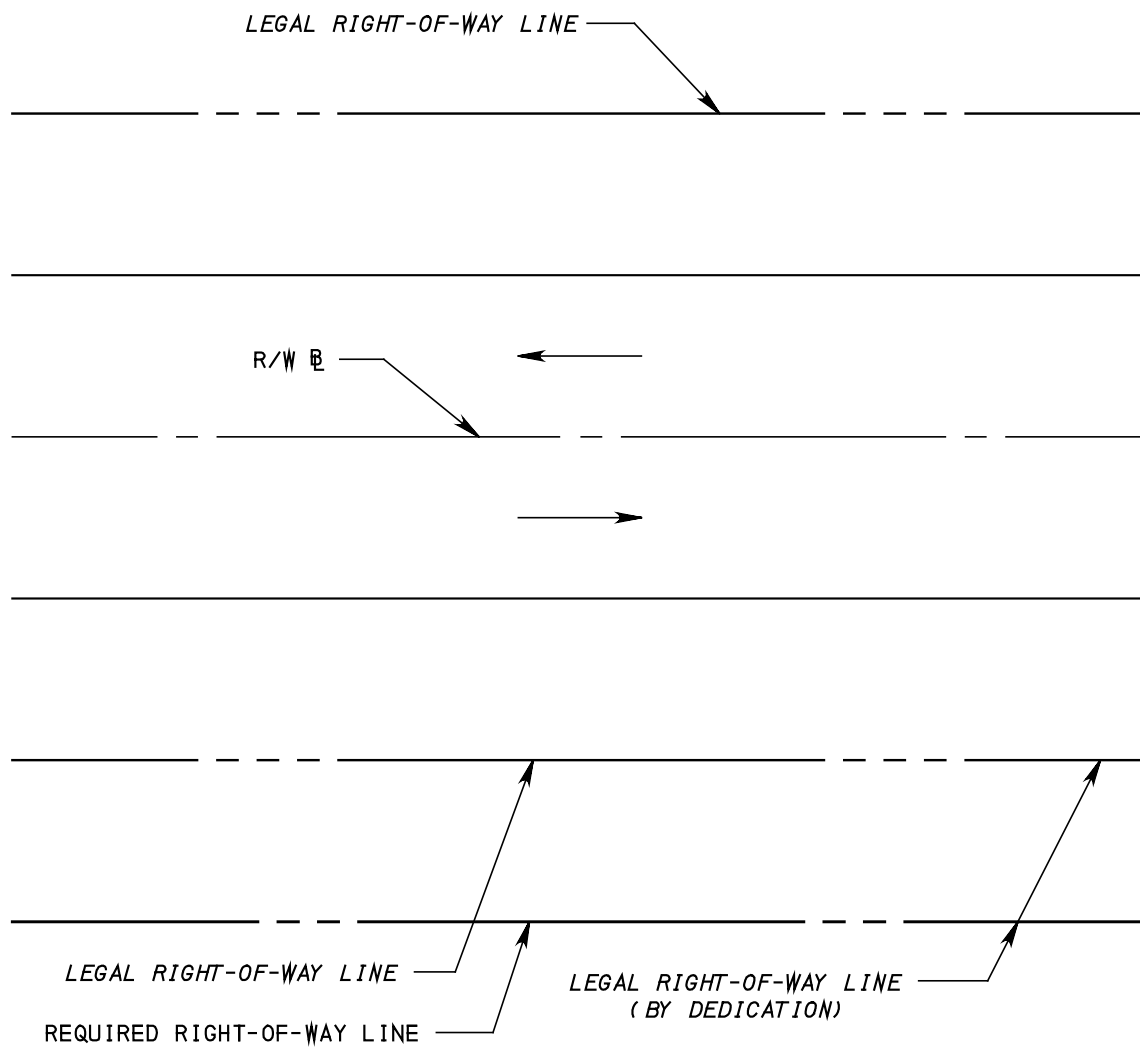


FIGURE 3.17
EXAMPLES OF DEDICATED
RIGHT-OF-WAY

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:

Metric Example:

EXISTING SR 1033 TO BE ABANDONED AS A STATE HIGHWAY BETWEEN SEGMENT 30
OFFSET 3 m AND SEGMENT 50 OFFSET 11 m UPON COMPLETION OF CONSTRUCTION.

English Example:

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 3 km (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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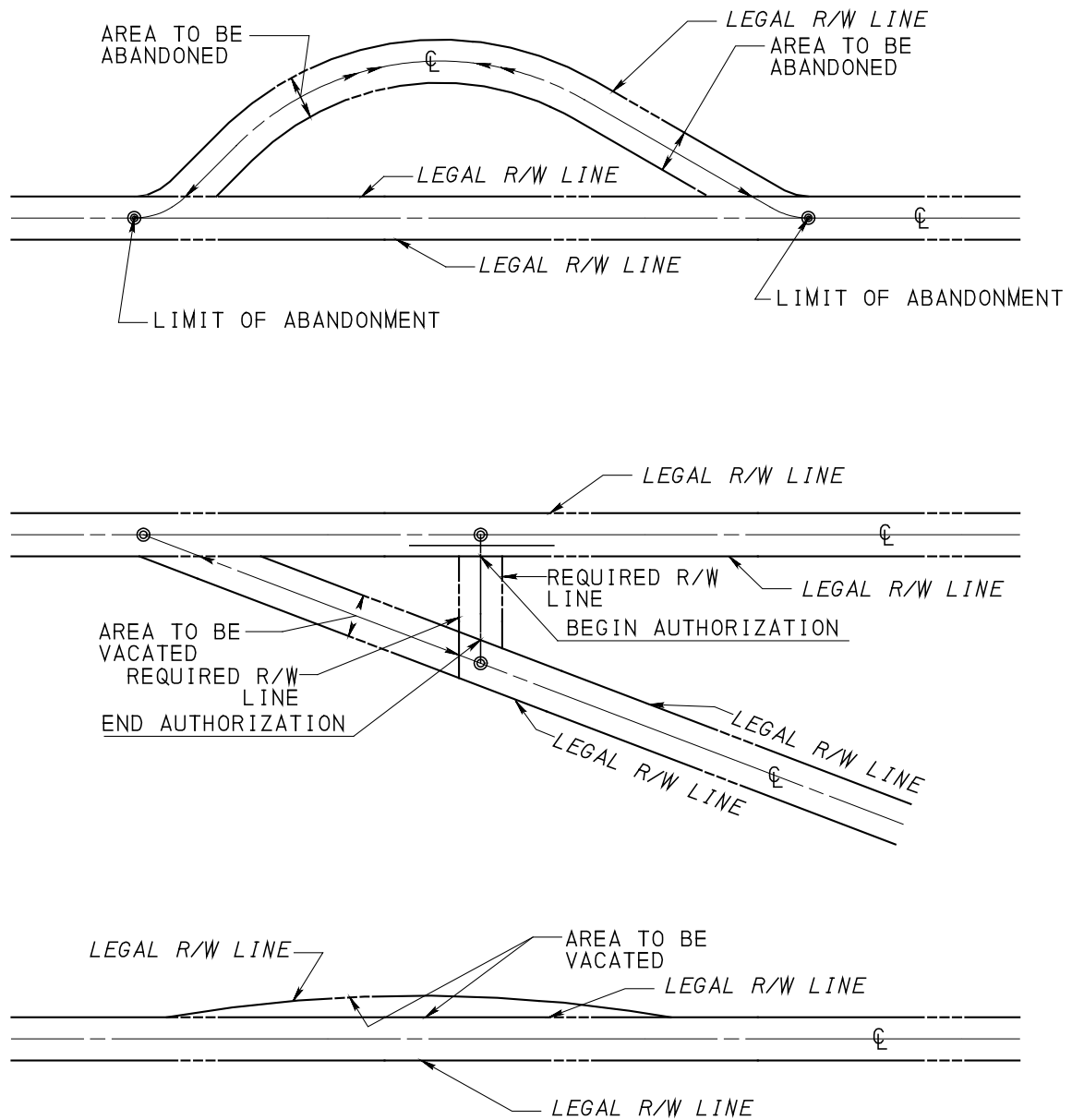


FIGURE 3.18
EXAMPLES OF
ABANDONMENTS AND VACATIONS

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:

Metric Example:

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 0+055.474 TO STA 0+132.588
LENGTH 77.114 m (253.00 FEET)
POQUESSING CREEK TO ACADEMY ROAD

English Example:

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 _____ m (_____ FEET) US STANDARD EQUALS 100.000 m (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 _____ m (_____ 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.

Metric Example:

ELEV 3.048 m US Coast & Geodetic Survey = ELEV 1.292 m City of Philadelphia

English 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.

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 Project 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 HERSELF 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 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 Project 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 Project 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 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 HERSELF)

FIGURE 3.21
EXAMPLE OF APPROVAL BLOCK WITH SIGNATURES
FOR ORIGINAL OF TITLE SHEET

REVISION _ PREPARED BY DISTRICT __-0 DESIGN UNIT (SEAL) _____ (SIGNATURE) (TITLE) _____ (DATE)
--

FIGURE 3.22
EXAMPLE OF TYPICAL SIGNATURE BLOCK FOR A
PLAN REVISION

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 RE-RECORDED.
WITNESS MY HAND AND NOTARIAL SEAL

FIGURE 3.23
EXAMPLE OF NOTARY BLOCK WITH SIGNATURES
FOR PLAN REVISIONS

RE-RECORDED IN THE OFFICE FOR THE RECORDING
OF DEEDS, ETC., IN
_____ COUNTY, PA.
IN _____ BOOK _____
PAGE _____ TO SHOW REVISIONS ON
SHEETS _____

WITNESS MY HAND AND SEAL OF OFFICE

RECORDER

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 _____
_____ 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 Soils Engineer.

Soil Profile Plans, as discussed in this Chapter, pertain only to the standard ANSI D size, 863.6 mm × 558.8 mm (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 District Soils Engineer.

5.1 TITLE SHEET

The Title Sheet for all soil profiles shall indicate the following information:

1. A LEGEND AND CHARACTERISTICS of the soils containing symbols, Department and AASHTO Classifications of Soils and their corresponding descriptions and general characteristics.
2. Headings for the following:
 - a. Abbreviations And Symbols.
 - b. Laboratory Numbers For Samples Tested.
 - c. Moisture Density Samples.
 - d. General Notes.
3. A 140 mm (5.5 in) square for the Location Map and the Legend.
4. Identification Block.

The information placed under items 2.a, 2.b, and 2.c 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](#).

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 soils work is being done by the District, include the following information:

1. District Number.
2. Seal and/or signature of the District Soils Engineer.
3. Date.

The responsible registrants doing the soils 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 1:5000 (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 100 m (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 (CORE)

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 1:500 (1" = 50') and a vertical scale of 1:100 (1" = 10') and shall contain the following data:

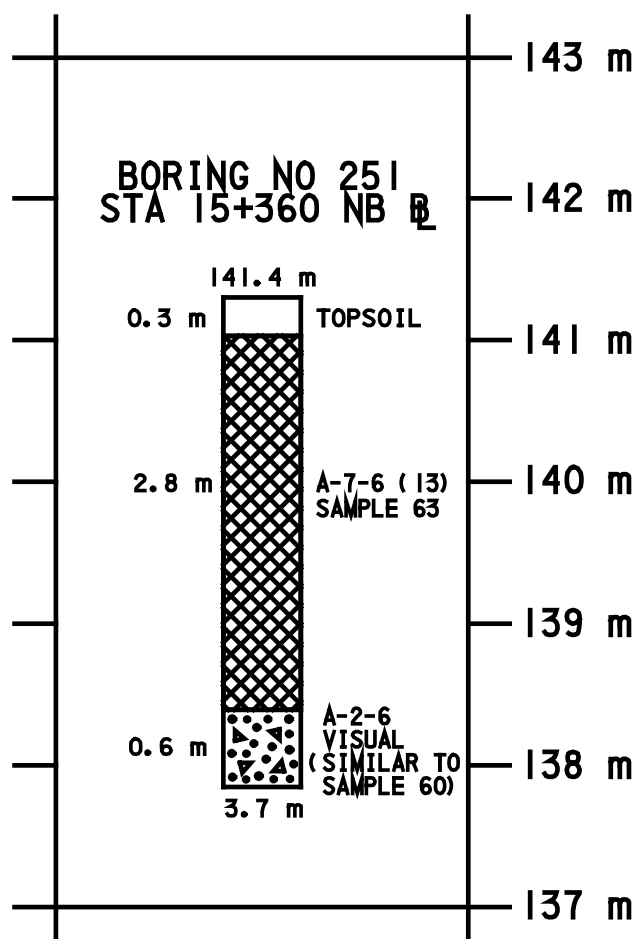
1. Label stations horizontally at 20 m (100 ft) intervals below the datum line. No overlap from the preceding sheet is necessary. Indicate equality stations.
2. Elevations of datum line and elevations at 2 m (10 ft) intervals at each end of the sheet.
3. Existing ground elevations along the construction centerline or baseline shall be plotted at 20 m (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 5 mm (0.25 in) wide rectangle outlined in ink from existing ground to depth of hole.
6. From all test holes, indicate in double scale (1:50 (1" = 5')) a core 10 mm (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. Also, show water table elevations. No interpretation shall be shown between test holes. See example presentation below:

Metric Example:

LEGEND

⊙ AUGER BORING

⊗ TEST BORING (CORE)

WATER TABLE ELEVATIONS:

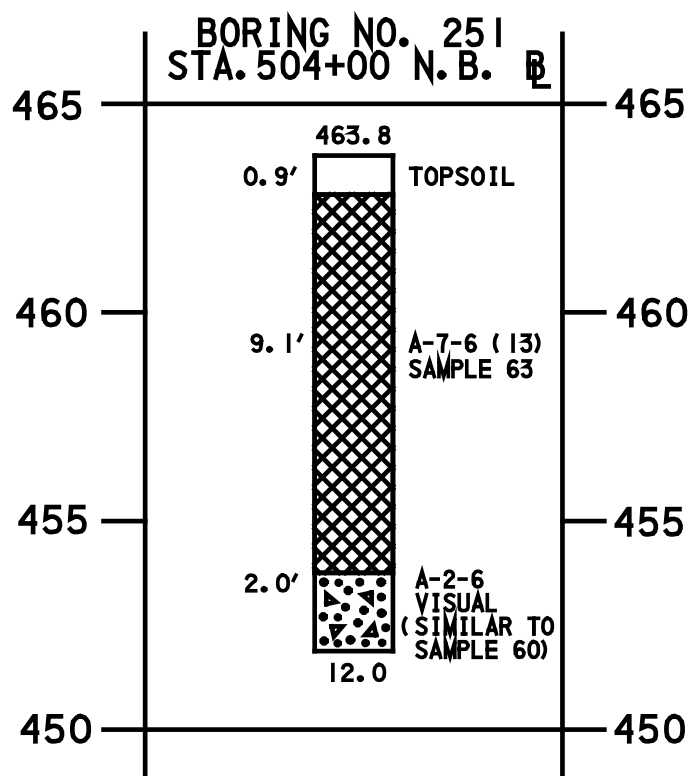
0 h: 138.5 m

24 h: 138.7 m

English Example:

LEGEND

- ⊙ AUGER BORING
- ⊗ TEST BORING (CORE)

WATER TABLE ELEVATIONS:

0 h: 454.4 ft
24 h: 455.1 ft

7. Indicate, by tabulation on each sheet, the type of tests and the results of these tests performed on the soil samples. Identify the following:

- 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.
- m. Frost Group.

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 1:250 (1" = 25') and a vertical scale of 1:100 (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 AND SHALL NOT BE CONSIDERED AS A PART OF THE CONTRACT DRAWINGS (SEE SECTION 102.05 OF PUBLICATION 408.).

CHAPTER 6

CONTOUR GRADING AND DRAINAGE PLANS AND EROSION AND SEDIMENT POLLUTION CONTROL 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 Plans are required for all projects involving major earth moving activities. All Erosion and Sediment Pollution Control Plans shall be submitted to the County Conservation District for their review and comment. The Erosion and Sediment Pollution Control Plans shall be handled as "Also Included" Plans. On smaller projects that do not involve major earth moving activities, the necessary information may be incorporated into the regular Construction Plans and separate Erosion and Sediment Pollution Control Plan is not required. However, in such cases, the County Conservation District shall still be contacted for their informal review and comments.

For those projects which require a water obstruction or a flood plain management permit from the Pennsylvania Department of Environmental Protection, pursuant to its Chapter 105 or Chapter 106 regulations, a letter approving the Erosion and Sediment Pollution Control Plan or proposal shall be obtained by the District Office from the County Conservation District.

An earth disturbance permit shall be obtained by the District Office from the Pennsylvania Department of Environmental Protection through the County Conservation District for those highway projects which involve a total project earth disturbance area of greater than 10 ha (25 acres).

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. Divisor 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 0.5 m (2 ft) contours (shown properly screened or shown with short dash lines).
14. Proposed contours (use 0.5 m (2 ft) contours except that 0.25 m (1 ft) contours shall be shown on the pavement, shoulders and gore areas. Show location of pavement level cross sections. Label 0.5 m (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 sign the first sheet. The registrants shall also place either a black ink rubber stamp seal or a facsimile seal on all subsequent sheets.

