

GRE

MARCH 2019

PROJECT ID:  
WITH: N/A

4430-10-71

COUNTY:

DOOR

ORDER OF SHEETS

|             |   |                              |
|-------------|---|------------------------------|
| Section No. | 1 | Title                        |
| Section No. | 2 | Typical Sections and Details |
| Section No. | 3 | Estimate of Quantities       |
| Section No. | 3 | Miscellaneous Quantities     |
| Section No. | 4 | Right of Way Plat            |
| Section No. | 5 | Plan and Profile             |
| Section No. | 6 | Standard Detail Drawings     |
| Section No. | 7 | Sign Plates                  |
| Section No. | 8 | Structure Plans              |
| Section No. | 9 | Computer Earthwork Data      |
| Section No. | 9 | Cross Sections               |

TOTAL SHEETS = 182



DESIGN DESIGNATION 4430-10-71

|              |      |   |           |
|--------------|------|---|-----------|
| A.A.D.T.     | 2019 | = | 2300      |
| A.A.D.T.     | 2039 | = | 2800      |
| D.H.V.       |      | = | 311       |
| D.D.         |      | = | 61/39     |
| T.           |      | = | 14.3%     |
| DESIGN SPEED |      | = | 30-60 MPH |
| ESALS        |      | = | 570,000   |

CONVENTIONAL SYMBOLS

PLAN

|                                |  |
|--------------------------------|--|
| CORPORATE LIMITS               |  |
| PROPERTY LINE                  |  |
| LOT LINE                       |  |
| LIMITED HIGHWAY EASEMENT       |  |
| EXISTING RIGHT OF WAY          |  |
| PROPOSED OR NEW R/W LINE       |  |
| SLOPE INTERCEPT                |  |
| REFERENCE LINE                 |  |
| EXISTING CULVERT               |  |
| PROPOSED CULVERT (Box or Pipe) |  |
| COMBUSTIBLE FLUIDS             |  |
| MARSH AREA                     |  |
| WOODED OR SHRUB AREA           |  |

PROFILE

|                                             |  |
|---------------------------------------------|--|
| GRADE LINE                                  |  |
| ORIGINAL GROUND                             |  |
| MARSH OR ROCK PROFILE (To be noted as such) |  |
| SPECIAL DITCH                               |  |
| GRADE ELEVATION                             |  |
| CULVERT (Profile View)                      |  |
| UTILITIES                                   |  |
| ELECTRIC                                    |  |
| FIBER OPTIC                                 |  |
| GAS                                         |  |
| SANITARY SEWER                              |  |
| STORM SEWER                                 |  |
| TELEPHONE                                   |  |
| WATER                                       |  |
| UTILITY PEDESTAL                            |  |
| POWER POLE                                  |  |
| TELEPHONE POLE                              |  |

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

ALGOMA - STURGEON BAY

SCL - SOUTH JUNCTION 42/57

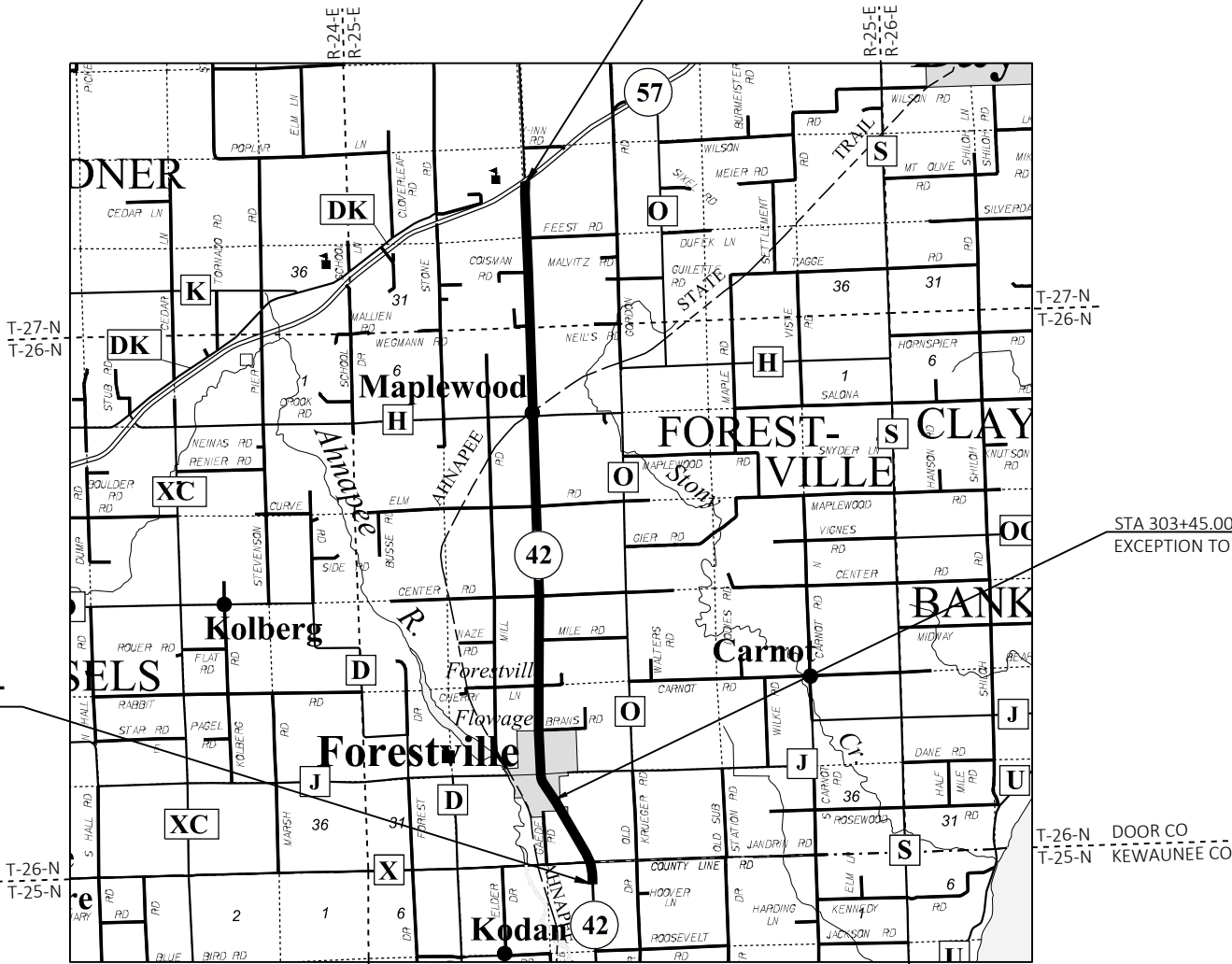
STH 42  
DOOR COUNTY

|                      |
|----------------------|
| STATE PROJECT NUMBER |
| 4430-10-71           |

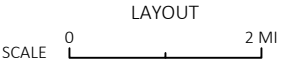
END PROJECT  
4430-10-71  
STA 656+91.04

BEGIN PROJECT  
4430-10-71  
STA 243+00.00  
Y = 99,539.707  
X = 469,914.036

DOOR CO  
KEWAUNEE CO



STA 303+45.00 TO STA. 304+18.00  
EXCEPTION TO NET LENGTH OF CL



TOTAL NET LENGTH OF CENTERLINE = 7.830 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, DOOR COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD88 (2012).

STATE PROJECT

4430-10-71

FEDERAL PROJECT

PROJECT

WISC 2019169

CONTRACT

1

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

|                     |                 |
|---------------------|-----------------|
| PREPARED BY         | NE REGION       |
| Surveyor            | E. E. JOLIVETTE |
| Designer            | J. J. ASHAUER   |
| Project Manager     |                 |
| Regional Examiner   |                 |
| Regional Supervisor | J. F. THOMPSON  |

APPROVED FOR THE DEPARTMENT  
DATE: 11/01/2018  
  
(Signature)

E

GENERAL NOTES

THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

INLET GRATE ELEVATIONS REFERRED TO ON THE INLET NOTES ARE GUTTER FLOW LINE ELEVATIONS.

THE EXACT LOCATIONS AND LIMITS OF PRIVATE AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER.

EXISTING DRAINAGE DITCHES AND CULVERT PIPES WILL REMAIN FUNCTIONAL DURING EXCAVATION OPERATIONS.

PRIOR TO THE PLACEMENT OF STEEL PLATE BEAM GUARD, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS OTHERWISE SHOWN.

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- TRAFFIC CONTROL
- ALIGNMENT PLAN

UTILITY CONTACTS

CHRIS DAILEY  
ATC MANAGEMENT, INC. - ELECTRICITY-TRANSMISSION  
W234 N2000 RIDGEVIEW PARKWAY COURT  
P.O.BOX 47  
WAUKESHA, WI 53187-0047  
(262) 506-6884  
cdailey@atcllc.com

MATT GUNDERSON  
CENTURYLINK - COMMUNICATION LINE  
212 CHURCH AVE  
CASCO, WI 54205  
(920) 896-2867, (920) 837-2344  
Matt.gunderson@centurylink.com

MATT GUNDERSON  
CENTURYTEL TELEVIDEO, INC - COMMUNICATION LINE  
212 CHURCH AVE  
CASCO, WI 54205  
(920) 896-2867, (920) 837-2344  
Matt.gunderson@centurylink.com

BRUCE HENRY  
CHARTER COMMUNICATIONS - COMMUNICATION LINE  
1623 BROADWAY AVENUE  
SHEBOYGAN, WI 53081  
(920) 907-7720  
bruce.henry@charter.com

DEAN SCHLISE  
FORESTVILLE WASTEWATER TREATMENT FACILITY - SEWER  
P.O.BOX 6  
FORESTVILLE, WI 54213-9609  
(920) 493-0688  
forestvillesanitary@yahoo.com

JEFF HOFFMAN  
MAPLEWOOD SANITARY DISTRICT - SEWER  
P.O.BOX 27  
STURGEON BAY, WI 54235  
(920) 333-0573, (920) 746-3210  
Jeff.hoffman@suez-na.com

SCOTT GAUGER  
WISCONSIN PUBLIC SERVICES - ELECTRICITY  
2850 ASHLAND AVE  
GREEN BAY, WI 54307  
(920) 660-0430, (920) 617-5151  
Scott.gauger@wisconsinpublicservice.com

DONALD CONNER  
WISCONSIN PUBLIC SERVICES - GAS/PETROLEUM  
800 COLUMBUS ST  
TWO RIVERS, WI 54241  
(920) 655-6042, (920) 657-1862  
Donald.conner@wisoncsinpublicservice.com

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

DNR LIASION

MATT SCHAEVE  
DEPARTMENT OF NATURAL RESOURCES  
NORTHEAST REGION  
2984 SHAWANO AVE  
GREEN BAY, WI 54313  
(920)366-1544  
matthew.schaeve@wisconsin.gov

DOOR COUNTY COMMISSIONER

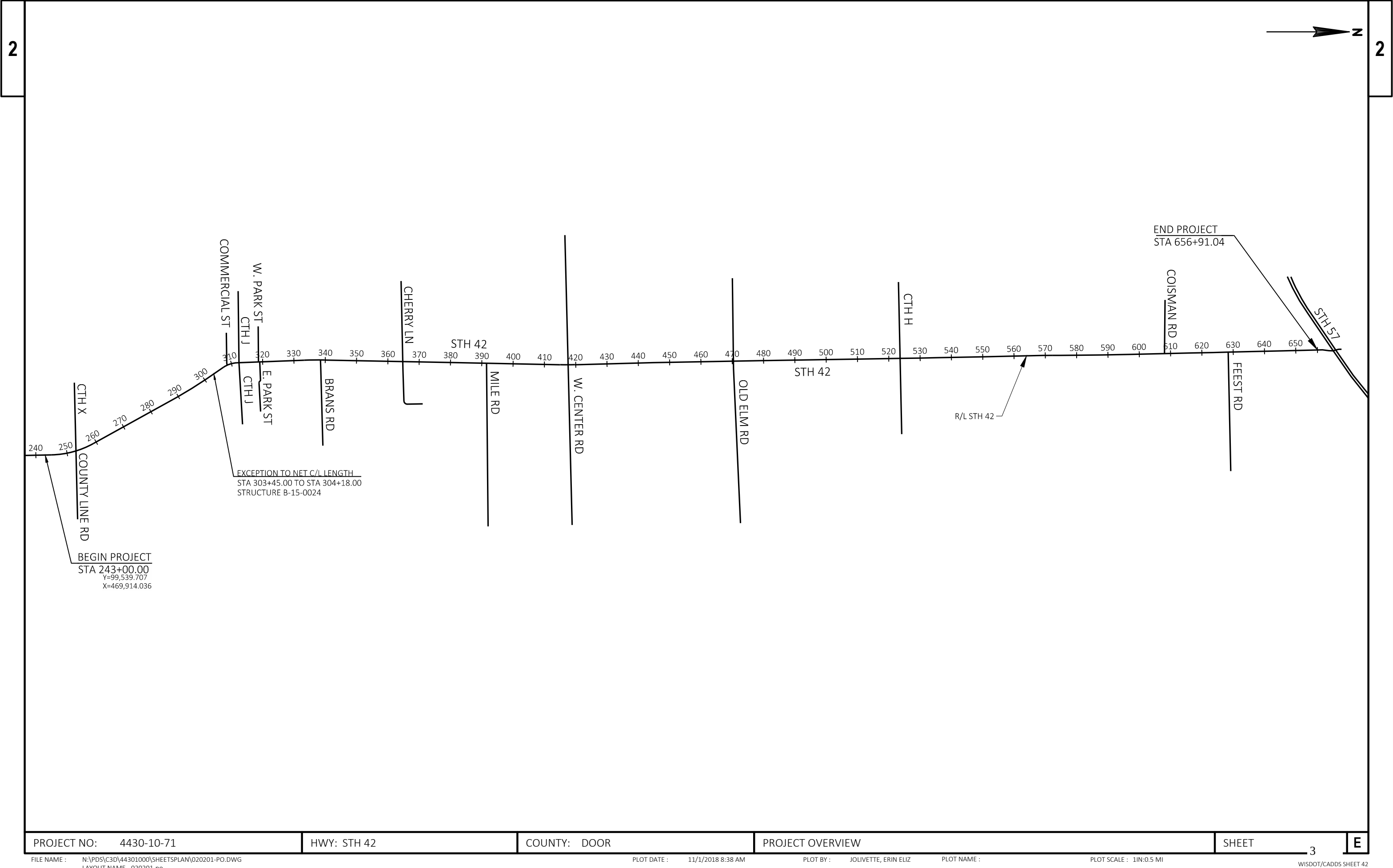
JOHN KOLODZIEJ  
HIGHWAY COMMISSIONER  
1001 S. DULUTH AVE  
STURGEON BAY, WI 54235  
(920)746-2500  
kolodzie@co.door.wi.us

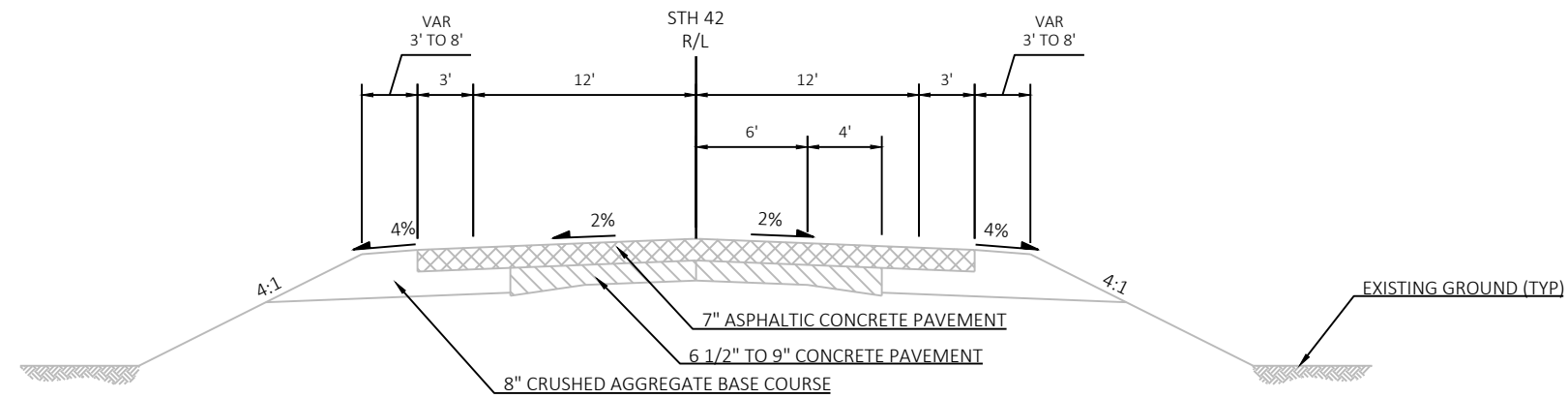
NE REGION SURVEY COORDINATOR

CORMAC MCINNIS, RLS  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
(920)492-5638  
cormac.mcinnis@dot.wi.gov

NE REGION DESIGN PROJECT MANAGER

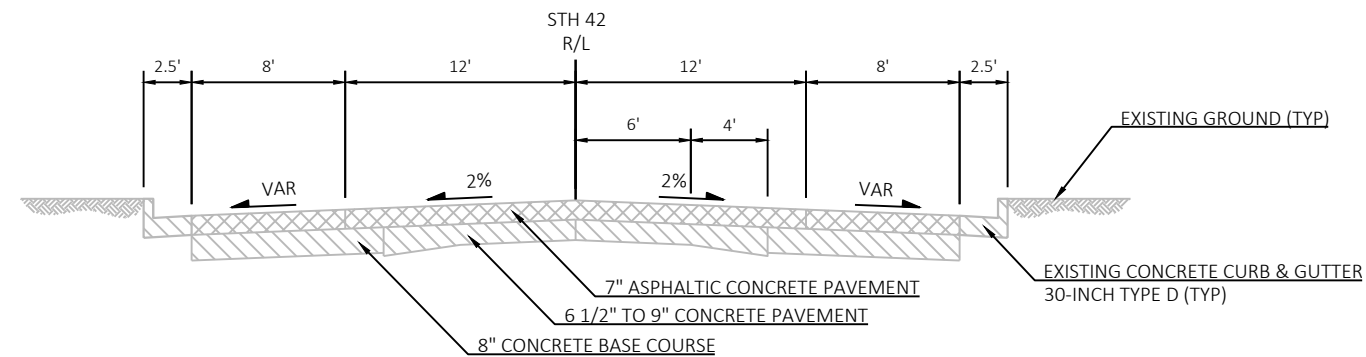
JEREMY ASHAUER, PE  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
(920) 412-6381  
jeremy.ashauer@dot.wi.gov





EXISTING TYPICAL SECTION STH 42

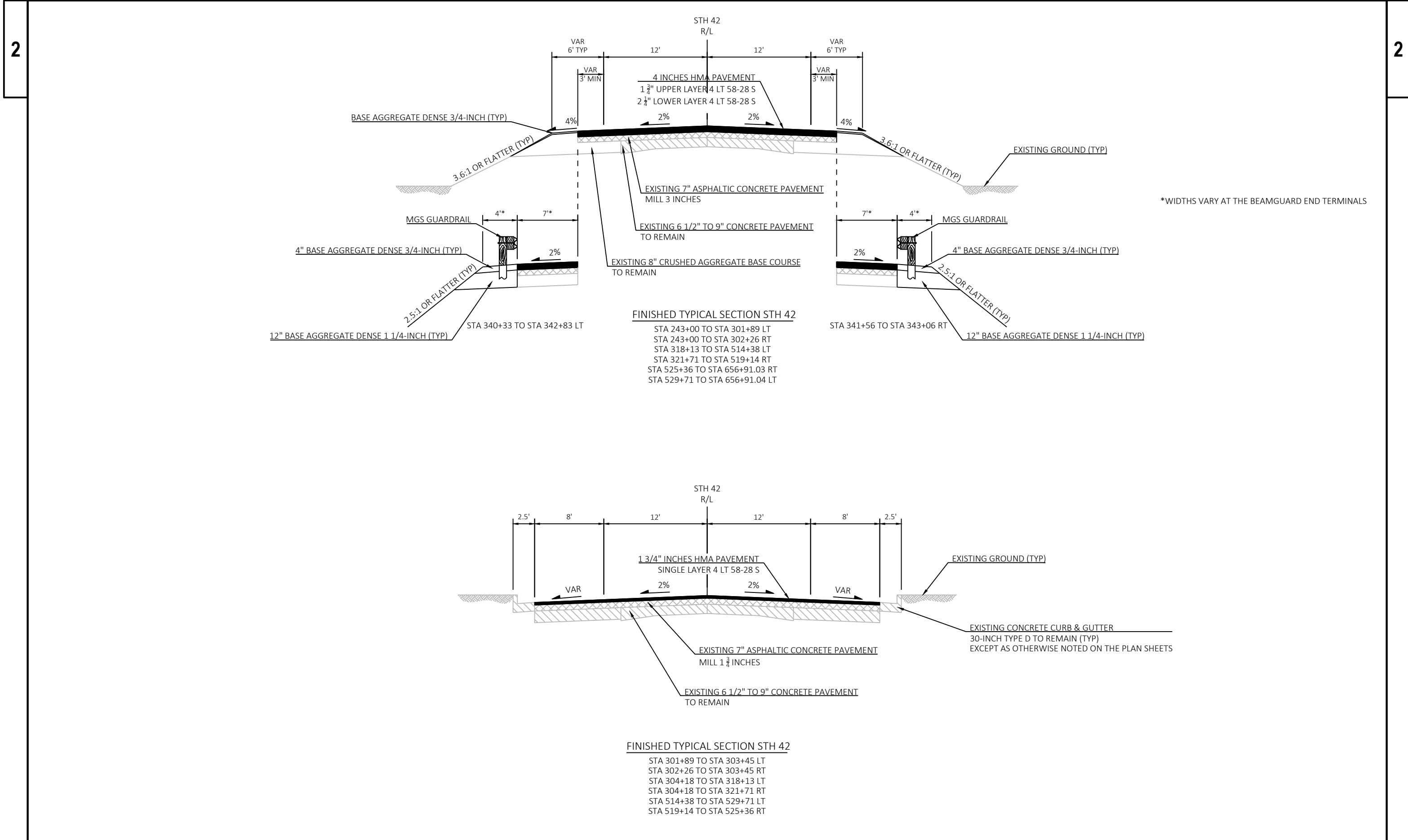
STA 243+00 TO STA 301+89 LT  
STA 243+00 TO STA 302+26 RT  
STA 318+13 TO STA 514+38 LT  
STA 321+71 TO STA 519+14 RT  
STA 525+36 TO STA 656+91.03 RT  
STA 529+71 TO STA 656+91.04 LT

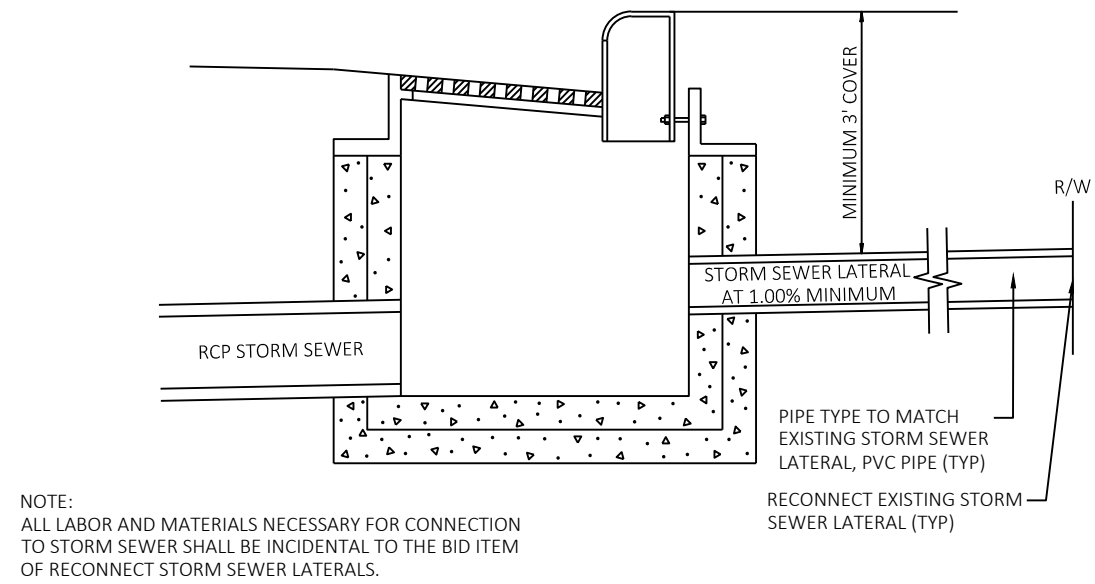


EXISTING TYPICAL SECTION STH 42

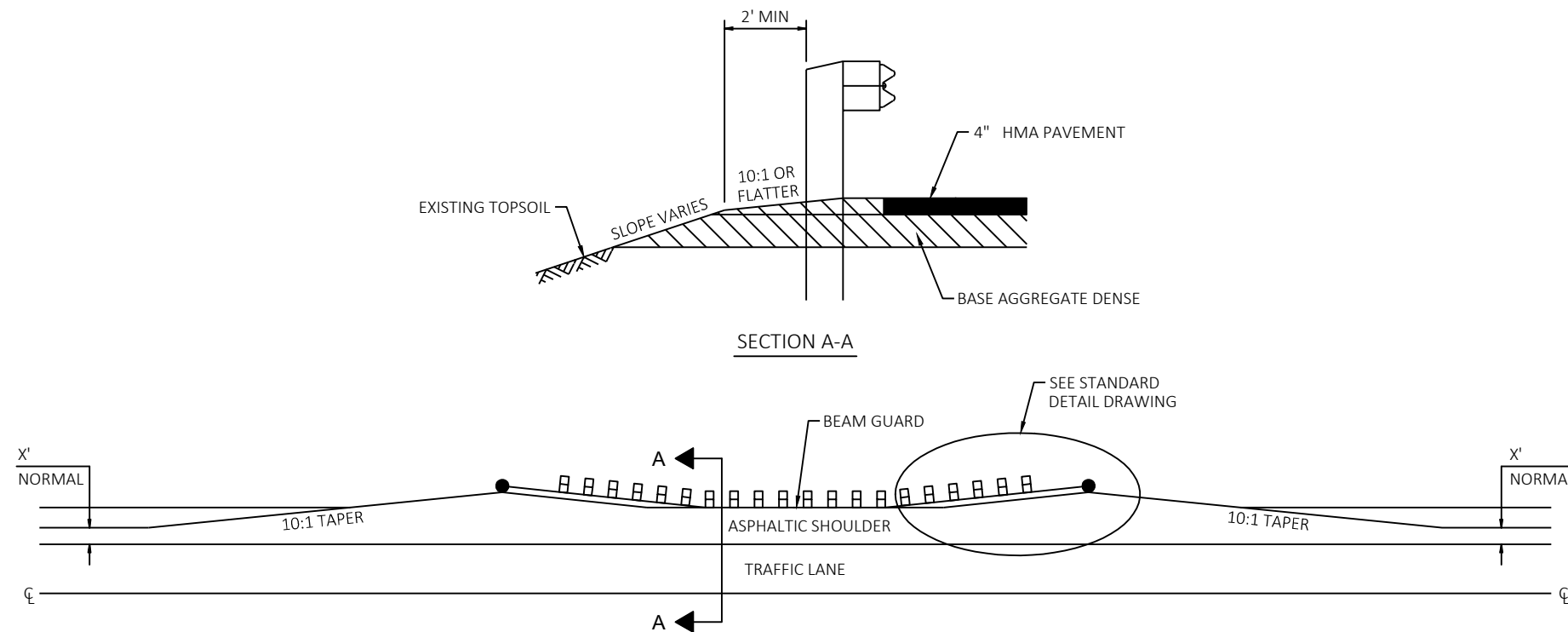
STA 301+89 TO STA 303+45 LT  
STA 302+26 TO STA 303+45 RT  
STA 304+18 TO STA 318+13 LT  
STA 304+18 TO STA 321+71 RT  
STA 514+38 TO STA 529+71 LT  
STA 519+14 TO STA 525+36 RT



