

***Section 4-02  
Typical Sections***

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## **INTRODUCTION**

**General.** Typical sections are the first sheets incorporated in the plans following the title sheet, professional seals sheet and legend sheet. Project typical sections are required to define existing and proposed surfacing types, depth of surfacing and the cross sectional dimensions of roadways, ramps, approaches, cross-overs, detours and other amenities such as curbs, gutters, sidewalks, etc. They show the cross-sectional features which remain fairly constant over a specified distance and how the travel lane template connects to changing features such as embankment and cut slopes.

Each typical section requires a title heading that indicates whether it is an existing or a proposed typical section with a listing of the station limits that apply to the section. As a minimum or where applicable the following features should be defined on a typical drawing:

- Traveled Way Widths
- Auxiliary Lane Widths
- Shoulder Widths
- Surfacing Taper Widths
- Clear Zone Widths
- Distance to Ditch Bottom or Hinge Point
- Pavement Crown Rate and Direction
- Fixed Foreslope Slope Rates
- Sidewalk and Curb & Gutter Widths & Depths
- Underdrains
- Geotextile and/or Paving Fabrics
- Surfacing (Including sub-base, base course, etc.) Types and Depths
- Profile Grade Control and Point of Rotation for Superelevation
- Existing Pavement Removal Limits

It is not always necessary or desirable to draw separate typical sections for each change in dimension as long as the typical section can clearly portray certain variable dimensions (such as using a table). For example the shoulder width may vary along a section of roadway, but all other dimensions remain the same. Only one typical section would be required along with a table that defines the station limits of each different width and associated taper being applied.

The surfacing taper width is based on the surfacing thickness and taper slope rate (foreslope) given in the WYDOT Design Guides. If the project required a two component slope for the surfacing tapers, see Chapter 3-02 Cross-Sectional Elements for an example of how to determine the surfacing taper widths.

Exhibit 1 through 4 show examples of various typical sections. Exhibit 1 shows an example typical section with a two component surfacing taper and useful notes that provide guidance for developing a typical section.

### DRAFTING GUIDELINES

**General.** It's preferred that complete new typical sections be drawn for each individual project verses modifying an existing typical section to fit a new project. The existing and proposed draft typical section widths and surfacing thicknesses are generally provided in the project Reconnaissance Report. As the project progresses the final surfacing design will be completed and the typical sections will need to be revised accordingly.

The general plan order for typical sections is as follows: Place the existing typical sections first then proposed mainline typical sections, followed by other minor typical sections such as cross roads, interchange ramps, service roads, approaches, temporary traffic routes, cross-overs, dikes, etc. Put dimensions, notes, titles, patterning, and typical lines on different levels. See Exhibit 1 for suggested levels.

**Drawing Typical Sections.** Draw all typical sections at a 1:1 horizontal scale and a 1:2 vertical scale. The 1:2 vertical scale may have to be adjusted for some specific elements such as chip seals, plant mix wearing courses, etc. to make them readable. Other drawings that may be included on the typical section sheet such as a taper detail can be drawn to any scale that will fit the drawing to the sheet. Do not place any dimensioning, patterning, or text until after the sheet is attached.

Use the following guidelines:

- Line Wt. - Details of the Typical Sections . . . . . Line Weight 5
- Horizontal Drawing Scale . . . . . 1:1
- Vertical Drawing Scale . . . . . 1:2

**Attaching a Sheet.** Use a 1:1 appropriate CADD standard sheet border with a scale factor that will proportion the drawing to aesthetically fit the sheet. If special circumstances require the drawing to be scalable on paper, an even sheet scale factor of 5,10, etc. will have to be used. Place all dimensioning, standard fill patterns, titles, subtitles, and general text on the drawing after the sheet has been attached.

When revisions are necessary the drafting changes are to be made to the original 1:1 horizontal by 1:2 vertical scaled drawing. In all cases the roadway typical sections should always be drawn and labeled proportionally correct.