For proposed roadside grading and drainage, the contour intervals shall be 0.5 m (2 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 in ink on the front face of the drawing. 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 0.25 m (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

The Erosion and Sediment Pollution Control Plan sheets shall contain the following information:

1. A scale of 1:2000 (1" = 200') is preferable; however, a different scale may be used for clarity.
2. Existing contours.
3. Legal Right-of-Way lines.
4. Slope lines for cuts and fills.
5. Drainage divides (numbered consecutively).
6. Grading areas (in hectares (in acres)), where applicable.
7. All erosion and sediment pollution control features shall be indicated by symbols and a legend of symbols provided (refer to [Chapter 13](#)).
8. All drainage features (cross culverts, storm sewers, rock lining, etc.). The drainage area (hectares (acres)), amount of discharge and outlet velocity shall be shown.
9. 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.

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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.

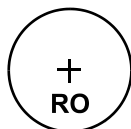
A series of key symbols for plant names has been established for use on Planting Plans and are presented in the Construction Items Catalog, Publication 7M, Section 2808 (Publication 7, Section 808).

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.

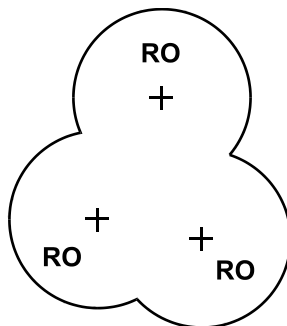
The purpose of the plan is to accurately locate the planting design in the field by presenting, as complete as possible, a graphic description of the design. The following symbols and techniques should be used as a guide in the preparation of Landscape Planting Design (Roadside Development) Plans.

MAJOR DECIDUOUS TREE: Circle size: ± 12 m (± 40 ft)

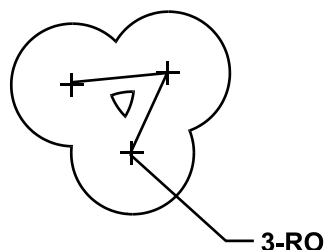
EXAMPLES:



Individual Grouping

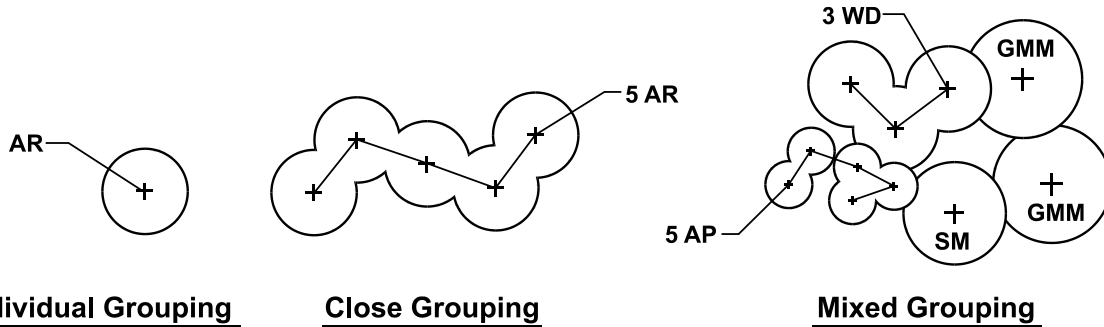


Close Grouping



COLUMNAR AND FLOWERING TREE: Circle size: ± 6 m (± 20 ft)
EVERGREEN TREE: Circle size: ± 4 m (± 15 ft)

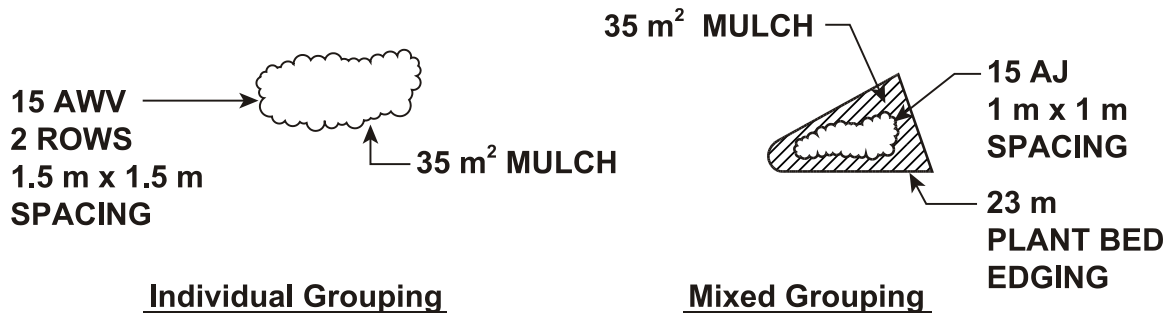
EXAMPLES:



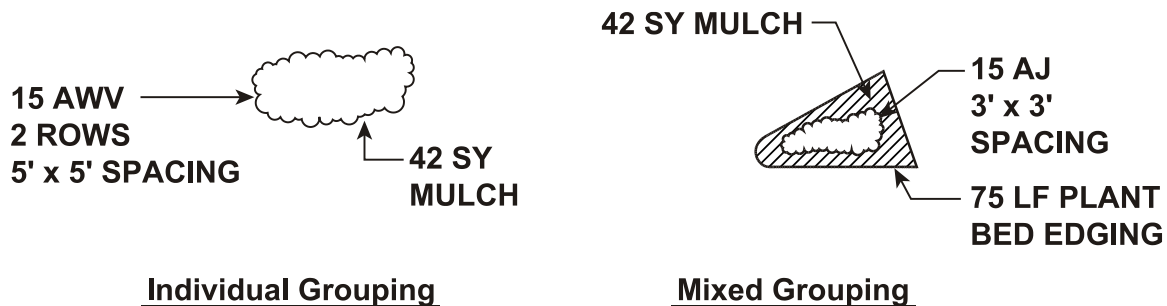
Note: For clarity in reading plans, avoid overlap of tree circles and different plant species. Indicate quantities as shown.

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):



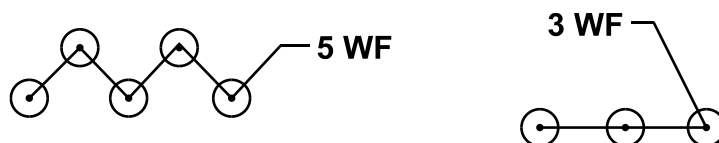
EXAMPLES (English):



Note: Indicate any pertinent information to clarify the intent of the designer.

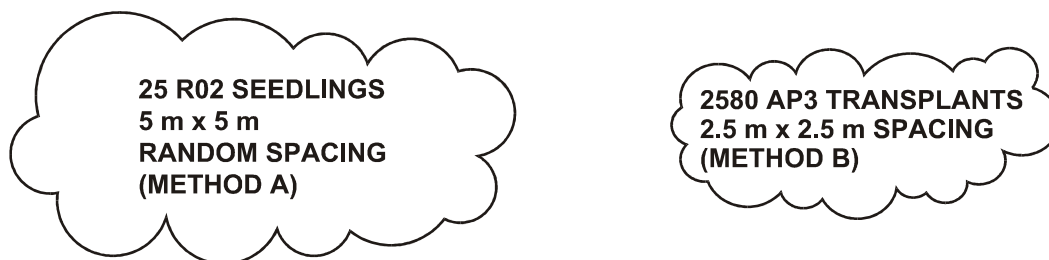
Shrub diameter for individual shrubs on the plan should approximate the near mature size of the plant and should be drawn at the desired spacing.

EXAMPLES:

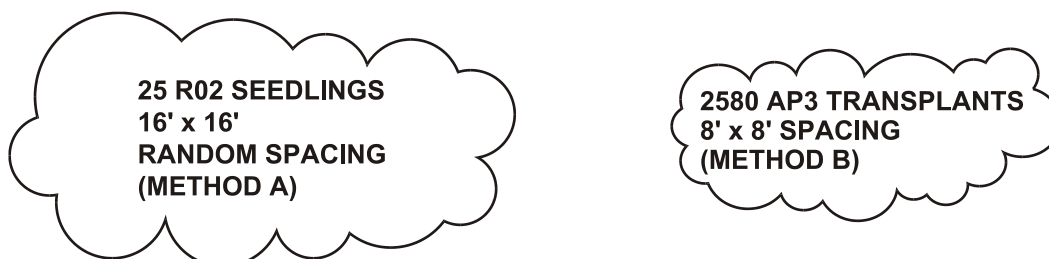


SEEDING AND TRANSPLANTS:

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) HT B&B	---
16	SPY	SPREADING YEW	TAXUS CUSPIDATA EXPANSA	450 MM (18 IN) SPD B&B	1.2 M (4 FT) OC SPACING
250	AP4	AUSTRIAN PINE	PINUS NIGRA	SEEDLING 200 MM (8 IN) HT	SEE SPECIAL 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 0100 M3	CLASS 3 EXCAVATION	38
3001 0010 M3	CLASS A CEMENT CONCRETE	13
3002 0001 KG	REINFORCEMENT BARS	327
2620 1075 M	TYPE 2-S GUIDE RAIL	365.760
2620 1250 EACH	TYPE 2 STRONG POST END TREATMENT	2
2948 0101 LS	STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS (APPROX 5300 kg*)	---
2936 0001 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 0100 CY	CLASS 3 EXCAVATION	50
1001 0010 CY	CLASS A CEMENT CONCRETE	17
1002 0001 LB	REINFORCEMENT BARS	720
0620 1075 LF	TYPE 2-S GUIDE RAIL	1200
0620 1250 EACH	TYPE 2 STRONG POST END TREATMENT	2
0948 0101 LS	STEEL SIGN STRUCTURE - SPAN, WITH BOX SHAPED TRUSS (APPROX 11,700 LB*)	---
0936 0001 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 ²
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 DEPARTMENT OF TRANSPORTATION	
SIGN STRUCTURE	
FOR	
SR 0080 SEC 042 STA 30+547.1 EB	INTERSTATE 80 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 DEPARTMENT OF TRANSPORTATION	
SIGN STRUCTURE	
FOR	
SR 0080 SEC 042 STA 1002+20 EB	INTERSTATE 80 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 DEPARTMENT OF TRANSPORTATION	
VMS SIGN STRUCTURE	
FOR	
SR 0080 SEC 042 INTERSTATE 80 STA 30+547.1 EB CENTRE COUNTY GENERAL PLAN AND ELEVATION	
RECOMMENDED _____	SHEET <u>1</u> OF <u>7</u>
_____ CHIEF BRIDGE ENGINEER	S-

FIGURE 8.3 (METRIC)
EXAMPLE OF TITLE BLOCK
FOR VMS SIGN STRUCTURE DETAIL SHEET

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION	
VMS SIGN STRUCTURE	
FOR	
SR 0080 SEC 042 INTERSTATE 80 STA 1002+20 EB CENTRE COUNTY GENERAL PLAN AND ELEVATION	
RECOMMENDED _____	SHEET <u>1</u> OF <u>7</u>
_____ 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 (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 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.

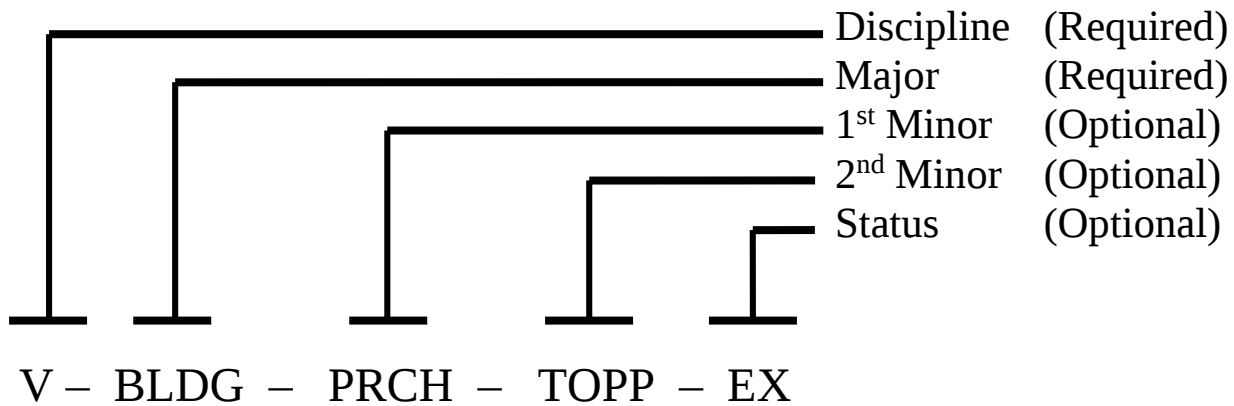
NOTE: BRADD generated MicroStation® (DGN) files do not conform to these file naming conventions.

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 **1st Minor** code (four digits), a **2nd 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 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 (and Prepared By)	3	6
	Professional Engineer's Seal Block (Block Only)	3	3
	Professional Land Surveyor's Seal Block (and Prepared By) for Right-of-Way Plans	3	6
	Title Sheet Signature Block (District Executive, Deputy 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 ft³
CUBIC FEET PER SECOND CFS or ft³/s
CUBIC METERS m³
CUBIC METERS PER SECOND m³/s
CUBIC MILLIMETERS mm³
CUBIC YARD CY or yd³
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
RAILROADRR
RAILWAYRWY
RECEIVEDREC'D
RECONSTRUCT RECONSTR
RED.....RED
REDRESSEDREDR
REFERENCEREF
REFLECTION.....REFLN
REFLECTORREFLR
REGULARREG
REINFORCEDREINF

REINFORCED CEMENT
CONCRETE RCC
REINFORCED CONCRETE
PIPERCP
REINFORCEMENT.....REINF
REINFORCINGREINF
REMOVALREMOV
REQUIRED.....REQ'D
REVISIONREV
RIGHTRT
RIGHT-OF-WAYR/W
ROAD.....RD
ROADWAYRDWY
ROUTE.....RTE

- S -

SANITARY SEWER SAN S
SECOND (ANGLE
MEASURE).....SEC OR "
SECOND (TIME
MEASURE).....s
SECTION SECT
SEGMENTSEG
SELECTSEL
SEPARATE.....SEP
SERVICESERV
SET, SETS.....SET
SHEET.....SH
SHOULDER.....SHLDR
SIDEWALKS'WALK
SIGNALSIG
SQUARESQ
SQUARE FOOT.....SF or ft²
SQUARE INCHin²
SQUARE METERSm²
SQUARE MILEmi²

SQUARE KILOMETERS.....km²
SQUARE MILLIMETERSmm²
SQUARE YARDSY or yd²
STANDARDSTD
STATE ROUTESR
STATIONSTA
STEELSTL
STORYSTY
STREAM.....STRE
STREETST
STRUCTURALSTR
STRUCTURE.....STR
SUBGRADE.....SUBG
SUBSTRUCTURE SUBSTR
SUPERELEVATIONSE
SUPERSTRUCTURESUPERSTR
SUPPORT.....SUP
SURFACESURF
SURVEYSURV
SYMMETRICALSYM

- T -

TEETEE
TELEPHONETEL
TELEPHONE POLETP
TEMPERATURETEMP
TEMPORARYTEMP
TERMINALTERM
TERRA COTTA.....TC
TON, TONSton
TONNE.....tonne
TONGUE & GROOVET & G
TOP OF BANKTB

TOP OF CURB.....TC
TOP OF CUTTC
TOP OF FILLTF
TOP OF GRATETG
TOP OF RAILTR
TOP OF WALLTW
TOPOGRAPHYTOPO
TOWNSHIPTWP
TRAFFIC.....TR
TRANSVERSETRANSV
TYPICALTYP

- 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.....	Δ
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	θ_s
SPIRAL LENGTH.....	L_s
CENTRAL ANGLE BETWEEN THE	
SC AND CS.....	Δ_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 DATUM OF 1988	NAVD 88
NATIONAL GEODETIC REFERENCE SYSTEM	NGRS
NATIONAL GEODETIC SURVEY	NGS
NATIONAL GEODETIC VERTICAL DATUM OF 1929	NGVD 29
STATE PLANE COORDINATE SYSTEM.....	SPCS
STATE PLANE COORDINATE SYSTEM OF 1927	SPCS 27
STATE PLANE COORDINATE SYSTEM 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 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
CONCRETEEXTR STR RCC PAV'T

HES REINFORCED CEMENT CONCRETEHES RCC PAV'T

CONTINUOUSLY REINFORCED CONCRETE
PAVEMENTCRC PAV'T

TERMINAL JOINTSTERM JTS

PROTECTIVE COATING FOR CEMENT CONCRETEPROTECT CTG FOR CC PAV'T AND
PAVEMENTS AND SHOULDERS SHLDRS*PIPES

REINFORCED CONCRETE PIPE, TYPE ____RC PIPE, TYPE ____

STANDARD DUCTILE IRON PIPESTD DI PIPE

HEAVY DUCTILE IRON PIPEHEAVY DI PIPE

EXTRA HEAVY DUCTILE IRON PIPEEXTRA HEAVY DI PIPE

CORRUGATED DUCTILE IRON PIPECDI PIPE

RIBBED DUCTILE IRON PIPERIBBED DI PIPE

CORRUGATED GALVANIZED STEEL PIPE,.....CGSP, TYPE ____ I
TYPE ____ ICOATED POLYMER CORRUGATED GALVANIZED
STEEL PIPE ARCH, TYPE ____ CCCGS 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 GALVANIZEDPERF CGS PIPE, TYPE ____ I
STEEL PIPE, TYPE ____ IPERFORATED CORRUGATED ALUMINUM ALLOYPERF CORR AA PIPE, TYPE ____ I
PIPE, TYPE ____ ICOATED POLYMER PERFORATED CORRUGATEDC PERF CGS PIPE, TYPE ____ C
GALVANIZED STEEL PIPE, TYPE ____ C