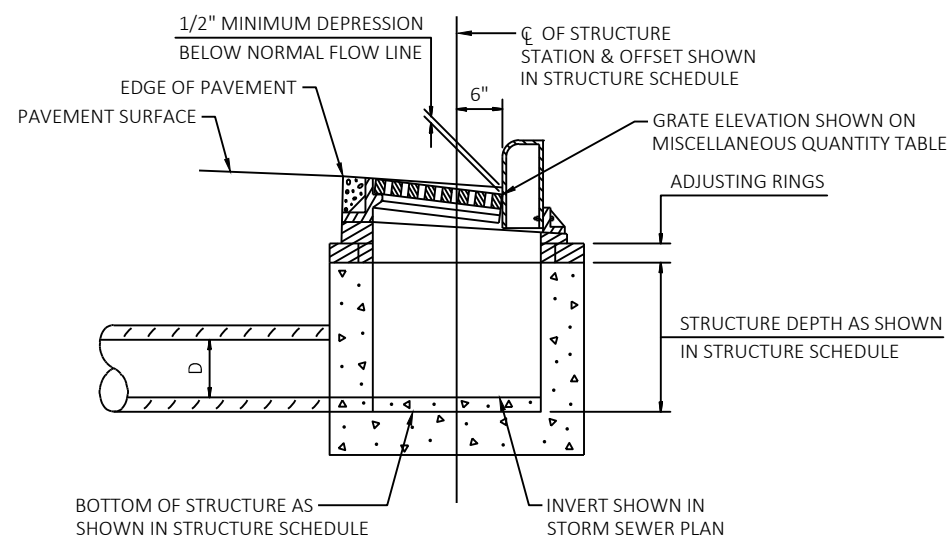
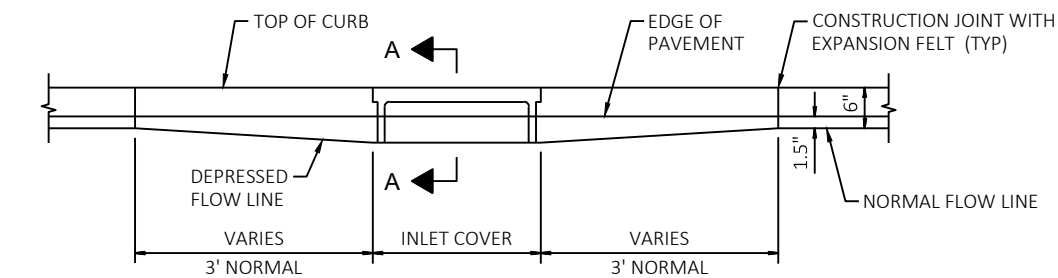




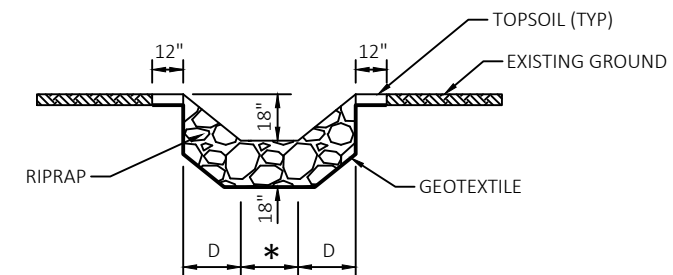
RECONNECT STORM SEWER LATERAL DETAIL



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD

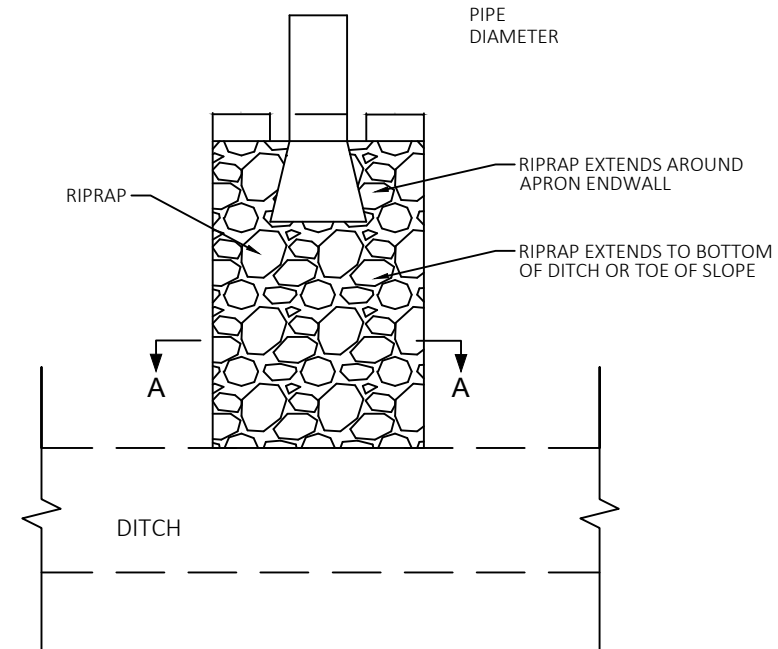


SECTION A-A

DETAIL OF CURB AND GUTTER AT INLETS

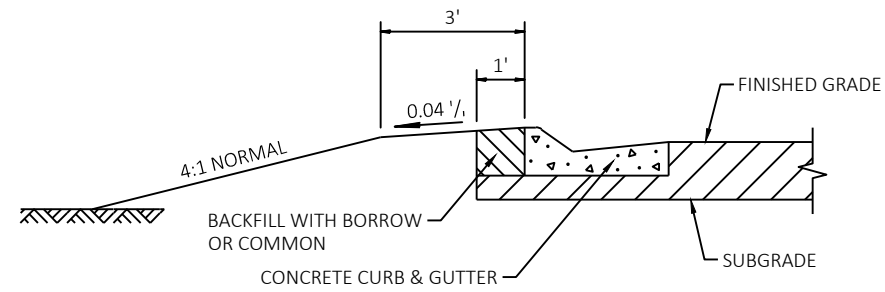
SECTION A-A

\* APRON ENDWALL WIDTH

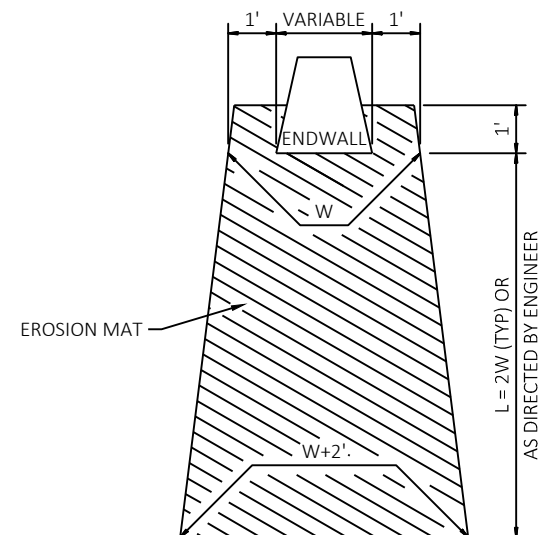
D  
= PIPE  
DIAMETER

PLAN VIEW

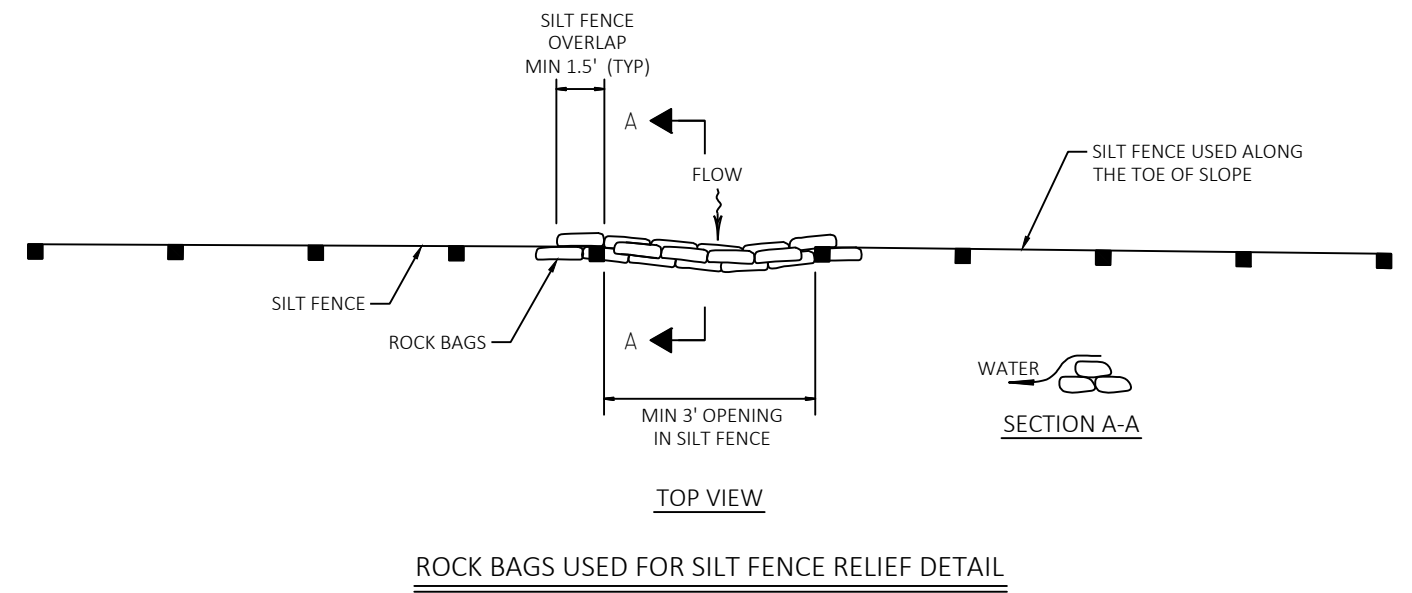
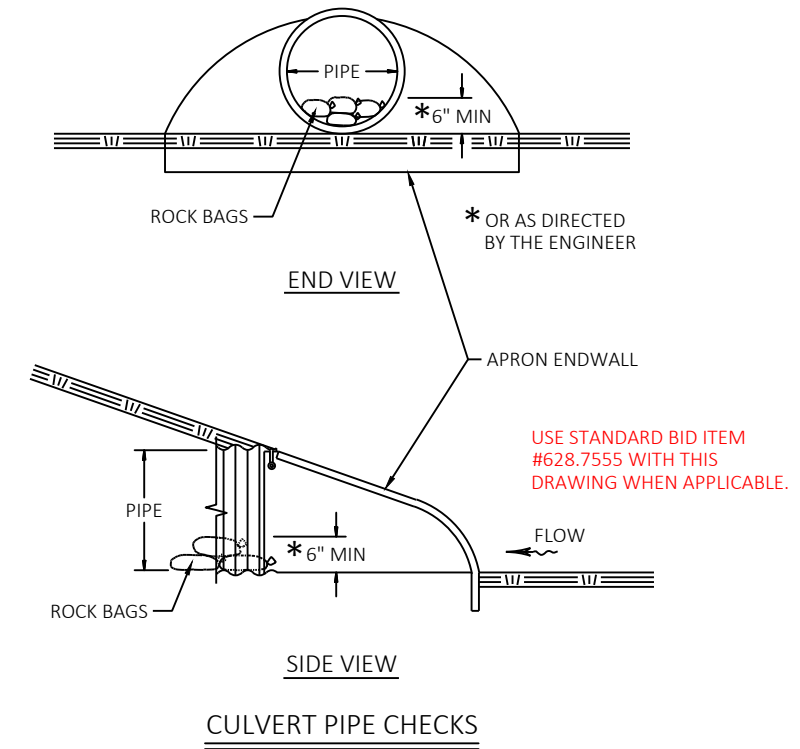
RIPRAP TREATMENT AT STORM SEWER OUTFALLS

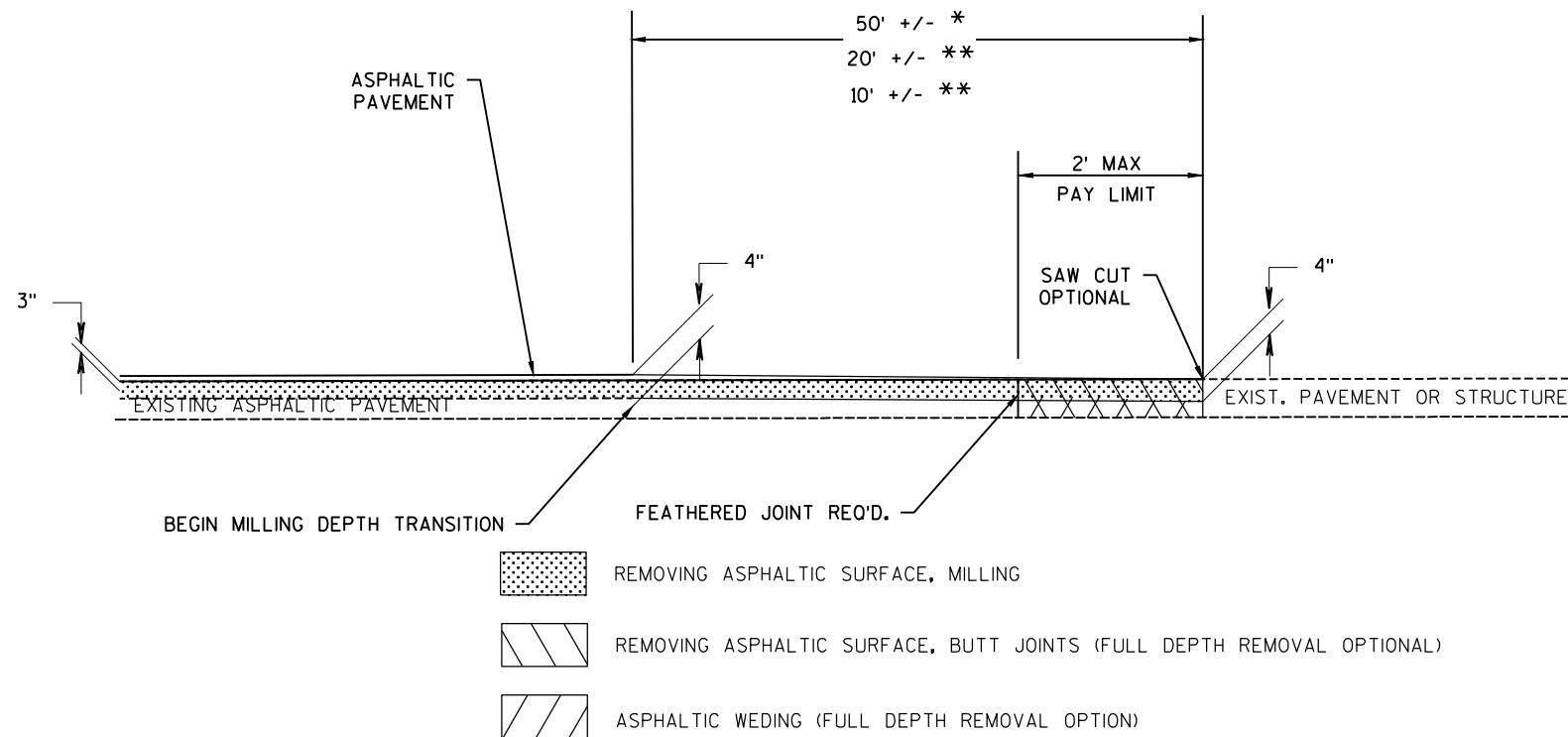


BERM DETAIL BEHIND CURB & GUTTER



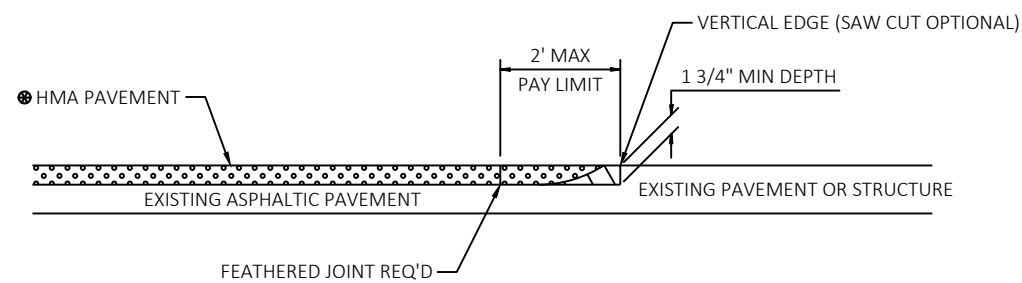
EROSION MAT TREATMENT AT CULVERTS



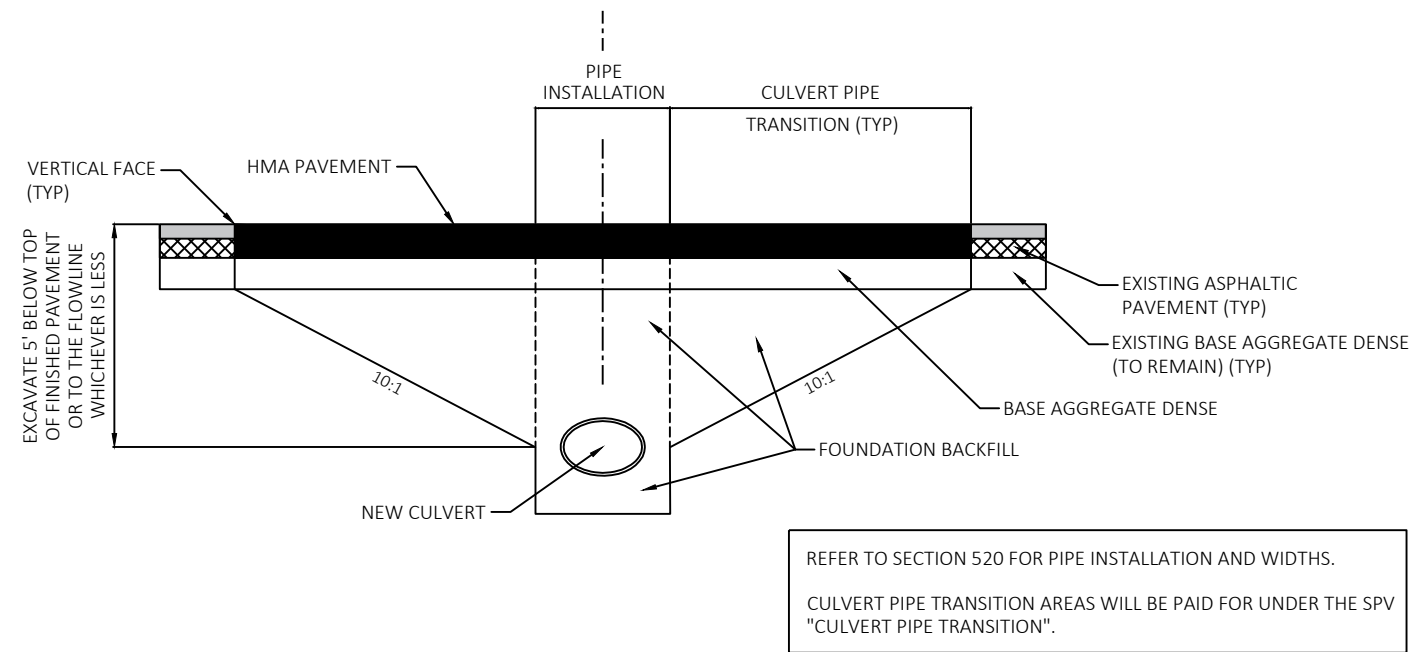


BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)

\* MAINLINE  
\*\* SIDE ROADS  
\*\*\*PRIVATE ENTRANCES



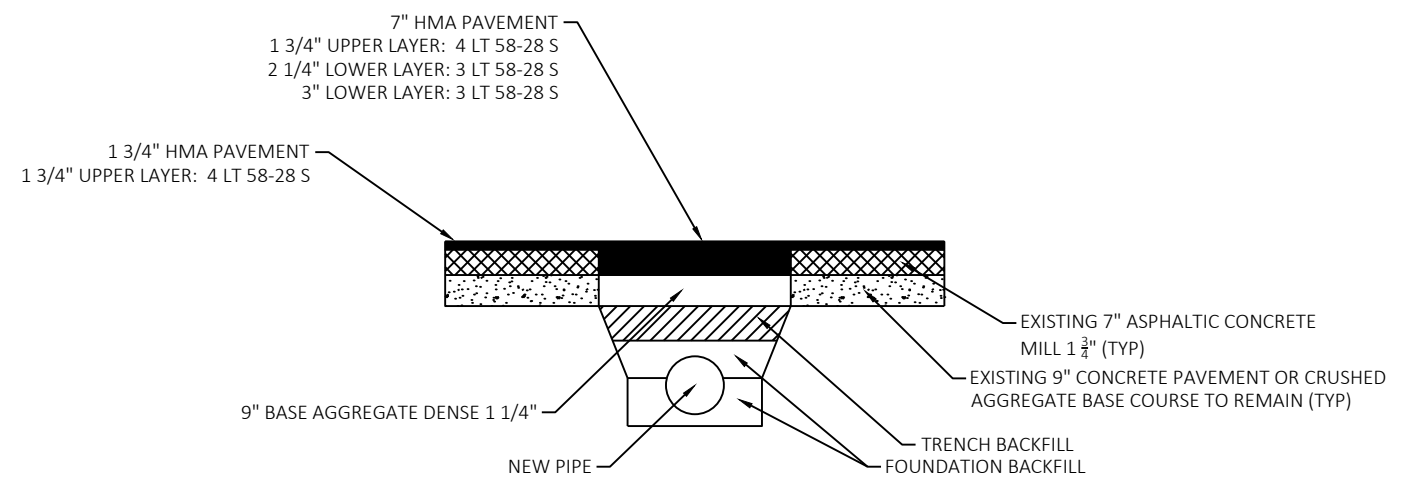
BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



CULVERT PIPE WITH TRANSITION

TO APPLY (APPROX.)

STA 296+11 TO STA 296+85  
STA 372+47 TO STA 373+32  
STA 414+85 TO STA 416+02  
STA 551+15 TO STA 551+75

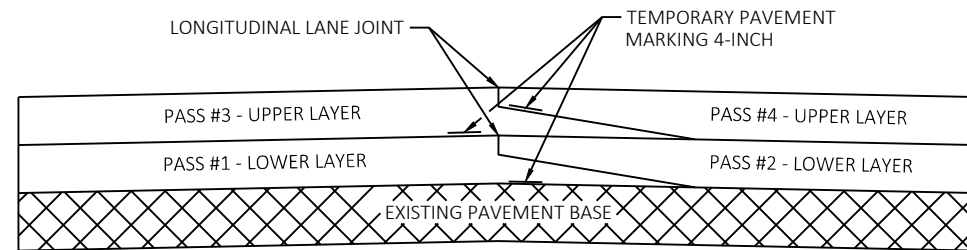


STORM SEWER REPLACEMENTS

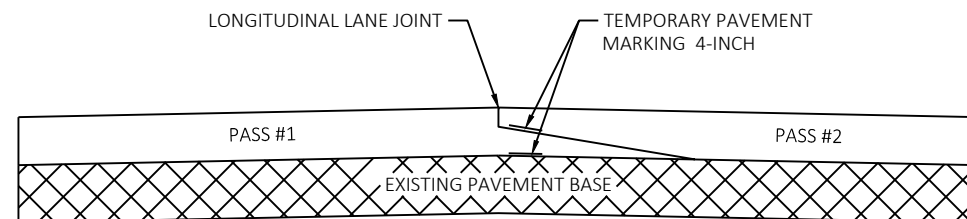
TO APPLY (APPROX.):

STA 304+18 TO STA 318+50  
STA 523+00 TO STA 526+31

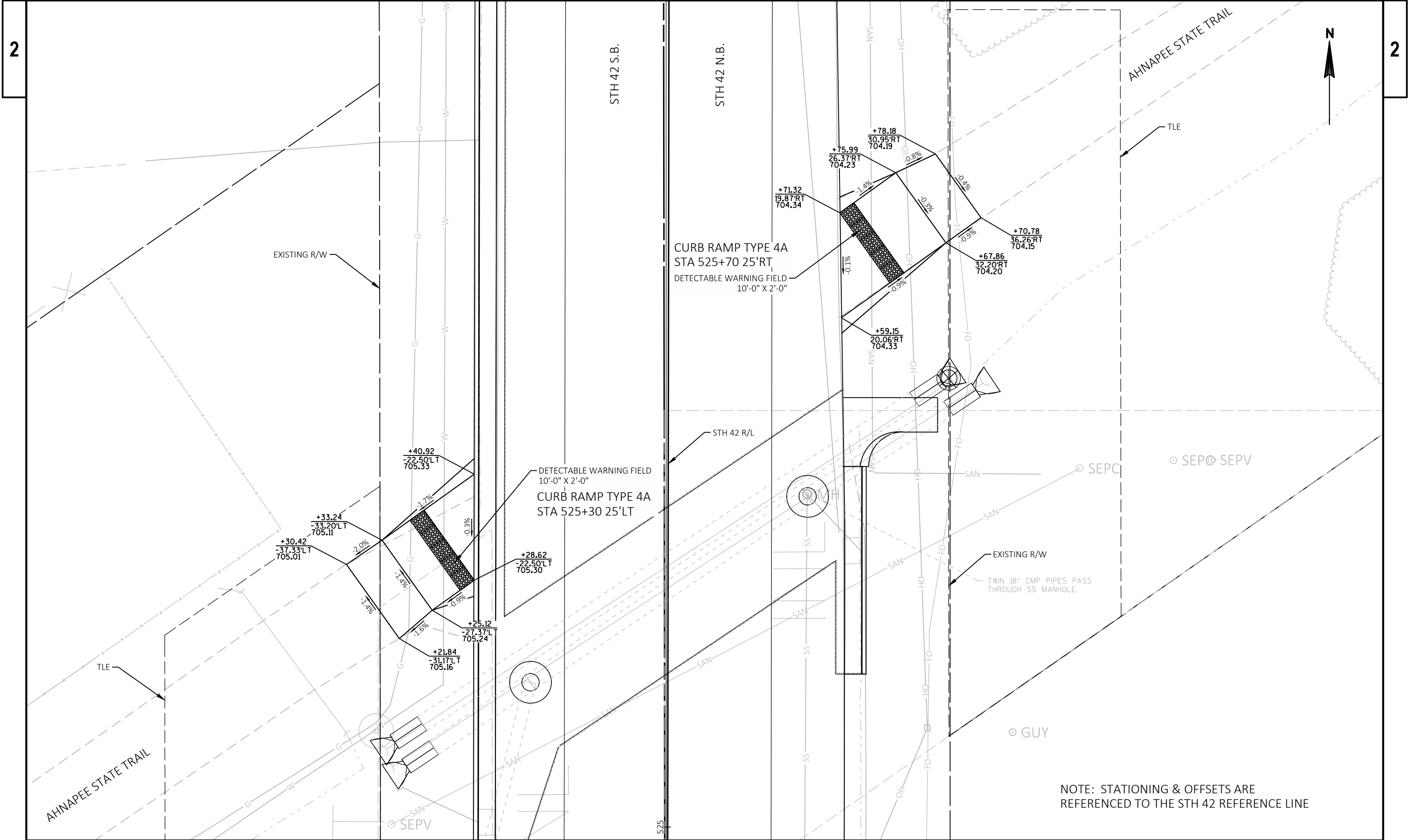




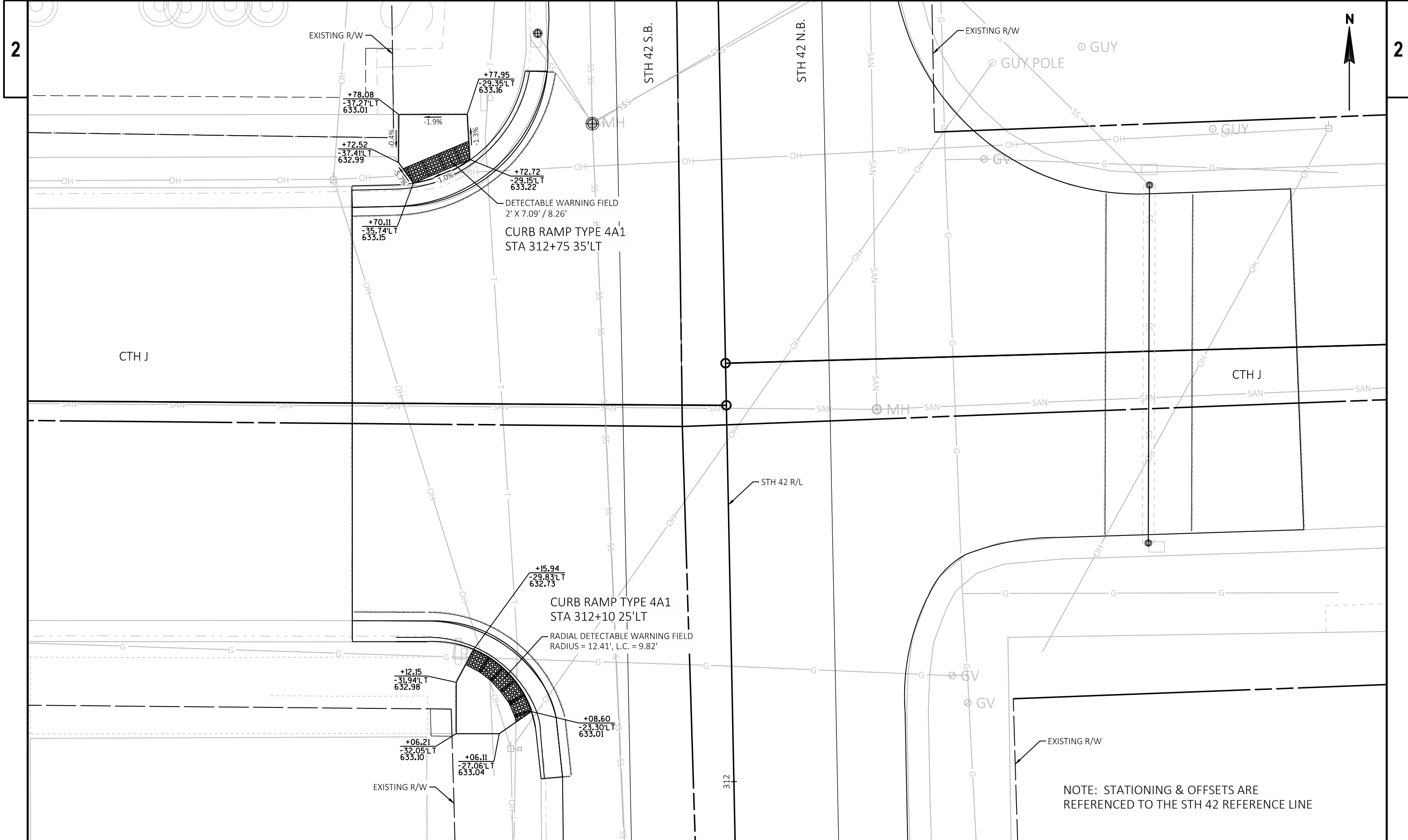
PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