**Text Size and Spacing.** The standard sheet border provides three different text sizes (small, medium, large) to be utilized for the typical section sheet. They are located slightly above the upper right hand corner of the sheet border. Use the following guidelines:

All Text .....	Use Upper Case
Titles (such as "Proposed Typical Section") .....	Large Text
Subtitles (such as " STA 10+00.00 to ") .....	Medium Text
Dimensions, Labels, Notes .....	Small Text
Date Stamps .....	75 % Height of Small Text
Space Between Multiple Lines of Text .....	½ Height of Text
Justification for Multiple Lines of Text .....	Left Justification

**Labeling of Specified Features.** Use the following guidelines:

Pay Items .....	Match Exact Description from Bid Item Book
Fixed Slopes .....	Use 1V:___H Notation (e.g. 1V:6H)
Variable Slopes .....	"VARIABLE SLOPE"
Pavement Taper Slopes .....	e.g. 1:6 (RELATIVE)
Roadway Centerline .....	Place CL Symbol Above Extension Line
Pavement Crown .....	e.g. 2 % SLOPE →
Roadway Grade Control .....	Profile Grade & Superelevation Rotation ◊
Lanes & Shoulders .....	Traveled Way, Shoulder, Left Turn Lane, Etc.

**Dimension, Extension, and Leader Lines.** Definitions:

**Dimension Line:** The line and arrows extending parallel to the distance being measured. Annotation of the dimension (such as 24'-0") is placed above the dimension line and frequently used labeling to describe a feature (such as "Traveled Way") is placed below the dimension line.

**Extension Line:** Generally a pair of lines perpendicular to the length being measured and extending to the two end points of a feature being dimensioned without actually touching those points. Extension Lines also extend slightly above the dimension line by ½ of the text height. Extension lines should be broken when a dimension line passes through the extension line.

**Leader Line:** A line with an arrow pointing from a description to the feature of interest. Leader lines with arrows used to show the thickness of plant mix pavement, crushed base, sidewalk, etc., should point to the outline of the item, not the interior of the item. If a leader line and/or arrow must go through a pattern to point to the outline of a specified feature, and the arrow or leaders are difficult to see because of the pattern, it may be necessary to clip the pattern around the leader line and arrow to improve legibility.

Use the following guidelines:

- Annotated Dimensions Widths . Feet-Inches or Meters (e.g. 12'-0" or 3.6 m)
- Annotated Dimensions Thicknesses . . . . Inches or mm (e.g. 12" or 300 mm)
- Draw Dimension, Extension and Leader Lines At . . . . . Line Weight 3
- Extend Extension Lines Above the Dimension Line . . . ½ Height of Small Text
- Height of the Arrow Tail . . . . . Height of the Small Text \*

\* Place arrows using the Active Line Terminator Tool and by using ARR as the arrow cell. If you place the arrow by just placing a cell it will not scale correctly. Smaller arrows may be used for horizontal dimensioning when the standard size arrowhead is too large. In all cases use the same size arrow for dimensioning the various horizontal widths on the typical section such as sidewalk, curb and gutter, travel lanes, etc.

**Fill Patterns.** Use WYDOT established patterns for various materials such as plant mix pavement, crushed based, wearing course, etc., which are available in the WYDOT Cell Library.

If the project requires multiple typical section sheets with different scale factors, make sure to figure the correct patterning scales to ensure that the pattern size matches on each sheet when printed.