COMMON CONSTRUCTION ITEMABBREVIATION*PIPES (CONTINUED)

PERFORATED CORRUGATED GALVANIZED STEELPERF CGS PIPE ARCH,
PIPE ARCH, TYPE ____ II TYPE ____ II

COATED POLYMER PERFORATED CORRUGATEDC PERF CGS PIPE ARCH,
GALVANIZED STEEL PIPE ARCH TYPE ____ C TYPE ____ C

CORRUGATED ALUMINUM ALLOY PIPE, TYPE ____ I.CORR AA PIPE, TYPE ____ I

EPOXY-LINED CONCRETE PIPEEPOXY-LINED CONC PIPE

SMOOTH-LINED CORRUGATED GALVANIZED.....SMOOTH-LINED CGS PIPE
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 UNITTYPE ____ CONC TOP UNIT, LT (OR RT)

TYPE ____ FRAMETYPE ____ FRAME, LT (OR RT)

STANDARD INLET BOXSTD INLET BOX

TYPE ____ INLET BOXTYPE ____ INLET BOX

ENDWALLS

TYPE D-WTYPE D-W EDW

TYPE DTYPE D EDW

TYPE D-ETYPE D-E EDW

TYPE E-STYPE 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 FACILITIES, TYPE ____	NO ABBREVIATION
CONSTRUCTION SURVEY	NO ABBREVIATION
CONSTRUCTION SURVEY FOR DRAINAGE 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 PIPE U-DRAIN
ADDITIONAL COARSE AGGREGATE FOR EXTRA	ADD CRSE AGGR FOR EXTRA DEPTH PIPE U-DRAIN
DEPTH PIPE UNDERDRAIN	
DEPTH PAVEMENT BASE DRAIN.....	____ PAV'T BASE DRAIN
STONE BACKFILL FOR MISCELLANEOUS.....	STONE B'FILL FOR MISC DRAINAGE
SUBSURFACE DRAIN OUTLETS	SUBSURF DRAIN OUTLETS

END SECTIONS AND SLOPE PIPE FITTINGS

STEEL END SECTION, METALLIC COATED, ____ MM THICKNESS.....	STEEL END SECT, MC, ____ MM (____ GAGE), TYPE ____, FOR ____ PIPE
ALUMINUM ALLOY END SECTION, ____ MM	ALUM ALLOY END SECT, ____ MM (____ GA), FOR ____ PIPE
THICKNESS (____ GAGE), FOR ____ PIPE	

<u>COMMON CONSTRUCTION ITEM</u>	<u>ABBREVIATION</u>
---------------------------------	---------------------

END SECTIONS AND SLOPE PIPE FITTINGS (CONTINUED)

SLOPE PIPE FITTING, FOR ____ PIPE	SLOPE PIPE FITTING, FOR ____ 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 & OPENINGS	END TREAT, DRIVEWAYS & 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 FENCE	END POSTS FOR TYPE ____ R/W FENCE
---	--------------------------------------

CORNER POSTS FOR TYPE ____ RIGHT-OF-WAY FENCE	CORNER POSTS FOR TYPE ____ R/W FENCE
--	---

PULL POSTS FOR TYPE ____ RIGHT-OF-WAY FENCE	PULL POSTS FOR TYPE ____ R/W FENCE
--	---------------------------------------

PEDESTRIAN GATE FOR TYPE ____ RIGHT-OF-WAY FENCE	PED GATE FOR TYPE ____ 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

COMMON CONSTRUCTION ITEMABBREVIATIONSAFETY REST AREAS (CONTINUED)

BENCH SEATNO ABBREVIATION

COUNTER AND COUNTER UNITNO ABBREVIATION

SHUTTERS.....NO ABBREVIATION

SEWAGE DISPOSAL SYSTEM.....NO ABBREVIATION

MAINTENANCE OF TRAFFICMAINTENANCE AND PROTECTION OF TRAFFICMAINT AND PROTECT OF
DURING CONSTRUCTION TRAFFIC DURING CONSTR

CALCIUM CHLORIDENO ABBREVIATION

MAINTENANCE OF RAILROAD TRAFFIC.....MAINT OF RR TRAFFIC

TWO-LANE TEMPORARY BRIDGE ANDTWO-LANE TEMP BR AND APPR-
APPROACHES - (ONE LANE) METHOD _____, (ONE LANE) METH _____,
STA _____ STA _____MAINTENANCE AND PROTECTION OF TRAFFICMAINT AND PROTECT OF TRAFF
ON TEMPORARY BRIDGE AND APPROACHES ON TEMP BR AND APPR-
METHOD _____, STA _____ METH _____, STA _____REMOVAL OF TEMPORARY BRIDGE ANDREMOV OF TEMP BR AND APPR-
APPROACHES - METHOD _____, STA _____ METH _____, STA _____TEMPORARY PEDESTRIAN BRIDGE AND.....TEMP PED BR AND APPR,
APPROACHES, STATION _____ STA _____

TEMPORARY ROADWAYTEMP RDWY

HIGHWAY LIGHTINGUSE ONLY THE ABBREVIATIONS
SHOWN IN CONSTRUCTION
ITEMS CATALOGHIGHWAY SIGNINGSTRUCTURE MOUNTED EXTRUDED ALUMINUMSTR MTD EXTR ALUM CHANNEL
CHANNEL SIGNS SIGNS

REFLECTIVE UNITS - (COLOR).....NO ABBREVIATION

DISTANCE MARKER UNITS.....NO ABBREVIATION

DELINEATOR PLAQUES.....NO ABBREVIATION

WOOD DELINEATOR POSTSNO ABBREVIATION

COMMON CONSTRUCTION ITEMABBREVIATIONHIGHWAY SIGNING (CONTINUED)

DELINEATOR BRACKETS, TYPE ____NO ABBREVIATION

DISTANCE MARKER BRACKETS, TYPE ____NO ABBREVIATION

REMOVE DISTANCE MARKERNO ABBREVIATION
BRACKETS, TYPE ____

POST MOUNTED SIGNS, TYPE ____NO ABBREVIATION

NON PLOWABLE RAISED PAVEMENT MARKERS ()....NON PLOW RAISED PAV'T MKRS ()

STRUCTURES

STEEL WIRE FABRICNO ABBREVIATION

TEMPORARY FALSEWORKTEMP FALSEWORK

SCAFFOLDINGNO ABBREVIATION

LUMBERLMBR

TREATED LUMBERTREAT LMBR

SELECTED BORROW EXCAVATION, STRUCTURESEL BORROW EXC, STR B'FILL
BACKFILL

REINFORCEMENT BARSREINF 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 STATIONSTL 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 ____ STATION ____
PRESTRESSED CONCRETE BRIDGE	P/S CONC BRIDGE SUPERSTRUCTURE 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 Chapter 3, Section 3.6).
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 ²	REQUIRED AREA	ACRE /SF	HECTARES /M ²
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 ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	ACRE /SF	HA /M ²	
	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	_____
DATE OF DEED _____		CALCULATED	_____
DATE OF RECORD _____		ADVERSES	_____
CONSIDERATION _____		LEGAL R/W	_____
TAX STAMPS _____		EFFECTIVE	_____
		TOTAL REQ'D R/W	_____
		TOTAL RESIDUE	_____
		RESIDUE LT	_____
		RESIDUE RT	_____
		REQUIRED AREA	ACRE/SF
		RIGHT OF WAY	_____
		CHANNEL	_____
		SLOPE	_____

		VERIFICATION DATE	_____
		DRAWN BY	_____
		SCALE	

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.

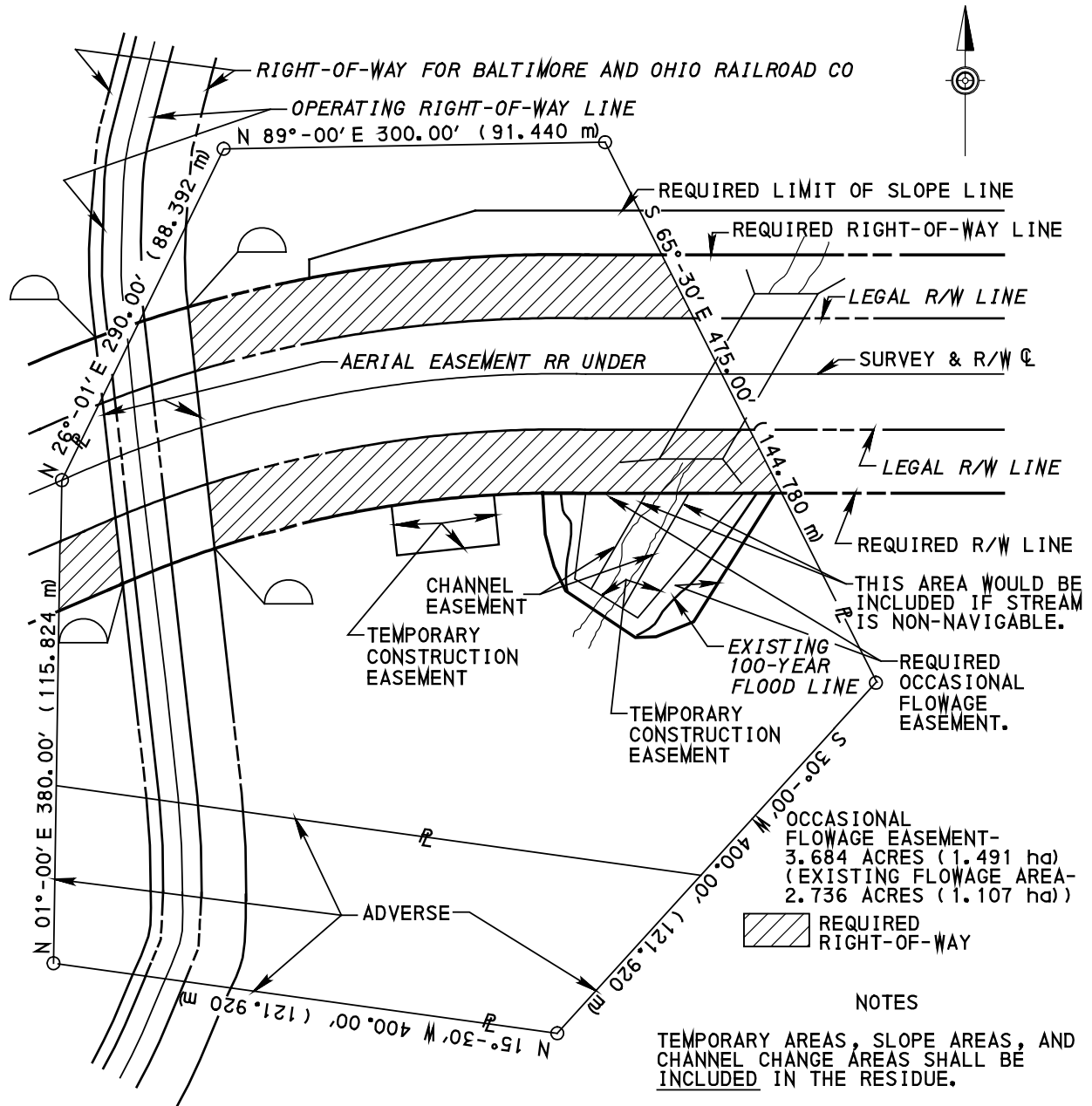
THIS PROPERTY PLOT IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.

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.