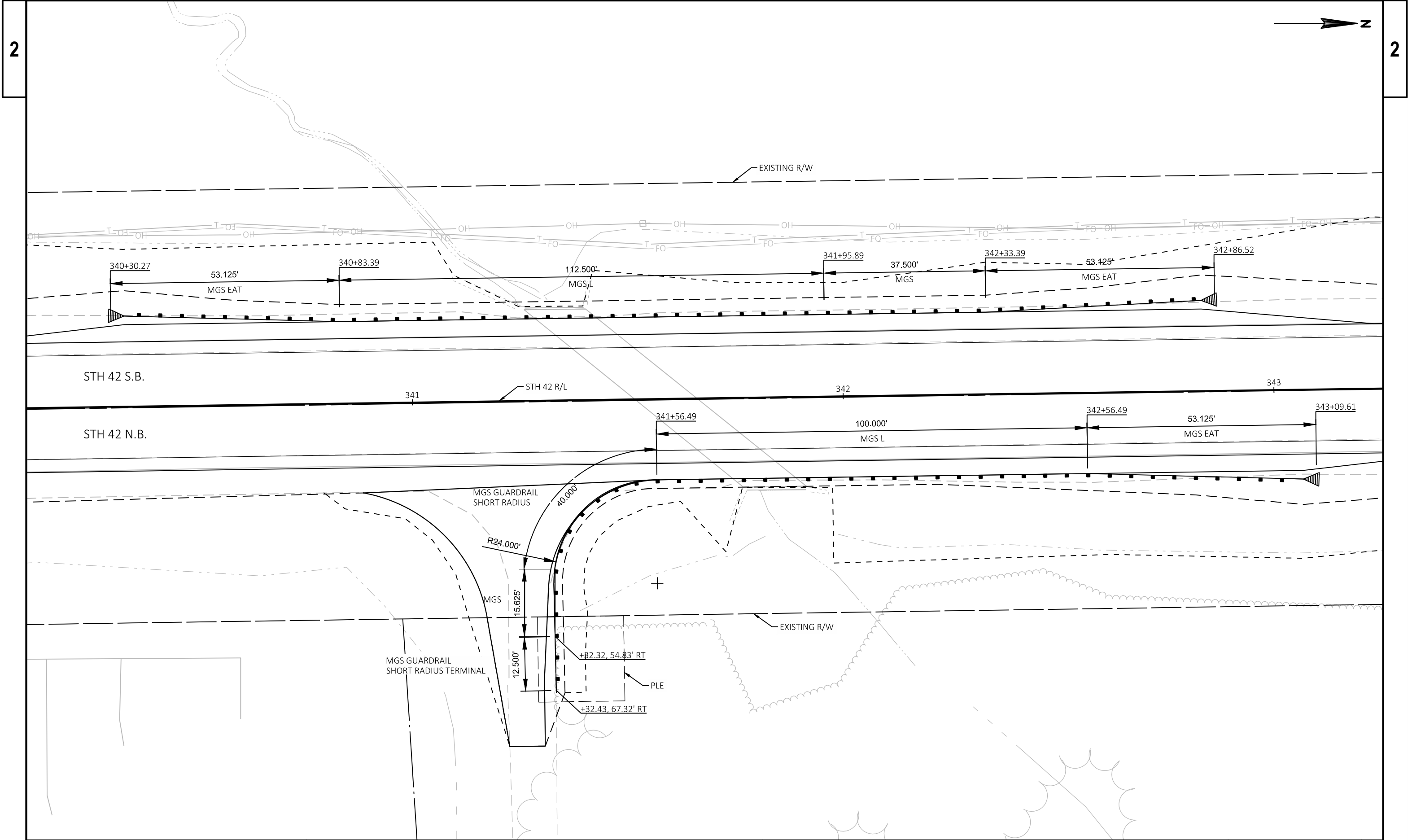


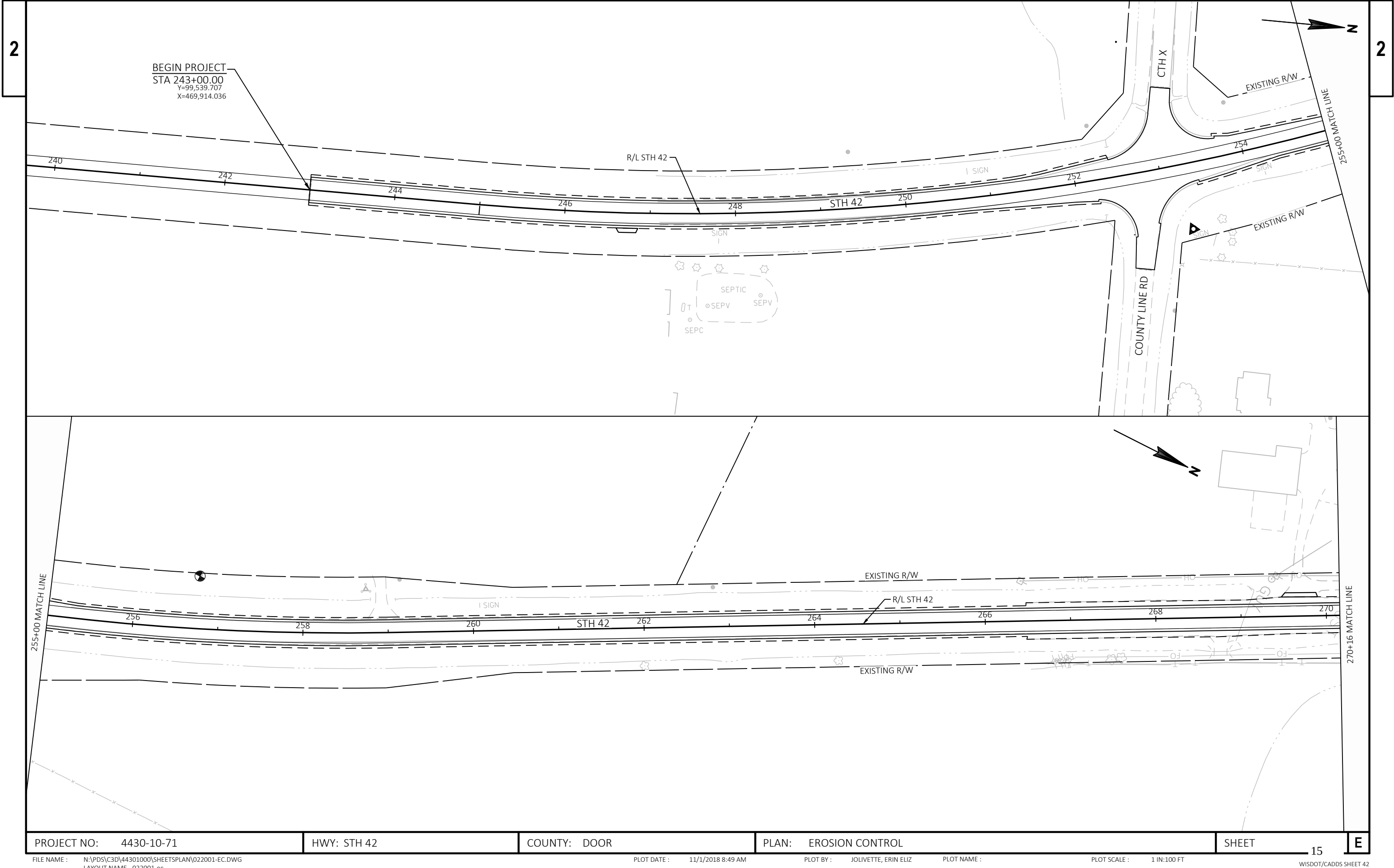
PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

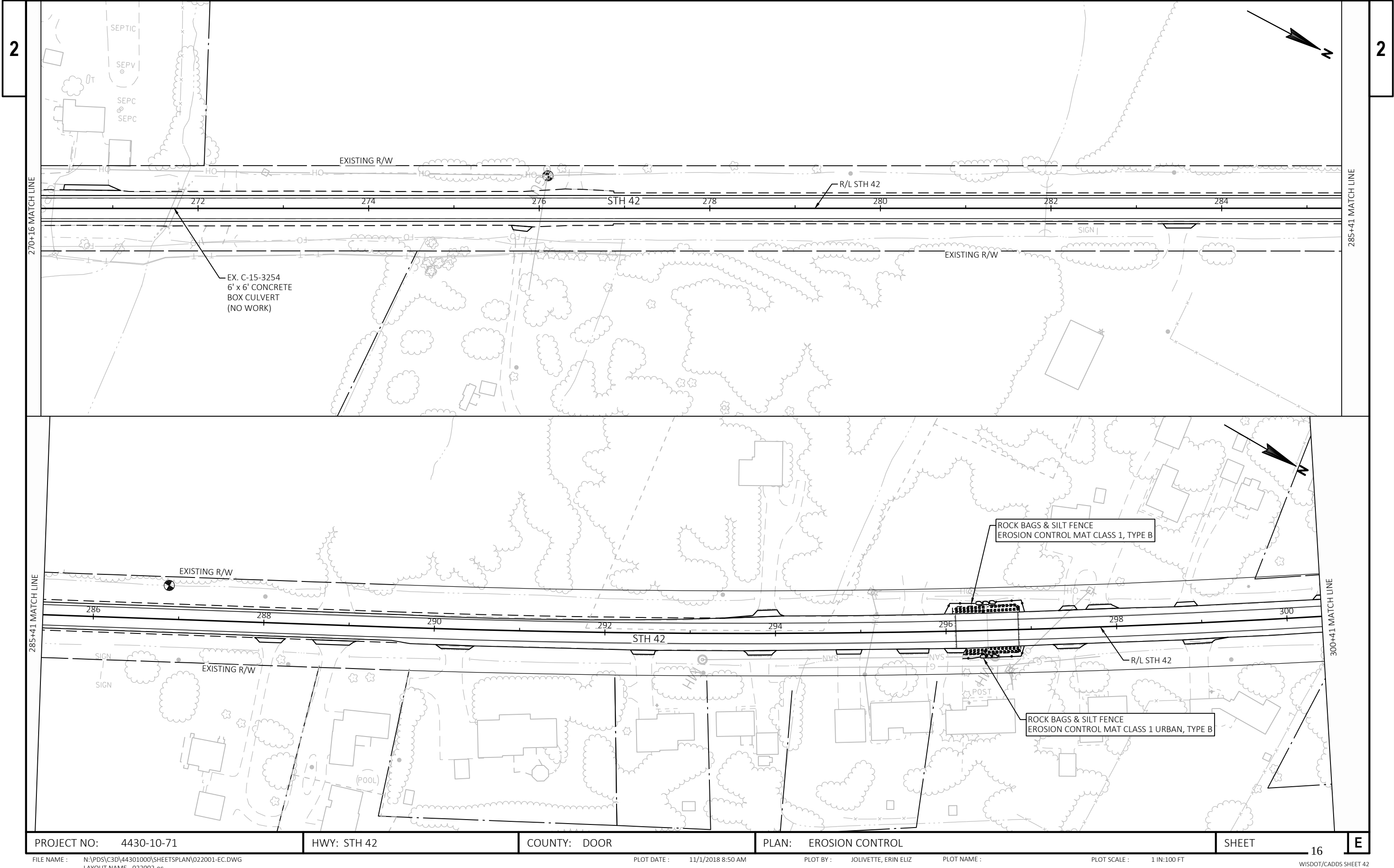


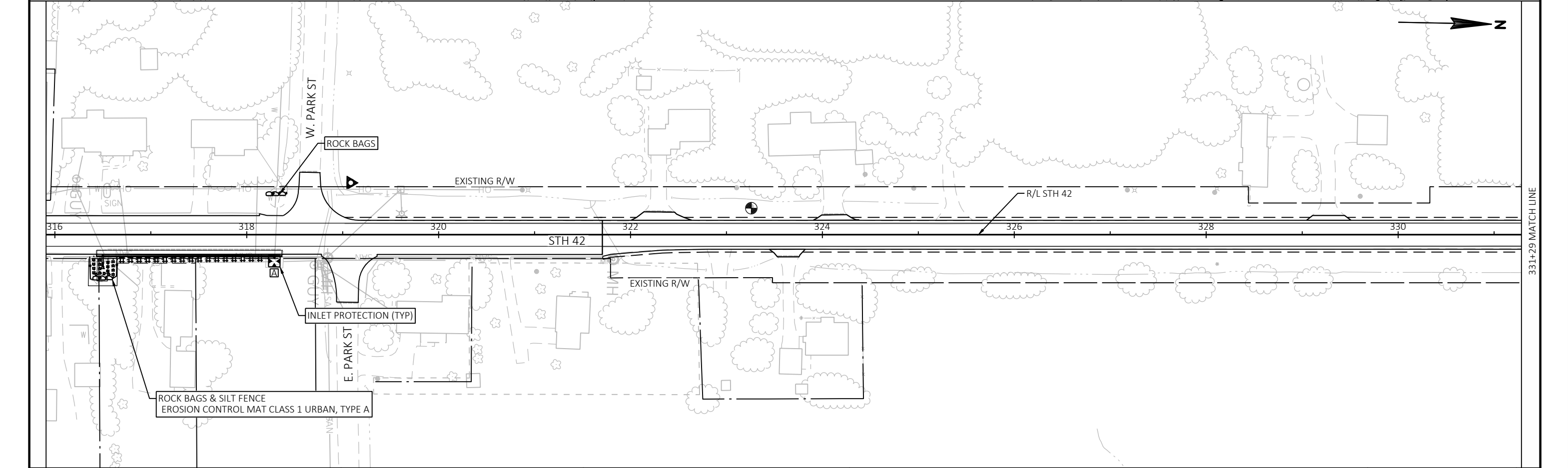
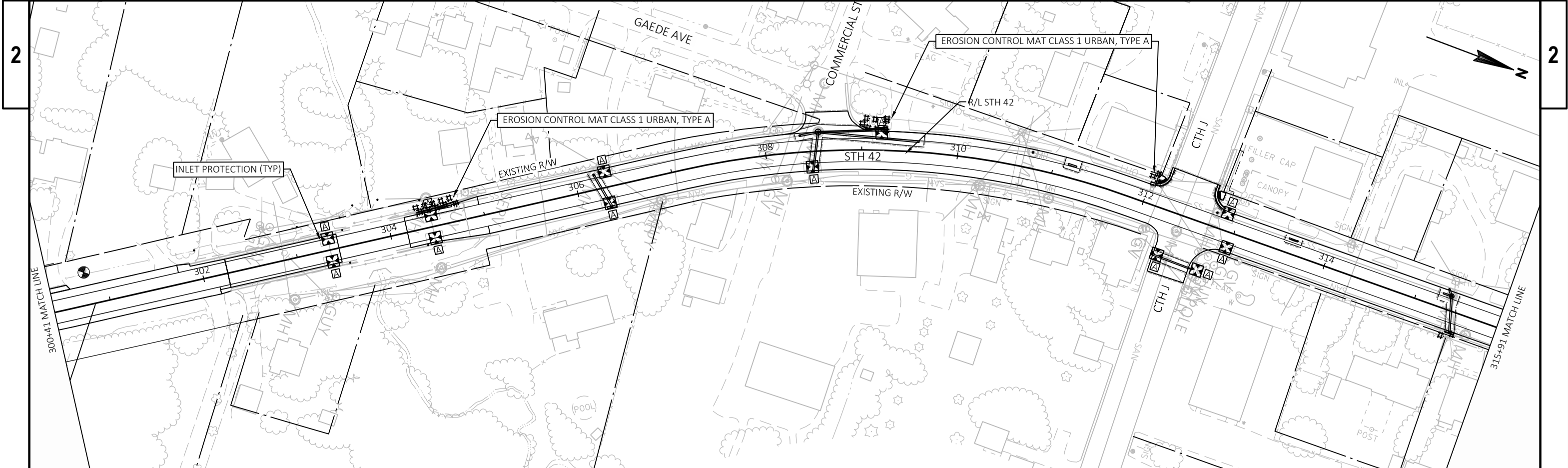




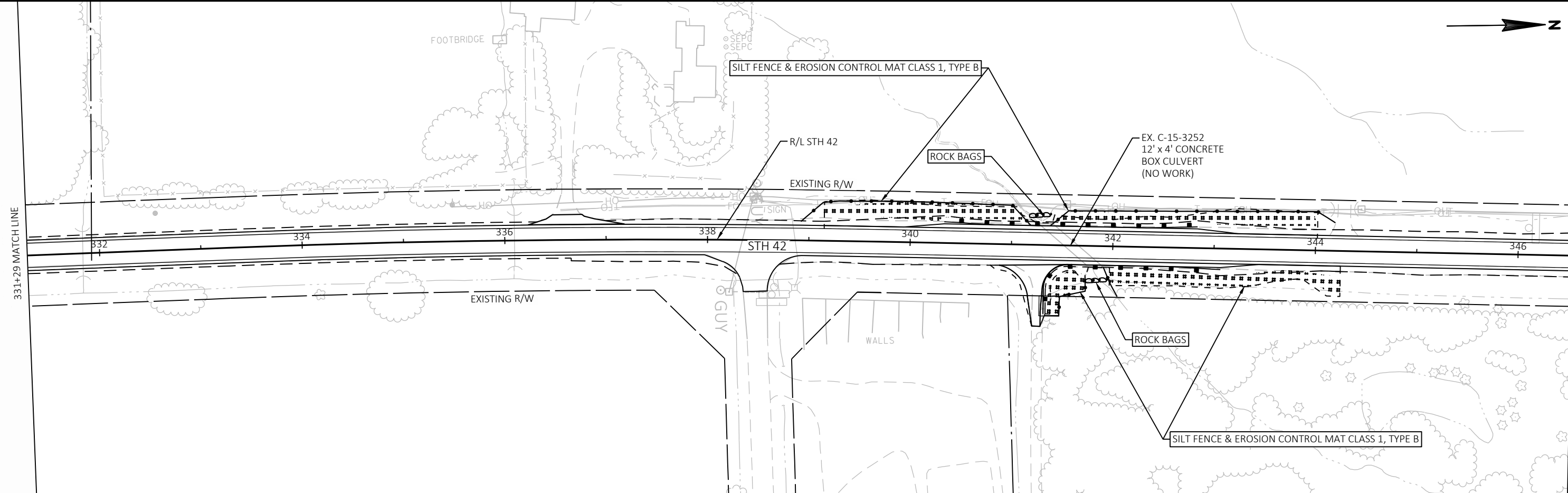




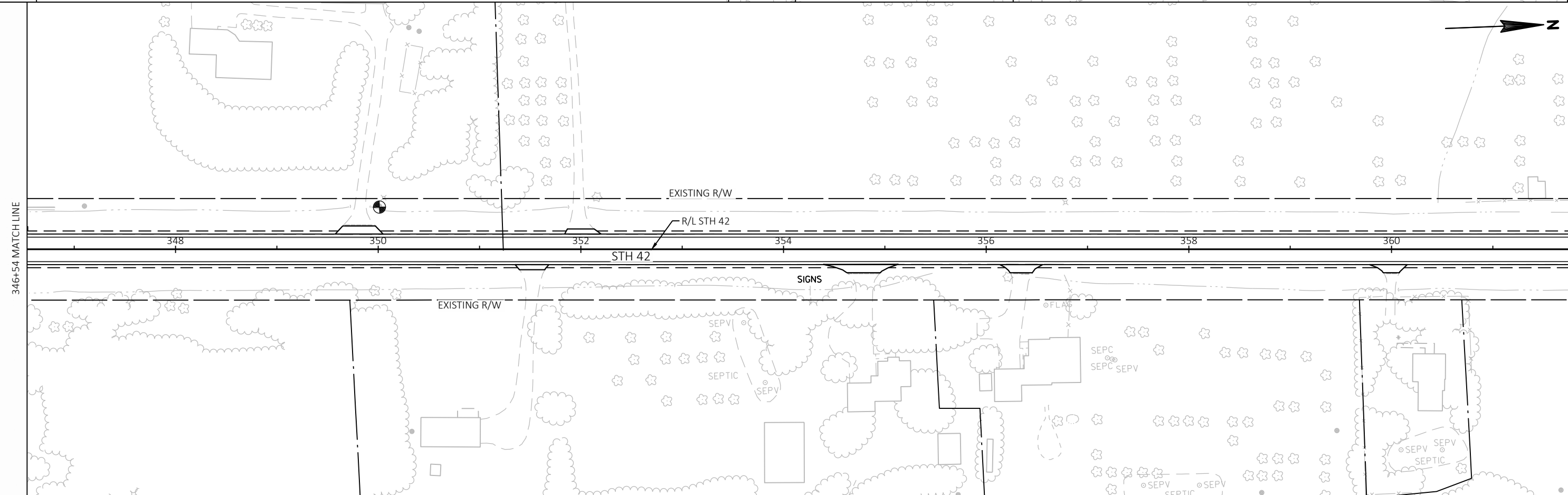




2



2



|             |            |
|-------------|------------|
| PROJECT NO: | 4430-10-71 |
|-------------|------------|

HWY: STH 42

COUNTY: DOOR

|       |                 |
|-------|-----------------|
| PLAN: | EROSION CONTROL |
|-------|-----------------|

SHEET 18

— 18 —

|   |
|---|
| E |
|---|

FILE NAME : N:\PDS\C3D\44301000\SHEETSPLAN\022001-EC.DWG  
LAYOUT NAME - 022004-ec

PLOT DATE : 11/1/2018 8:50 AM PLOT BY : JOLIVETTE, ERIN ELIZ

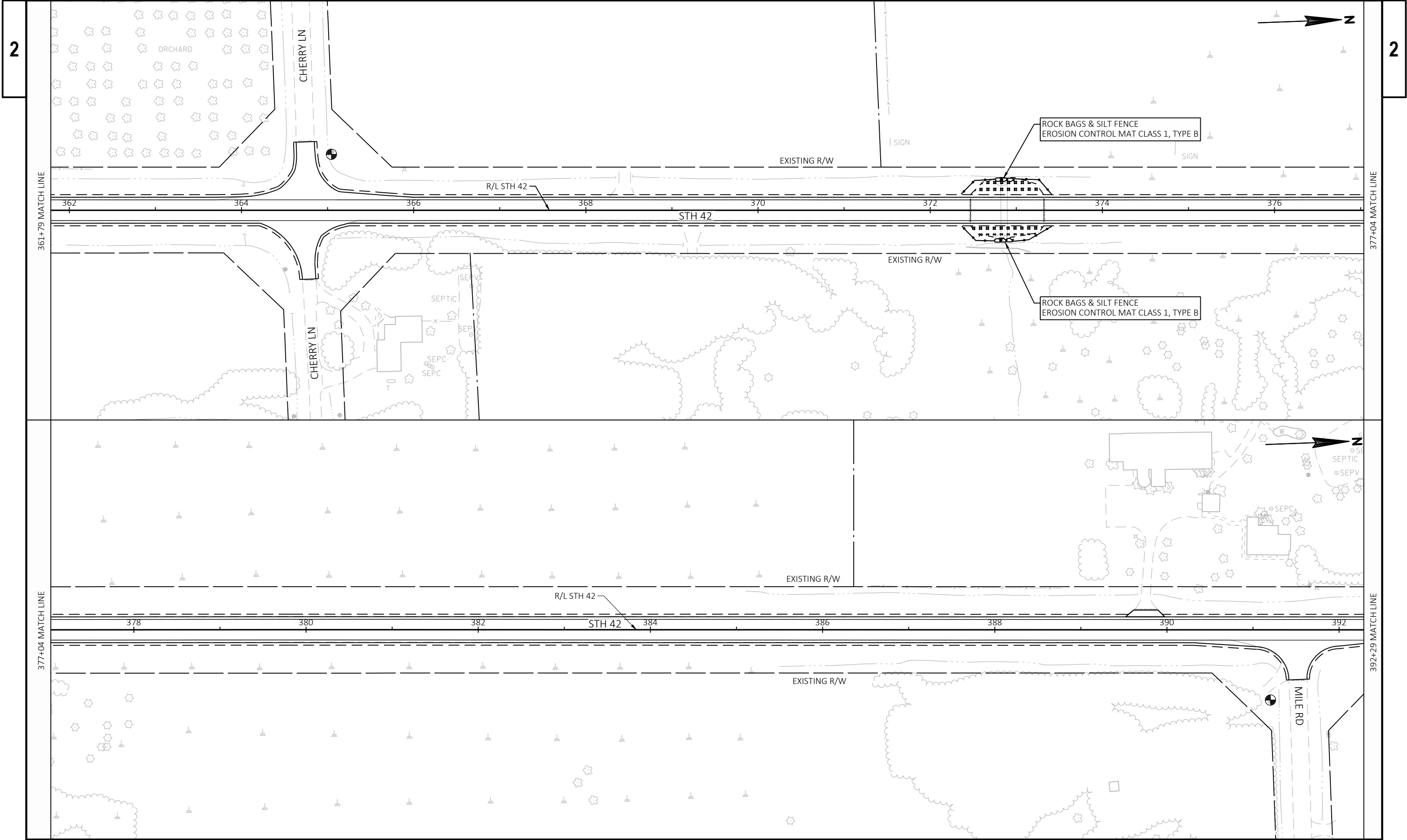
PLOT BY : JOLIVETTE, ERIN ELIZ PLOT NAME :

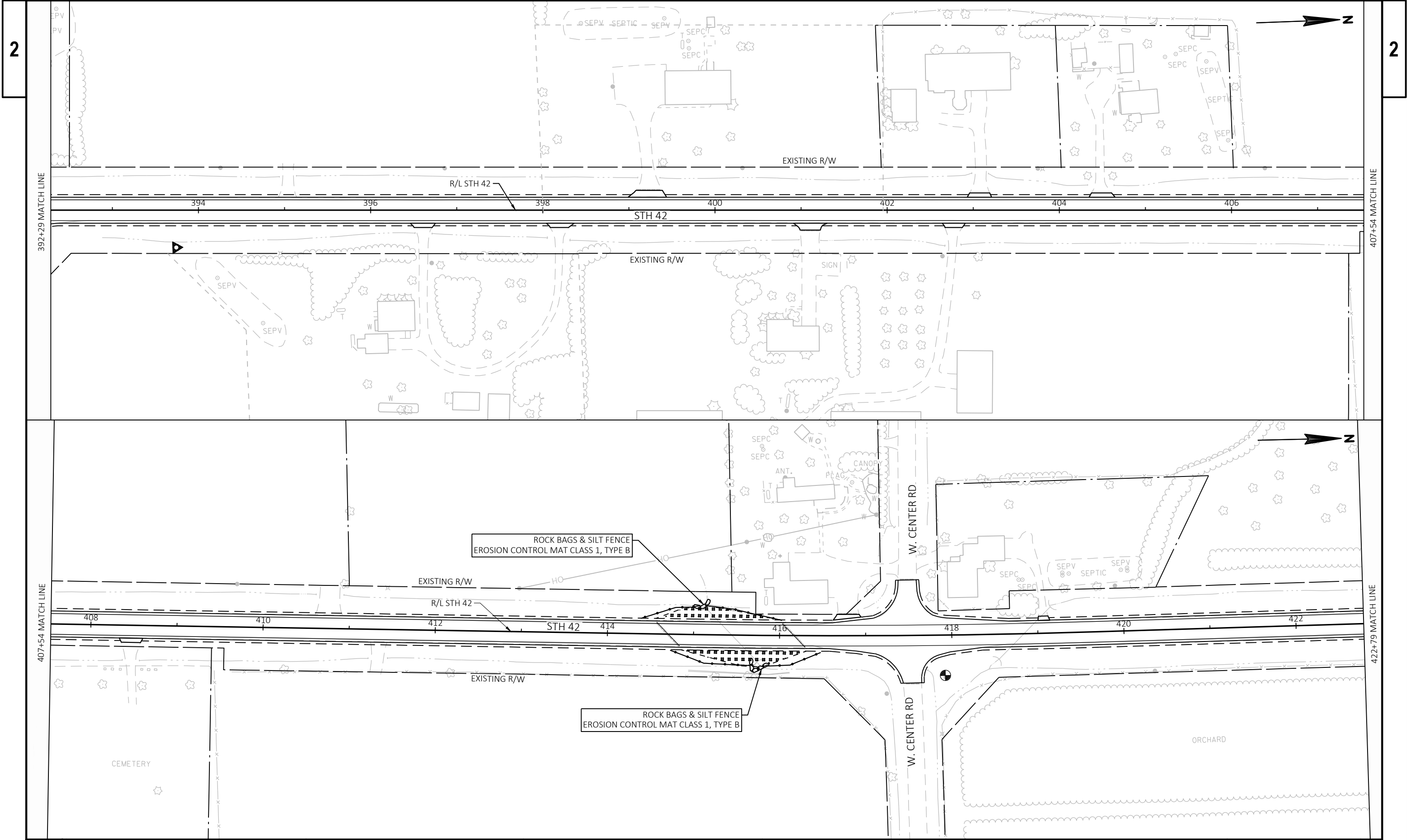
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42