NOTE: REFERENCE "detail\_e.dgn" IN FROM O:\cad\_std\wystn\ref\

DISTANCE BETWEEN  
DIMENSION LINES =  
3 x SMALL TEXT SIZE

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
		T1	

FILE: S:\projects\1880 RD Manual\TYPICAL SECTIONS\EXHIBIT 1.dgn  
DATE: 04-Dec-08 09:22

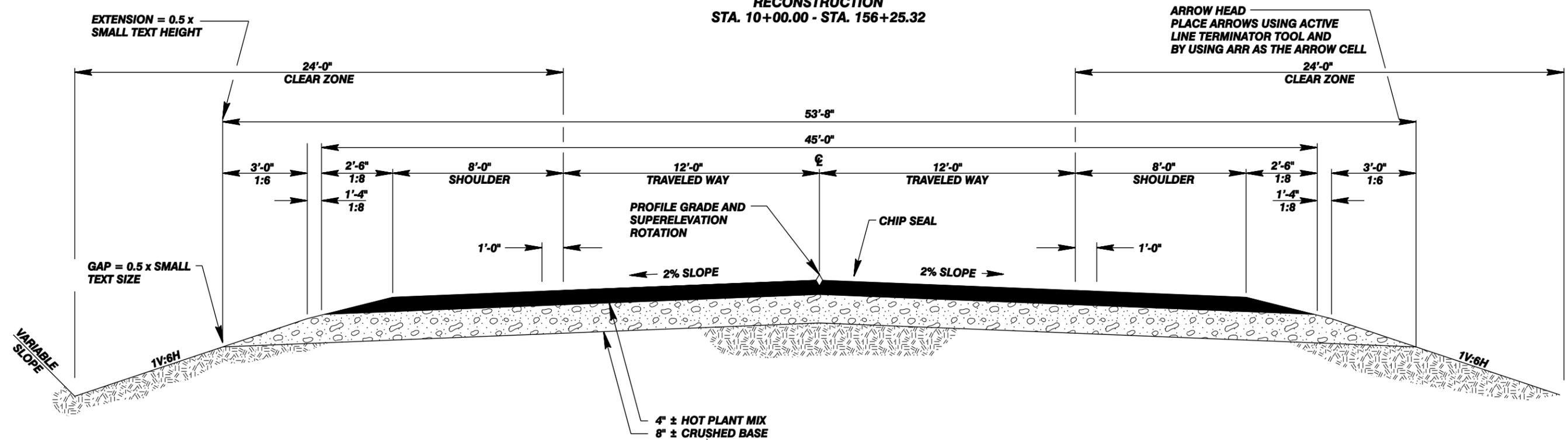
PLACE AT 1/2 SMALL TEXT SIZE  
MDL APPLICATION (MDL L DATSTMP;PLACE STAMP)

OBJECT LINES  
Lv = 5  
Co = 3  
Wt = 5

DIMENSION LINES  
Lv = 23 (OPTIONAL DESIGNER PREFERENCE)  
Co = 2  
Wt = 3

### PROPOSED TYPICAL SECTION

RECONSTRUCTION  
STA. 10+00.00 - STA. 156+25.32



EXTENSION = 0.5 x  
SMALL TEXT HEIGHT

ARROW HEAD  
PLACE ARROWS USING ACTIVE  
LINE TERMINATOR TOOL AND  
BY USING ARR AS THE ARROW CELL

GAP = 0.5 x SMALL  
TEXT SIZE

PROFILE GRADE AND  
SUPERELEVATION  
ROTATION

CHIP SEAL

2% SLOPE

2% SLOPE

4" ± HOT PLANT MIX  
8" ± CRUSHED BASE

SMALL TEXT SIZE  
SPACING = 0.5 x SMALL TEXT SIZE  
DIMENSION LINE SPACING = 1.5 x SMALL TEXT SIZE

PATTERNS  
ALL ON DIFFERENT LEVEL

PATTERNING MUST BE PLACED AT A SCALE THAT WILL MAKE ALL THE TYPICALS LOOK THE SAME.