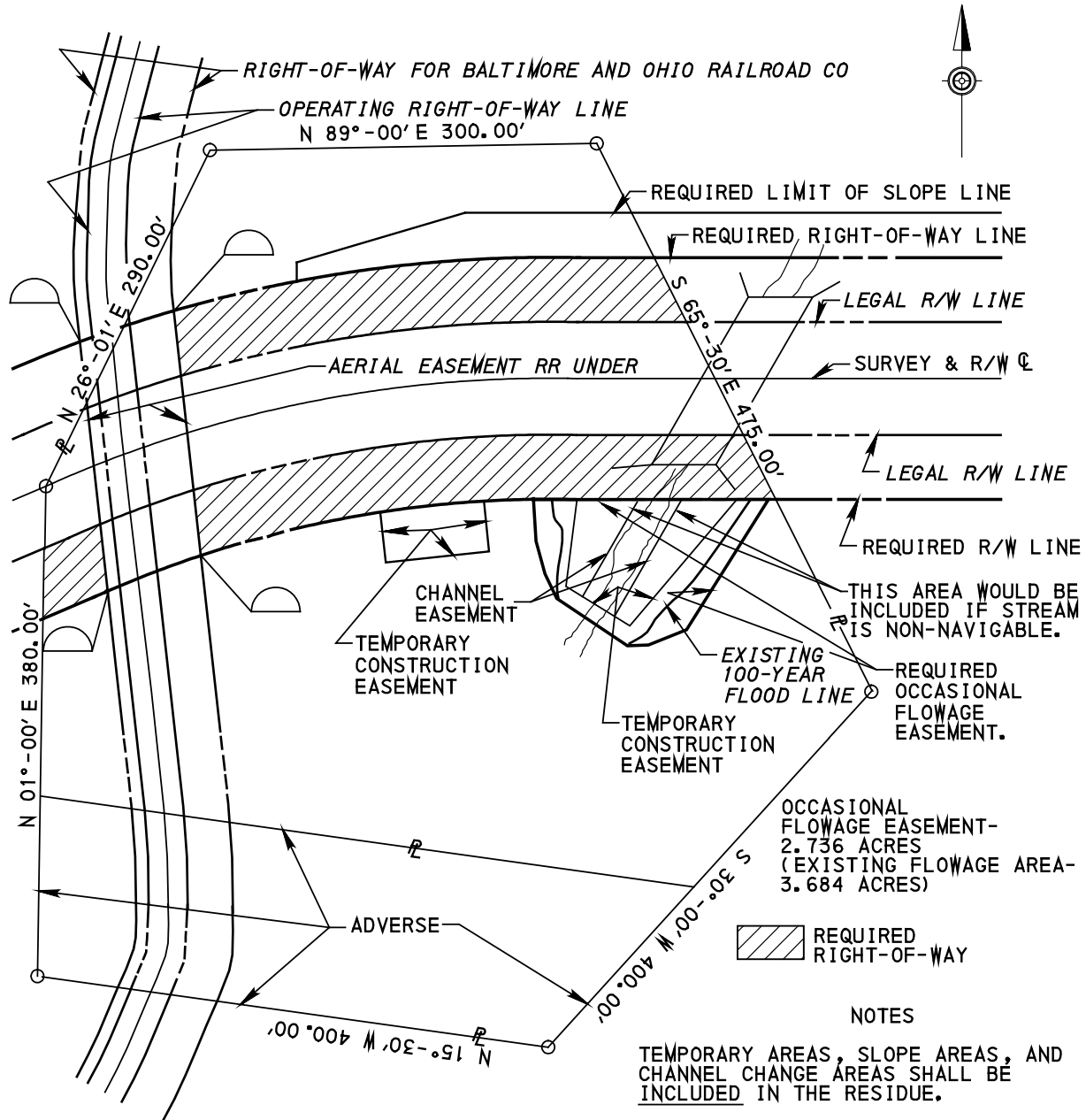
HA = HECTARES

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

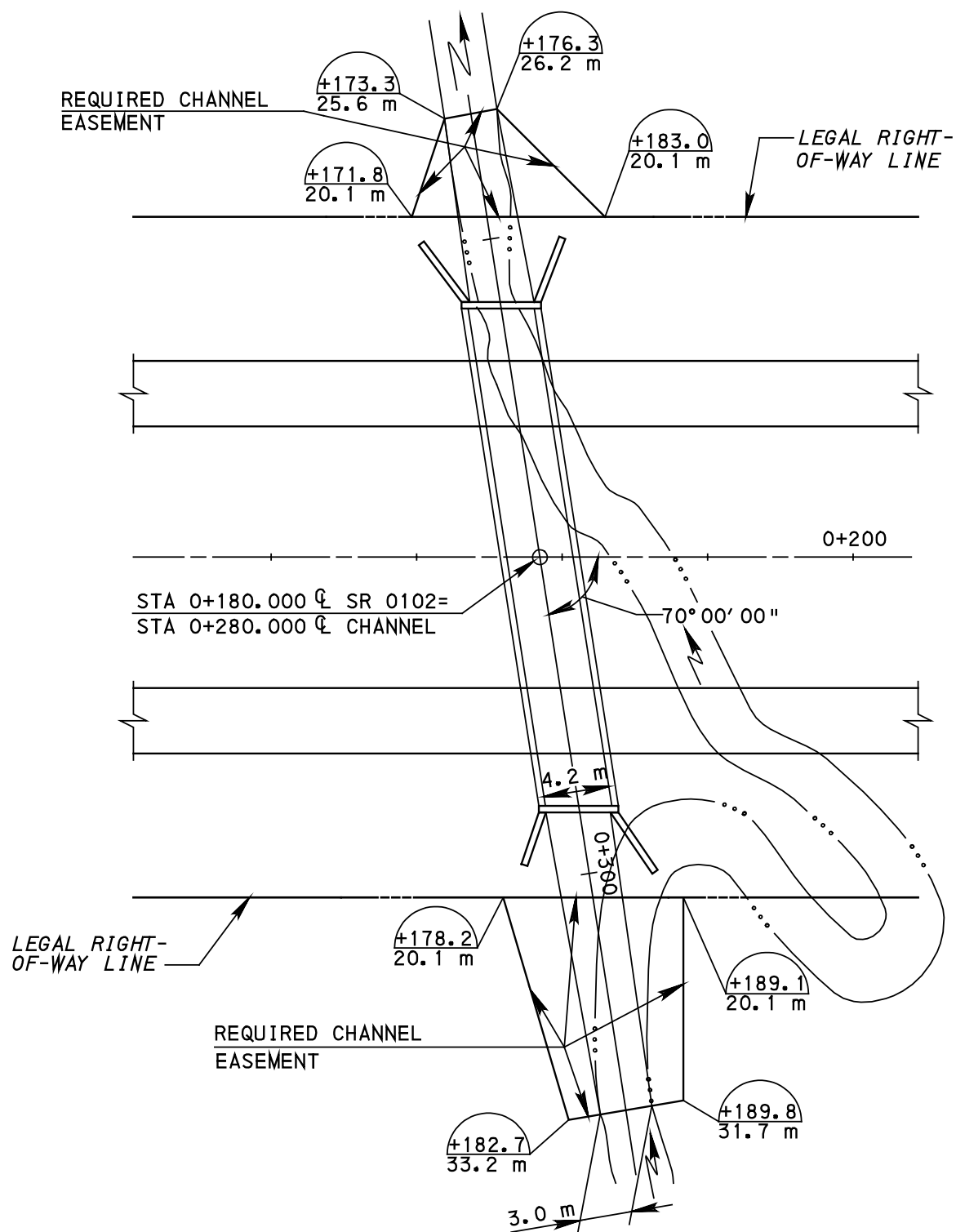
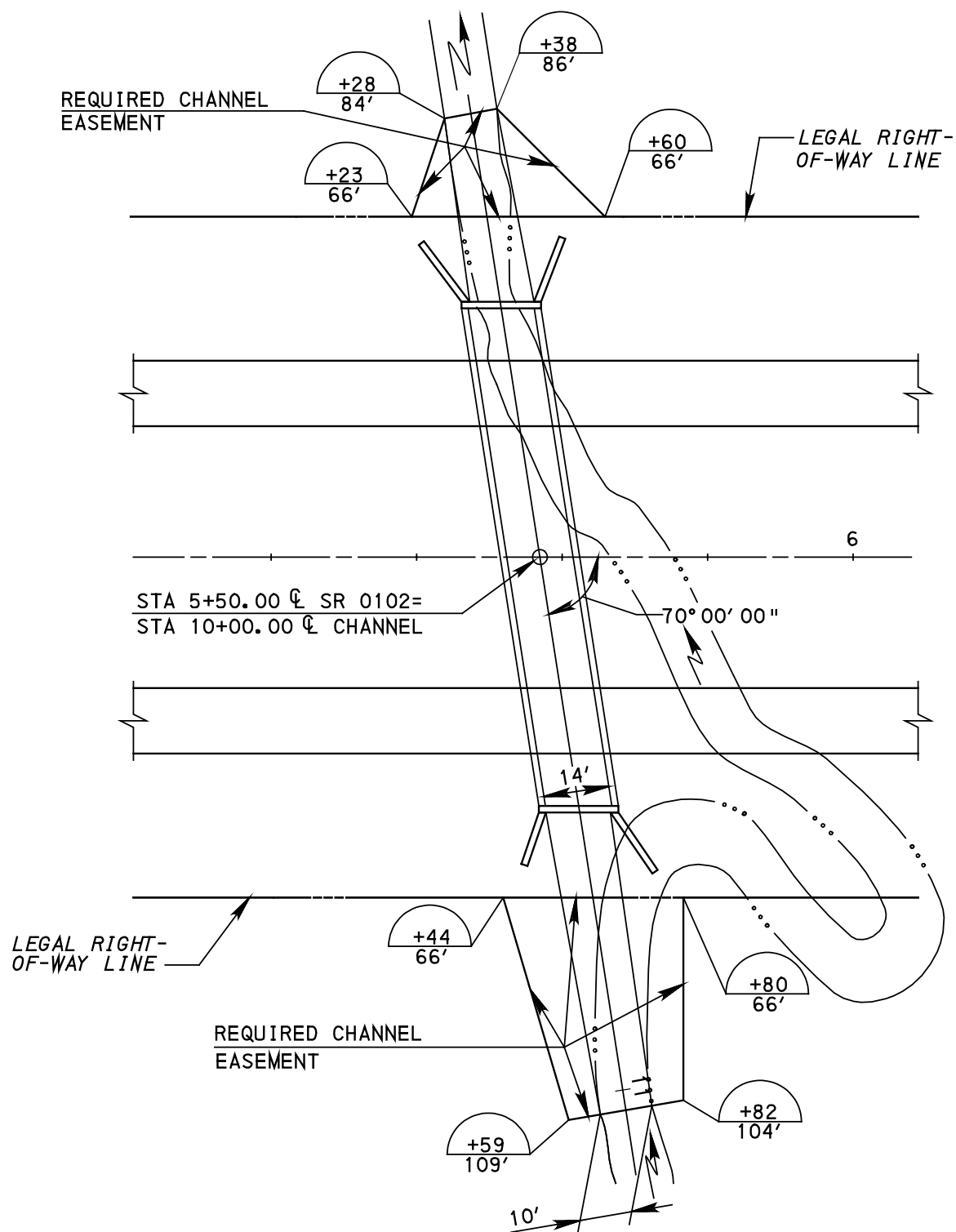