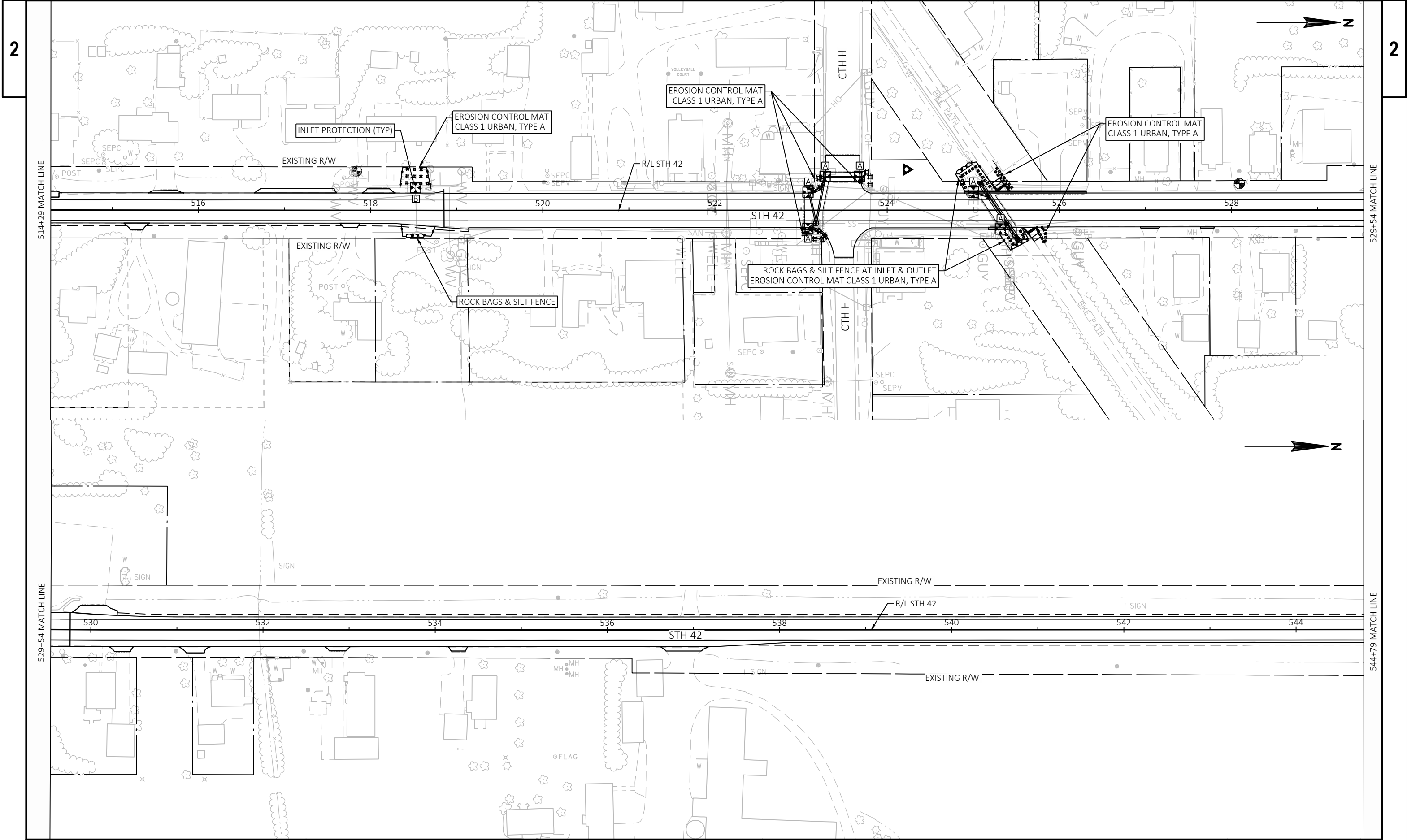


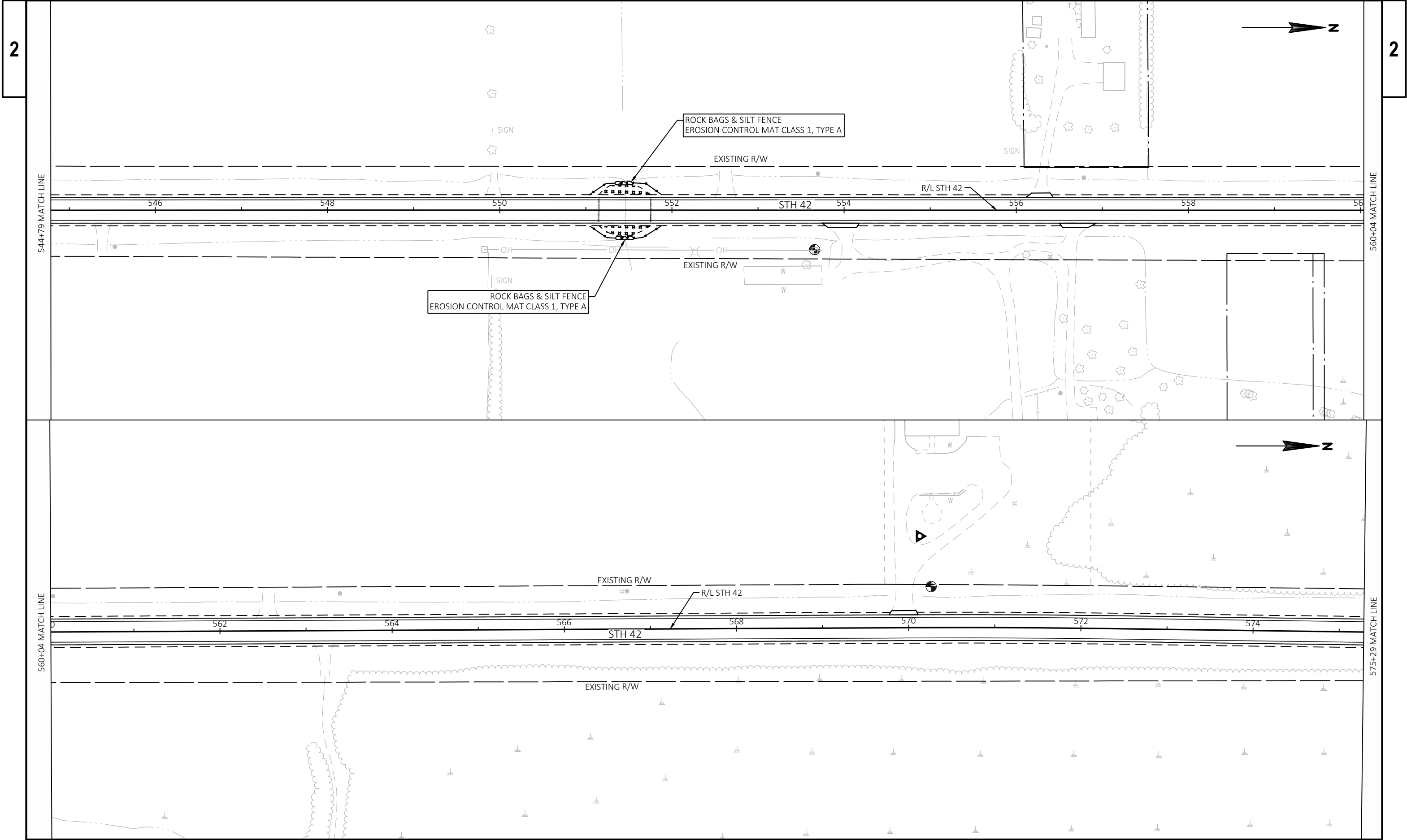


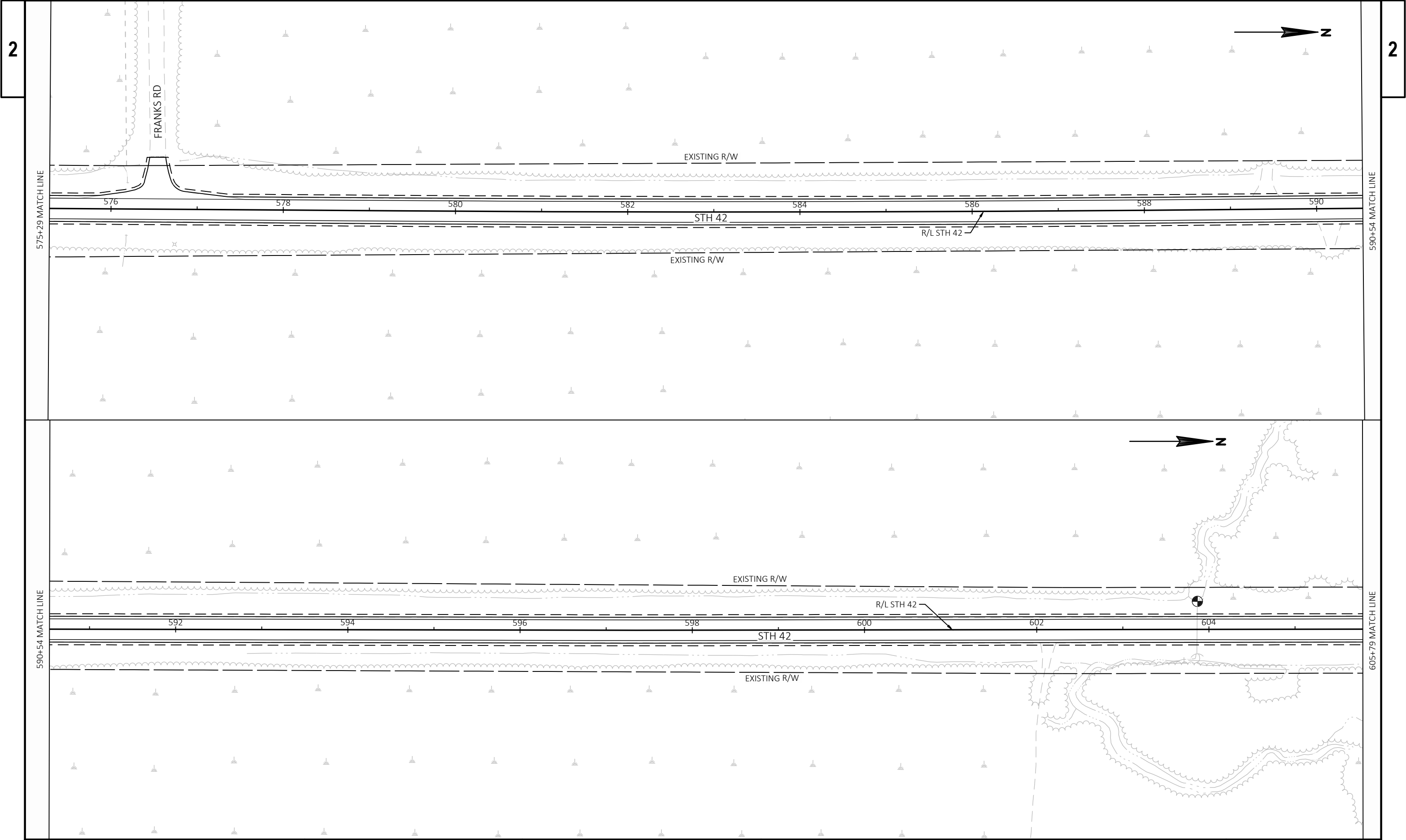




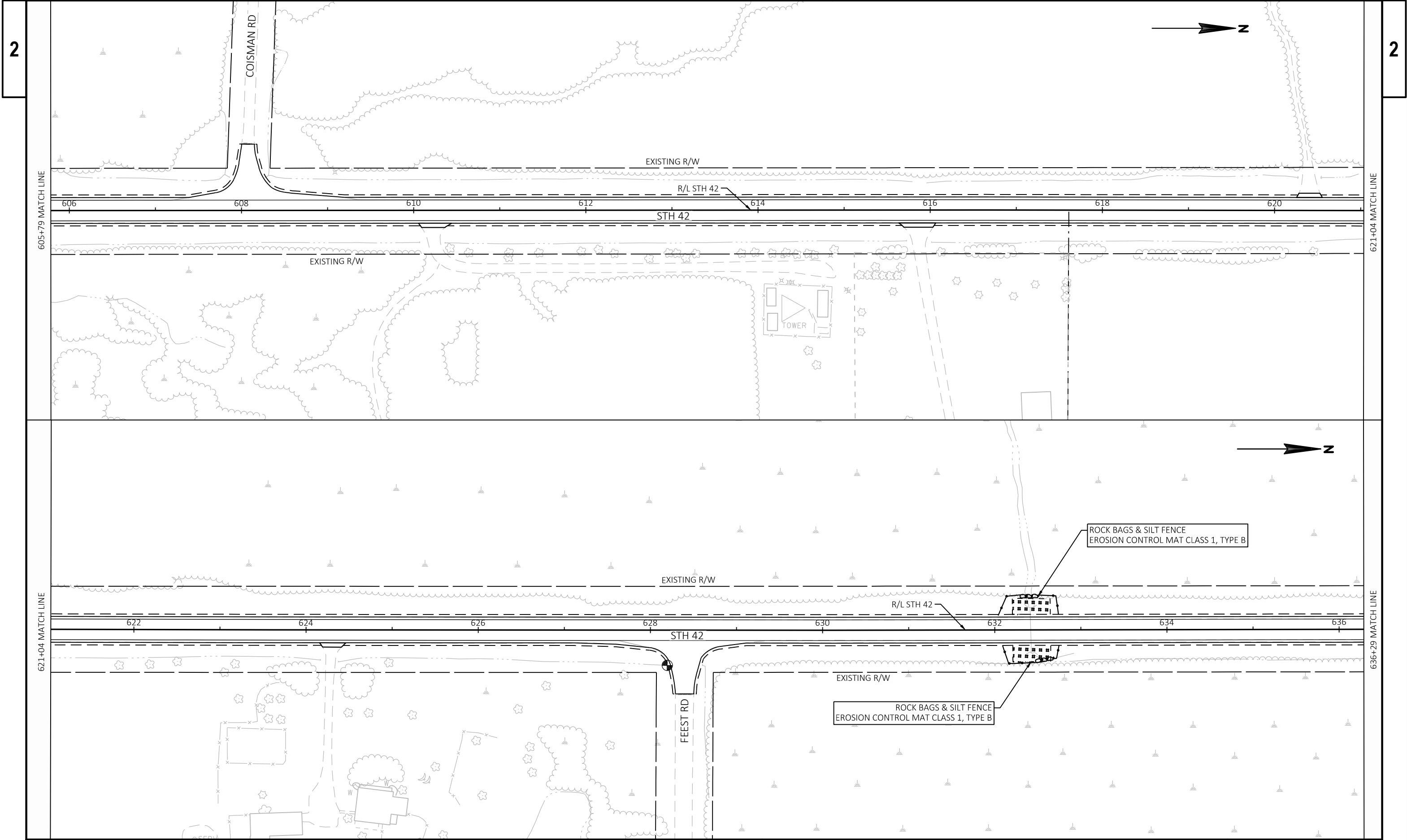
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|-------------|------------|-------------|--------------|-----------------------|-------|----|---|
| PROJECT NO: | 4430-10-71 | HWY: STH 42 | COUNTY: DOOR | PLAN: EROSION CONTROL | SHEET | 23 | E |
|-------------|------------|-------------|--------------|-----------------------|-------|----|---|



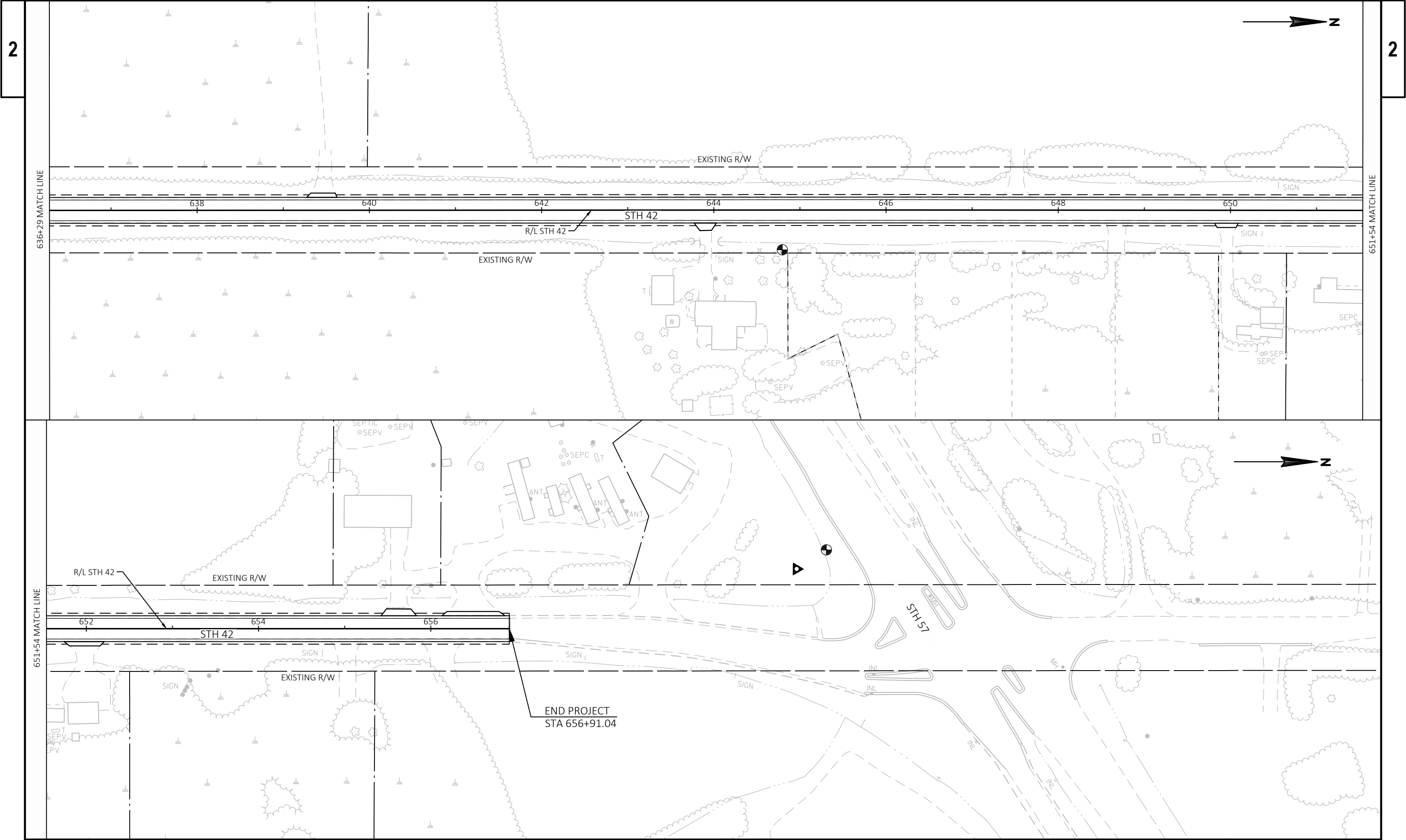




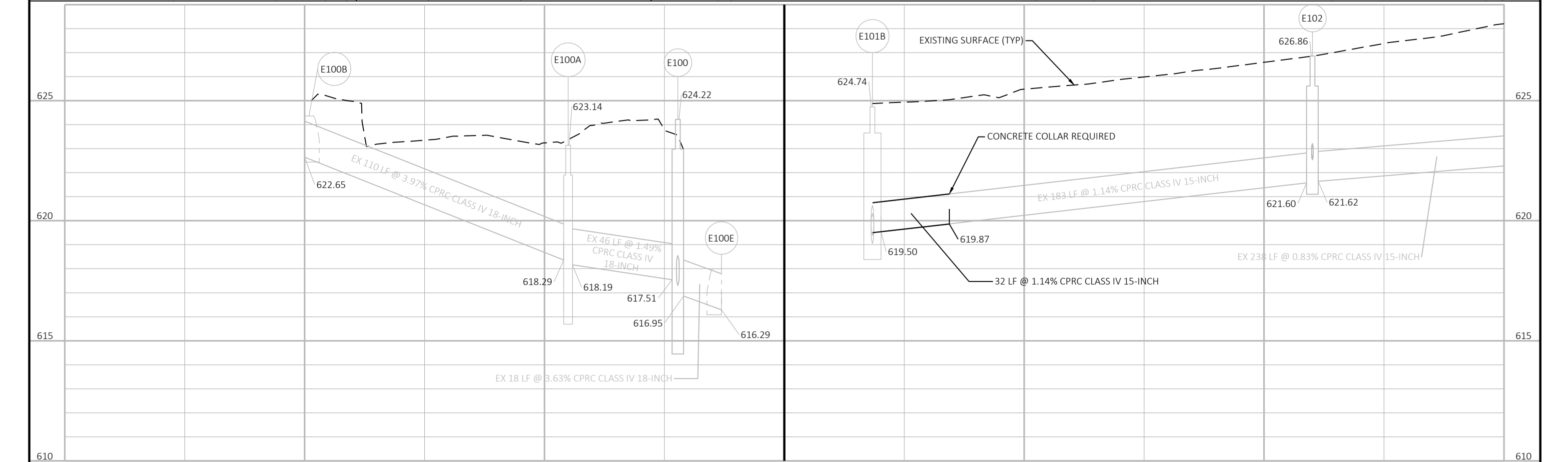
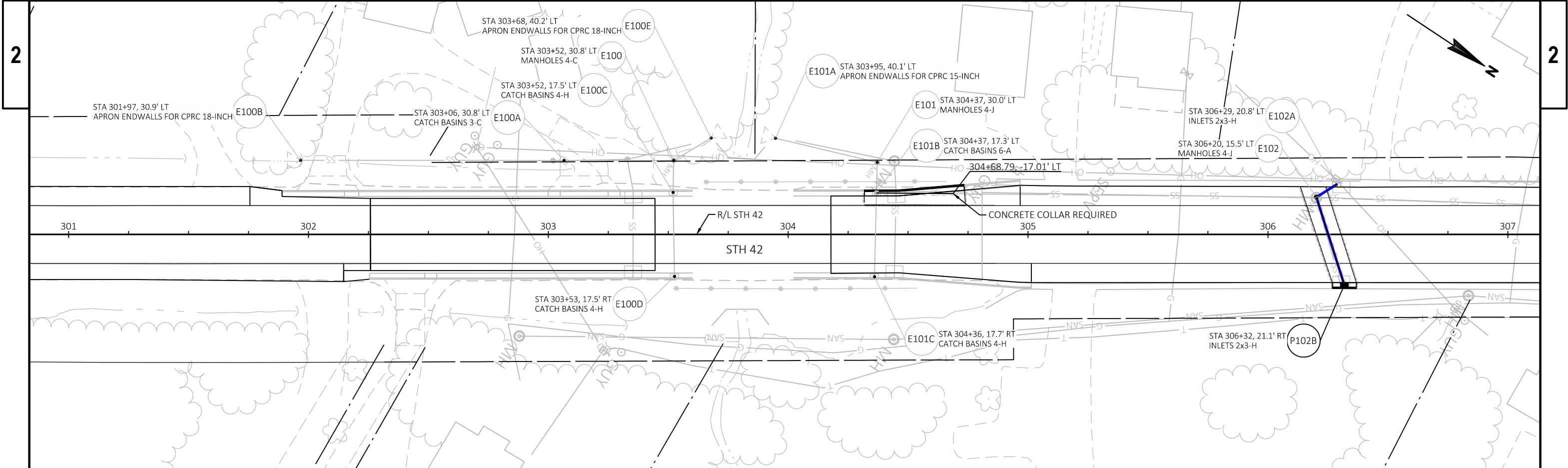


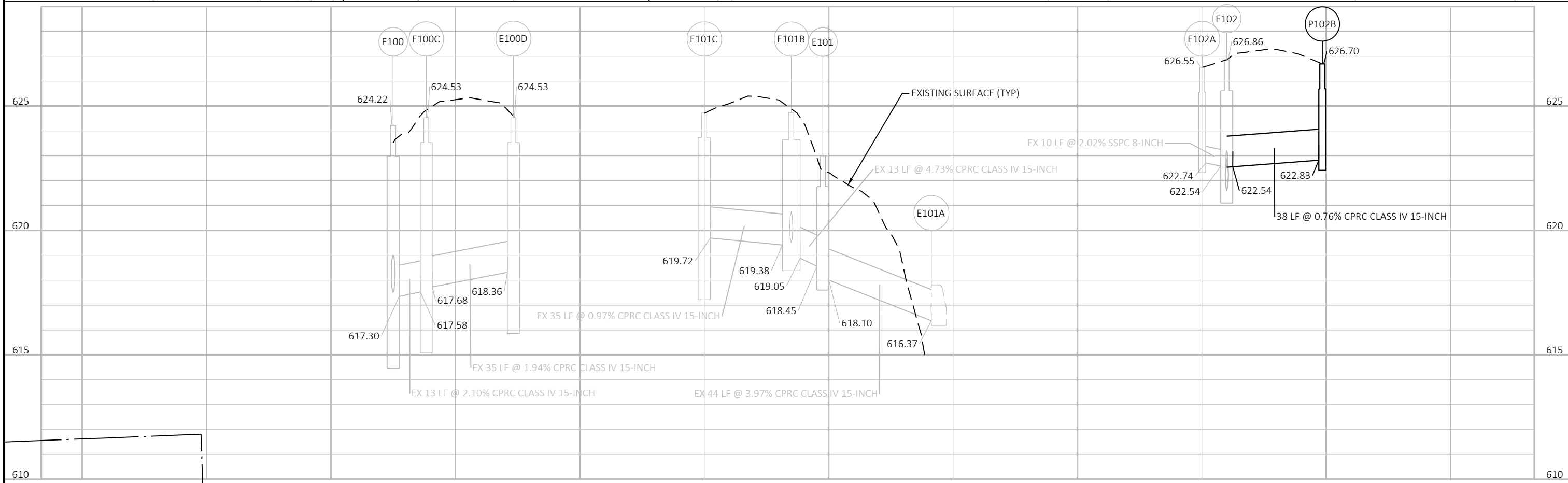
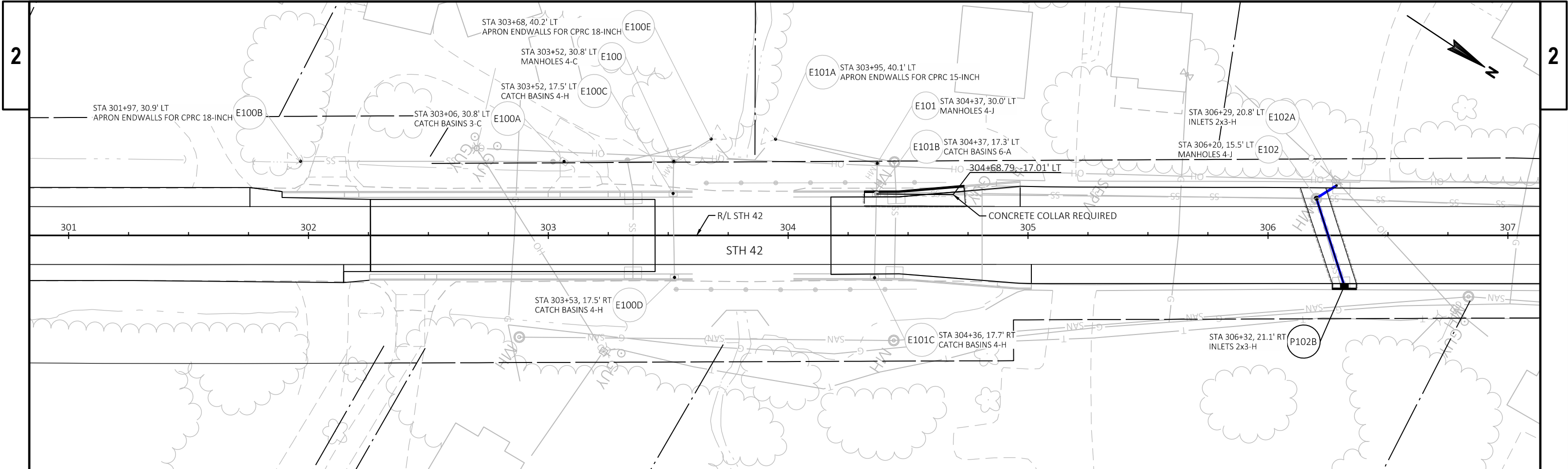