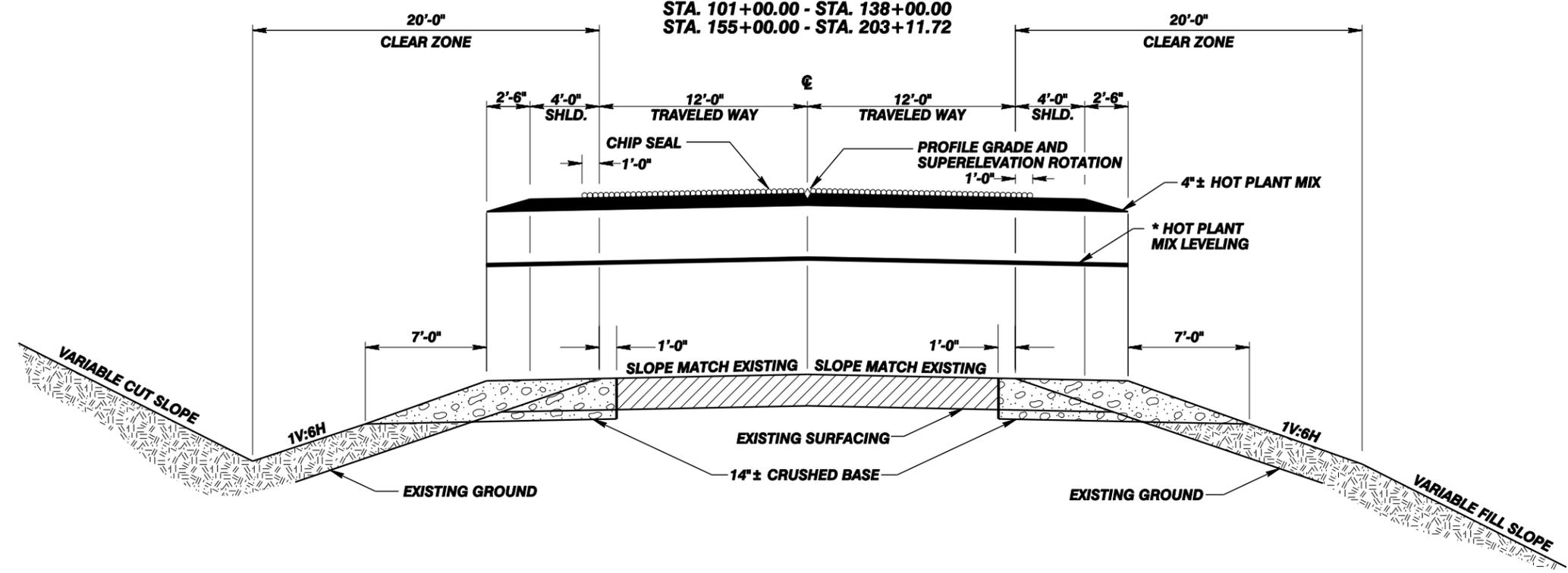
EXHIBIT 1  
SAMPLE TYPICAL SECTION

STATE OF WYOMING	PROJ. NO.	SHEET NO.	TOTAL SHEETS
		T1	TX

FILE: S:\projects\1890 RD Manual\TYPICAL SECTIONS\EXHIBIT 2.dgn  
DATE: 04-Dec-08 09:22