PLATE A-III (ENGLISH)
EXAMPLE SKETCH INDICATING REQUIRED
CHANNEL EASEMENT ON PROPERTY PLOT



**PLATE A-IV
EXAMPLE SKETCH INDICATING
CONSTRUCTION LIMITS AT INTERSECTIONS**

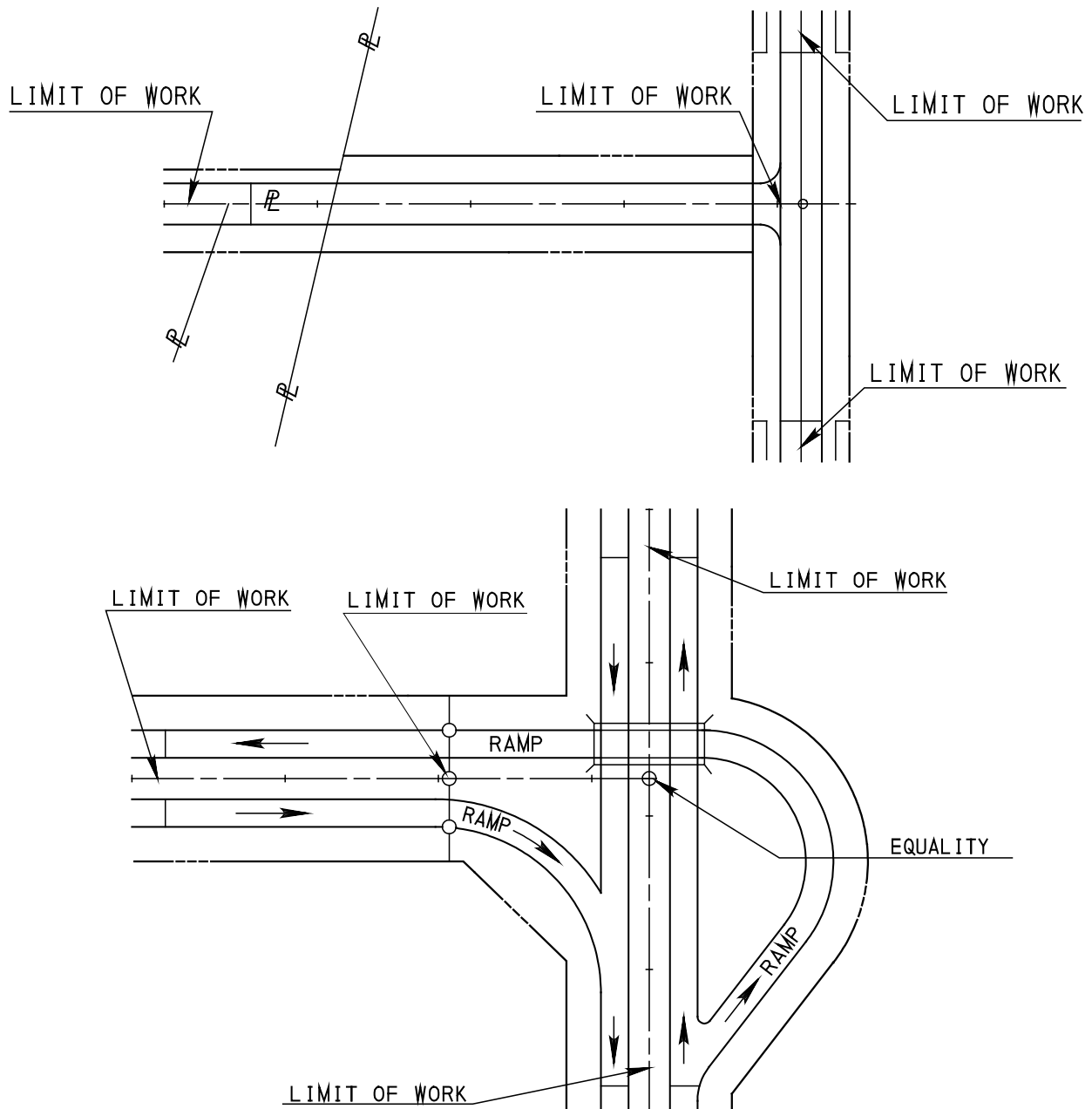


PLATE A-V
EXAMPLE SKETCH INDICATING
RIGHT-OF-WAY LIMITS AT INTERSECTIONS

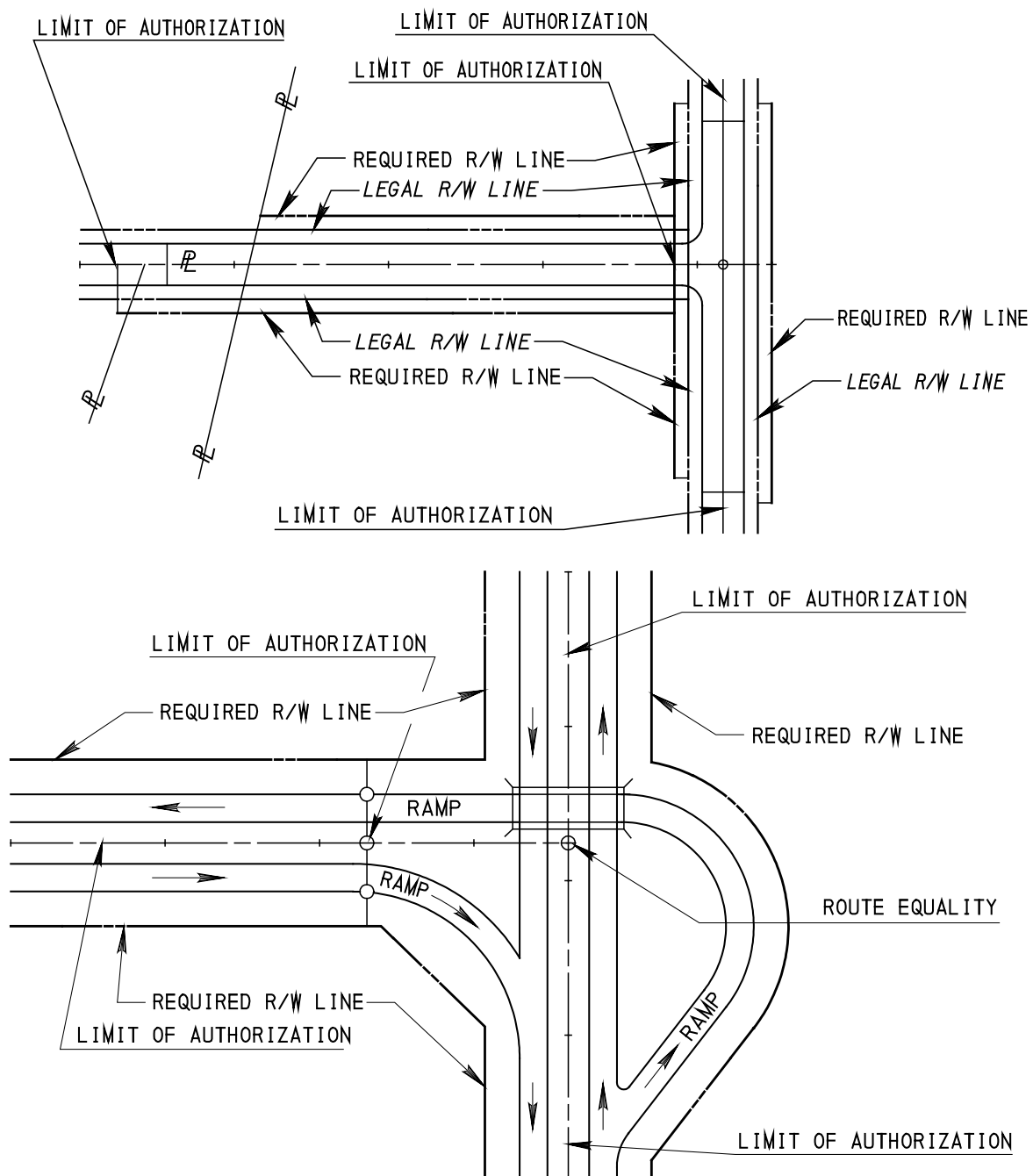


PLATE A-VI
EXAMPLE SKETCH INDICATING
CONSTRUCTION LIMITS AT INTERCHANGES

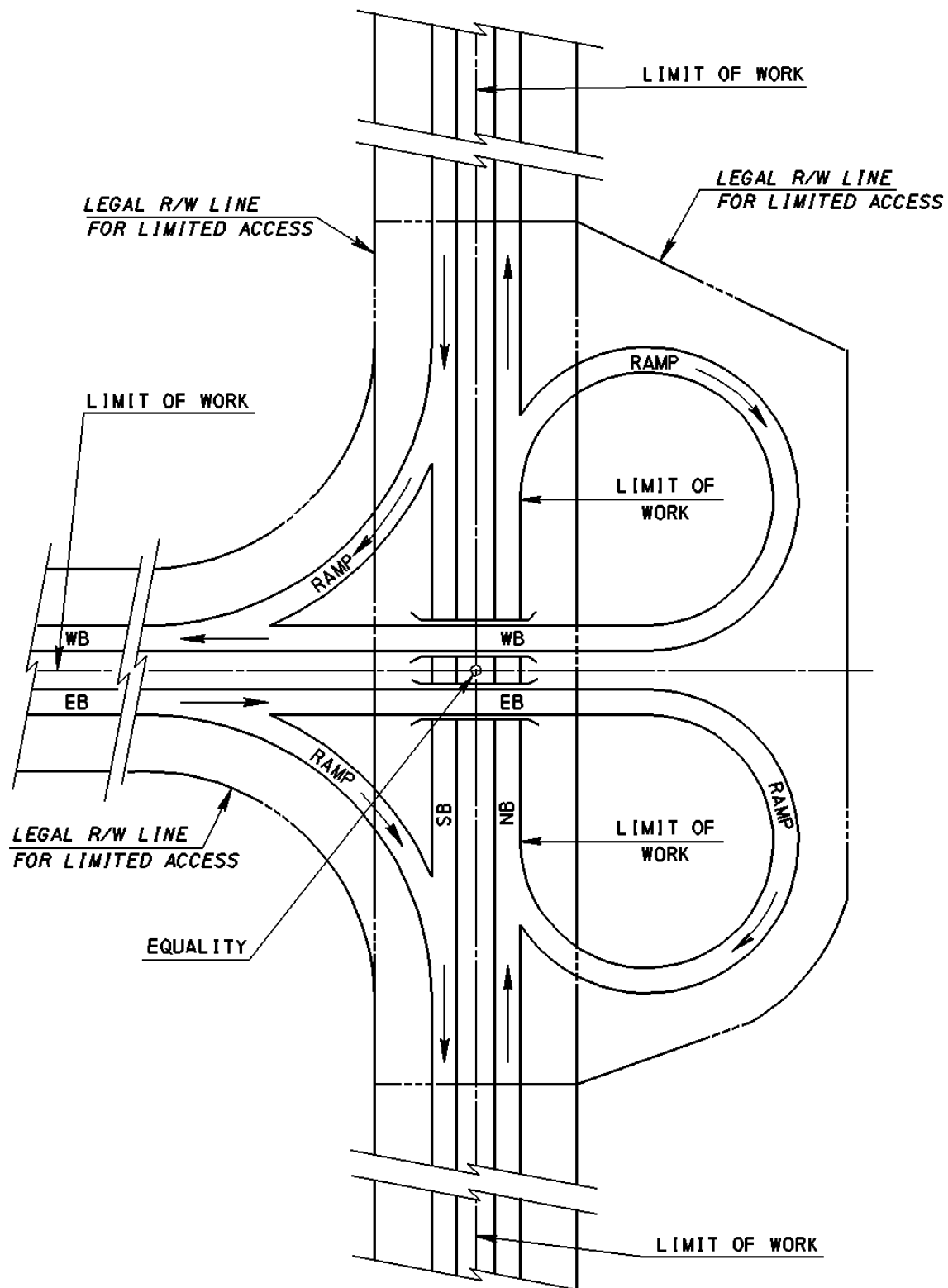
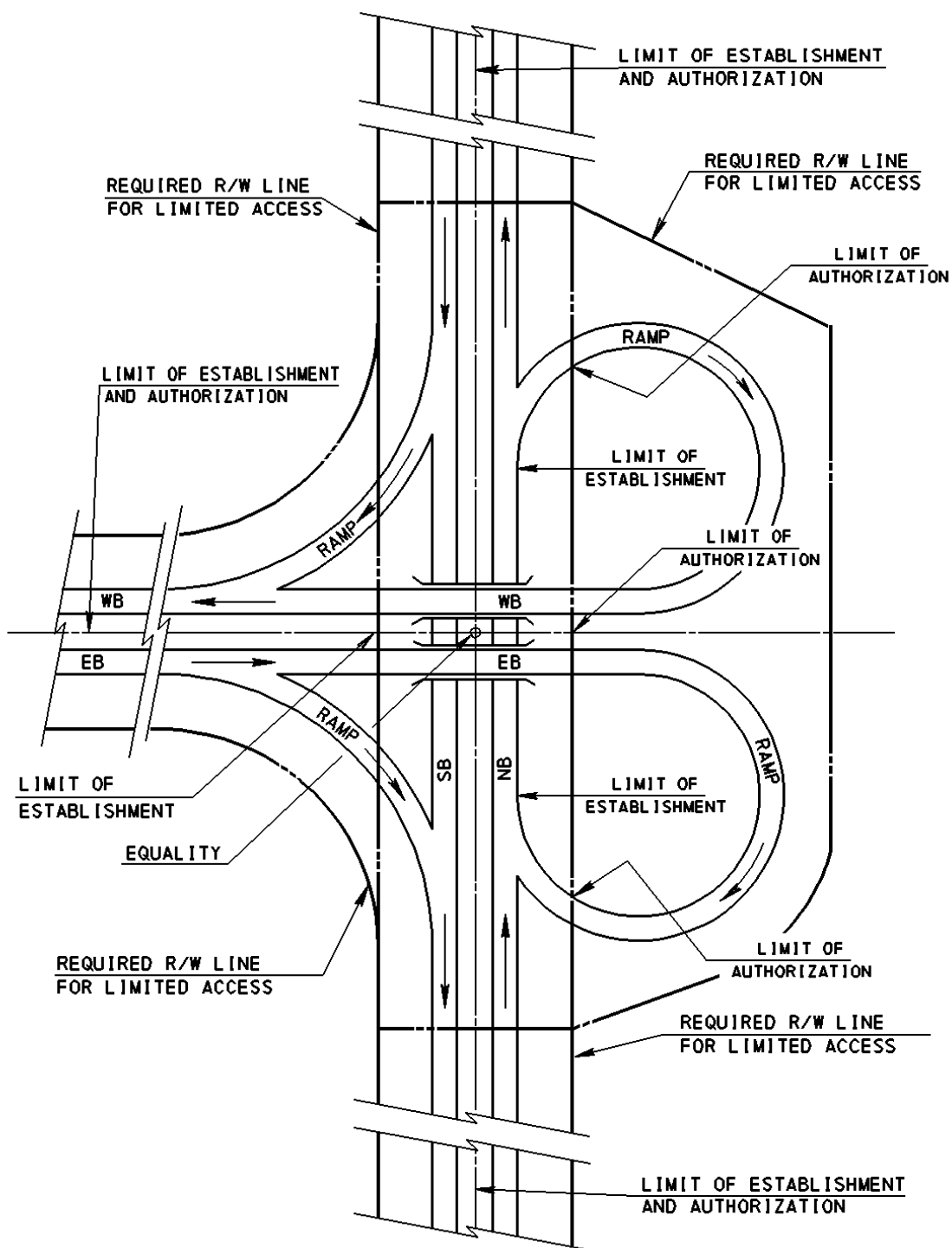


PLATE A-VII
EXAMPLE SKETCH INDICATING
RIGHT-OF-WAY LIMITS AT INTERCHANGES



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 (Roadway Quantities, Miscellaneous Earthwork, Right-of-Way Fence and Miscellaneous Items)
Plate B-V	Example of Tabulation of Quantities Sheet (Pavement Base Drains, Guide Rail and Median Barrier, Roadside Development and Erosion Control, Grading Sections and Top Soil Quantities)
Plate B-VI	Example of Alternate Method for Tabulation of Quantities Sheet (Drainage Quantities)
Plate B-VIIA	Example of Pipe Design Number and Concrete Pipe Item Number - Summary Sheet
Plate B-VIIB	Example of Pipe Design Number and Concrete Pipe Item Number - Tabulation of Quantities Sheet (Drainage 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

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 -	CURRENT A. D. T. -
DESIGN SPEED -	DESIGN YEAR A. D. T. -
PAVEMENT WIDTH -	D. H. V. -
SHOULDER WIDTH -	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)	

S U M M A R Y

REVISION NUMBER	REVISIONS	DATE	BY	DISTRICT	COUNTY	ROUTE	SECTION	SHEET OF

[illegible]

OPERATOR=
FILE NAME=

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
				OF
REVISION 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, CLASS R-5			
2202	GEOTEXTILE, CLASS 2, TYPE A			
2203	SURFACE (NO. 2A)			
2204	BASE OF SUBGRADE PAVEMENT			
2205	SUBGRADE, 40 MM GRANULAR			
2206				
2207				
2208				
2209				
2210				
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24				

OPERATOR
FILE NAME

**PLATE B-V
EXAMPLE OF TABULATION
OF QUANTITIES SHEET**

PAVEMENT BASE DRAIN

ITEM NUMBER	UNIT	REMARKS	SIDE	STATIONS	ROUTE
0084 0150	CY	CLASS 4 EXCAVATION			
0010 1001	LF	4" PAVEMENT BASE DRAIN			
0010 1002	LF	ADDITIONAL COARSE AGGREGATE FOR EXTRA DEPTH PAVEMENT BASE DRAIN			
0015 0021	LF	4" SUBSURFACE DRAIN OUTLETS			
1001 0010	CY	CLASS 4 CEMENT CONCRETE			
ITEM NUMBER	UNIT				
		OUTLET TO INLET	LT	16+82 TO 18+02	SR 8501
		OUTLET TO INLET	RT	16+82 TO 18+02	
		OUTLET TO INLET	LT	18+07 TO 19+37	
			RT	18+07 TO 19+57	
		OUTLET TO INLET	LT	22+15 TO 23+23	
		OUTLET TO INLET	LT	23+37 TO 24+83	
		OUTLET TO INLET	LT	33+75 TO 35+84	
		OUTLET TO INLET	LT	35+88 TO 37+12	
10	1047				TOTAL

ROADSIDE DEVELOPMENT AND EROSION CONTROL

ITEM NUMBER	UNIT	REMARKS	STATIONS	ROUTE
0001 0001	LF	SEEDING AND SOIL SUPPLEMENTS - FORMULA B		
0005 0018	LB	MULCHING - WOOD CHIPS		
0001 0001	LF	SELECTIVE TREE REMOVAL AND TRIMMING		
0005 0021	LB	ROCK, CLASS R-3		
0001 0001	CY	ROCK BASIN		
0001 0001	LF	SILT BARRIER FENCE - 18" HEIGHT		
ITEM NUMBER	UNIT			
			12+00 TO 45+00	SR 8501
		SEDIMENTATION	14+75	
			25+00	
			29+00	
			38+80	
			16+23 TO 80+66	
150	15620			TOTAL

TABULATION OF QUANTITIES

GUIDE RAIL AND MEDIAN BARRIER

ITEM NUMBER	UNIT	REMARKS	SIDE	STATIONS	ROUTE
0001 0402	EA	TERMINAL SECTION - BRIDGE CONNECTION			
0001 1001	LF	TYPE 2-W GUIDE RAIL			
0001 1005	LF	TYPE 2-S GUIDE RAIL			
0001 1005	LF	TYPE 2-SC GUIDE RAIL			
0001 1250	LF	TYPE 2 STRONG POST END TREATMENT			
0001 1250	EA	TYPE 2-W END TREATMENT			
ITEM NUMBER	UNIT				
			LT	12+48 TO 16+48	SR 8501
			RT	12+48 TO 16+48	
		CONNECT TO BRIDGE	LT	23+82 TO 24+87	
		CONNECT TO BRIDGE	RT	23+82 TO 24+87	
		CONNECT TO BRIDGE	LT	28+87 TO 30+12	
		CONNECT TO BRIDGE	RT	28+87 TO 30+12	
4	800				TOTAL

**TABULATION OF
1000 FT GRADING SECTIONS *
(INFORMATION ONLY)**

EXCAVATION CY	EMBANKMENT CY	STATIONS	ROUTE
12000	5000	12+00 TO 20+00	SR 8501
8500	9500	20+00 TO 30+00	
8500	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	
75	130	80+00 TO 82+00	
1800	1280		ROUTE TOTAL
33800	26880		GRAND TOTAL

* INCLUDES ONLY WORK WITHIN NORMAL ROADWAY TEMPLATE

**TABULATION OF
TOPSOIL QUANTITIES
(INFORMATION ONLY)**

TOPSOIL AVAILABILITY CY	REQUIREMENT CY	STATIONS	ROUTE
850	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

PLATE B-VIIB
EXAMPLE OF PIPE DESIGN NUMBER
AND CONCRETE PIPE ITEM NUMBER
TABULATION OF QUANTITIES SHEET (DRAINAGE QUANTITIES)

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 -

TRAFFIC DATA

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 SUPERVISORS, 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
(ON BEHALF OF THE GOVERNOR
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

TRAFFIC DATA

HIGHWAY CLASSIFICATION -
DESIGN SPEED -
PAVEMENT WIDTH -
SHOULDER WIDTH -

CURRENT A. D. T. -
DESIGN YEAR A. D. T. -
D. H. V. -
D -
T -

RECOMMENDED DATE: _____
DISTRICT PLANS ENGINEER

RECOMMENDED DATE: _____
DISTRICT EXECUTIVE

RECOMMENDED DATE: _____
DEPUTY SECRETARY

APPROVED DATE: _____
ASST. DIST. EXEC.
DATE: _____

SECRETARY OF TRANSPORTATION
(ON BEHALF OF THE GOVERNOR
AS WELL AS HERSELF)

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
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

SCALE 1:50

App/Section No. _____

Route No. _____

Original Prepared By _____

Original Checked By _____

Imp/Date By _____

Area No. _____

Profile Prepared By _____

Profile Checked By _____

Area No. _____

Area Checked By _____

DISTRICT	COUNTY	ROUTE	SECT	PRELIM BK NO	FINAL BK NO	SHEET
3-0	TIOGA	49	50W	---	---	50 OF 141

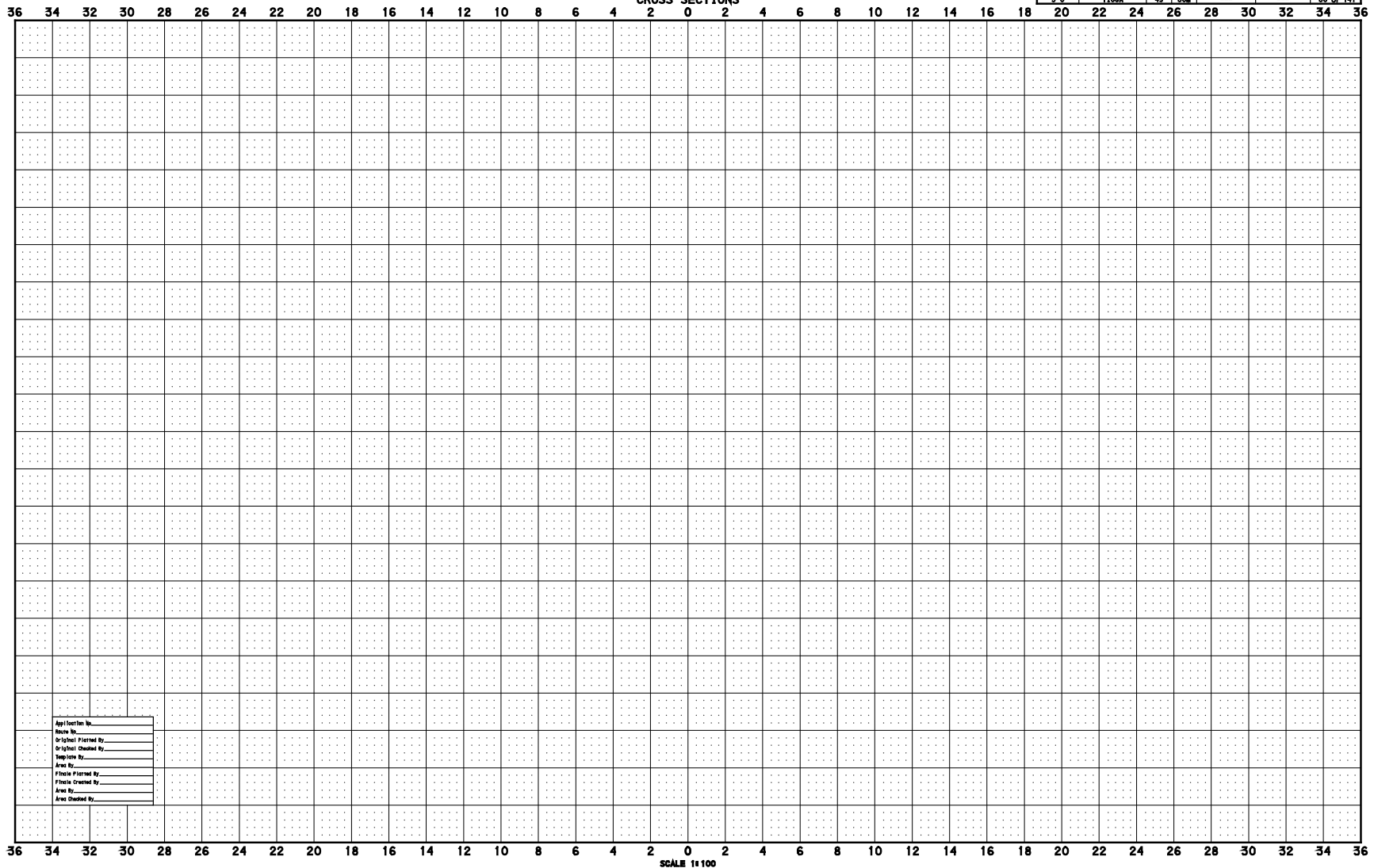
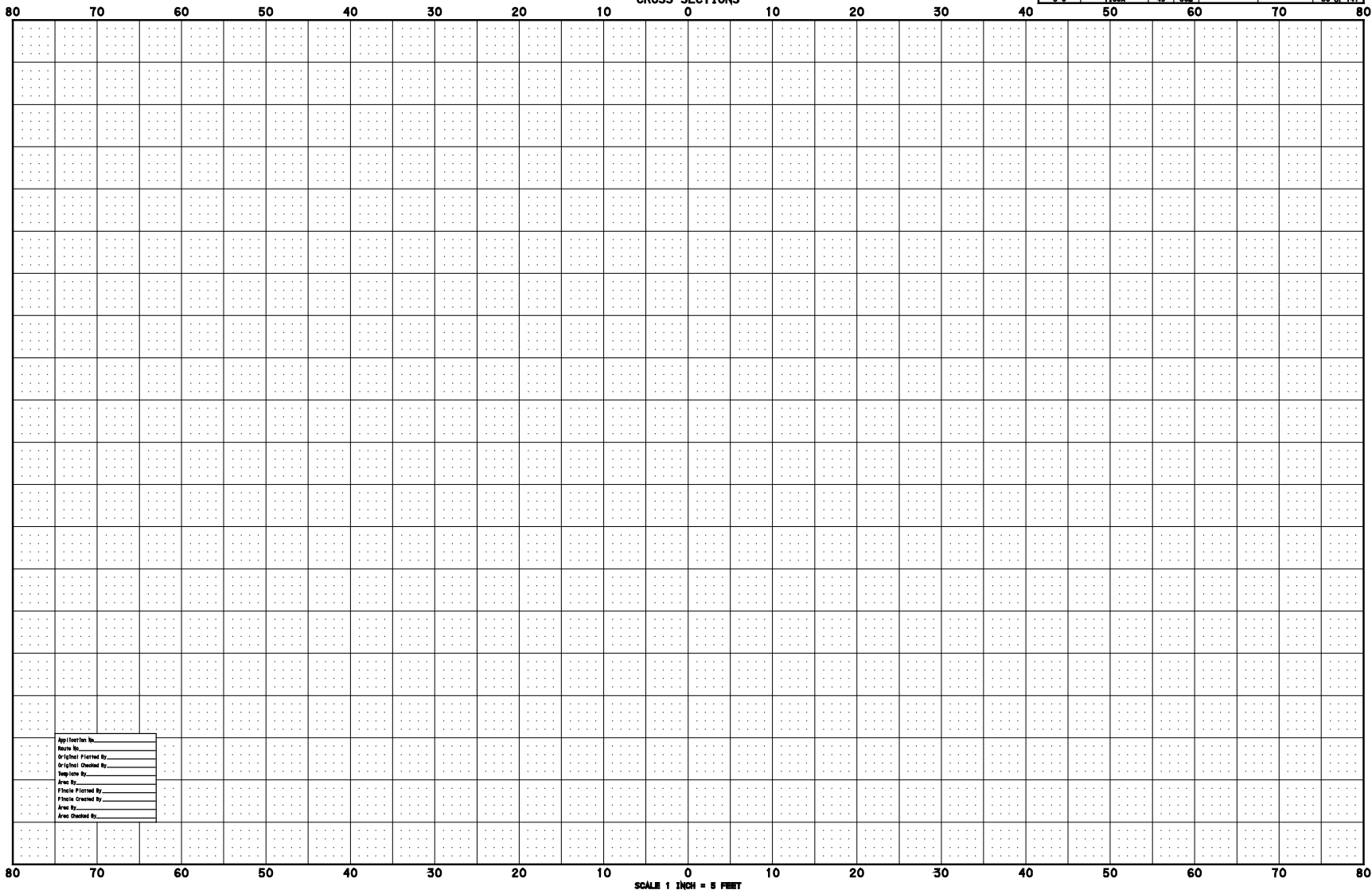