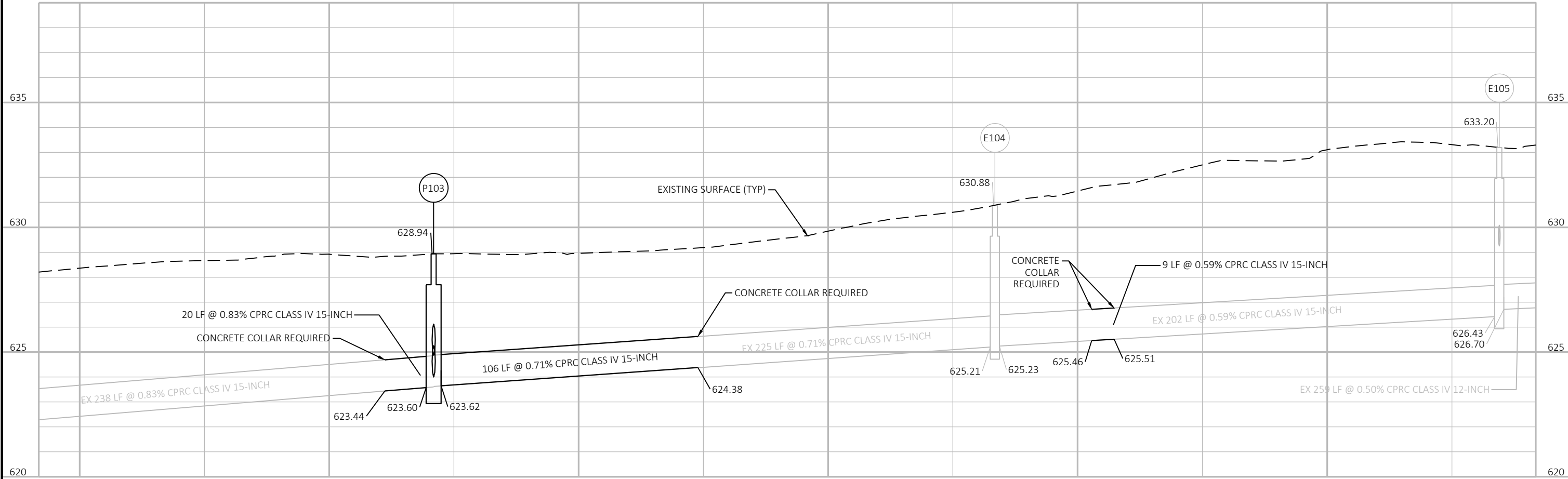
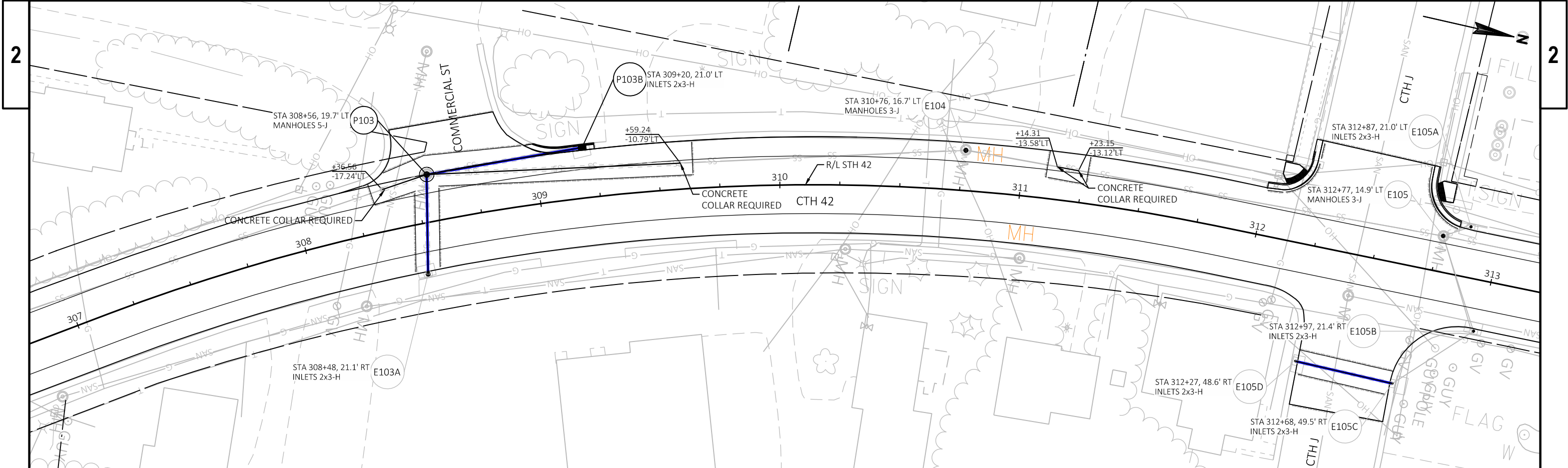
|             |            |             |              |                       |          |   |
|-------------|------------|-------------|--------------|-----------------------|----------|---|
| PROJECT NO: | 4430-10-71 | HWY: STH 42 | COUNTY: DOOR | PLAN: EROSION CONTROL | SHEET 27 | E |
|-------------|------------|-------------|--------------|-----------------------|----------|---|

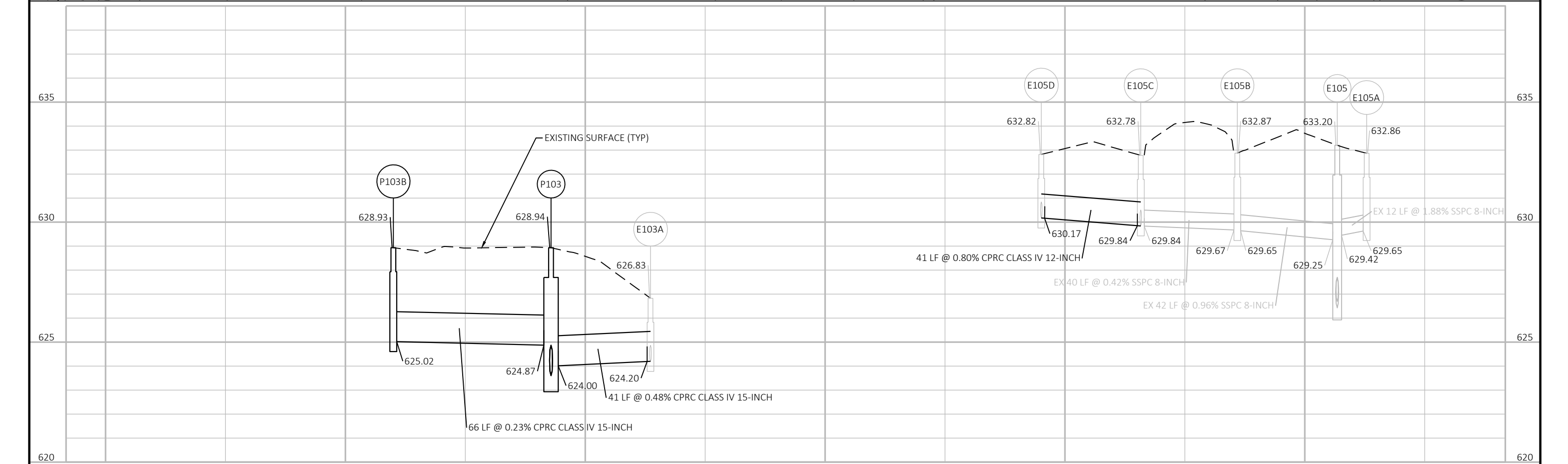
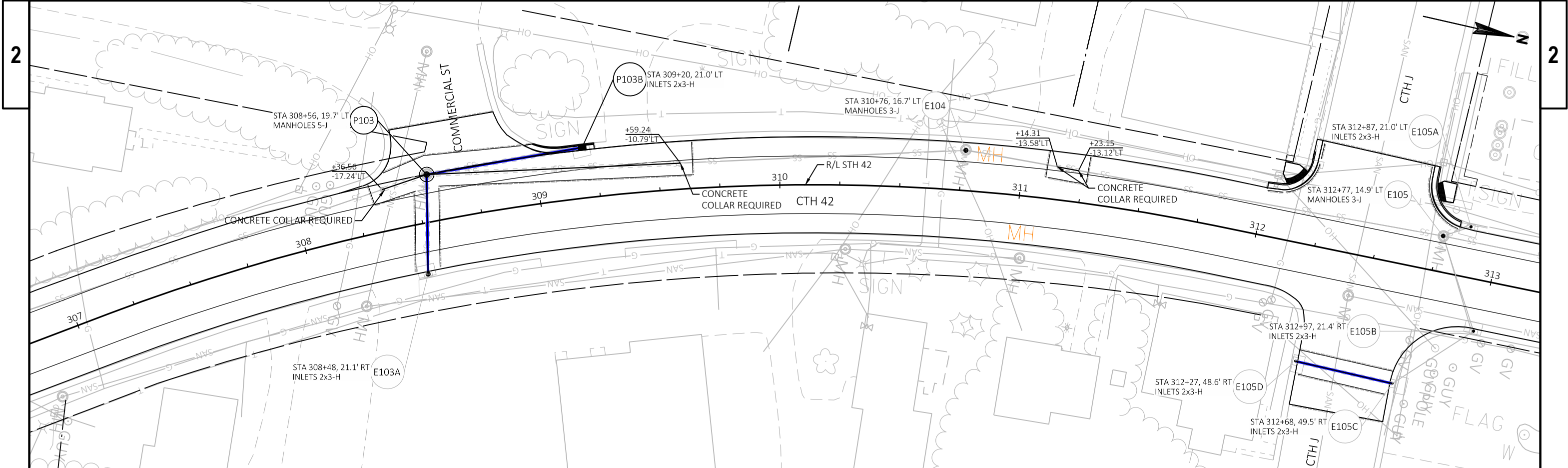






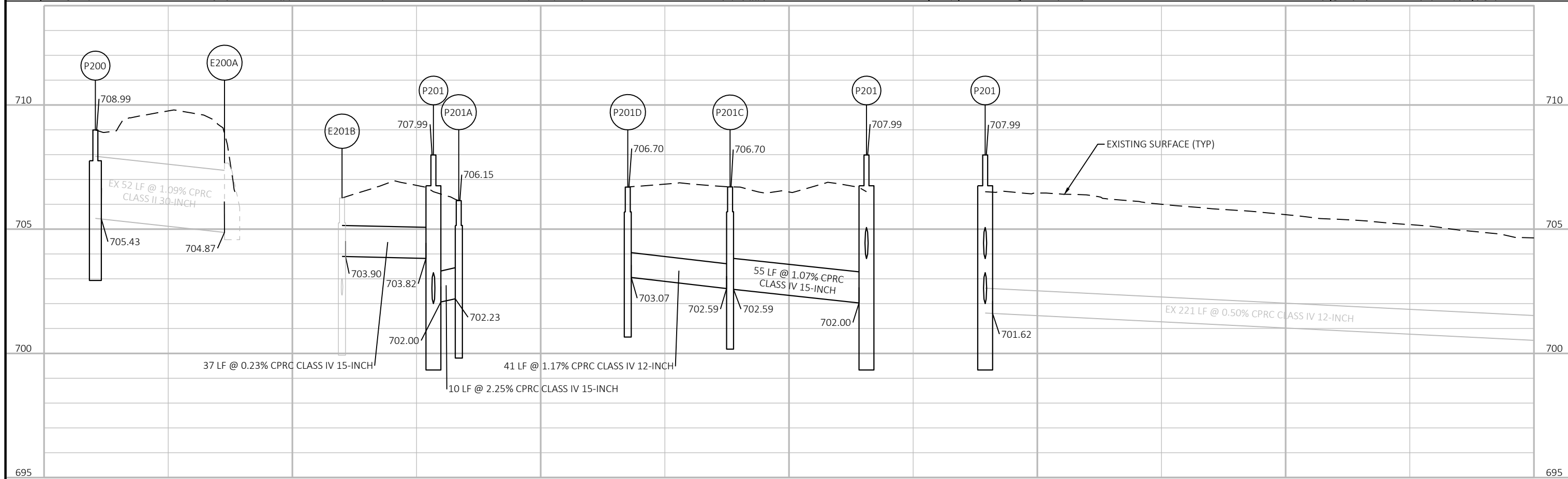
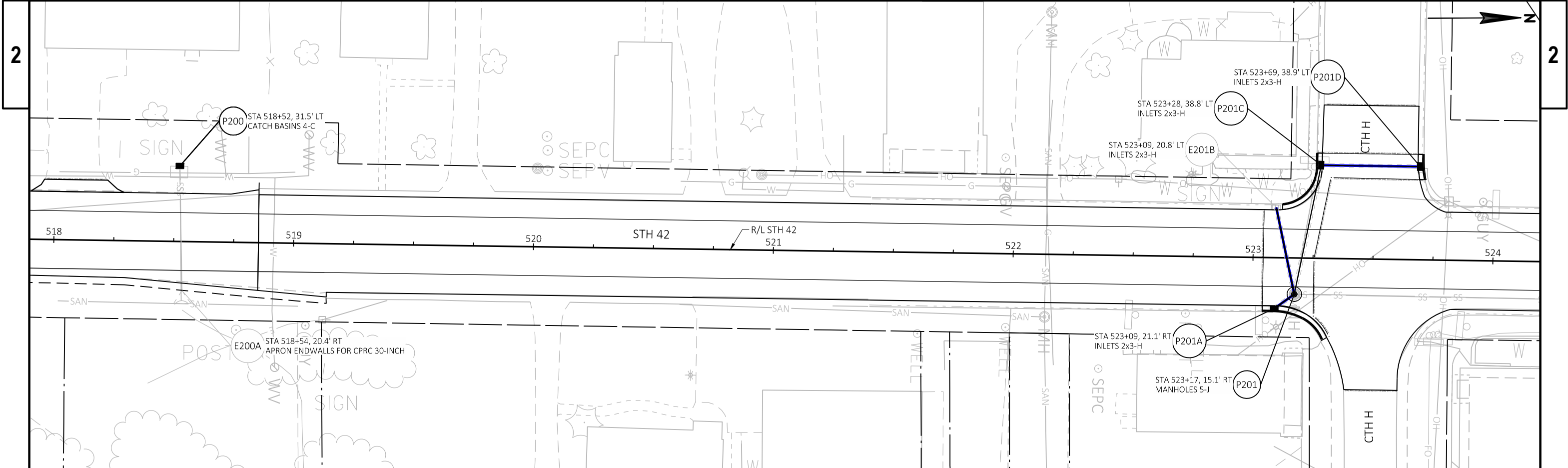


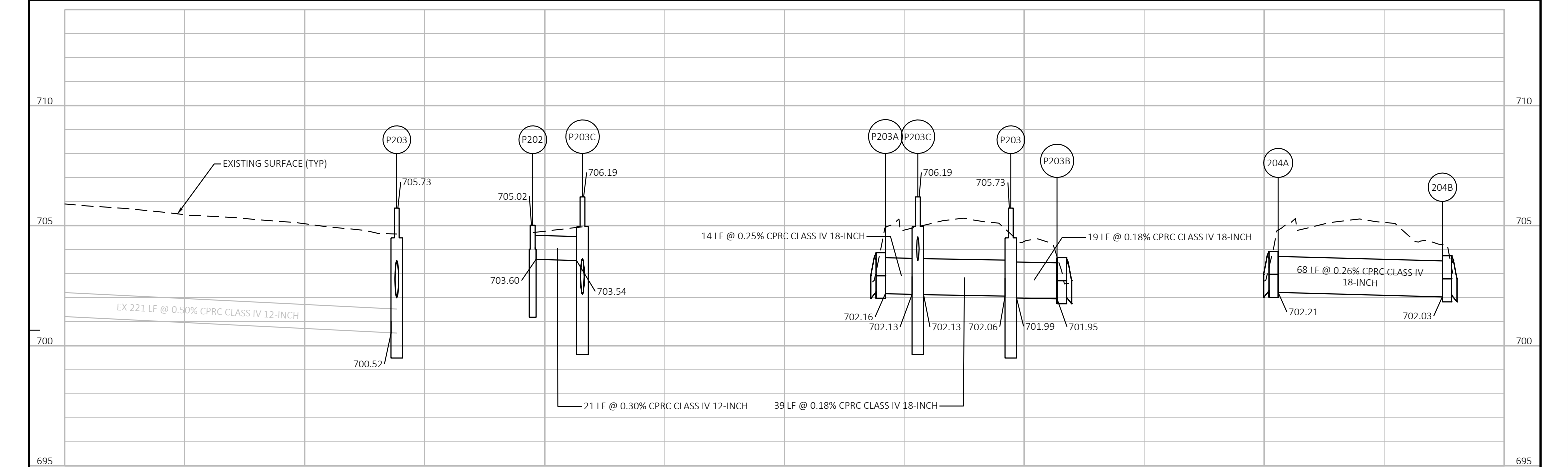
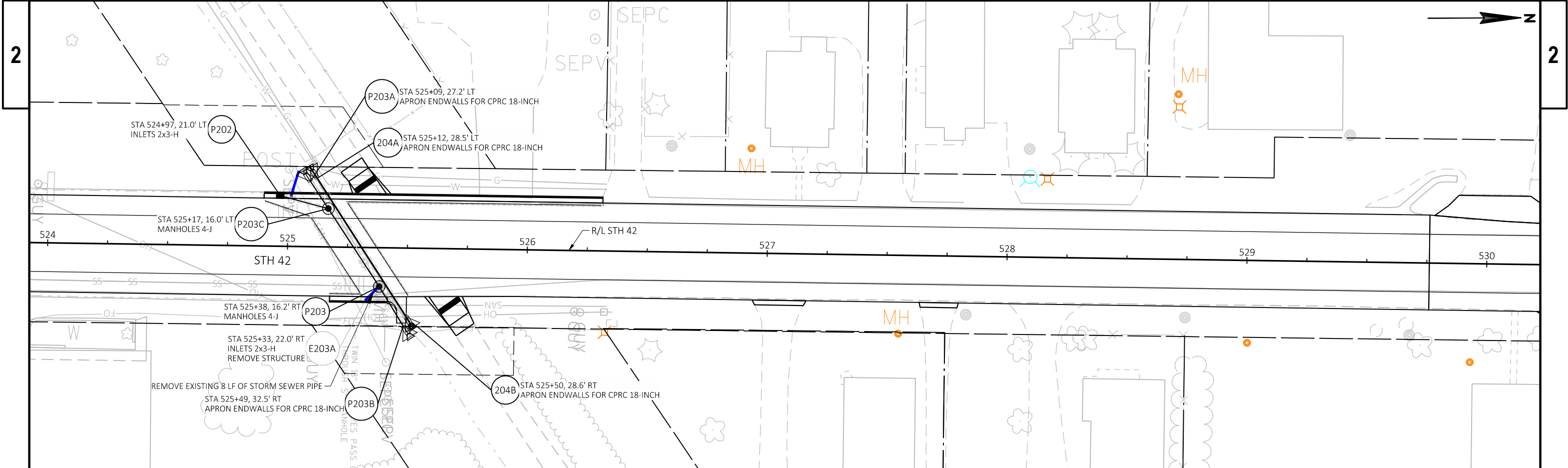












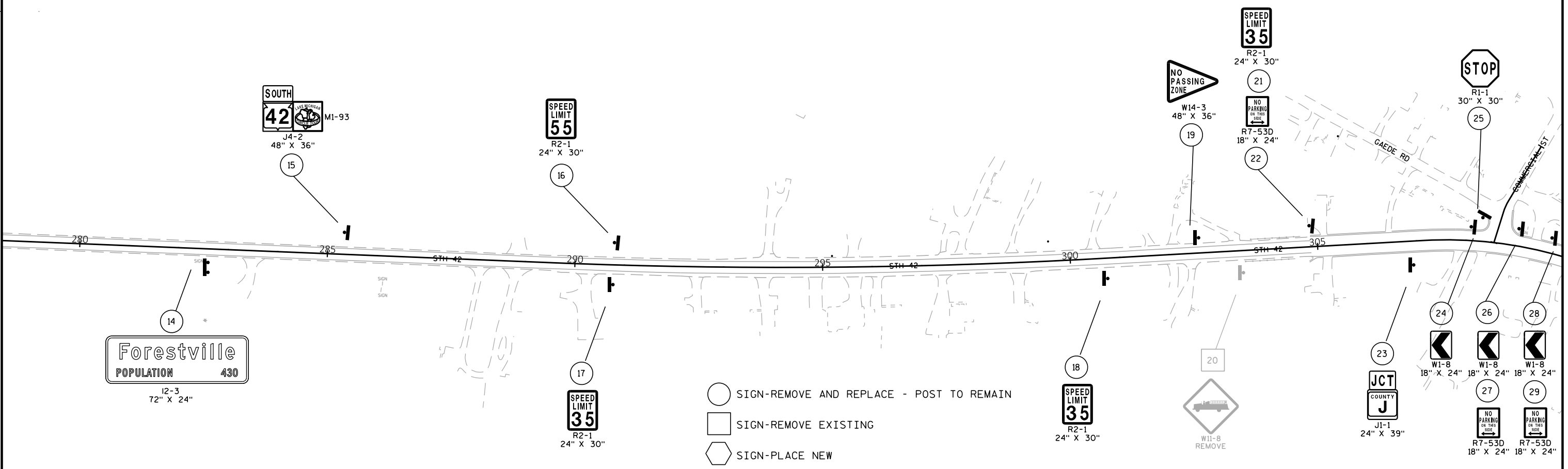
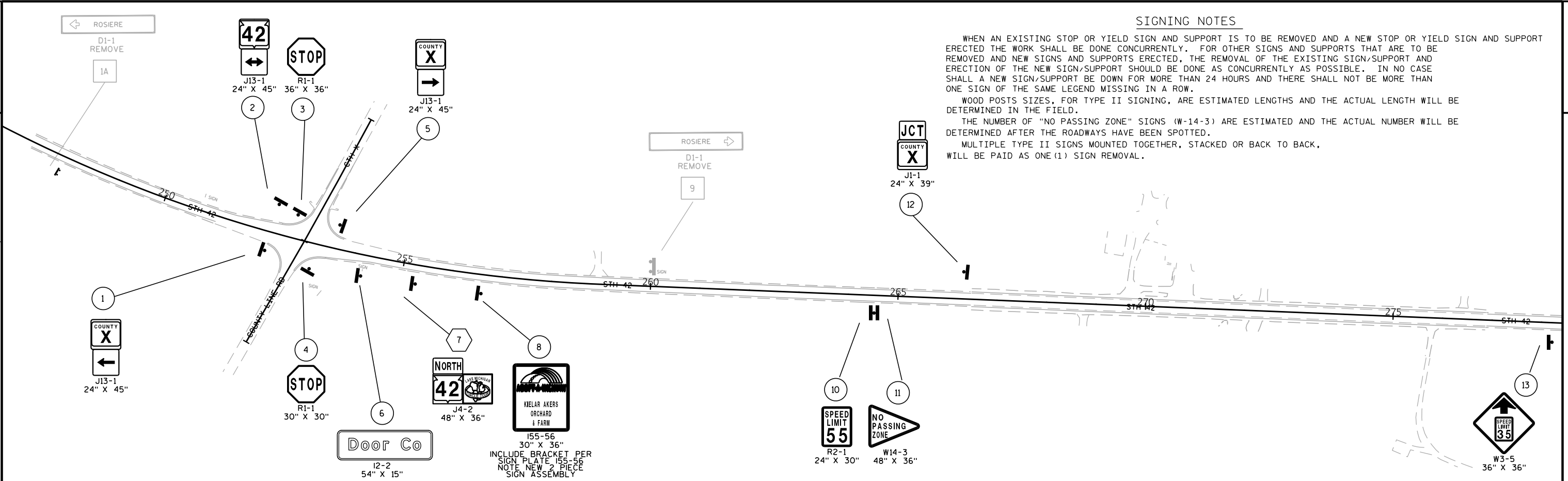
SIGNING NOTES

WHEN AN EXISTING STOP OR YIELD SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP OR YIELD SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

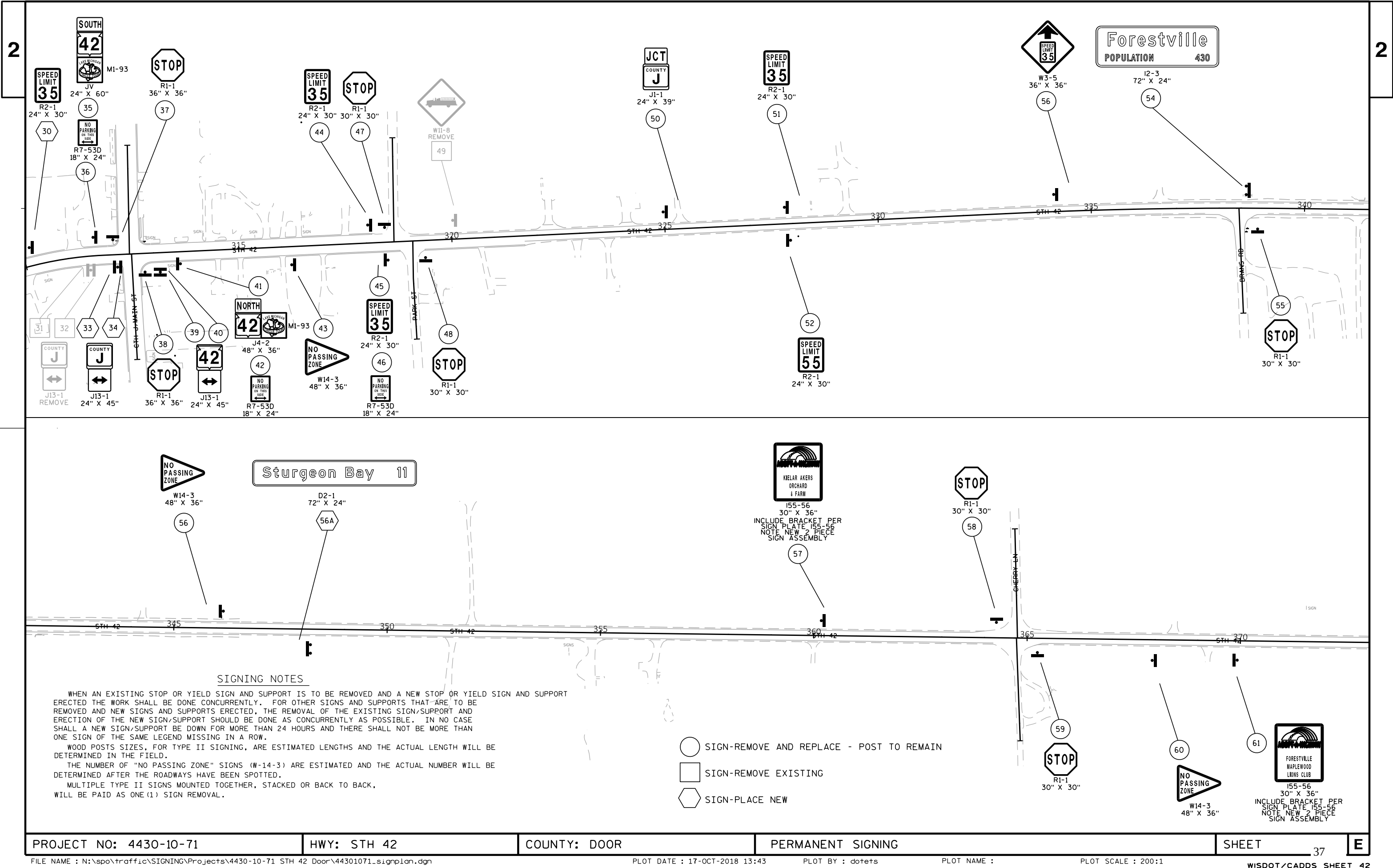
THE NUMBER OF "NO PASSING ZONE" SIGNS (W-14-3) ARE ESTIMATED AND THE ACTUAL NUMBER WILL BE DETERMINED AFTER THE ROADWAYS HAVE BEEN SPOTTED.