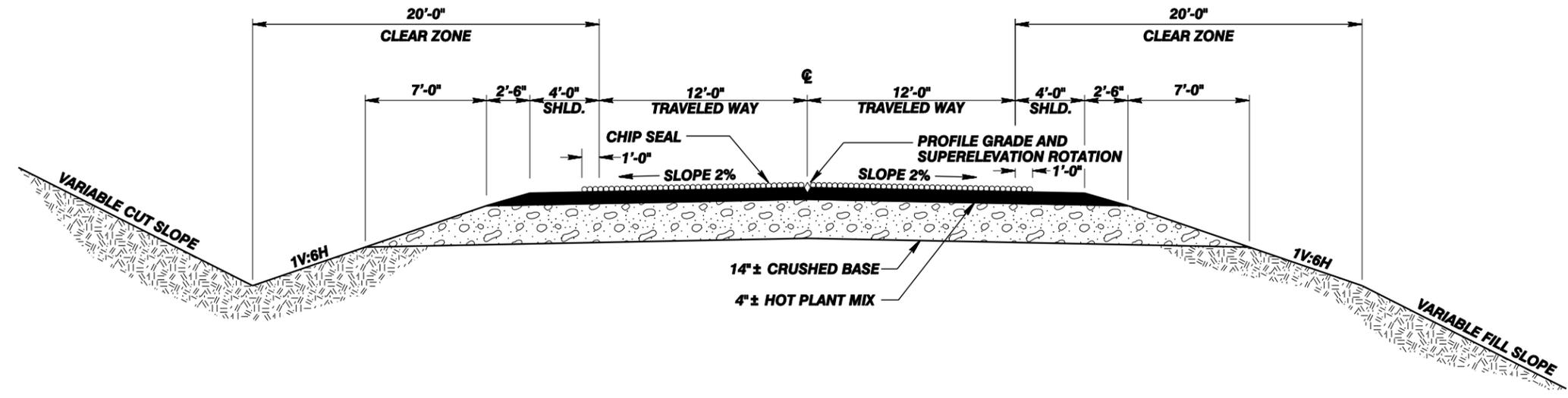
**PROPOSED TYPICAL SECTION  
WIDEN AND OVERLAY**