PLATE B-X (ENGLISH, 1:5 SCALE)
EXAMPLE OF CROSS SECTION SHEET

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

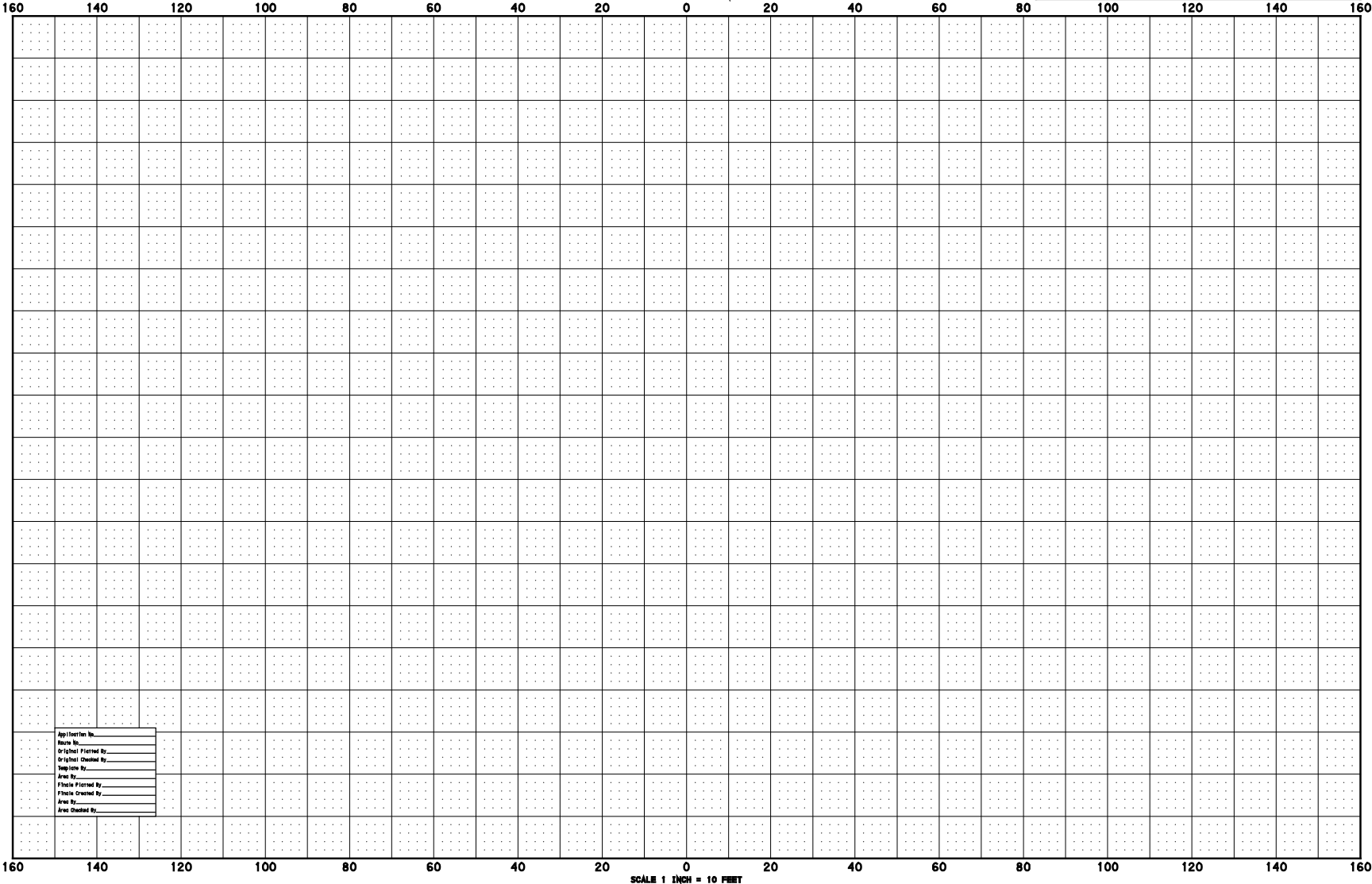


Application No.	_____
Drawn By	_____
Original Planned By	_____
Original Checked By	_____
Revised By	_____
Drawn By	_____
Final Planned By	_____
Final Checked By	_____
Drawn By	_____
Drawn Checked By	_____

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



Application No.	_____
Drawn By	_____
Original Planned By	_____
Original Checked By	_____
Revised By	_____
Drawn By	_____
Final Planned By	_____
Final Checked By	_____
Drawn By	_____
Drawn Checked By	_____

PLATE B-XI (METRIC)
EXAMPLE OF CROSS SECTION SHEET

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
CROSS SECTIONS

DISTRICT	COUNTY	ROUTE	SECT	PRELIM BK NO	FINAL BK NO	SHEET
3-0	T106A	49	50M	---	---	50 OF 141

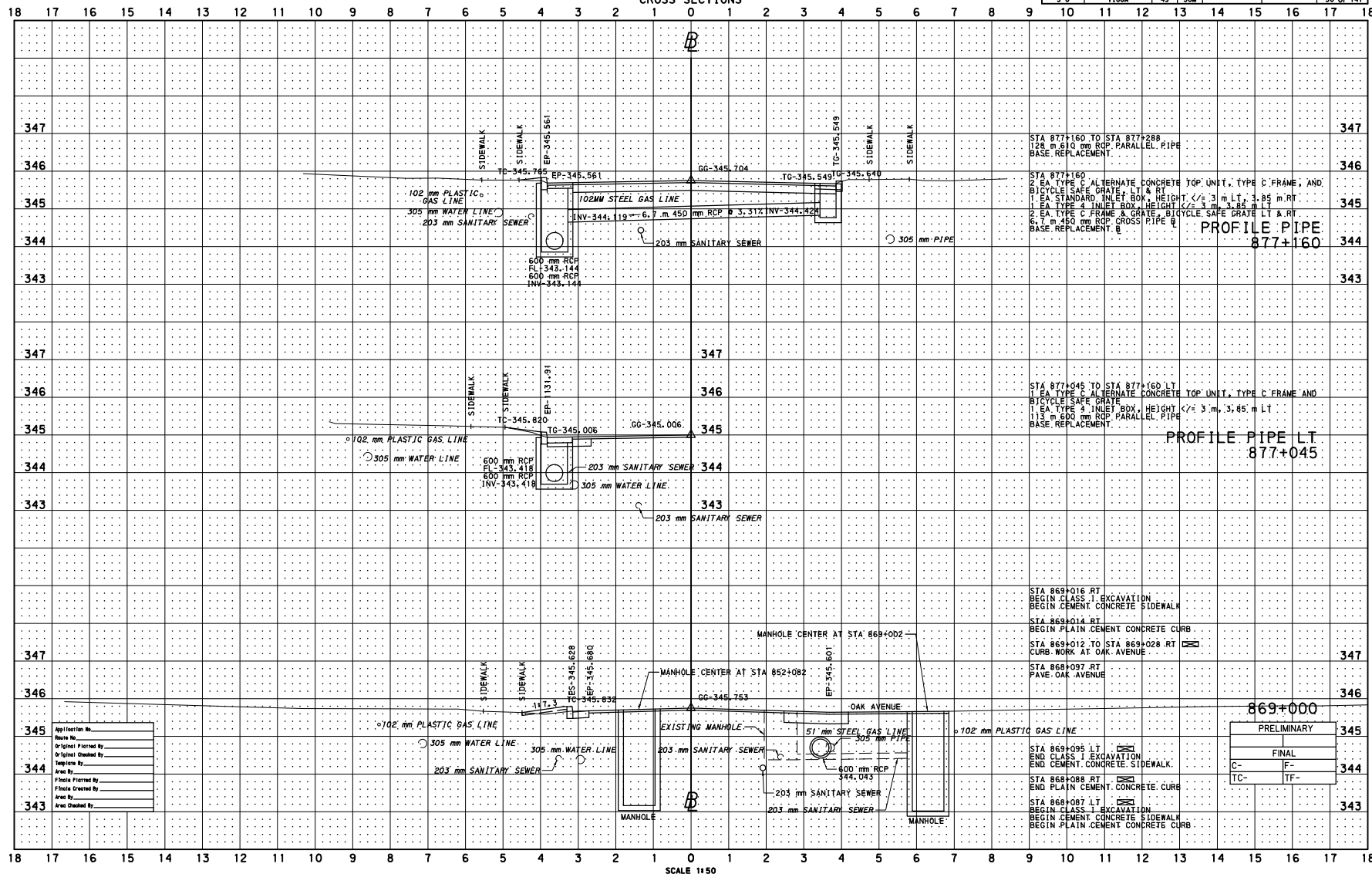
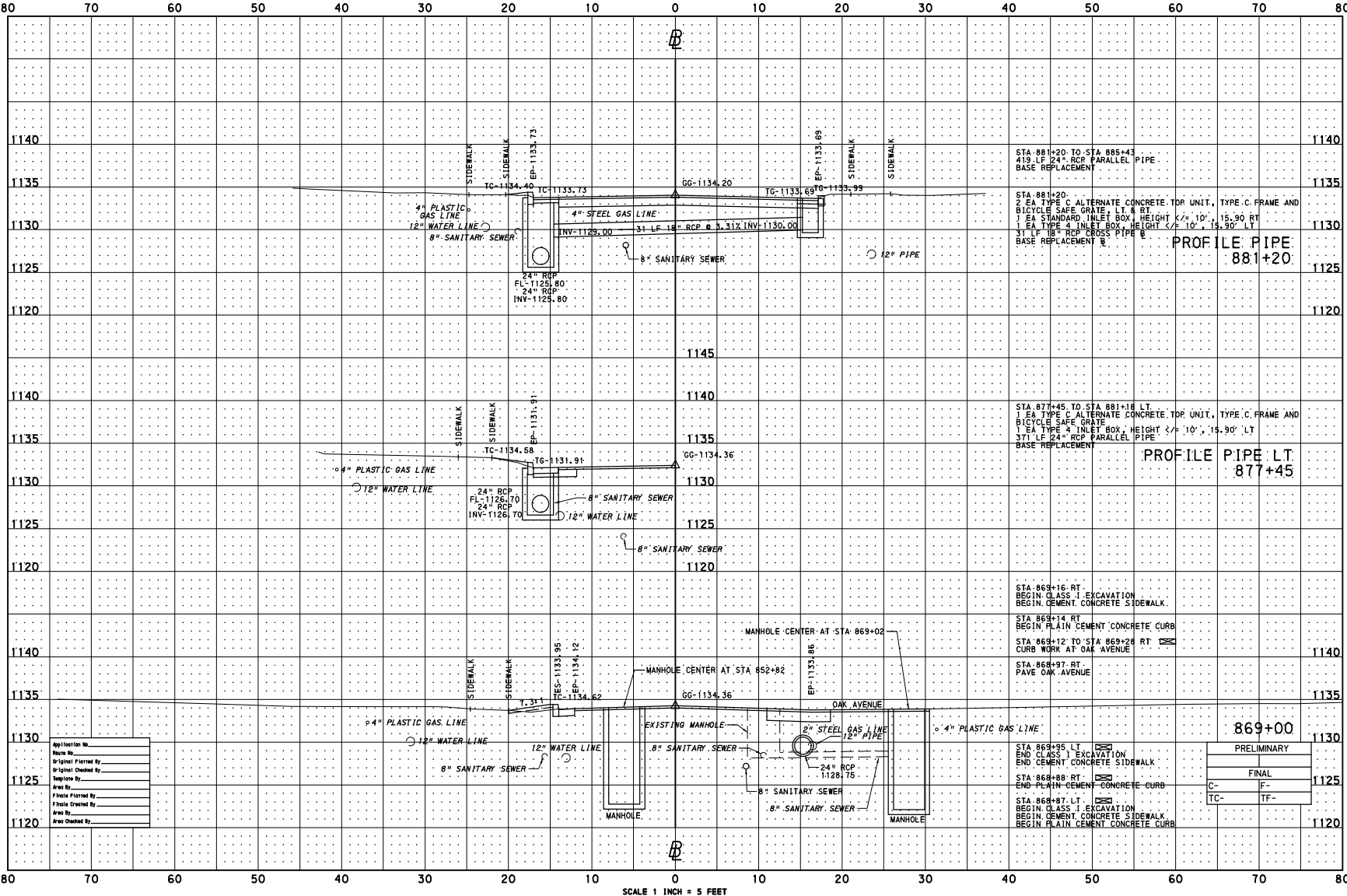


PLATE B-XI (ENGLISH.)
EXAMPLE OF CROSS SECTION SHEET

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



15 - 32

SCALE 1 INCH = 5 FEET

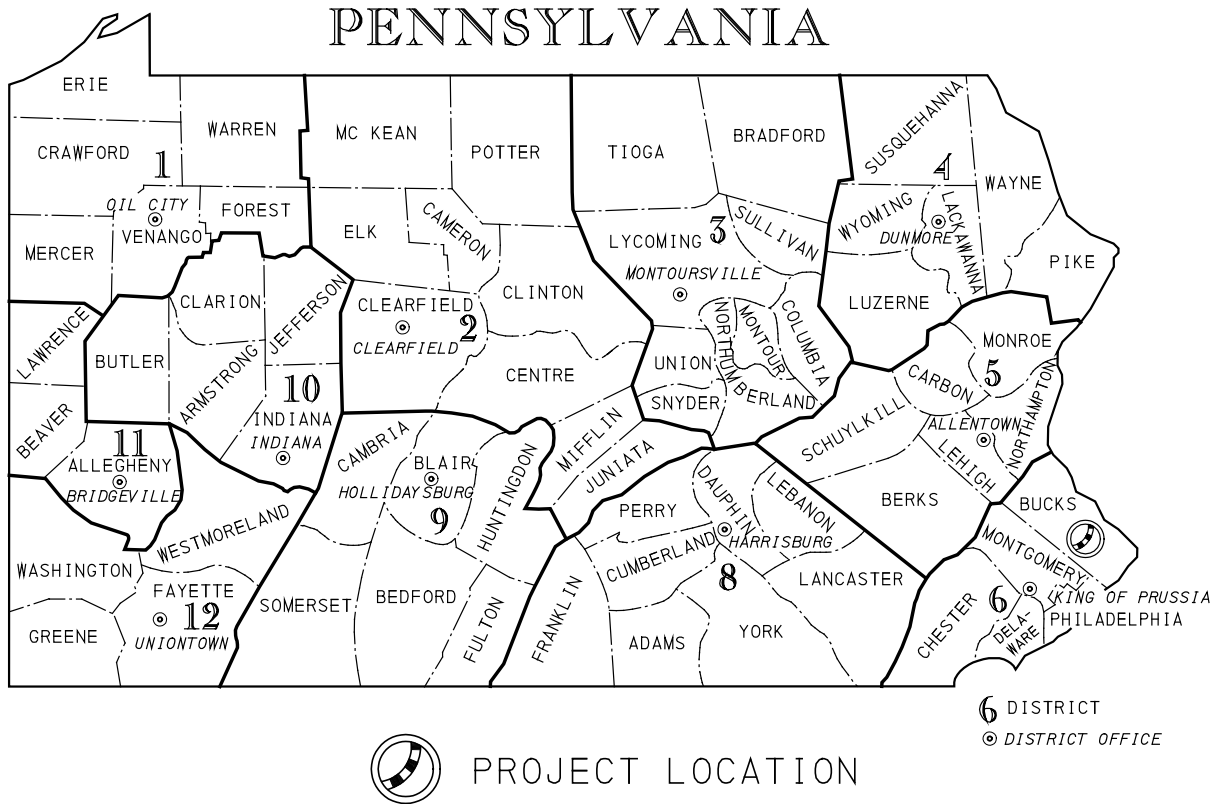


PLATE B-XII
PROJECT LOCATION MAP

LEGEND

PROJECT	
DETOUR	
STATE HIGHWAY	
TOWNSHIP ROADS (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
DESIRED 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 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 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: _____	APPROVED _____ DATE: _____ DISTRICT EXECUTIVE RECOMMENDED _____ DATE: _____ DEPUTY SECRETARY APPROVED _____ DATE: _____ SECRETARY OF TRANSPORTATION (ON BEHALF OF THE GOVERNOR AS WELL AS HERSELF)