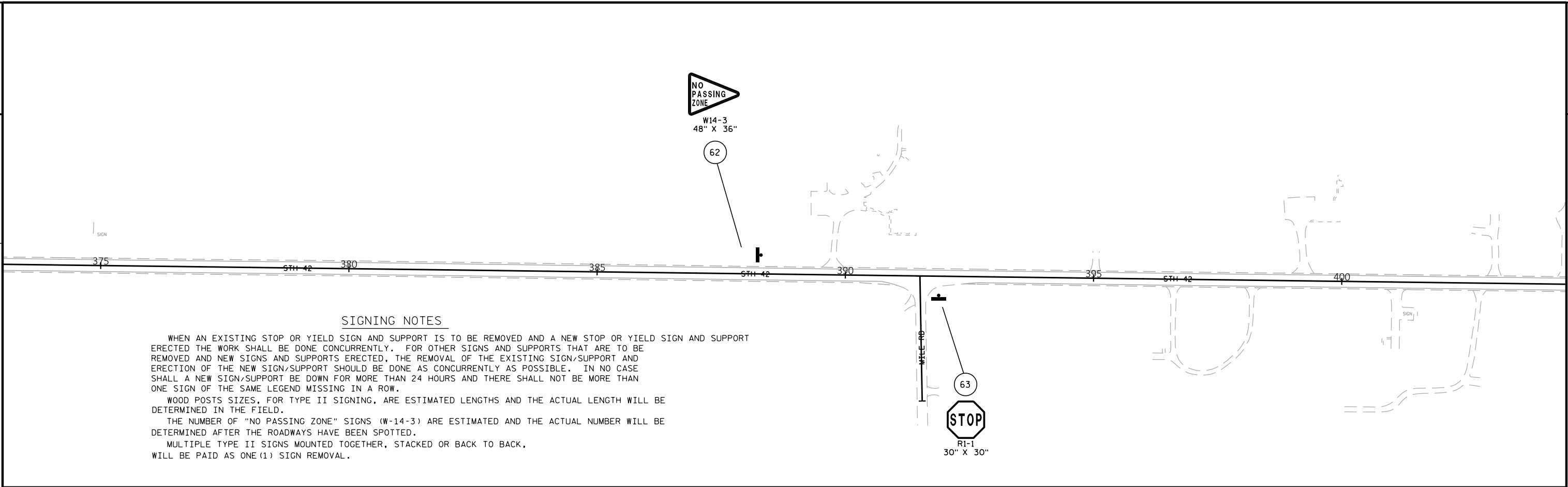
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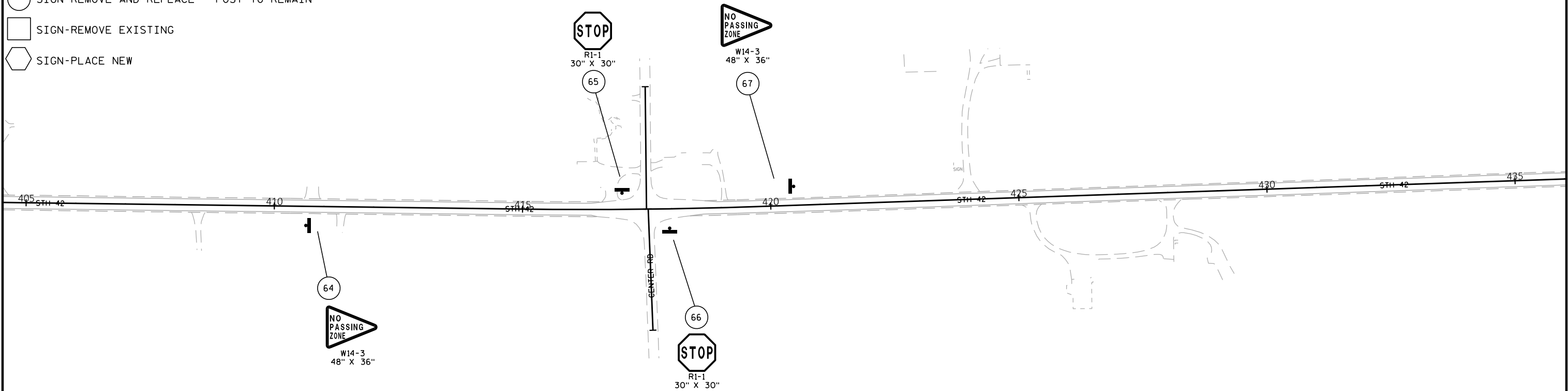
- SIGN-REMOVE AND REPLACE - POST TO REMAIN
- SIGN-REMOVE EXISTING
- SIGN-PLACE NEW







- SIGN-REMOVE AND REPLACE - POST TO REMAIN
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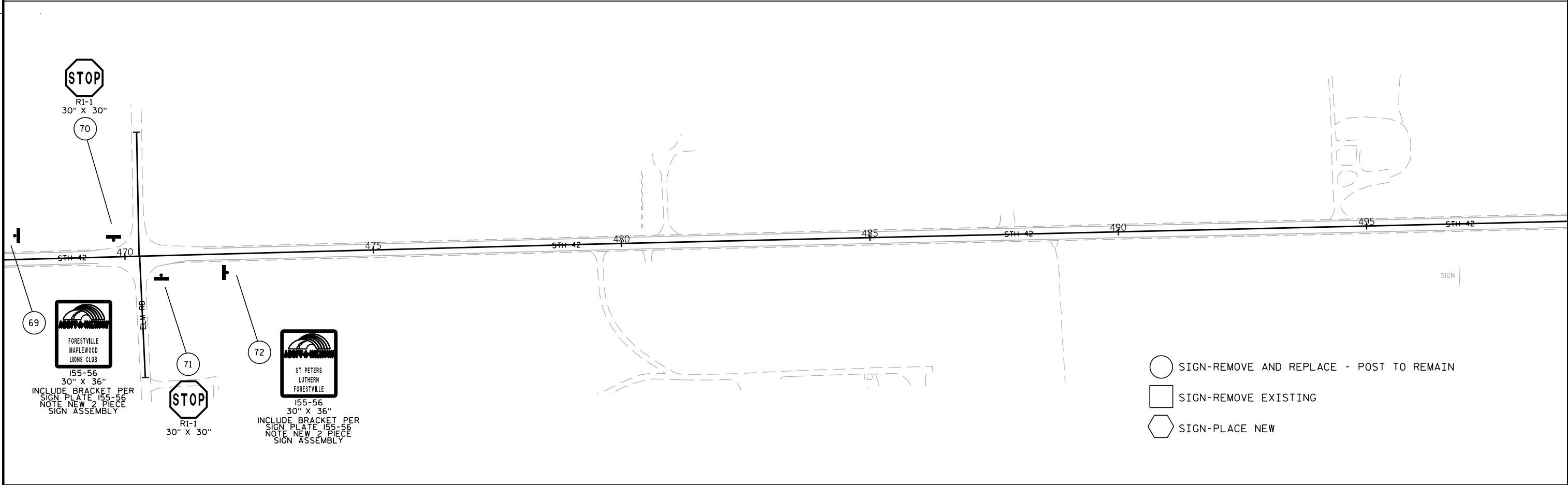
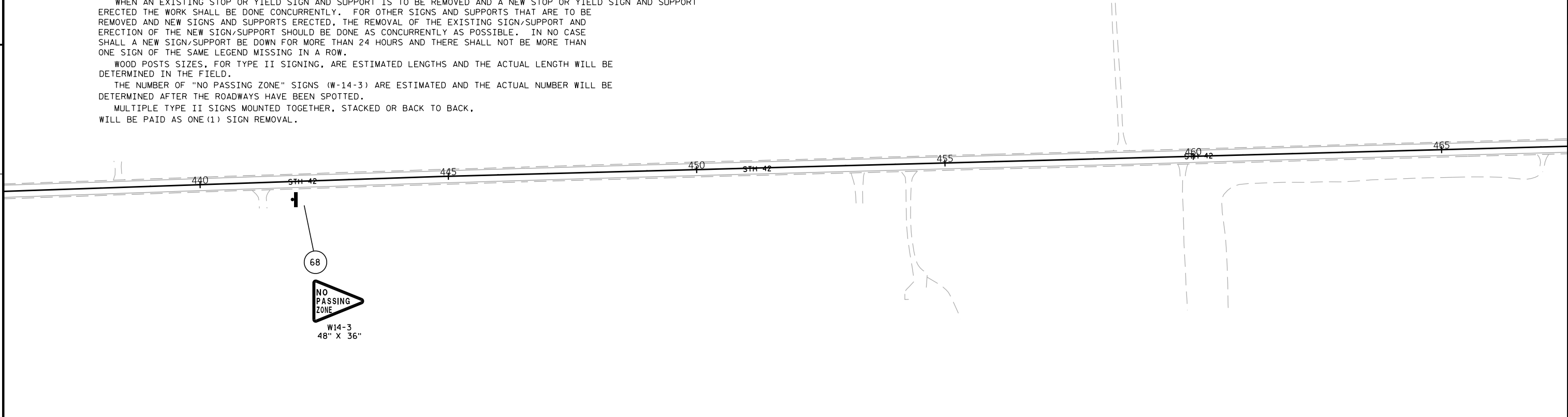
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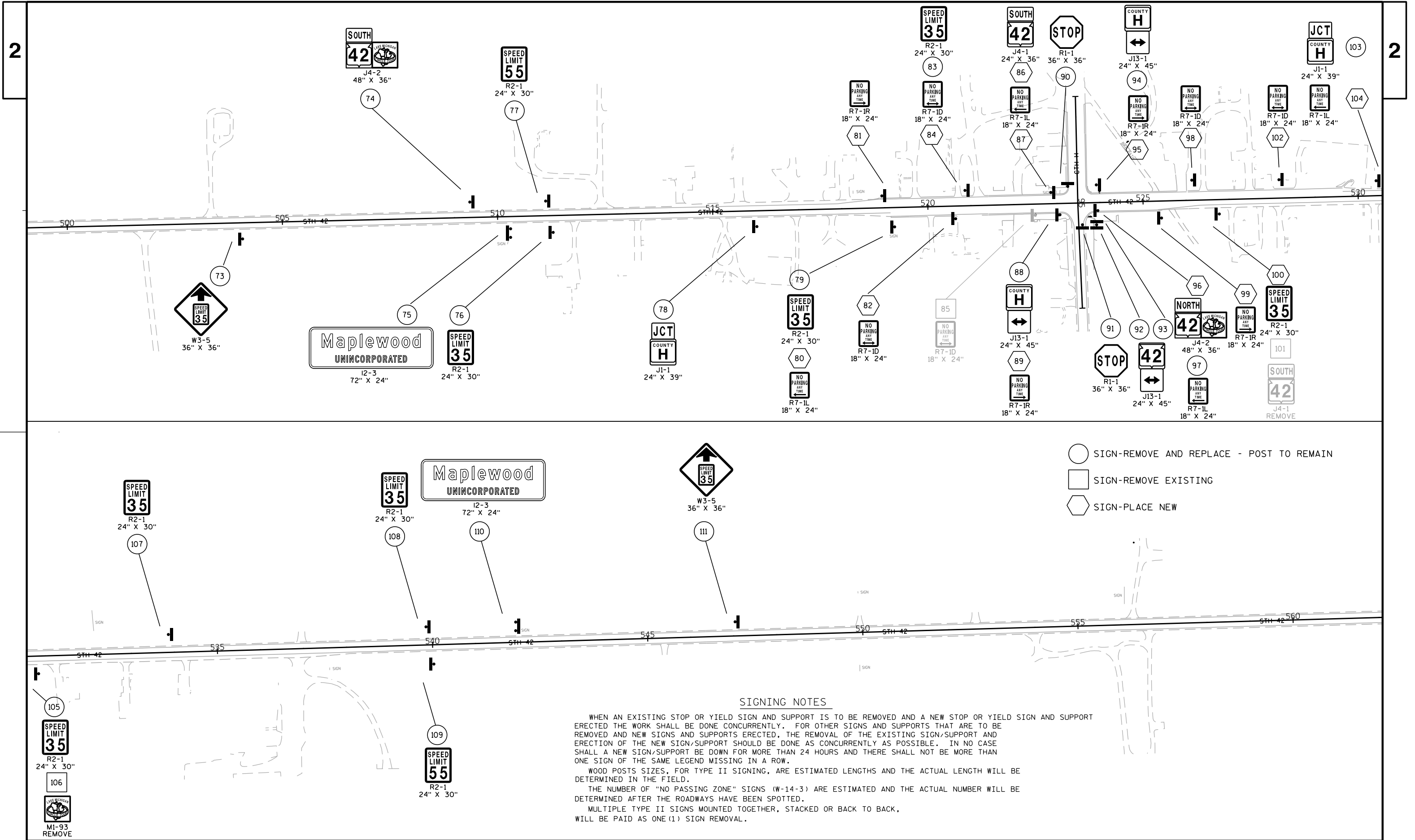
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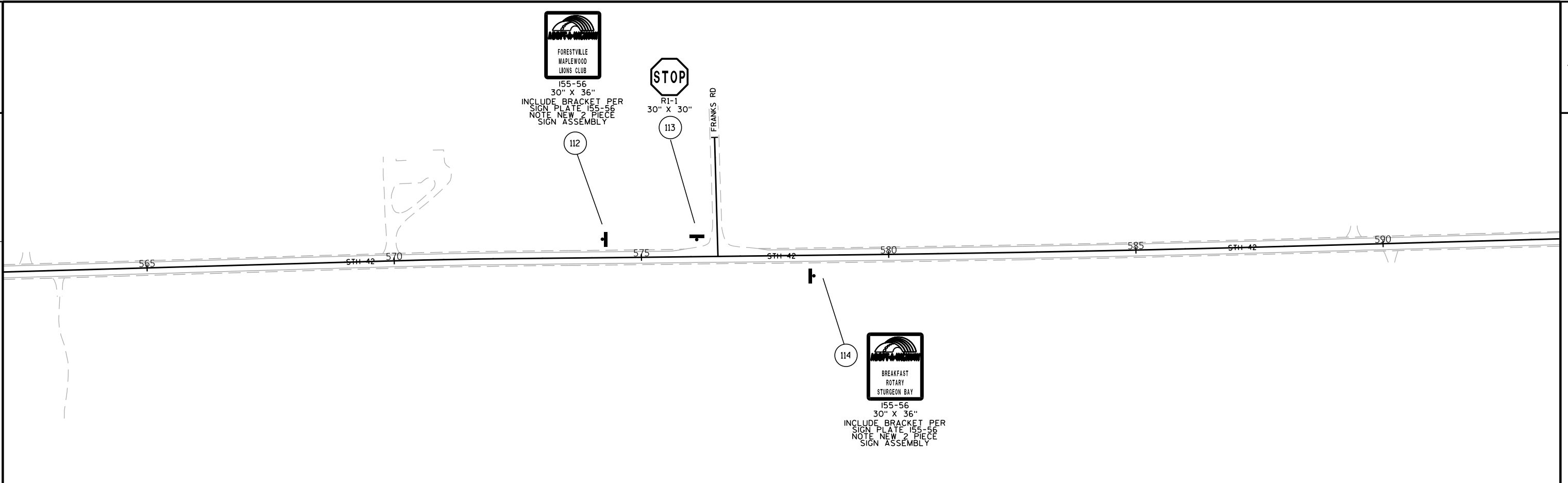
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|                        |             |              |                   |       |   |
|------------------------|-------------|--------------|-------------------|-------|---|
| PROJECT NO: 4430-10-71 | HWY: STH 42 | COUNTY: DOOR | PERMANENT SIGNING | SHEET | E |
|------------------------|-------------|--------------|-------------------|-------|---|





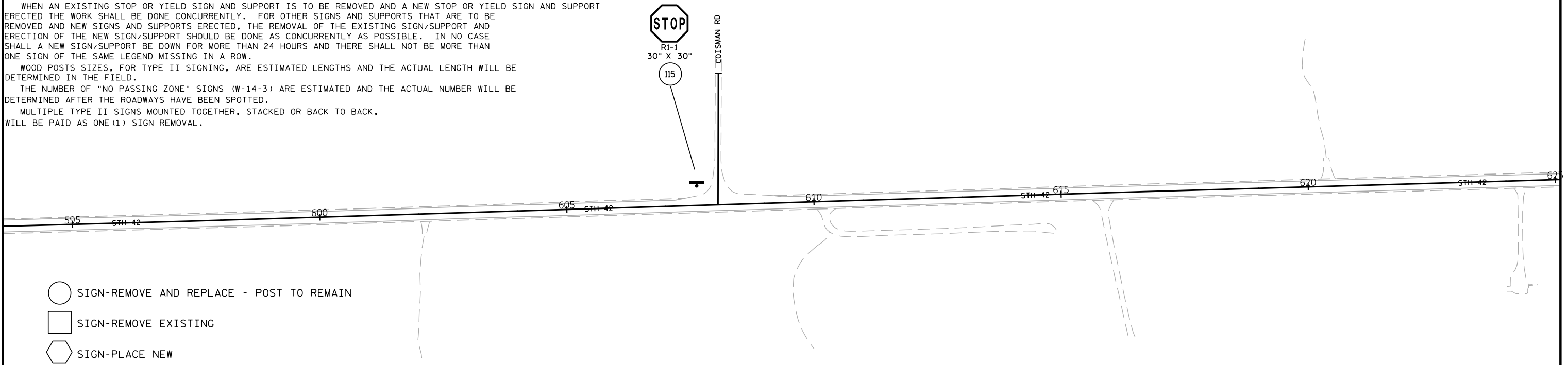
SIGNING NOTES

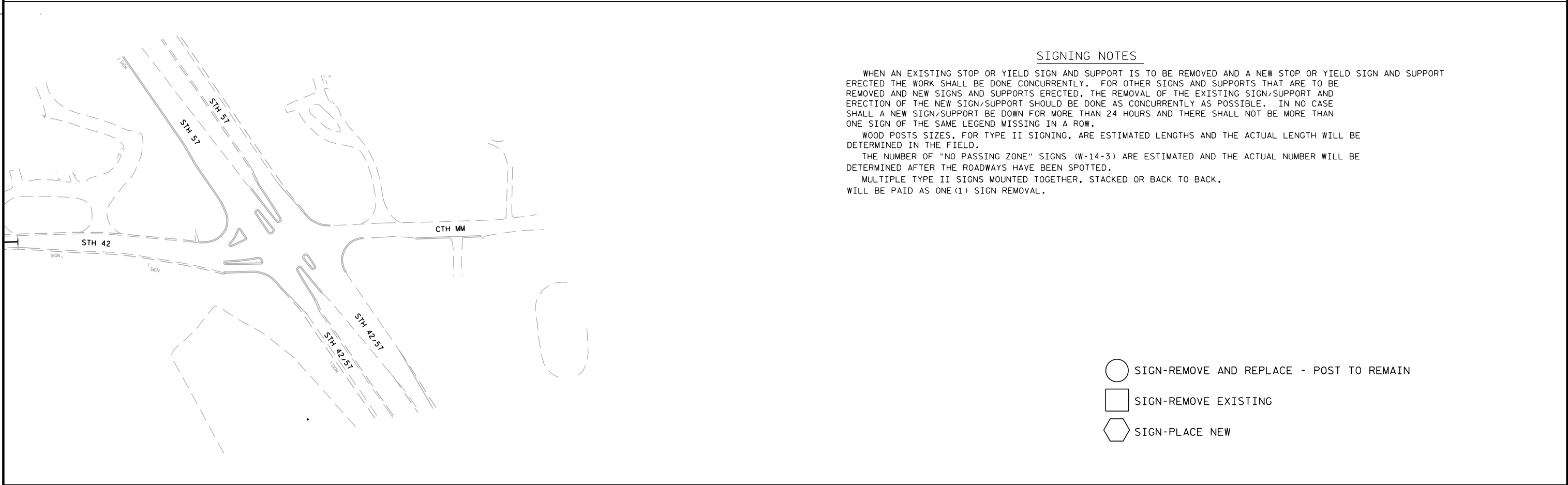
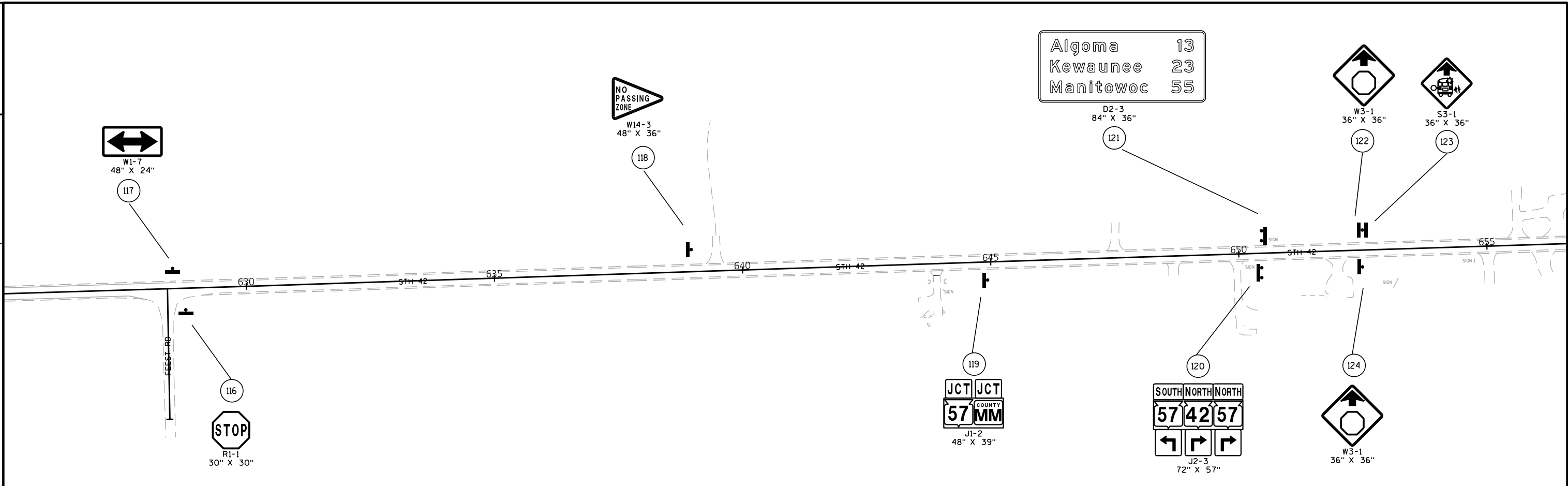
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- SIGN-REMOVE EXISTING
- SIGN-PLACE NEW



Estimate Of Quantities

| 4430-10-71 |            |                                                                  |      |             |             |
|------------|------------|------------------------------------------------------------------|------|-------------|-------------|
| Line       | Item       | Item Description                                                 | Unit | Total       | Qty         |
| 0002       | 201.0110   | Clearing                                                         | SY   | 95.000      | 95.000      |
| 0004       | 201.0210   | Grubbing                                                         | SY   | 95.000      | 95.000      |
| 0006       | 203.0100   | Removing Small Pipe Culverts                                     | EACH | 5.000       | 5.000       |
| 0008       | 204.0115   | Removing Asphaltic Surface Butt Joints                           | SY   | 1,875.000   | 1,875.000   |
| 0010       | 204.0120   | Removing Asphaltic Surface Milling                               | SY   | 146,430.000 | 146,430.000 |
| 0012       | 204.0150   | Removing Curb & Gutter                                           | LF   | 485.000     | 485.000     |
| 0014       | 204.0155   | Removing Concrete Sidewalk                                       | SY   | 9.000       | 9.000       |
| 0016       | 204.0210   | Removing Manholes                                                | EACH | 4.000       | 4.000       |
| 0018       | 204.0220   | Removing Inlets                                                  | EACH | 10.000      | 10.000      |
| 0020       | 204.0245   | Removing Storm Sewer (size) 01. 12-inch or Less                  | LF   | 403.000     | 403.000     |
| 0022       | 204.0245   | Removing Storm Sewer (size) 02. 15-inch                          | LF   | 351.000     | 351.000     |
| 0024       | 204.0245   | Removing Storm Sewer (size) 03. 18-inch                          | LF   | 159.000     | 159.000     |
| 0026       | 211.0100   | Prepare Foundation for Asphaltic Paving (project) 01. 4430-10-71 | LS   | 1.000       | 1.000       |
| 0028       | 213.0100   | Finishing Roadway (project) 01. 4430-10-71                       | EACH | 1.000       | 1.000       |
| 0030       | 305.0110   | Base Aggregate Dense 3/4-Inch                                    | TON  | 2,725.000   | 2,725.000   |
| 0032       | 305.0120   | Base Aggregate Dense 1 1/4-Inch                                  | TON  | 1,238.000   | 1,238.000   |
| 0034       | 315.0100   | Asphaltic Base                                                   | TON  | 447.000     | 447.000     |
| 0036       | 416.1010   | Concrete Surface Drains                                          | CY   | 1.000       | 1.000       |
| 0038       | 455.0605   | Tack Coat                                                        | GAL  | 17,016.000  | 17,016.000  |
| 0040       | 460.0105.S | HMA Percent Within Limits (PWL) Test Strip Volumetrics           | EACH | 2.000       | 2.000       |
| 0042       | 460.0110.S | HMA Percent Within Limits (PWL) Test Strip Density               | EACH | 2.000       | 2.000       |
| 0044       | 460.2005   | Incentive Density PWL HMA Pavement                               | DOL  | 24,286.000  | 24,286.000  |
| 0046       | 460.2010   | Incentive Air Voids HMA Pavement                                 | DOL  | 32,702.000  | 32,702.000  |
| 0048       | 460.4110.S | Reheating HMA Pavement Longitudinal Joints                       | LF   | 79,675.000  | 79,675.000  |
| 0050       | 460.5223   | HMA Pavement 3 LT 58-28 S                                        | TON  | 17,873.000  | 17,873.000  |
| 0052       | 460.5224   | HMA Pavement 4 LT 58-28 S                                        | TON  | 14,829.000  | 14,829.000  |
| 0054       | 465.0110   | Asphaltic Surface Patching                                       | TON  | 200.000     | 200.000     |
| 0056       | 465.0120   | Asphaltic Surface Driveways and Field Entrances                  | TON  | 98.000      | 98.000      |
| 0058       | 465.0475   | Asphalt Centerline Rumble Strips 2-Lane Rural                    | LF   | 38,357.000  | 38,357.000  |
| 0060       | 520.1024   | Apron Endwalls for Culvert Pipe 24-Inch                          | EACH | 4.000       | 4.000       |
| 0062       | 520.1030   | Apron Endwalls for Culvert Pipe 30-Inch                          | EACH | 2.000       | 2.000       |
| 0064       | 520.3324   | Culvert Pipe Class III-A 24-Inch                                 | LF   | 138.000     | 138.000     |
| 0066       | 520.3330   | Culvert Pipe Class III-A 30-Inch                                 | LF   | 60.000      | 60.000      |
| 0068       | 520.8000   | Concrete Collars for Pipe                                        | EACH | 8.000       | 8.000       |
| 0070       | 520.8700   | Cleaning Culvert Pipes                                           | EACH | 4.000       | 4.000       |
| 0072       | 521.1048   | Apron Endwalls for Culvert Pipe Steel 48-Inch                    | EACH | 2.000       | 2.000       |
| 0074       | 521.3148   | Culvert Pipe Corrugated Steel 48-Inch                            | LF   | 12.000      | 12.000      |
| 0076       | 522.0142   | Culvert Pipe Reinforced Concrete Class III 42-Inch               | LF   | 117.000     | 117.000     |
| 0078       | 522.0418   | Culvert Pipe Reinforced Concrete Class IV 18-Inch                | LF   | 68.000      | 68.000      |

Estimate Of Quantities

4430-10-71

| Line | Item     | Item Description                                              | Unit | Total     | Qty       |
|------|----------|---------------------------------------------------------------|------|-----------|-----------|
| 0080 | 522.1015 | Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch   | EACH | 1.000     | 1.000     |
| 0082 | 522.1018 | Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch   | EACH | 4.000     | 4.000     |
| 0084 | 522.1042 | Apron Endwalls for Culvert Pipe Reinforced Concrete 42-Inch   | EACH | 4.000     | 4.000     |
| 0086 | 601.0411 | Concrete Curb & Gutter 30-Inch Type D                         | LF   | 480.000   | 480.000   |
| 0088 | 602.0405 | Concrete Sidewalk 4-Inch                                      | SF   | 425.000   | 425.000   |
| 0090 | 602.0515 | Curb Ramp Detectable Warning Field Natural Patina             | SF   | 35.000    | 35.000    |
| 0092 | 602.0615 | Curb Ramp Detectable Warning Field Radial Natural Patina      | SF   | 20.000    | 20.000    |
| 0094 | 606.0200 | Riprap Medium                                                 | CY   | 1.000     | 1.000     |
| 0096 | 608.0412 | Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch         | LF   | 121.000   | 121.000   |
| 0098 | 608.0415 | Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch         | LF   | 647.000   | 647.000   |
| 0100 | 608.0418 | Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch         | LF   | 72.000    | 72.000    |
| 0102 | 611.0530 | Manhole Covers Type J                                         | EACH | 5.000     | 5.000     |
| 0104 | 611.0600 | Inlet Covers Type A                                           | EACH | 2.000     | 2.000     |
| 0106 | 611.0612 | Inlet Covers Type C                                           | EACH | 1.000     | 1.000     |
| 0108 | 611.0624 | Inlet Covers Type H                                           | EACH | 7.000     | 7.000     |
| 0110 | 611.1003 | Catch Basins 3-FT Diameter                                    | EACH | 1.000     | 1.000     |
| 0112 | 611.1004 | Catch Basins 4-FT Diameter                                    | EACH | 2.000     | 2.000     |
| 0114 | 611.2004 | Manholes 4-FT Diameter                                        | EACH | 3.000     | 3.000     |
| 0116 | 611.2005 | Manholes 5-FT Diameter                                        | EACH | 2.000     | 2.000     |
| 0118 | 611.3230 | Inlets 2x3-FT                                                 | EACH | 7.000     | 7.000     |
| 0120 | 614.0010 | Barrier System Grading Shaping Finishing                      | EACH | 2.000     | 2.000     |
| 0122 | 614.2300 | MGS Guardrail 3                                               | LF   | 53.125    | 53.125    |
| 0124 | 614.2340 | MGS Guardrail 3 L                                             | LF   | 212.500   | 212.500   |
| 0126 | 614.2350 | MGS Guardrail Short Radius                                    | LF   | 40.000    | 40.000    |
| 0128 | 614.2610 | MGS Guardrail Terminal EAT                                    | EACH | 3.000     | 3.000     |
| 0130 | 614.2630 | MGS Guardrail Short Radius Terminal                           | EACH | 1.000     | 1.000     |
| 0132 | 618.0100 | Maintenance And Repair of Haul Roads (project) 01. 4430-10-71 | EACH | 1.000     | 1.000     |
| 0134 | 619.1000 | Mobilization                                                  | EACH | 1.000     | 1.000     |
| 0136 | 624.0100 | Water                                                         | MGAL | 26.300    | 26.300    |
| 0138 | 628.1504 | Silt Fence                                                    | LF   | 2,640.000 | 2,640.000 |
| 0140 | 628.1520 | Silt Fence Maintenance                                        | LF   | 264.000   | 264.000   |
| 0142 | 628.1905 | Mobilizations Erosion Control                                 | EACH | 6.000     | 6.000     |
| 0144 | 628.1910 | Mobilizations Emergency Erosion Control                       | EACH | 3.000     | 3.000     |