STA. 101+00.00 - STA. 138+00.00  
STA. 155+00.00 - STA. 203+11.72



**PROPOSED TYPICAL SECTION  
RECONSTRUCTION**

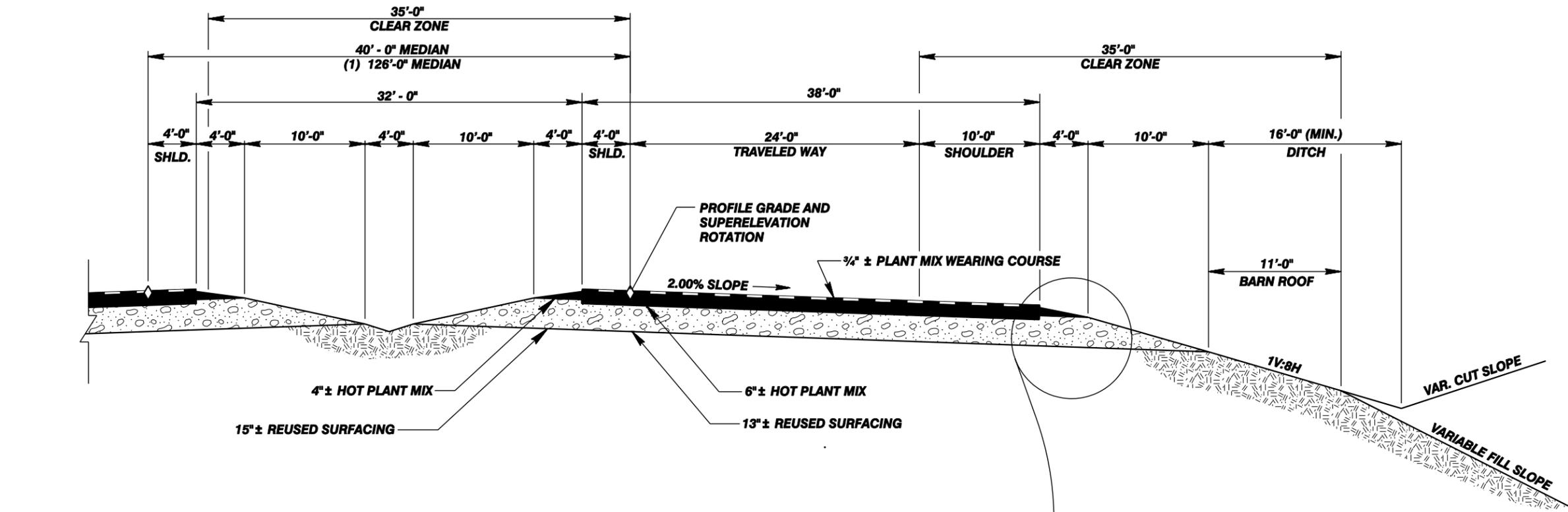
STA. 133+00.00 - STA. 159+00.00



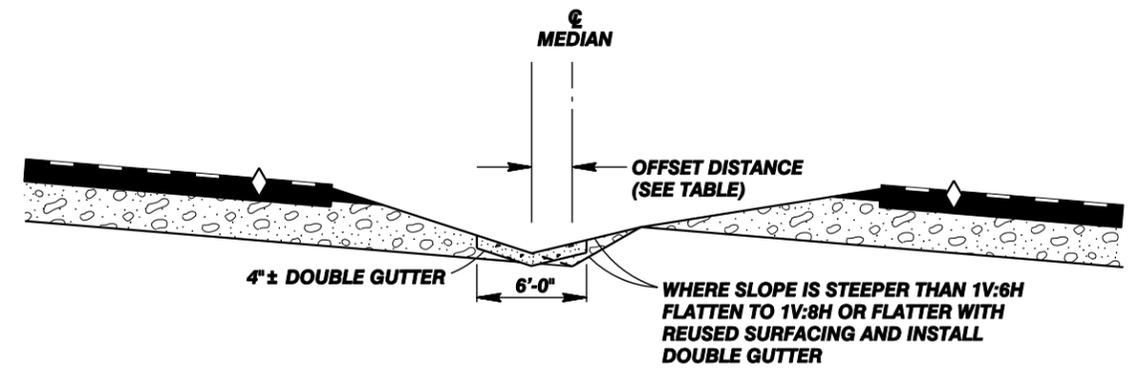
\* HOT PLANT MIX LEVELING QUANTITY IS BASED ON A 1" THICKNESS, ACTUAL CONSTRUCTION THICKNESS WILL VARY.