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APPENDIX A

PENNDOT EDMS Plan Sheet File Naming Convention

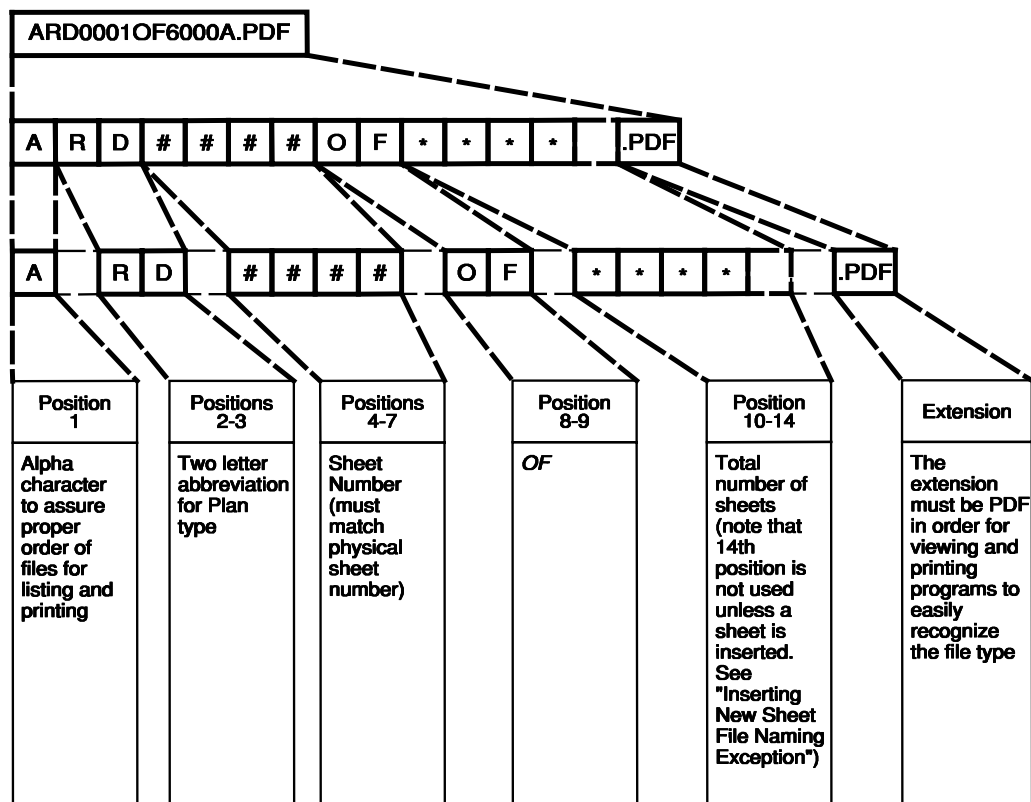
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Introduction

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.

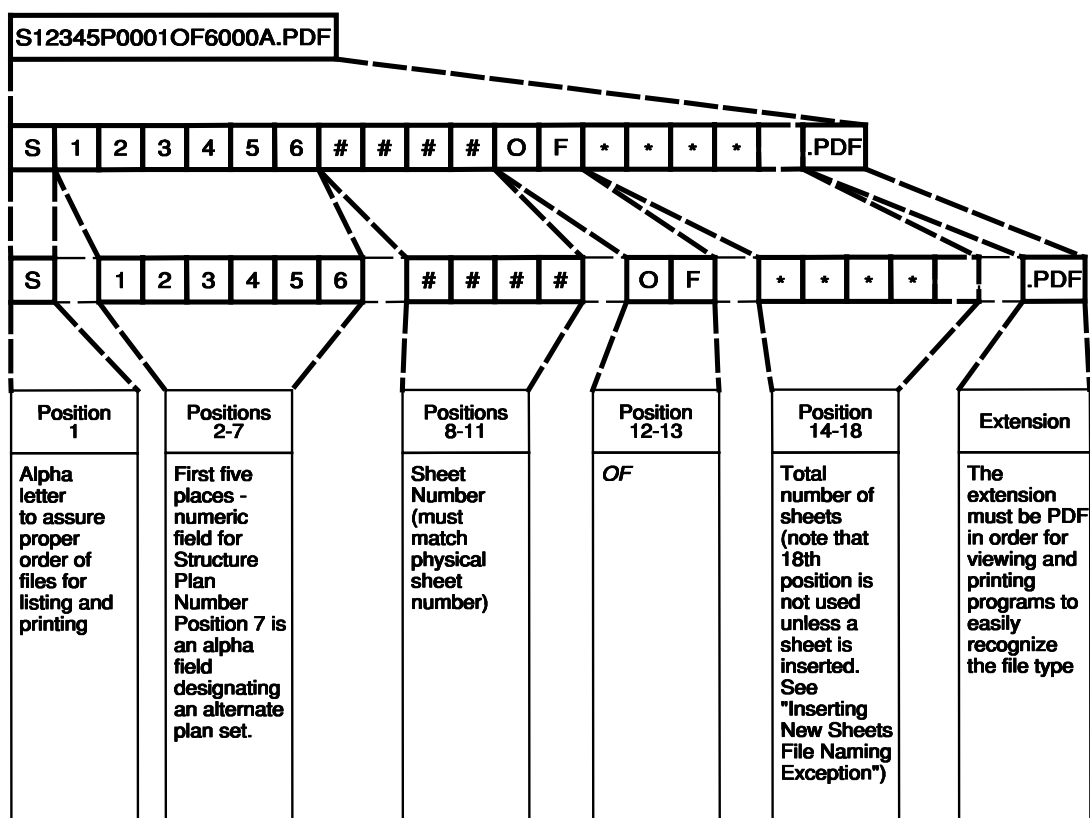
Extension

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 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 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

SHEET	LEVEL	DESCRIPTION
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 EXISTING (Continued)	8	RAILROADS, RAILROAD STRUCTURES, EXISTING R/W LINES
	9	TEXT FOR LEVEL 8
	10	BUILDINGS AND ASSOCIATED ITEMS (SIDEWALKS, WELLS, FENCES, SEPTIC SYSTEMS, MAILBOXES, PROPERTIES, BOROUGH & TOWNSHIP LINES, ETC.)
	11	TEXT FOR LEVEL 10
	12	MISCELLANEOUS TOPOGRAPHY, GUIDE RAIL, SIGNS, BILLBOARDS
	13	TEXT FOR LEVEL 12
	14	ALL EXISTING DRAINAGE (PIPES, STREAMS INLETS, DITCHES, HEADWALLS, WET AREAS)
	15	TEXT FOR LEVEL 14
	16	UNDERGROUND UTILITIES (WATER VALVES, 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 PROPOSED	32	PROPOSED HORIZONTAL AND VERTICAL ALIGNMENTS, RAILROAD REALIGNMENTS
	33	TEXT FOR LEVEL 32 (STATIONS, CURVE DATA, BEARINGS, GRADES, ETC.)
	34	PROPOSED ROAD EDGES, SIDE ROADS, SHOULDERS, ROADWAY BRIDGES
	35	TEXT FOR LEVEL 34
	36	TEMPORARY ROADWAYS

TABLE C.1
LEVELS FOR ROADWAY DRAWINGS
FOR DEPARTMENT CADD USAGE
(CONTINUED)

SHEET	LEVEL	DESCRIPTION
DETAIL SHEET PROPOSED (Continued)	37	TEXT FOR LEVEL 36
	38	REQUIRED R/W LINES, TEMPORARY EASEMENTS, R/W FENCES
	39	TEXT FOR LEVEL 38 (TO INCLUDE CONDEMNATION AND DEMOLITION MARKERS)
	40	SIDEWALKS AND CURBS
	41	TEXT FOR LEVEL 40
	42	MISCELLANEOUS PROPOSED WORK (RETAINING WALLS, SOIL EROSION, GUIDE RAIL, MEDIAN BARRIER, ETC.)
	43	TEXT FOR LEVEL 42
	44	PROPOSED DRAINAGE (PIPES, INLETS, DITCHES, 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 ITEMS (REFERENCE POINT CELLS, GRID, ETC.)

TABLE C.2
LEVELS FOR BRIDGE DRAWINGS
FOR DEPARTMENT CADD USAGE

LEVEL	DESCRIPTION
1	BRIDGE SHEETS
2	EXISTING HORIZONTAL ALIGNMENT
3	GENERAL NOTES, QUANTITIES, BAR SCHEDULE, DETAIL CELLS 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)

LEVEL	DESCRIPTION
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)

LEVEL	DESCRIPTION
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)

LEVEL	DESCRIPTION
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)

LEVEL	DESCRIPTION
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

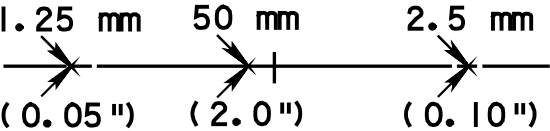
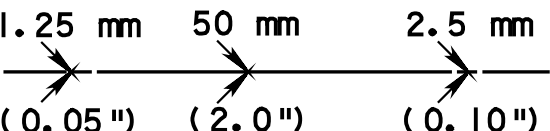
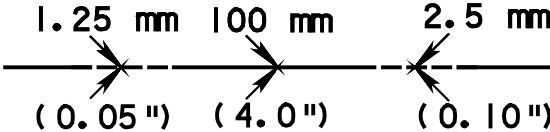
This allows for an accuracy of 0.001 in.

TABLE C.4
STANDARD ROADWAY TEXT SIZES USING WORKING UNITS OF 1:1:1000

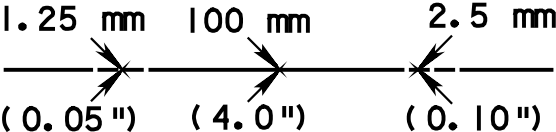
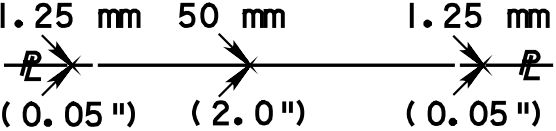
TEXT HEIGHT (in)	0.120	0.140	0.175	0.200	0.240	0.290	0.350	0.425	0.500
LINE WIDTH (in)	0.015	0.015	0.020	0.025	0.025	0.030	0.030	0.035	0.040
LINE WEIGHT	2	2	3	4	4	5	5	6	7
ENGLISH SCALE	EQUIVALENT TEXT HEIGHT (in)								
1" = 5'	0.60	0.70	0.875	1.00	1.20	1.45	1.75	2.125	2.50
1" = 10'	1.20	1.40	1.75	2.00	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

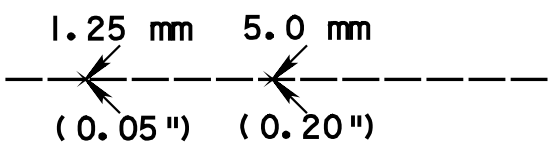
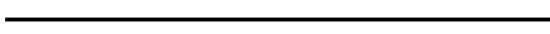
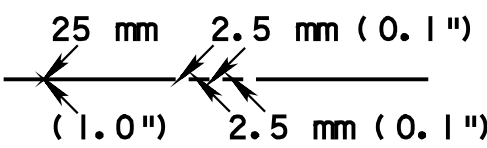
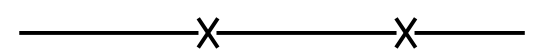
TEXT HEIGHT (in)	0.120	0.140	0.175	0.200	0.240	0.290
LINE WIDTH (in)	0.015	0.015	0.020	0.025	0.025	0.030
LINE WEIGHT	2	2	3	4	4	5
ENGLISH SCALE	EQUIVALENT TEXT HEIGHT (in)					
1/8" = 1'-0"	0.96	1.12	1.40	1.60	1.92	2.32
1/4" = 1'-0"	0.48	0.56	0.73	0.80	0.96	1.16
3/8" = 1'-0"	0.32	0.37	0.47	0.53	0.64	0.77
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 (0.025")	4	
CENTERLINES AND BASELINES		0.25 mm (0.01")	1	TO BE LABELED ON PLANS
SURVEY CENTERLINES		0.25 mm (0.01")	1	TO BE LABELED ON PLANS
DIMENSION LINES		0.13 mm (0.005")	0	
LEGAL R/W LINES		0.51 mm (0.02")	3	TO BE LABELED ON PLANS

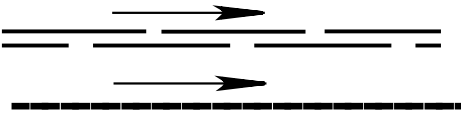
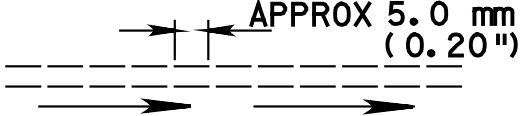
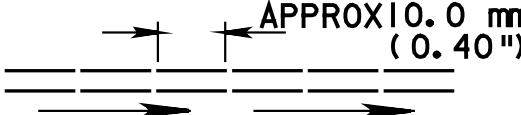
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS					
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS	
REQUIRED R/W LINES		0.65 mm (0.025")	4	TO BE LABELED ON PLANS	
TEMPORARY CONSTRUCTION EASEMENT		0.25 mm (0.01")	1	TO BE LABELED ON PLANS	
PROPERTY LINES		0.25 mm (0.01")	1		
REQUIRED LIMIT OF SLOPE LINES		0.25 mm (0.01")	1	TO BE LABELED ON PLANS	
EDGE OF NEW PAVEMENT		0.38 mm (0.015")	2		

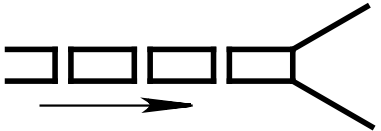
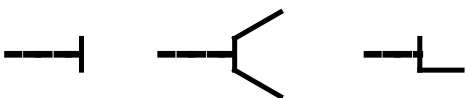
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
EDGE OF EXISTING PAVEMENT		0.25 mm (0.01")	1	TO BE LABELED ON PLANS
SHOULDER LINES		0.51 mm (0.02")	3	
CURB EXISTING - PROPOSED -		0.25 mm (0.01") 0.38 mm (0.015")	1 2	EXISTING CURB TO BE LABELED ON PLAN
STATE, COUNTY, TOWNSHIP, CITY, OR BOROUGH LINES		0.51 mm (0.02")	3	
FENCE		0.51 mm (0.02")	3	

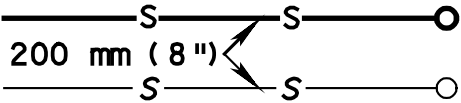
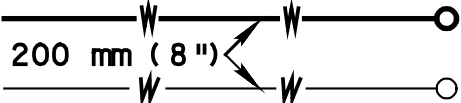
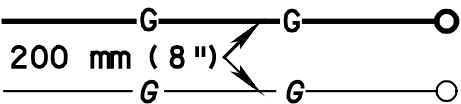
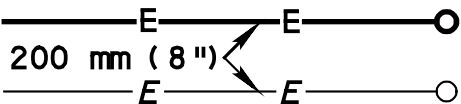
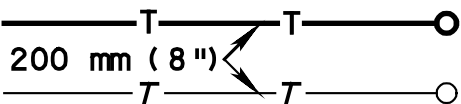
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
BACKFILLING EXISTING CHANNELS		0.13 mm (0.005")	0	
EXISTING INLETS PROPOSED INLETS		0.13 mm (0.005") 0.65 mm (0.025")	0 4	
EXISTING PIPES PROPOSED PIPES		0.13 mm (0.005") 0.76 mm (0.03")	0 5	
EXISTING DITCHES		0.13 mm (0.005")	0	TO BE LABELED ON PLANS
PROPOSED DITCHES		0.38 mm (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 (0.02")	3	PROPOSED
	⊗			EXISTING
CULVERTS		0.76 mm (0.03")	5	
HEADWALLS		0.51 mm (0.02")	3	
MANHOLES		0.65 mm (0.025")	4	

LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

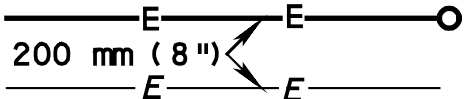
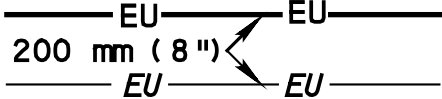
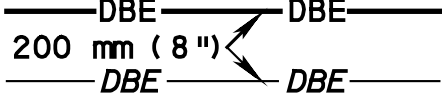
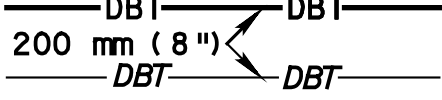
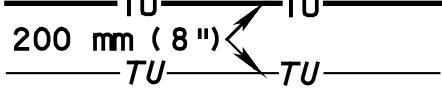
LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
SEWER LINE AND MANHOLE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING (LABEL SIZE)
WATER LINE AND VALVE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING (LABEL SIZE)
GAS LINE AND VALVE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING (LABEL SIZE)
ELECTRIC LINE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING
TELEPHONE LINE AND MANHOLE OR POLE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED 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

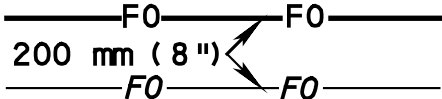
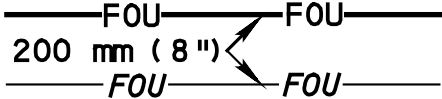
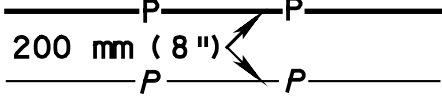
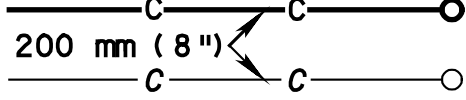
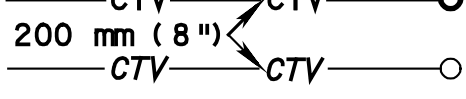
LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
ELECTRIC-AERIAL		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
ELECTRIC UNDERGROUND		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
ELECTRIC-DIRECT BURIED		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
TELEPHONE-DIRECT BURIED		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
TELEPHONE-UNDERGROUND		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (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 (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
FIBER OPTICS- UNDERGROUND		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
PETROLEUM- PIPELINE		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
NEW CONDUIT		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (0.005")	0	EXISTING
CABLE TV		0.65 mm (0.025")	4	PROPOSED
		0.13 mm (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 (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING
ELECTRIC UTILITY POLE		0.65 mm (0.025") 0.13 mm (0.005")	4 0	PROPOSED EXISTING
CHANGE PRIVATE TO ELECTRIC		0.65 mm (0.025") 0.13 mm (0.005")	4 0	NEW EXISTING
TELEPHONE-UTILITY POLE		0.13 mm (0.005")	0	PROPOSED EXISTING
PRIVATE UTILITY POLE		0.25 mm (0.01")	1	

NOTES:

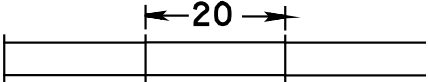
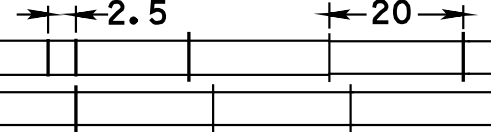
LETTERING FOR PROPOSED UTILITY SYMBOLS IS VERTICAL & 3.5 mm (0.14") IN HEIGHT.