Estimate Of Quantities

4430-10-71

| Line | Item       | Item Description                                                      | Unit | Total      | Qty        |
|------|------------|-----------------------------------------------------------------------|------|------------|------------|
| 0146 | 628.2002   | Erosion Mat Class I Type A                                            | SY   | 260.000    | 260.000    |
| 0148 | 628.2004   | Erosion Mat Class I Type B                                            | SY   | 2,030.000  | 2,030.000  |
| 0150 | 628.2006   | Erosion Mat Urban Class I Type A                                      | SY   | 670.000    | 670.000    |
| 0152 | 628.2008   | Erosion Mat Urban Class I Type B                                      | SY   | 60.000     | 60.000     |
| 0154 | 628.7005   | Inlet Protection Type A                                               | EACH | 20.000     | 20.000     |
| 0156 | 628.7010   | Inlet Protection Type B                                               | EACH | 2.000      | 2.000      |
| 0158 | 628.7555   | Culvert Pipe Checks                                                   | EACH | 51.000     | 51.000     |
| 0160 | 629.0210   | Fertilizer Type B                                                     | CWT  | 0.326      | 0.326      |
| 0162 | 630.0110   | Seeding Mixture No. 10                                                | LB   | 7.700      | 7.700      |
| 0164 | 633.5200   | Markers Culvert End                                                   | EACH | 19.000     | 19.000     |
| 0166 | 634.0614   | Posts Wood 4x6-Inch X 14-FT                                           | EACH | 36.000     | 36.000     |
| 0168 | 634.0616   | Posts Wood 4x6-Inch X 16-FT                                           | EACH | 70.000     | 70.000     |
| 0170 | 637.2210   | Signs Type II Reflective H                                            | SF   | 633.000    | 633.000    |
| 0172 | 637.2230   | Signs Type II Reflective F                                            | SF   | 135.600    | 135.600    |
| 0174 | 638.2602   | Removing Signs Type II                                                | EACH | 95.000     | 95.000     |
| 0176 | 638.3000   | Removing Small Sign Supports                                          | EACH | 104.000    | 104.000    |
| 0178 | 642.5401   | Field Office Type D                                                   | EACH | 1.000      | 1.000      |
| 0180 | 643.0300   | Traffic Control Drums                                                 | DAY  | 235.000    | 235.000    |
| 0182 | 643.0310.S | Temporary Portable Rumble Strips                                      | LS   | 1.000      | 1.000      |
| 0184 | 643.0410   | Traffic Control Barricades Type II                                    | DAY  | 24.000     | 24.000     |
| 0186 | 643.0420   | Traffic Control Barricades Type III                                   | DAY  | 48.000     | 48.000     |
| 0188 | 643.0705   | Traffic Control Warning Lights Type A                                 | DAY  | 72.000     | 72.000     |
| 0190 | 643.0715   | Traffic Control Warning Lights Type C                                 | DAY  | 120.000    | 120.000    |
| 0192 | 643.0900   | Traffic Control Signs                                                 | DAY  | 1,598.000  | 1,598.000  |
| 0194 | 643.1050   | Traffic Control Signs PCMS                                            | DAY  | 14.000     | 14.000     |
| 0196 | 643.5000   | Traffic Control                                                       | EACH | 1.000      | 1.000      |
| 0198 | 644.1601.S | Temporary Curb Ramp                                                   | EACH | 2.000      | 2.000      |
| 0200 | 645.0120   | Geotextile Type HR                                                    | SY   | 11.000     | 11.000     |
| 0202 | 646.1020   | Marking Line Epoxy 4-Inch                                             | LF   | 23,039.000 | 23,039.000 |
| 0204 | 646.1040   | Marking Line Grooved Wet Ref Epoxy 4-Inch                             | LF   | 81,174.000 | 81,174.000 |
| 0206 | 648.0100   | Locating No-Passing Zones                                             | MI   | 7.690      | 7.690      |
| 0208 | 649.0120   | Temporary Marking Line Epoxy 4-Inch                                   | LF   | 85,219.000 | 85,219.000 |
| 0210 | 650.4000   | Construction Staking Storm Sewer                                      | EACH | 16.000     | 16.000     |
| 0212 | 650.5500   | Construction Staking Curb Gutter and Curb & Gutter                    | LF   | 330.000    | 330.000    |
| 0214 | 650.6000   | Construction Staking Pipe Culverts                                    | EACH | 8.000      | 8.000      |
| 0216 | 650.8000   | Construction Staking Resurfacing Reference                            | LF   | 41,391.000 | 41,391.000 |
| 0218 | 650.9000   | Construction Staking Curb Ramps                                       | EACH | 4.000      | 4.000      |
| 0220 | 650.9910   | Construction Staking Supplemental Control (project) 01.<br>4430-10-71 | LS   | 1.000      | 1.000      |
| 0222 | 650.9920   | Construction Staking Slope Stakes                                     | LF   | 833.000    | 833.000    |

Estimate Of Quantities

| 4430-10-71 |          |                                                         |      |            |            |
|------------|----------|---------------------------------------------------------|------|------------|------------|
| Line       | Item     | Item Description                                        | Unit | Total      | Qty        |
| 0224       | 690.0150 | Sawing Asphalt                                          | LF   | 2,929.000  | 2,929.000  |
| 0226       | 690.0250 | Sawing Concrete                                         | LF   | 180.000    | 180.000    |
| 0228       | 740.0440 | Incentive IRI Ride                                      | DOL  | 31,300.000 | 31,300.000 |
| 0230       | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR             | HRS  | 2,000.000  | 2,000.000  |
| 0232       | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR               | HRS  | 1,320.000  | 1,320.000  |
| 0234       | SPV.0035 | Special 01. Culvert Pipe Transition                     | CY   | 911.000    | 911.000    |
| 0236       | SPV.0060 | Special 01. Grading Shaping and Finishing Cross Culvert | EACH | 7.000      | 7.000      |
| 0238       | SPV.0060 | Special 02. Reconnect Existing Storm Sewer Lateral      | EACH | 6.000      | 6.000      |
| 0240       | SPV.0060 | Special 03. Storm Sewer Tap                             | EACH | 6.000      | 6.000      |
| 0242       | SPV.0090 | Special 01. Grading Shaping and Finishing Ditch         | LF   | 229.000    | 229.000    |
| 0244       | SPV.0120 | Special 01. Water for Seeded Areas                      | MGAL | 59.920     | 59.920     |

CLEARING AND GRUBBING

| STATION |   | 201.0110 |    | 201.0210                 |  | 201.0110    |    | 201.0210                    |  | 201.0110 |  | 201.0210 |  | 201.0110 |  | 201.0210 |  | 201.0110 |  | 201.0210 |  |
|---------|---|----------|----|--------------------------|--|-------------|----|-----------------------------|--|----------|--|----------|--|----------|--|----------|--|----------|--|----------|--|
| FROM    |   | TO       |    | OFFSET                   |  | DESCRIPTION |    | SY                          |  | SY       |  | REMARKS  |  | SY       |  | SY       |  | REMARKS  |  | SY       |  |
| 316+35  | - | 316+64   | RT | STORM SEWER INSTALLATION |  | 95          | 95 | SEE PLANS FOR TREE REMOVALS |  |          |  |          |  |          |  |          |  |          |  |          |  |
| TOTAL=  |   |          |    |                          |  | 95          | 95 |                             |  |          |  |          |  |          |  |          |  |          |  |          |  |

REMOVING ASPHALT

| STATION |   | 204.012   |                               | 204.012                       |  | 204.012 |  | 204.012 |  | 204.012 |  | 204.012 |  | 204.012 |  | 204.012 |  | 204.012 |  | 204.012 |  |
|---------|---|-----------|-------------------------------|-------------------------------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|---------|--|
| FROM    |   | TO        |                               | LOCATION                      |  | TO      |  | SY      |  | SY      |  | REMARKS |  | SY      |  | SY      |  | REMARKS |  | SY      |  |
| 243+00  | - | 302+26    | BEGIN PROJECT                 | FORESTVILLE SOUTH URBAN LIMIT |  | 20897   |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| 302+26  | - | 303+45    | FORESTVILLE SOUTH URBAN LIMIT | BEGIN B-00-24                 |  | 396     |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| 304+18  | - | 321+71    | END B-00-24                   | FORESTVILLE NORTH URBAN LIMIT |  | 8430    |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| 321+71  | - | 518+82    | FORESTVILLE NORTH URBAN LIMIT | MAPLEWOOD SOUTH URBAN LIMIT   |  | 67986   |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| 518+82  | - | 529+71    | MAPLEWOOD SOUTH URBAN LIMIT   | MAPLEWOOD NORTH URBAN LIMIT   |  | 5183    |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| 529+71  | - | 656+91.03 | MAPLEWOOD NORTH URBAN LIMIT   | END PROJECT                   |  | 43538   |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |
| TOTAL=  |   |           |                               |                               |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |         |  |

REMOVING ASPHALTIC SURFACE BUTT JOINTS

| 204.0135  |           |        |     | 204.0135                    |       |        |      |
|-----------|-----------|--------|-----|-----------------------------|-------|--------|------|
| LOCATION  |           | OFFSET | SY  | LOCATION                    |       | OFFSET | SY   |
| 290+25    | DRIVEWAY* | RT     | 18  | STH 42/BEGINNING OF PROJECT | LT/RT |        | 167  |
| 292+46    | DRIVEWAY* | RT     | 15  | COUNTY LINE RD/CTH X        | LT    |        | 52   |
| 293+82    | DRIVEWAY* | RT     | 19  | COUNTY LINE RD/CTH X        | RT    |        | 51   |
| 293+90    | DRIVEWAY* | LT     | 29  | COMMERCIAL ST/GAEDE ST      | LT    |        | 10   |
| 295+62    | DRIVEWAY* | RT     | 20  | CTH J                       | LT    |        | 11   |
| 296+11    | DRIVEWAY* | RT     | 13  | CTH J                       | RT    |        | 9    |
| 297+43    | DRIVEWAY* | RT     | 18  | W. PARK ST                  | LT    |        | 5    |
| 297+81    | DRIVEWAY* | LT     | 18  | E. PARK ST                  | RT    |        | 5    |
| 298+95    | DRIVEWAY* | RT     | 22  | BRANS RD                    | RT    |        | 62   |
| 300+47    | DRIVEWAY* | LT     | 15  | CHERRY LN                   | LT    |        | 48   |
| 322+30    | DRIVEWAY* | LT     | 44  | CHERRY LN                   | RT    |        | 37   |
| 323+64    | DRIVEWAY* | RT     | 26  | MILE RD                     | RT    |        | 55   |
| 324+12    | DRIVEWAY* | LT     | 22  | W. CENTER RD                | LT    |        | 50   |
| 349+81    | DRIVEWAY* | LT     | 35  | W. CENTER RD                | RT    |        | 58   |
| 354+79    | DRIVEWAY* | RT     | 44  | OLD ELM RD                  | LT    |        | 59   |
| 356+34    | DRIVEWAY* | RT     | 27  | OLD ELM RD                  | RT    |        | 57   |
| 360+00    | DRIVEWAY* | RT     | 22  | CTH H                       | LT    |        | 9    |
| 389+75    | DRIVEWAY* | LT     | 32  | CTH H                       | RT    |        | 5    |
| 399+23    | DRIVEWAY* | LT     | 33  | FRANKS RD                   | LT    |        | 49   |
| 401+10    | DRIVEWAY* | RT     | 26  | COISMAN RD                  | LT    |        | 38   |
| 416+80    | DRIVEWAY* | LT     | 15  | FEEST RD                    | RT    |        | 51   |
| 454+27    | DRIVEWAY* | RT     | 23  | STH 42/END OF PROJECT       | LT/RT |        | 167  |
| 479+55    | DRIVEWAY* | RT     | 23  |                             |       |        |      |
| 501+80    | DRIVEWAY* | RT     | 40  |                             |       |        |      |
| 513+25    | DRIVEWAY* | RT     | 14  |                             |       |        |      |
| 514+25    | DRIVEWAY* | LT     | 20  |                             |       |        |      |
| 515+28    | DRIVEWAY* | RT     | 19  |                             |       |        |      |
| 515+61    | DRIVEWAY* | LT     | 10  |                             |       |        |      |
| 518+09    | DRIVEWAY* | LT     | 18  |                             |       |        |      |
| 530+03    | DRIVEWAY* | LT     | 50  |                             |       |        |      |
| 530+37    | DRIVEWAY* | RT     | 15  |                             |       |        |      |
| 531+21    | DRIVEWAY* | RT     | 22  |                             |       |        |      |
| 532+87    | DRIVEWAY* | RT     | 13  |                             |       |        |      |
| 534+27    | DRIVEWAY* | RT     | 11  |                             |       |        |      |
| 655+63    | DRIVEWAY* | LT     | 31  |                             |       |        |      |
| SUBTOTAL: |           |        | 820 | SUBTOTAL=                   |       |        | 1055 |
|           |           |        |     | TOTAL =                     |       |        | 1875 |

BASE AGGREGATES

|         |    |         |        | 305.0110       | 305.0120         | REMARKS                        |
|---------|----|---------|--------|----------------|------------------|--------------------------------|
|         |    |         |        | BASE AGGREGATE | BASE AGGREGATE   |                                |
|         |    |         |        | DENSE 3/4-INCH | DENSE 1 1/4-INCH |                                |
| STATION | TO | STATION | OFFSET | TON            | TON              |                                |
| 243+00  | -  | 252+42  | LT     | 32             | ---              | 3' AGG SHLDR                   |
| 243+00  | -  | 252+26  | RT     | 32             | ---              | 3' AGG SHLDR                   |
| 253+68  | -  | 266+48  | LT     | 44             | ---              | 3' AGG SHLDR                   |
| 253+39  | -  | 266+48  | RT     | 45             | ---              | 3' AGG SHLDR                   |
| 266+48  | -  | 276+87  | LT     | 71             | ---              | 6' AGG SHLDR                   |
| 266+48  | -  | 276+87  | RT     | 71             | ---              | 6' AGG SHLDR                   |
| 276+87  | -  | 289+57  | RT     | 43             | ---              | 3' AGG SHLDR                   |
| 276+87  | -  | 293+35  | LT     | 56             | ---              | 3' AGG SHLDR                   |
| 296+12  | -  | 296+85  | LT/RT  | ---            | 163              | CULVERT TRENCH                 |
| 304+18  | -  | 304+81  | LT     | ---            | 12               | STORM SEWER TRENCH             |
| 306+14  | -  | 306+37  | LT/RT  | ---            | 23               | STORM SEWER TRENCH             |
| 308+31  | -  | 309+64  | LT/RT  | ---            | 119              | STORM SEWER TRENCH             |
| 311+10  | -  | 311+27  | LT     | ---            | 11               | STORM SEWER TRENCH             |
| 312+28  | -  | 312+67  | RT     | ---            | 22               | STORM SEWER TRENCH             |
| 313+52  | -  | 313+70  | LT     | ---            | 10               | STORM SEWER TRENCH             |
| 315+23  | -  | 315+51  | LT/RT  | ---            | 30               | STORM SEWER TRENCH             |
| 316+43  | -  | 318+37  | RT     | ---            | 70               | STORM SEWER TRENCH             |
| 319+02  | -  | 339+15  | LT     | 68             | ---              | 3' AGG SHLDR                   |
| 321+71  | -  | 336+65  | RT     | 51             | ---              | 3' AGG SHLDR                   |
| 336+65  | -  | 340+88  | RT     | 38             | ---              | 8' AGG SHLDR                   |
| 339+15  | -  | 343+78  | LT     | 32             | ---              | AGG SHLDR - PER BEAM GUARD SDD |
| 341+30  | -  | 344+05  | RT     | 17             | ---              | AGG SHLDR - PER BEAM GUARD SDD |
| 343+78  | -  | 346+54  | LT     | 19             | ---              | 6' AGG SHLDR                   |
| 344+05  | -  | 346+54  | RT     | 17             | ---              | 6' AGG SHLDR                   |
| 346+54  | -  | 514+11  | LT     | 570            | ---              | 3' AGG SHLDR                   |
| 346+54  | -  | 519+14  | RT     | 587            | ---              | 3' AGG SHLDR                   |
| 372+47  | -  | 373+32  | LT/RT  | ---            | 236              | CULVERT TRENCH                 |
| 414+56  | -  | 416+31  | LT/RT  | ---            | 243              | CULVERT TRENCH                 |
| 523+04  | -  | 523+68  | LT/RT  | ---            | 80               | STORM SEWER TRENCH             |
| 524+90  | -  | 526+31  | LT/RT  | ---            | 53               | STORM SEWER TRENCH             |
| 530+31  | -  | 656+91  | LT     | 431            | ---              | 3' AGG SHLDR                   |
| 537+60  | -  | 656+91  | RT     | 406            | ---              | 3' AGG SHLDR                   |
| 551+15  | -  | 551+75  |        | ---            | 167              | CULVERT TRENCH                 |

SUBTOTAL= 2629 1238

|         |        |     |     | 305.0110       | 305.0120         | REMARKS      |
|---------|--------|-----|-----|----------------|------------------|--------------|
|         |        |     |     | BASE AGGREGATE | BASE AGGREGATE   |              |
|         |        |     |     | DENSE 3/4-INCH | DENSE 1 1/4-INCH |              |
| STATION | OFFSET | TON | TON |                |                  |              |
| 246+73  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 269+70  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 270+69  | LT     | 4   | --- |                |                  | AGG DRIVEWAY |
| 275+78  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 283+50  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 288+08  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 288+82  | RT     | 3   | --- |                |                  | AGG DRIVEWAY |
| 294+86  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 297+45  | LT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 298+81  | LT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 329+28  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 336+62  | LT     | 6   | --- |                |                  | AGG DRIVEWAY |
| 341+26  | RT     | 30  | --- |                |                  | AGG DRIVEWAY |
| 351+52  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 352+00  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 396+61  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 398+19  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 402+77  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 403+07  | LT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 404+49  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 408+47  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 423+97  | LT     | 3   | --- |                |                  | AGG DRIVEWAY |
| 425+27  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 428+05  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 458+56  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 480+93  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 494+47  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 503+34  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 511+79  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 512+41  | LT     | 3   | --- |                |                  | AGG DRIVEWAY |
| 517+15  | LT     | 5   | --- |                |                  | AGG DRIVEWAY |
| 517+77  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 527+05  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 527+72  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 536+88  | RT     | 3   | --- |                |                  | AGG DRIVEWAY |
| 553+98  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 556+27  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 556+68  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 569+94  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 610+23  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 615+86  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 620+40  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 624+30  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 639+46  | LT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 643+90  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 649+95  | RT     | 1   | --- |                |                  | AGG DRIVEWAY |
| 651+98  | RT     | 2   | --- |                |                  | AGG DRIVEWAY |
| 656+49  | LT     | 4   | --- |                |                  | AGG DRIVEWAY |

SUBTOTAL= 96 0

TOTAL= 2725 1238

STORM SEWER & CULVERT TRENCHES BAD DEPTHS ARE AS SHOWN ON THE CONSTRUCTION DETAILS.  
SHOULDERS & DRIVEWAYS WILL BE GRADED WITH A MAX DEPTH OF 1.75 " BAD, UNLESS OTHERWISE NOTED

\*MAX DEPTH OF 4" AGGREGATE TO WIDEN EXISTING DRIVEWAY

PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) 01. 4430-10-71

|               |    | 211.0100    | REMARKS           |
|---------------|----|-------------|-------------------|
| FROM          | TO | LS          |                   |
| BEGIN PROJECT | -  | END PROJECT | 1 GAP OUT B-15-24 |

1

3

3

CONCRETE ITEMS

| STATION | LOCATION             | 204.0150                  | 204.0150                      | 601.0411                            | 602.0405                    | 602.0515                                      | 602.0615                                             | 416.101                    | 606.0200          | 645.0120              | 650.5500                                | 650.9000                           |
|---------|----------------------|---------------------------|-------------------------------|-------------------------------------|-----------------------------|-----------------------------------------------|------------------------------------------------------|----------------------------|-------------------|-----------------------|-----------------------------------------|------------------------------------|
|         |                      | REMOVING CURB & GUTTER LF | REMOVING CONCRETE SIDEWALK SY | CONCRETE & GUTTER 30-INCH TYPE D LF | CONCRETE SIDEWALK 4-INCH SF | CURB RAMP DETECTABLE WARNING FIELD NATURAL SF | CURB RAMP DETECTABLE WARNING FIELD RADIAL NATURAL SF | CONCRETE SURFACE DRAINS CY | RIP RAP MEDIUM CY | GEOTEXTILE TYPE HR SY | CONSTRUCTION STAKING CURB AND GUTTER LF | CONSTRUCTION STAKING CURB RAMPS EA |
| 304+30  | Pipe E101B - E102    | 30                        | ---                           | 30                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | ---                                |
| 306+50  | P102B                | 10                        | ---                           | 10                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | ---                                |
| 309+25  | P103B                | 22                        | ---                           | 10                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | ---                                |
| 312+00  | CTH J SW Quad        | 35                        | 4                             | 35                                  | 30                          | 15                                            | ---                                                  | ---                        | ---               | ---                   | ---                                     | 1                                  |
| 312+75  | CTH J NW Quad        | 33                        | 5                             | 40                                  | 55                          | ---                                           | 20                                                   | ---                        | ---               | ---                   | ---                                     | 1                                  |
| 315+50  | P106B                | 10                        | ---                           | 10                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | ---                                |
| 317+00  | P107-P107B           | 130                       | ---                           | 130                                 | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | 130                                     | ---                                |
| 523+00  | CTH H SW Quad        | 35                        | ---                           | 35                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | 1                                  |
| 523+00  | CTH H SE Quad        | 40                        | ---                           | 40                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | 40                                      | 1                                  |
| 523+75  | P201D                | 10                        | ---                           | 10                                  | ---                         | ---                                           | ---                                                  | ---                        | ---               | ---                   | ---                                     | ---                                |
| 525+00  | Ahnapee Trail - West | 135                       | ---                           | 135                                 | 170                         | 10                                            | ---                                                  | ---                        | ---               | ---                   | 135                                     | ---                                |
| 525+00  | Ahnapee Trail - East | 25                        | ---                           | 25                                  | 170                         | 10                                            | ---                                                  | 1                          | 1                 | 11                    | 25                                      | ---                                |
| TOTAL=  |                      | 485                       | 9                             | 480                                 | 425                         | 35                                            | 20                                                   | 1                          | 1                 | 11                    | 330                                     | 4                                  |

ASPHALT CENTER LINE RUMBLE STRIPS 2-LANE RURAL

| STATION |             | LOCATION                      |                               | 465.0475 |
|---------|-------------|-------------------------------|-------------------------------|----------|
| FROM    | TO          | FROM                          | TO                            | LF       |
| 243+00  | - 302+26    | BEGIN PROJECT                 | FORESTVILLE SOUTH URBAN LIMIT | 5926     |
| 321+71  | - 518+82    | FORESTVILLE NORTH URBAN LIMIT | MAPLEWOOD SOUTH URBAN LIMIT   | 19711    |
| 529+71  | - 656+91.03 | MAPLEWOOD NORTH URBAN LIMIT   | END PROJECT                   | 12720    |
| TOTAL=  |             |                               |                               | 38357    |

ASPHALTIC MATERIALS

| STATION                |             | LOCATION                      |                               | ASPHALTIC |          | PWL DENSITY INCENTIVE & AIR VOIDS |              | PWL AIR VOIDS ONLY |            | PWL DENSITY INCENTIVE & AIR VOIDS |                | PWL AIR VOIDS ONLY |              | REHEATING HMA PAVEMENT LONGITUDINAL JOINTS |            | ASHPHALTIC SURFACE PATCHING |     | REMARKS                                 | *HMA D PLANS |
|------------------------|-------------|-------------------------------|-------------------------------|-----------|----------|-----------------------------------|--------------|--------------------|------------|-----------------------------------|----------------|--------------------|--------------|--------------------------------------------|------------|-----------------------------|-----|-----------------------------------------|--------------|
| FROM                   | TO          | FROM                          | TO                            | BASE TON  | TACK GAL | COAT                              | 460.5223 TON | AIR VOIDS TON*     | ONLY TON** | 460.5224 TON                      | AIR VOIDS TON* | ONLY TON**         | 460.5224 TON | AIR VOIDS TON*                             | ONLY TON** | LF                          | TON |                                         |              |
| 243+00                 | - 302+26    | BEGIN PROJECT                 | FORESTVILLE SOUTH URBAN LIMIT | ---       | 2652     |                                   | 2956         | 2114               | 843        | 2200                              | 1521           | 679                | 11852        | ---                                        | ---        | ---                         | --- | 3" MILL, 4" OVERLAY                     |              |
| 296+12                 | - 296+85    | BEGIN CULVERT TRENCH          | END CULVERT TRENCH            | 54        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 302+26                 | - 303+45    | FORESTVILLE SOUTH URBAN LIMIT | BEGIN B-00-24                 | ---       | 28       |                                   | ---          | ---                | ---        | 42                                | 31             | 11                 | 119          | ---                                        | ---        | ---                         | --- | 1.75" MILL & OVERLAY                    |              |
| 304+18                 | - 321+71    | END B-00-24                   | FORESTVILLE NORTH URBAN LIMIT | ---       | 590      |                                   | ---          | ---                | ---        | 896                               | 450            | 446                | 1753         | ---                                        | ---        | ---                         | --- | 1.75" MILL & OVERLAY                    |              |
| 304+18                 | - 304+81    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 7         | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 306+14                 | - 306+37    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 14        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 308+31                 | - 309+64    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 71        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 311+10                 | - 311+27    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 7         | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 312+28                 | - 312+67    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 13        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 313+52                 | - 313+70    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 6         | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 315+23                 | - 315+51    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 18        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 316+43                 | - 318+37    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 26        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 321+71                 | - 518+82    | FORESTVILLE NORTH URBAN LIMIT | MAPLEWOOD SOUTH URBAN LIMIT   | ---       | 8158     |                                   | 9093         | 7030               | 2063       | 6789                              | 5059           | 1730               | 39422        | ---                                        | ---        | ---                         | --- | 3" MILL, 4" OVERLAY                     |              |
| 372+47                 | - 373+32    | BEGIN CULVERT TRENCH          | END CULVERT TRENCH            | 50        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 415+85                 | - 416+02    | BEGIN CULVERT TRENCH          | END CULVERT TRENCH            | 69        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 518+82                 | - 529+71    | MAPLEWOOD SOUTH URBAN LIMIT   | MAPLEWOOD NORTH URBAN LIMIT   | ---       | 363      |                                   | ---          | ---                | ---        | 551                               | 280            | 271                | 1089         | ---                                        | ---        | ---                         | --- | 1.75" MILL & OVERLAY                    |              |
| 523+04                 | - 523+68    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 48        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 524+90                 | - 526+31    | BEGIN STORM SEWER TRENCH      | END STORM SEWER TRENCH        | 32        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| 529+71                 | - 656+91.03 | MAPLEWOOD NORTH URBAN LIMIT   | END PROJECT                   | ---       | 5225     |                                   | 5823         | 4537               | 1286       | 4351                              | 3265           | 1087               | 25440        | ---                                        | ---        | ---                         | --- | 3" MILL, 4" OVERLAY                     |              |
| 551+15                 | - 551+75    | BEGIN CULVERT TRENCH          | END CULVERT TRENCH            | 35        | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | --- | ADD'L LAYER FOR FULL DEPTH PAVT REPLACE |              |
| UNDISTRIBUTED QUANTITY |             |                               |                               | ---       | ---      |                                   | ---          | ---                | ---        | ---                               | ---            | ---                | ---          | ---                                        | ---        | ---                         | 200 |                                         |              |
| TOTAL=                 |             |                               |                               | 447       | 17016    |                                   | 17873        | 13681              | 4192       | 14829                             | 10605          | 4224               | 79675        | 200                                        |            |                             |     |                                         |              |

\* TONNAGE IS ELIGIBLE FOR INCENTIVE DENSITY PWL 460.2005 AND INCENTIVE AIR VOIDS 460.2010.  
\*\* TONNAGE IS ELIGIBLE FOR INCENTIVE AIR VOIDS 460.2010 AND DENSITY IS TESTED FOR ACCEPTANCE IN THOSE AREAS.