### PROPOSED TYPICAL SECTION RECONSTRUCTION

STATION 241+00.00 - STATION 311+00.00  
STATION 363+00.00 - STATION 405+00.00  
STATION 549+00.00 - STATION 555+00.00

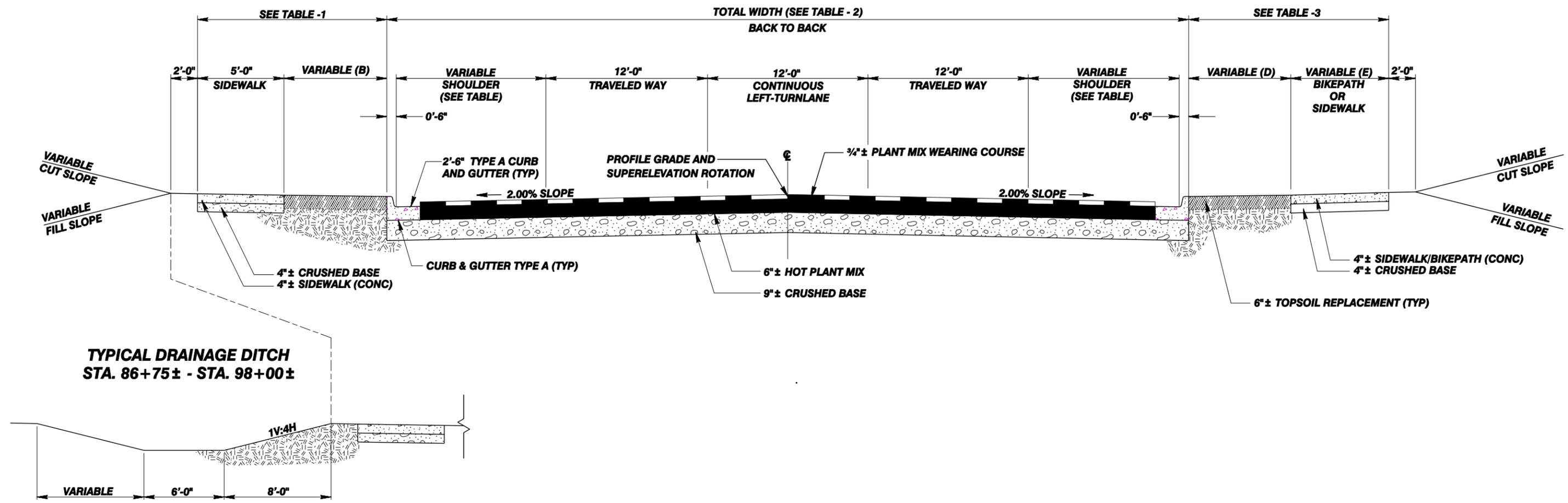


#### RECONSTRUCTION / NARROW MEDIAN SUPERELEVATED CURVES



MEDIAN $\epsilon$ STATION - STATION	OFFSET FROM MEDIAN $\epsilon$
249+67 ± - 254+33 ±	4.3' LEFT
263+26 ± - 264+28 ±	3.6' RIGHT
282+66 ± - 285+27 ±	3.4' LEFT
290+00 ± - 290+55 ±	2.9' RIGHT
296+13 ± - 297+27 ±	3.4' RIGHT

**PROPOSED TYPICAL SECTION  
NEW CONSTRUCTION  
STA. 40+10.57 - STA. 99+89.50**



**TABLE -1  
LEFT SIDE**

STATION - STATION	VARIABLE (B)
	FEET
40+10.57 TO 45+70.96	0'
46+38.28 TO 49+49.91	0'
49+49.91 TO 58+29.69	5'
58+29.69 TO 63+63.97	0'
63+63.97 TO 79+33.68	5'
79+33.68 TO 79+57.68	0'
79+57.68 TO 95+98.75	5'
95+98.75 TO 98+90.77	0'

**VARIABLE WIDTH TABLE - 2  
STA 40+10.57 - STA 99+89.50**

STATION - STATION	WIDTH FEET			REMARKS
	LEFT SHLD	TOTAL	RIGHT SHLD	
40+10.57	11'	62'	11'	TIE TO EXISTING C & G.
40+10.57 - 42+56.00	11'	62'	11'	
42+56.00 - 43+56.00	11'	62' TO 67'	11' TO 16'	RT. - RIGHT TURN LANE TRANS.
43+56.00 - 45+05.40	11'	67'	16'	
45+05.40 - 46+78.23	11' TO 16'	67' TO 68'	16' TO 12'	TRANS. POWDER HOUSE RD. X-ING
46+78.23 - 48+26.97	16'	68'	12'	
48+26.97 - 49+27.00	16' TO 12'	68' TO 64'	12'	LT. - RIGHT TURN LANE TRANS
49+27.00 - 96+00.00	12'	64'	12'	
96+00.00 - 97+00.00	12'	64' TO 72'	12' - 20'	RT. - RIGHT TURN LANE TRANS.
97+00.00 - 98+48.89	12'	72'	20'	
98+48.89 - 99+89.50	12'	72' TO 60.25'	20' TO 8.25'	TRANS. CONVERSE AVE. X-ING

**TABLE-3  
SIDEWALK / BIKEPATH RIGHT SIDE**

STATION - STATION	VARIABLE (D)	VARIABLE (E)
	FEET	WIDTH & TYPE
40+10.57 TO 45+46.50	0'	5' - SIDEWALK
46+10.29 TO 49+01.98	0'	10' - BIKEPATH
49+01.98 TO 58+53.96	5'	10' - BIKEPATH
58+53.96 TO 64+31.97	0'	10' - BIKEPATH
64+31.97 TO 76+31.68	5'	10' - BIKEPATH
76+31.68 TO 82+59.68	0'	10' - BIKEPATH
82+59.68 TO 95+51.85	5'	10' - BIKEPATH
95+51.85 TO 98+90.77	0'	10' - BIKEPATH