LETTERING FOR EXISTING UTILITY SYMBOLS IS SLANTED & 3.0 mm (0.12") IN HEIGHT.

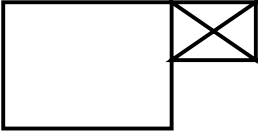
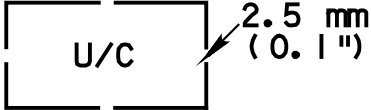
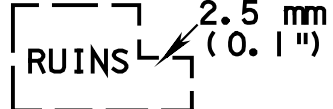
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
WELL		0.25 mm (0.01")	1	LABEL
TRAFFIC SIGNAL		0.13 mm (0.005")	0	LABEL EXISTING ON PLAN
FIRE HYDRANT		0.13 mm (0.005")	0	LABEL
PIPE AND END SECTION		0.76 mm (0.03")	5	
CRIBBING		0.38 mm (0.015")	2	LABEL
SEPTIC TANK		0.25 mm (0.01")	1	LABEL

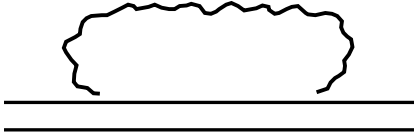
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
RAILROAD CROSSING SIGNAL LIGHT		0.13 mm (0.005")	0	
RAILROAD CROSSING GATE		0.13 mm (0.005")	0	
RAILROAD SINGLE TRACK		0.13 mm (0.005")	0	
RAILROAD DOUBLE TRACK		0.13 mm (0.005")	0	
RAILROAD SIGN		0.13 mm (0.005")	0	

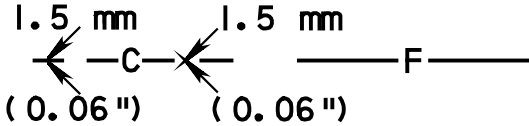
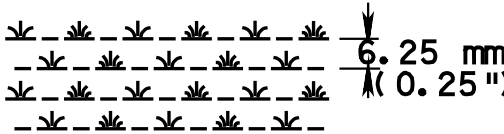
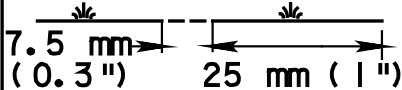
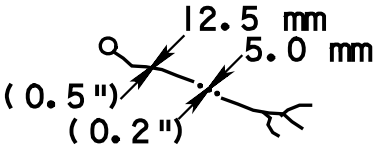
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
BUILDINGS		0.25 mm (0.01")	1	PLOT ROOF OUTLINE
PI	⊙	0.13 mm (0.005")	0	
FOUNDATION, NEW BUILDING (UNDER CONSTRUCTION)		0.25 mm (0.01")	1	
FOUNDATION, OLD RUINS		0.25 mm (0.01")	1	
ROADWAY SIGN POLES		0.25 mm (0.01")	1	

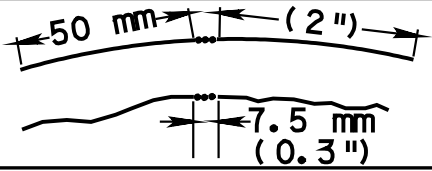
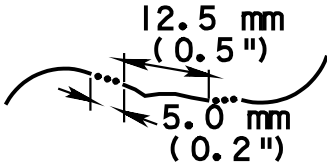
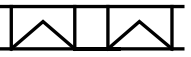
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
WOODED AREA OUTLINE PREDOMINATELY DECIDUOUS TREES		0.25 mm (0.01")	I	OUTLINE NOT REQUIRED ALONG NATURAL FEATURES SUCH AS ROADS, RAILROADS, STREAM
WOODED AREA OUTLINE PREDOMINATELY CONIFEROUS TREES		0.25 mm (0.01")	I	
INDIVIDUAL TREES SHRUB	 1/2 SIZE TREE	0.25 mm (0.01")	I	
ORCHARDS	 ORCHARD	0.25 mm (0.01")	I	SHOW ONLY PERIMETER TREES AND LABEL
NURSERY BEDS	 NURSERY BEDS	0.25 mm (0.01")	I	SHOW ONLY PERIMETER AND LABEL

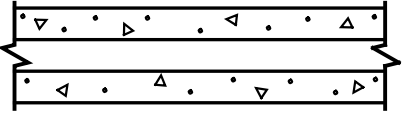
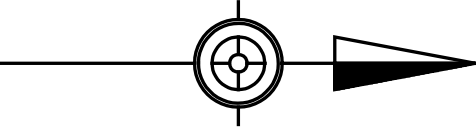
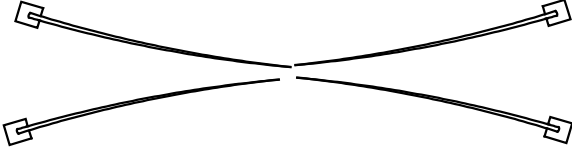
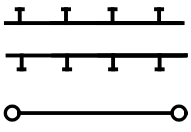
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
VINEYARD		0.25 mm (0.01")	1	SHOW ONLY PERIMETER AND LABEL
HEDGES		0.25 mm (0.01")	1	
CUT/FILL		0.25 mm (0.01")	1	
WET AREA		0.13 mm (0.005")	0	ALTERNATE 
SPRING HOLE WITH DISAPPEARING DRAINAGE		0.13 mm (0.005")	0	

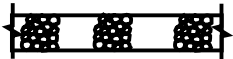
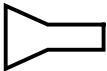
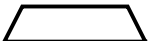
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
RIVERS, CREEKS, STREAMS		0.25 mm (0.01")	1	
DRAINAGE DRAWS, DITCHES AND RAVINES, NORMALLY DRY		0.25 mm (0.01")	1	
PROPOSED DRIVEWAYS		0.38 mm (0.015")	2	
BILLBOARD SIGN		0.13 mm (0.005")	0	
BILLBOARD DOUBLE		0.13 mm (0.005")	0	

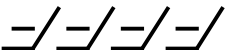
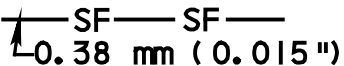
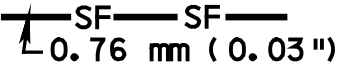
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

LINE WEIGHTS AND SYMBOLS				
DESCRIPTION	SYMBOL	LINE WIDTH	LINE WEIGHT	REMARKS
PAVED PARALLEL DITCH		0.13 mm (0.005")	0	LABEL EXISTING ON PLAN
NORTH ARROW		0.25 mm (0.01")	1	
SHEET BREAK INDEX MAP		0.51 mm/ 0.76 mm (0.02"/ 0.03")	3/5	
GUIDE RAIL LT END TREATMENT RT		0.13 mm (0.005")	0	
GUIDE RAIL LT GUIDE RAIL RT GUIDE RAIL		0.25 mm (0.01") 0.13 mm (0.005")	1 0	PROPOSED 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 (0.01")	1	
ROCK BASIN			0.38 mm (0.015")	2	
TEMPORARY SLOPE PIPE DRAIN			0.38 mm (0.015")	2	
PAVED ENERGY DISSIPATOR			0.38 mm (0.015")	2	
ROCK BARRIER			0.38 mm (0.015")	2	
DIKE			0.38 mm (0.015")	2	
SEDIMENTATION POND-TYPE 2			0.38 mm (0.015")	2	
SEDIMENTATION POND-TYPE 1			0.38 mm (0.015")	2	
STANDBOXES			0.38 mm (0.015")	2	
ROCK ENERGY DISSIPATOR			0.38 mm (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 EROSION PROTECTION MATTING			0.25 mm (0.01")	1	
TEMPORARY DITCH			0.38 mm (0.015")	2	
SILT BARRIER FENCE			0.38 mm (0.015")	2	
SILT BARRIER FENCE			0.76 mm (0.03")	5	

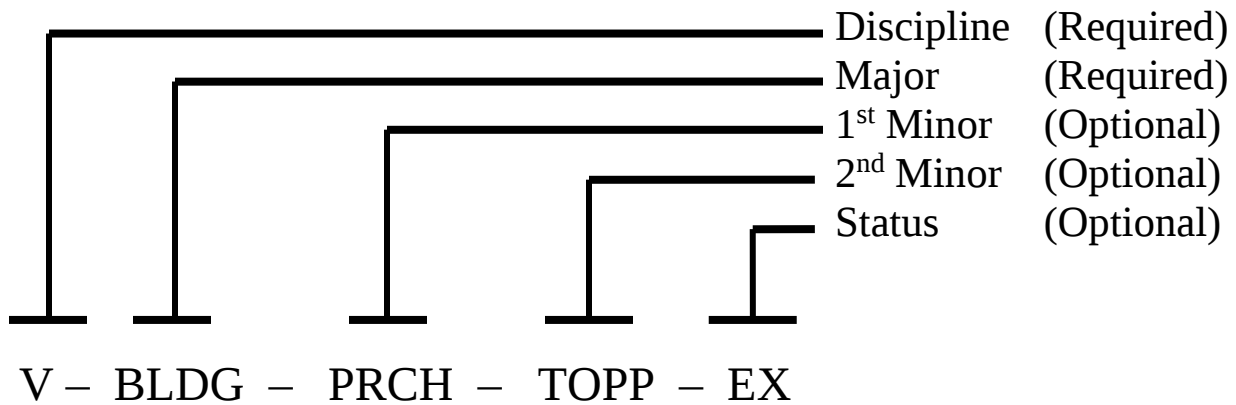
LINE WIDTHS AND LINE WEIGHTS – FIG. C.1

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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 **1st Minor** code (four characters), a **2nd 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

Discipline Code	Description	Discipline Code	Description
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

Major Code	Description	Major Code	Description
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

Minor Code	Description	Minor Code	Description
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)

Minor Code	Description	Minor Code	Description
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
GUYS	Guy Wire	MLBX	Mail Box
HDWL	Head Wall	MODL	NEAT Model Line

TABLE D.3
MINOR CODE DESCRIPTORS
FOR NAMED LEVELS
(CONTINUED)

Minor Code	Description	Minor Code	Description
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)

Minor Code	Description	Minor Code	Description
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

Status Code	Description
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

Font 5, PENNDOT VERTICAL

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

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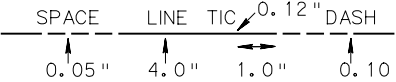
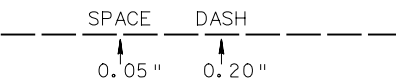
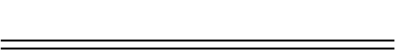
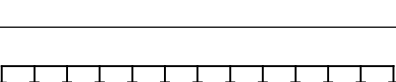
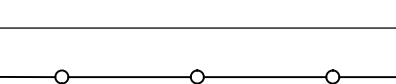
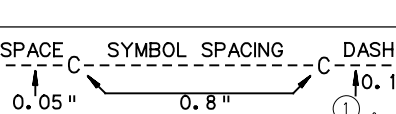
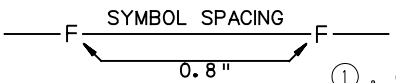
TABLE D.5

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

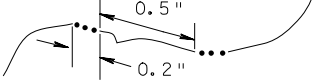
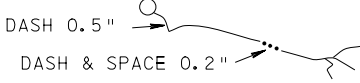
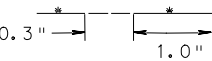
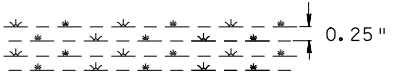
NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED
② SLANTED FONT FOR EXISTING LINE STYLES

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		

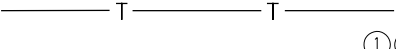
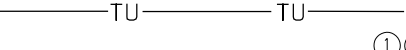
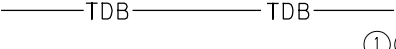
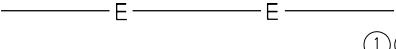
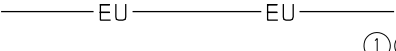
NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED
② SLANTED FONT FOR EXISTING LINE STYLES

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		
ERROSION SILT FENCE	L307		

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 -AERIAL	L400	 ① ②	
TELEPHONE -UNDERGROUND	L401	 ① ②	LABEL IF DIRECT BURIAL
TELEPHONE -DIRECT BURIED	L402	 ① ②	
FIBER OPTICS -AERIAL	L403	 ① ②	
FIBER OPTICS -UNDERGROUND	L404	 ① ②	LABEL IF DIRECT BURIAL
FIBER OPTICS -DIRECT BURIED	L405	 ① ②	
CABLE TV -AERIAL	L406	 ① ②	
CABLE TV -UNDERGROUND	L407	 ① ②	LABEL IF DIRECT BURIAL
CABLE TV -DIRECT BURIED	L408	 ① ②	
ELECTRIC -AERIAL	L409	 ① ②	
ELECTRIC -UNDERGROUND	L410	 ① ②	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——— ①②	LABEL PLAN WITH SHARED UTILITIES
CONDUIT	L420	———COND———COND——— ①②	LABEL PLAN WITH SIZE IN INCHES
SEWER LINE	L440	———S———S——— ①②	LABEL SANITARY OR COMBINED USE SEWER
WATER LINE	L450	———W———W——— ①②	
GAS LINE	L460	———G———G——— ①②	LABEL SIZE ON PLANS
PETROLEUM PIPELINE	L470	———P———P——— ①②	LABEL SIZE ON PLANS
STORM WATER PIPE, EXISTING	L480	—————	LABEL SIZE ON PLANS
STORM WATER PIPE, PROPOSED	L481	—————	LABEL SIZE ON PLANS
LIMIT OF SUE DATA	L490	———LOS———LOS——— ①②	

NOTES: ① TEXT CHARACTERS ARE 0.12 INCHES WHEN PLOTTED
② SLANTED FONT FOR EXISTING LINE STYLES

FIGURE D.1

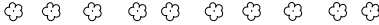
LINE STYLE (NAME), CODE and GRAPHIC DEFINITION			
NAME	CODE	GRAPHIC DEFINITION	REMARKS
WOODED AREA OUTLINE PREDOMINATELY DECIDUOUS TREES	L500		OUTLINE NOT REQUIRED ALONG FEATURES SUCH AS ROADS , RAILROADS & STREAM
WOODED AREA OUTLINE PREDOMINATELY CONIFEROUS TREES	L501		SHOW ONLY PERIMETER AND LABEL EVERGREEN ON PLANS
ORCHARDS	L502		SHOW ONLY PERIMETER TREES AND LABEL ORCHARD ON PLANS
NURSERY BEDS	L503		SHOW ONLY PERIMETER AND LABEL NURSERY BEDS ON PLANS
VINEYARD	L504		SHOW ONLY PERIMETER AND LABEL VINEYARD ON PLANS
HEDGES	L505		

FIGURE D.1

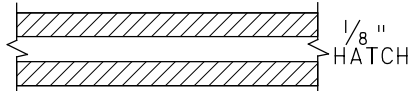
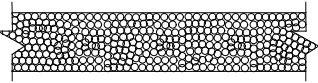
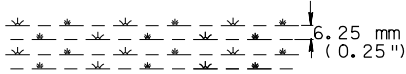
PATTERN FILL (NAME), CODE and GRAPHIC DEFINITION			
NAME	CODE	GRAPHIC DEFINITION	REMARKS
EXISTING CHANNEL BACKFILL	F100		
PARALLEL DITCH PAVED	F101		LABEL EXISTING ON PLAN
ROCK LINING	F102		Tn - n IS STONE SIZE
WETLANDS	F103		

FIGURE D.1

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<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

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<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-DVDK	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

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<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