ASPHALTIC DRIVEWAYS

| STATION LOCATION (APPROX. CENTER OF DRIVE ENTRANCE) |           | 465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES* |
|-----------------------------------------------------|-----------|-----------------------------------------------------------|
| DRIVE                                               | ENTRANCE) | OFFSET TON                                                |
| 290+25                                              | RT        | 2                                                         |
| 292+46                                              | RT        | 2                                                         |
| 293+82                                              | RT        | 2                                                         |
| 293+90                                              | LT        | 3                                                         |
| 295+62                                              | RT        | 2                                                         |
| 296+11                                              | RT        | 2                                                         |
| 297+43                                              | RT        | 2                                                         |
| 297+81                                              | LT        | 2                                                         |
| 298+95                                              | RT        | 3                                                         |
| 300+47                                              | LT        | 2                                                         |
| 322+30                                              | LT        | 5                                                         |
| 323+64                                              | RT        | 3                                                         |
| 324+12                                              | LT        | 3                                                         |
| 349+81                                              | LT        | 4                                                         |
| 354+79                                              | RT        | 5                                                         |
| 356+34                                              | RT        | 3                                                         |
| 360+00                                              | RT        | 3                                                         |
| 389+75                                              | LT        | 4                                                         |
| 399+23                                              | LT        | 4                                                         |
| 401+10                                              | RT        | 3                                                         |
| 416+80                                              | LT        | 2                                                         |
| 454+27                                              | RT        | 3                                                         |
| 479+55                                              | RT        | 3                                                         |
| 501+80                                              | RT        | 5                                                         |
| 513+25                                              | RT        | 2                                                         |
| 514+25                                              | LT        | 2                                                         |
| 515+28                                              | RT        | 2                                                         |
| 515+61                                              | LT        | 1                                                         |
| 518+09                                              | LT        | 2                                                         |
| 530+03                                              | LT        | 6                                                         |
| 530+37                                              | RT        | 2                                                         |
| 531+21                                              | RT        | 3                                                         |
| 532+87                                              | RT        | 2                                                         |
| 534+27                                              | RT        | 1                                                         |
| 655+63                                              | LT        | 4                                                         |
| TOTAL=                                              |           | 98                                                        |

\*HMA DRIVEWAYS AT THE LOCATIONS SHOWN ON THE PLANS WILL BE PAVED AT A 2" DEPTH

3

3

CULVERT PIPE & APRON ENDWALLS

|         |                  | CULVERT PIPE CLASS |          | APRON ENDWALLS FOR CULVERT PIPE |          | APRON ENDWALLS FOR CULVERT PIPE | CULVERT PIPE CORRUGATED | CULVERT PIPE REINFORCED CONCRETE | CULVERT PIPE REINFORCED CONCRETE | APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE |          |          | THICKNESS (INCHES) | MARKERS CULVERT END | CONSTRUCTION STAKING PIPE CULVERTS | GRADING, SHAPING AND FINISHING CROSS CULVERT | CLEANING CULVERT PIPES | REMARKS                           |
|---------|------------------|--------------------|----------|---------------------------------|----------|---------------------------------|-------------------------|----------------------------------|----------------------------------|-----------------------------------------------------|----------|----------|--------------------|---------------------|------------------------------------|----------------------------------------------|------------------------|-----------------------------------|
|         |                  | III-A              |          |                                 |          | STEEL                           | STEEL                   | CLASS III                        | CLASS IV                         |                                                     |          |          | STEEL              | EA                  | EA                                 | EA                                           | EA                     |                                   |
|         |                  | 520.3324           | 520.3330 | 520.1024                        | 520.1030 | 521.1048                        | 521.3148                | 522.0142                         | 522.0418                         | 522.1015                                            | 522.1018 | 522.1042 |                    | 633.5200            | 650.6000                           | SPV.0060.01                                  | 520.8700               |                                   |
|         |                  | 24-INCH            | 30-INCH  | 24-INCH                         | 30-INCH  | 48-INCH                         | 48-INCH                 | 42-INCH                          | 18-INCH                          | 15-INCH                                             | 18-INCH  | 42-INCH  |                    |                     |                                    |                                              |                        |                                   |
| STATION | DESCRIPTION      | LF                 | LF       | EA                              | EA       | EA                              | LF                      | LF                               | LF                               | EA                                                  | EA       | EA       |                    |                     |                                    |                                              |                        |                                   |
| 296+50  | CROSS CULVERT    | ---                | 60       | ---                             | 2        | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | 0.109              | 2                   | 1                                  | 1                                            | ---                    | REPLACE EXISTING                  |
| 316+50  | P107A            | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | 1                                                   | ---      | ---      | ---                | 1                   | ---                                | ---                                          | ---                    | NEW ENDWALL                       |
| 372+80  | CROSS CULVERT    | ---                | ---      | ---                             | ---      | ---                             | ---                     | 56                               | ---                              | ---                                                 | ---      | 2        | ---                | 2                   | 1                                  | 1                                            | ---                    | REPLACE EXISTING                  |
| 372+90  | CROSS CULVERT    | ---                | ---      | ---                             | ---      | ---                             | ---                     | 61                               | ---                              | ---                                                 | ---      | 2        | ---                | 2                   | 1                                  | 1                                            | ---                    | REPLACE EXISTING                  |
| 415+40  | CROSS CULVERT    | 86                 | ---      | 2                               | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | 0.064              | 2                   | 1                                  | 1                                            | ---                    | REPLACE EXISTING                  |
| 443+80  | MINI BOX CULVERT | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | ---                | ---                 | ---                                | ---                                          | 1                      |                                   |
| 448+40  | CROSS CULVERT    | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | ---                | ---                 | ---                                | ---                                          | 1                      |                                   |
| 467+40  | CROSS CULVERT    | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | ---                | ---                 | ---                                | ---                                          | 1                      |                                   |
| 496+80  | CROSS CULVERT    | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | ---                | ---                 | ---                                | ---                                          | 1                      |                                   |
| 525+09  | P203A            | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | 1        | ---      | ---                | 1                   | ---                                | ---                                          | ---                    | NEW ENDWALL                       |
| 525+49  | P203B            | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | 1        | ---      | ---                | 1                   | ---                                | ---                                          | ---                    | NEW ENDWALL                       |
| 525+09  | P204A - P204B    | ---                | ---      | ---                             | ---      | ---                             | ---                     | ---                              | 68                               | ---                                                 | 2        | ---      | ---                | 2                   | 1                                  | ---                                          | ---                    | REPLACE EXISTING WITH LARGER PIPE |
| 551+45  | CROSS CULVERT    | 52                 | ---      | 2                               | ---      | ---                             | ---                     | ---                              | ---                              | ---                                                 | ---      | ---      | 0.064              | 2                   | 1                                  | 1                                            | ---                    | REPLACE EXISTING                  |
| 632+40  | LT CROSS CULVERT | ---                | ---      | ---                             | ---      | 1                               | 6                       | ---                              | ---                              | ---                                                 | ---      | ---      | 0.109              | 2                   | 1                                  | 1                                            | ---                    | EXTEND EXISTING - LT              |
| 632+40  | RT CROSS CULVERT | ---                | ---      | ---                             | ---      | 1                               | 6                       | ---                              | ---                              | ---                                                 | ---      | ---      | 0.109              | 2                   | 1                                  | 1                                            | ---                    | EXTEND EXISTING - RT              |
| TOTAL=  |                  | 138                | 60       | 4                               | 2        | 2                               | 12                      | 117                              | 68                               | 1                                                   | 4        | 4        |                    | 19                  | 8                                  | 7                                            | 4                      |                                   |

STORM SEWER

|         |            | 520.8000                  | 608.0412                                  | 608.0415                                  | 608.0418                                  | 611.0530              | 611.2004               | 611.2005               | 611.0600            | 611.0612            | 611.0624            | 611.1003                    | 611.1004                    | 611.3230      | 650.4000                         | SPV.0060.03     | SPV.0060.02                            | REMARKS                                        |
|---------|------------|---------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-----------------------|------------------------|------------------------|---------------------|---------------------|---------------------|-----------------------------|-----------------------------|---------------|----------------------------------|-----------------|----------------------------------------|------------------------------------------------|
|         |            | CONCRETE COLLARS FOR PIPE | PIPE REINFORCED CONCRETE CLASS IV 12-INCH | PIPE REINFORCED CONCRETE CLASS IV 15-INCH | PIPE REINFORCED CONCRETE CLASS IV 18-INCH | MANHOLE COVERS TYPE J | MANHOLES 4-FT DIAMETER | MANHOLES 5-FT DIAMETER | INLET COVERS TYPE A | INLET COVERS TYPE C | INLET COVERS TYPE H | CATCH BASINS 3- FT DIAMETER | CATCH BASINS 4- FT DIAMETER | INLETS 2X3-FT | CONSTRUCTION STAKING STORM SEWER | STORM SEWER TAP | RECONNECT EXISTING STORM SEWER LATERAL |                                                |
| STATION | TO STATION | EA                        | LF                                        | LF                                        | LF                                        | EA                    | EA                     | EA                     | EA                  | EA                  | EA                  | EA                          | EA                          | EA            | EA                               | EA              | EA                                     |                                                |
| 304+37  | - 304+68   | E101B - E102              | 1                                         | ---                                       | 32                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | 1               | 1                                      | SPOT REPAIR                                    |
| 306+20  | - 306+32   | P102B - E102              | ---                                       | ---                                       | 38                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 306+32  |            | P102B                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 308+37  | - 308+56   | E102 - P103               | 1                                         | ---                                       | 20                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | 1                                      | SPOT REPAIR                                    |
| 308+48  | - 308+56   | E103A - P103              | ---                                       | ---                                       | 41                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | 1               | ---                                    | REPLACE WITH LARGER PIPE                       |
| 308+56  |            | P103                      | ---                                       | ---                                       | ---                                       | 1                     | ---                    | 1                      | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | REPLACE WITH LARGER STRUCTURE                  |
| 308+56  | - 309+59   | P103 - E104               | 1                                         | ---                                       | 106                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | 1                                      | SPOT REPAIR                                    |
| 308+56  | - 309+20   | P103B - P103              | ---                                       | ---                                       | 66                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 309+20  |            | P103B                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 311+14  | - 311+23   | E104 - E105               | 2                                         | ---                                       | 9                                         | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | 1                                      | SPOT REPAIR                                    |
| 312+97  | - 312+68   | E105D - E105C             | ---                                       | 41                                        | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | 2               | ---                                    | REPLACE WITH LARGER PIPE                       |
| 313+56  | - 313+65   | E105 - P106               | ---                                       | 9                                         | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | 1                                      | SPOT REPAIR                                    |
| 315+27  | - 315+36   | E105 - P106               | 3                                         | 9                                         | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | 1                                      | SPOT REPAIR                                    |
| 315+31  | - 315+36   | E106A - P106              | ---                                       | ---                                       | 8                                         | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | 1               | ---                                    | REPLACE WITH LARGER PIPE                       |
| 315+36  |            | P106                      | ---                                       | ---                                       | ---                                       | 1                     | 1                      | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | REPLACE                                        |
| 315+36  | - 315+46   | P106B - P106              | ---                                       | ---                                       | 38                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 315+46  |            | P106B                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 316+50  | - 316+50   | P107A - P107              | ---                                       | ---                                       | 8                                         | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LONGER PIPE                       |
| 316+50  |            | P107                      | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | 1                   | ---                 | ---                 | 1                           | ---                         | ---           | 1                                | ---             | ---                                    | NEW STRUCTURE                                  |
| 316+50  | - 318+29   | P107 - P107B              | ---                                       | ---                                       | 179                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE IN ADJUSTED ALIGNMENT                  |
| 318+29  |            | P107B                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | 1                   | ---                 | ---                 | ---                         | 1                           | ---           | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 518+52  |            | P200                      | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | 1                   | ---                 | ---                         | 1                           | ---           | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 523+09  | - 523+17   | E201B - P201              | ---                                       | ---                                       | 37                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | 1               | ---                                    | REPLACE WITH LARGER PIPE                       |
| 523+09  |            | P201A                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 523+09  | - 523+17   | P201A - P201              | ---                                       | ---                                       | 10                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 523+17  |            | P201                      | ---                                       | ---                                       | ---                                       | 1                     | ---                    | 1                      | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | REPLACE WITH LARGER STRUCTURE                  |
| 523+17  | - 523+28   | P201C - P201              | ---                                       | ---                                       | 55                                        | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 523+28  |            | P201C                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 523+28  | - 523+69   | P201D - P201C             | ---                                       | 41                                        | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH LARGER PIPE                       |
| 523+69  |            | P201D                     | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING                               |
| 524+97  |            | P202                      | ---                                       | ---                                       | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | 1                   | ---                         | ---                         | 1             | 1                                | ---             | ---                                    | REPLACE EXISTING IN ADJUSTED LOCATION          |
| 524+97  | - 525+17   | P202 - P203C              | ---                                       | 21                                        | ---                                       | ---                   | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE IN ADJUSTED ALIGNMENT WITH LARGER PIPE |
| 525+17  |            | P203C                     | ---                                       | ---                                       | ---                                       | 1                     | 1                      | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | NEW STRUCTURE                                  |
| 525+09  | - 525+17   | P203A - P203C             | ---                                       | ---                                       | ---                                       | 14                    | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE EXISTING (ADDED STRUCTURE)             |
| 525+17  | - 525+38   | P203C - P203              | ---                                       | ---                                       | ---                                       | 39                    | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | REPLACE EXISTING (ADDED STRUCTURE)             |
| 525+38  |            | P203                      | ---                                       | ---                                       | ---                                       | ---                   | 1                      | 1                      | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | ---                              | ---             | ---                                    | REPLACE WITH ADJUSTED STRUCTURE SIZE/TYPE      |
| 525+38  | - 525+49   | P203 - P203B              | ---                                       | ---                                       | ---                                       | 19                    | ---                    | ---                    | ---                 | ---                 | ---                 | ---                         | ---                         | ---           | 1                                | ---             | ---                                    | REPLACE EXISTING (ADDED STRUCTURE)             |
| TOTAL=  |            | 8                         | 121                                       | 647                                       | 72                                        | 5                     | 3                      | 2                      | 2                   | 1                   | 7                   | 1                           | 2                           | 7             | 16                               | 6               | 6                                      |                                                |

PROJECT NO: 4430-10-71

HWY: STH 42

COUNTY: DOOR

MISCELLANEOUS QUANTITIES

SHEET:

E



BARRIER SYSTEM GRADING SHAPING AND FINISHING

|         |    |         |        | *EXCAVATION<br>COMMON | *BORROW | *SALV. TOPSOIL | *FERT. TYPE B | *SEEDING | *MULCHING | 614.0010 |
|---------|----|---------|--------|-----------------------|---------|----------------|---------------|----------|-----------|----------|
| STATION | TO | STATION | OFFSET | CY                    | CY      | SY             | CWT           | LB       | SY        | EA       |
| 340+30  | -  | 342+87  | LT     | 1013                  | 932     | 9000           | 5.6           | 122      | 9000      | 1        |
| 341+32  | -  | 343+10  | RT     | 1012                  | 754     | 10250          | 6.4           | 138      | 10250     | 1        |
| TOTAL=  |    |         |        | 2025                  | 1686    | 19250          | 12.0          | 260      | 19250.0   | 2        |

NOTES:  
\*Items & Quantities listed for Bid Information Only.

GUARDRAIL ITEMS

|         |    |         |        | 614.2300           | 614.2340             | 614.2610                      | 614.2350                      | 614.2630                                  |
|---------|----|---------|--------|--------------------|----------------------|-------------------------------|-------------------------------|-------------------------------------------|
|         |    |         |        | MGS<br>GUARDRAIL 3 | MGS GUARDRAIL<br>3 L | MGS GUARDRAIL<br>TERMINAL EAT | MGS GUARDRAIL<br>SHORT RADIUS | MGS GUARDRAIL<br>SHORT RADIUS<br>TERMINAL |
| STATION | TO | STATION | OFFSET | LF                 | LF                   | EA                            | LF                            | EA                                        |
| 340+30  | -  | 342+87  | LT     | 37.5               | 112.5                | 2                             | ---                           | ---                                       |
| 341+32  | -  | 343+10  | RT     | 15.625             | 100                  | 1                             | 40                            | 1                                         |
| TOTAL=  |    |         |        | 53.125             | 212.5                | 3                             | 40                            | 1                                         |

EROSION CONTROL & RESTORATION ITEMS

|                 |                         | 628.1504   | 628.1520    | 628.2002    | 628.2004    | 628.2006    | 628.2008    | 628.7555 | 628.7005   | 628.7010   | 629.0210   | 630.0110   |
|-----------------|-------------------------|------------|-------------|-------------|-------------|-------------|-------------|----------|------------|------------|------------|------------|
|                 |                         | SILT FENCE |             | EROSION MAT | EROSION MAT | EROSION MAT | EROSION MAT | CULVERT  | INLET      | INLET      | FERTILIZER | SEEDING    |
|                 |                         | LF         | MAINTENANCE | CLASS I     | TYPE A      | CLASS I     | TYPE B      | PIPE     | PROTECTION | PROTECTION | TYPE B     | MIXTURE 10 |
| STATION TO      | STATION                 | STATION    | STATION     | SY          | SY          | SY          | SY          | EA       | EA         | EA         | CWT        | LB         |
| 296+50          | Culvert LT              | 115        | 11.5        | ---         | 80          | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 296+50          | Culvert RT              | 85         | 8.5         | ---         | ---         | ---         | 55          | 3        | ---        | ---        | *          | *          |
| 303+35 - 618+30 | Forestville SS Inlets   | ---        | ---         | ---         | ---         | ---         | ---         | ---      | 13         | ---        | ---        | ---        |
| 304+32 - 304+73 | C&G Replacement LT      | ---        | ---         | ---         | ---         | 23          | ---         | ---      | ---        | ---        | 0.014      | 0.3        |
| 309+00 - 309+25 | C&G Replacement LT      | ---        | ---         | ---         | ---         | 26          | ---         | ---      | ---        | ---        | 0.016      | 0.4        |
| 312+00 - 312+08 | C&G Replacement LT      | ---        | ---         | ---         | ---         | 7           | ---         | ---      | ---        | ---        | 0.004      | 0.1        |
| 315+41 - 315+46 | C&G Replacement RT      | ---        | ---         | ---         | ---         | 7           | ---         | ---      | ---        | ---        | 0.004      | 0.1        |
| 316+50          | SS Headwall Inlet       | 85         | 8.5         | ---         | ---         | 115         | ---         | 3        | ---        | ---        | 0.071      | 1.6        |
| 316+50 - 318+25 | SS/C&G Replace          | ---        | ---         | 125         | ---         | ---         | ---         | ---      | ---        | ---        | 0.078      | 1.7        |
| 318+25          | SS Outlet               | ---        | ---         | ---         | ---         | ---         | ---         | 3        | ---        | ---        | ---        | ---        |
| 339+00 - 344+25 | Beamguard LT            | 535        | 53.5        | ---         | 545         | ---         | ---         | 3        | ---        | ---        | **         | **         |
| 341+30 - 344+25 | Beamguard RT            | 310        | 31          | ---         | 425         | ---         | ---         | 3        | ---        | ---        | **         | **         |
| 373+00          | Culvert LT              | 100        | 10          | ---         | 140         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 373+00          | Culvert RT              | 100        | 10          | ---         | 100         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 415+00          | Culvert LT              | 170        | 17          | ---         | 165         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 414+50          | Culvert RT              | 180        | 18          | ---         | 200         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 518+50          | Culvert LT - inlet str  | 80         | 8           | ---         | ---         | 90          | ---         | ---      | ---        | 1          | 0.056      | 1.2        |
| 518+50          | Culvert RT              | 75         | 7.5         | ---         | ---         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 523+00 - 525+30 | Maplewood SS Inlets     | ---        | ---         | ---         | ---         | ---         | ---         | ---      | 5          | ---        | ---        | ---        |
| 523+00 - 523+25 | C&G Replacement LT & RT | ---        | ---         | ---         | ---         | 40          | ---         | ---      | ---        | ---        | 0.025      | 0.5        |
| 523+00 - 523+70 | C&G Replacement LT      | ---        | ---         | ---         | ---         | 12          | ---         | ---      | ---        | ---        | 0.007      | 0.2        |
| 525+00          | Culvert/SS LT           | 110        | 11          | ---         | ---         | 150         | ---         | 3        | ---        | ---        | *          | *          |
| 525+50          | Culvert/SS RT           | 65         | 6.5         | ---         | ---         | 55          | ---         | 3        | ---        | ---        | *          | *          |
| 525+25          | Trail Ramp LT           | ---        | ---         | ---         | ---         | 10          | ---         | ---      | ---        | ---        | 0.006      | 0.1        |
| 525+75          | Trail Ramp RT           | ---        | ---         | ---         | ---         | 5           | ---         | ---      | ---        | ---        | 0.003      | 0.1        |
| 551+50          | Culvert LT              | 95         | 9.5         | 55          | ---         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 551+50          | Culvert RT              | 95         | 9.5         | 55          | ---         | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 632+50          | Culvert LT              | 105        | 10.5        | ---         | 95          | ---         | ---         | 3        | ---        | ---        | *          | *          |
| 632+50          | Culvert RT              | 95         | 9.5         | ---         | 95          | ---         | ---         | 3        | ---        | ---        | *          | *          |
| Undistributed   |                         | 240        | 24          | 25          | 185         | 130         | 5           | ---      | 2          | 1          | 0.040      | 1.5        |
| TOTAL=          |                         | 2640       | 264         | 260         | 2030        | 670         | 60          | 51       | 20         | 2          | 0.326      | 7.7        |

NOTES:  
\*Payment for restoration items included in bid item "Grading, Shaping and Finishing Cross Culverts"  
\*\*Payment for restoration Items included in bid item "Barrier System Grading, Shaping, Finishing"

CULVERT PIPE TRANSITION

|            |         | *EXCAVATION |          | *FOUNDATION |  | SPV.0035.01 |
|------------|---------|-------------|----------|-------------|--|-------------|
|            |         | COMMON      | BACKFILL |             |  |             |
| STATION TO | STATION | CY          | CY       |             |  |             |
| 296+11 -   | 296+85  | 141         | 62       |             |  |             |
| 372+47 -   | 373+32  | 121         | 38       |             |  |             |
| 414+85     | 416+02  | 284         | 161      |             |  |             |
| 551+15     | 551+75  | 83          | 21       |             |  |             |
|            |         | 629         | 282      |             |  |             |

NOTES:  
\*Items & Quantities listed for Bid Information Only.

WATER

|            |         | 624.0100     |       |                               |  |
|------------|---------|--------------|-------|-------------------------------|--|
| STATION TO | STATION | DESCRIPTION  | MGAL  | REMARKS                       |  |
| 243+00 -   | 252+42  | AGG SHLDR LT | 0.32  | COMPACTION OF SHOULDER GRAVEL |  |
| 243+00 -   | 252+26  | AGG SHLDR RT | 0.32  | COMPACTION OF SHOULDER GRAVEL |  |
| 253+68 -   | 266+48  | AGG SHLDR LT | 0.44  | COMPACTION OF SHOULDER GRAVEL |  |
| 253+39 -   | 266+48  | AGG SHLDR RT | 0.45  | COMPACTION OF SHOULDER GRAVEL |  |
| 266+48 -   | 276+87  | AGG SHLDR LT | 0.71  | COMPACTION OF SHOULDER GRAVEL |  |
| 266+48 -   | 276+87  | AGG SHLDR RT | 0.71  | COMPACTION OF SHOULDER GRAVEL |  |
| 276+87 -   | 289+57  | AGG SHLDR LT | 0.43  | COMPACTION OF SHOULDER GRAVEL |  |
| 276+87 -   | 293+35  | AGG SHLDR RT | 0.56  | COMPACTION OF SHOULDER GRAVEL |  |
| 319+02 -   | 339+15  | AGG SHLDR LT | 0.68  | COMPACTION OF SHOULDER GRAVEL |  |
| 321+71 -   | 336+65  | AGG SHLDR RT | 0.51  | COMPACTION OF SHOULDER GRAVEL |  |
| 336+65 -   | 340+88  | AGG SHLDR LT | 0.38  | COMPACTION OF SHOULDER GRAVEL |  |
| 339+15 -   | 343+78  | AGG SHLDR RT | 0.32  | COMPACTION OF SHOULDER GRAVEL |  |
| 341+30 -   | 344+05  | AGG SHLDR LT | 0.17  | COMPACTION OF SHOULDER GRAVEL |  |
| 343+78 -   | 346+54  | AGG SHLDR RT | 0.19  | COMPACTION OF SHOULDER GRAVEL |  |
| 344+05 -   | 346+54  | AGG SHLDR LT | 0.17  | COMPACTION OF SHOULDER GRAVEL |  |
| 346+54 -   | 514+11  | AGG SHLDR RT | 5.7   | COMPACTION OF SHOULDER GRAVEL |  |
| 346+54 -   | 519+14  | AGG SHLDR LT | 5.87  | COMPACTION OF SHOULDER GRAVEL |  |
| 530+31 -   | 656+91  | AGG SHLDR RT | 4.31  | COMPACTION OF SHOULDER GRAVEL |  |
| 537+60 -   | 656+91  | AGG SHLDR LT | 4.06  | COMPACTION OF SHOULDER GRAVEL |  |
| TOTAL=     |         |              | 26.30 |                               |  |

WATER FOR SEEDED AREAS

|            |         | SPV.0120.01             |       |
|------------|---------|-------------------------|-------|
| STATION TO | STATION | DESCRIPTION             | MGAL  |
| 296+50     |         | Culvert LT              | 1.792 |
| 296+50     |         | Culvert RT              | 1.23  |
| 304+32 -   | 304+73  | C&G Replacement LT      | 0.52  |
| 309+00 -   | 309+25  | C&G Replacement LT      | 0.58  |
| 312+00 -   | 312+08  | C&G Replacement LT      | 0.16  |
| 315+41 -   | 315+46  | C&G Replacement RT      | 0.16  |
| 316+50     |         | SS Headwall Inlet       | 2.58  |
| 316+50 -   | 318+25  | SS/C&G Replace          | 2.80  |
| 339+00 -   | 344+25  | Beamguard LT            | 12.21 |
| 341+30 -   | 344+25  | Beamguard RT            | 9.52  |
| 373+00     |         | Culvert LT              | 3.14  |
| 373+00     |         | Culvert RT              | 2.24  |
| 415+00     |         | Culvert LT              | 3.70  |
| 414+50     |         | Culvert RT              | 4.48  |
| 518+50     |         | Culvert LT - inlet str  | 2.02  |
| 523+00 -   | 523+25  | C&G Replacement LT & RT | 0.90  |
| 523+00 -   | 523+70  | C&G Replacement LT      | 0.27  |
| 525+00     |         | Culvert/SS LT           | 3.36  |
| 525+50     |         | Culvert/SS RT           | 1.23  |
| 525+25     |         | Trail Ramp LT           | 0.22  |
| 525+75     |         | Trail Ramp RT           | 0.11  |
| 551+50     |         | Culvert LT              | 1.23  |
| 551+50     |         | Culvert RT              | 1.23  |
| 632+50     |         | Culvert LT              | 2.13  |
| 632+50     |         | Culvert RT              | 2.13  |
| TOTAL=     |         |                         | 59.92 |



ERECTION & REMOVAL OF PERMANENT SIGNING, TYPE II

| SIGN NO.       | LOCATION            | SIGN CODE | W X H     | 637.2210<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE H<br>S.F. | 637.2230<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE F<br>S.F. | 634.0614<br>POSTS<br>WOOD<br>4x6x14<br>EACH | 634.0616<br>POSTS<br>WOOD<br>4x6x16<br>EACH | 638.2602<br>REMOVING<br>SIGNS<br>TYPE II<br>EACH | 638.3000<br>REMOVING<br>SMALL<br>SIGN<br>SUPPORTS<br>EACH | REMARKS                                  |
|----------------|---------------------|-----------|-----------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|---------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|------------------------------------------|
| 1A             | "                   | D1-1      | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 2                                                         |                                          |
| 1              | STH 42, S. OF CTH X | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 2              | CTH X               | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 3              | "                   | R1-1      | 36" X 36" | 7.46                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 4              | COUNTY LINE RD      | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 5              | STH 42, N. OF CTH X | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 6              | "                   | I2-2      | 48" X 15" | 5.00                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 2                                                         | SEE SIGN DETAILS                         |
| 7              | "                   | J4-2      | 48" X 36" | 12.00                                                        | ---                                                          | ---                                         | 1                                           | ---                                              | ---                                                       | SEE PLAN SHEET                           |
| 8              | "                   | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 9              | "                   | D1-1      | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 2                                                         |                                          |
| 10             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 55 MPH                                   |
| 11             | "                   | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT TO BACK OF SIGN 10                 |
| 12             | "                   | J1-1      | 24" X 39" | 6.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 13             | "                   | W3-5      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 14             | "                   | I2-3      | 72" X 24" | 12.00                                                        | ---                                                          | 2                                           | ---                                         | 1                                                | 2                                                         | SEE SIGN DETAILS                         |
| 15             | "                   | J4-2      | 48" X 36" | 12.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 16             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 55 MPH                                   |
| 17             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 18             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 19             | "                   | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 20             | "                   | W11-8     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 1                                                         |                                          |
| 21             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 22             | "                   | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 21                      |
| 23             | "                   | J1-1      | 24" X 39" | 6.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 24             | "                   | W1-8      | 18" X 24" | ---                                                          | 3.00                                                         | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 25             | COMMERCIAL ST       | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 26             | "                   | W1-8      | 18" X 24" | ---                                                          | 3.00                                                         | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 27             | "                   | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 26                      |
| 28             | "                   | W1-8      | 18" X 24" | ---                                                          | 3.00                                                         | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 29             | "                   | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 28                      |
| 30             | "                   | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | ---                                              | ---                                                       | 35 MPH                                   |
| 31             | "                   | J13-1     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 1                                                         |                                          |
| 32             | "                   | J13-1     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       |                                          |
| 33             | "                   | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | ---                                              | ---                                                       | SEE PLAN SHEET                           |
| 34             | "                   | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | SEE PLAN SHEET, MOUNT TO BACK OF SIGN 33 |
| 35             | "                   | JV        | 24" X 60" | 10.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| PAGE SUBTOTALS |                     |           |           | 165.82                                                       | 29.12                                                        | 8                                           | 19                                          | 27                                               | 31                                                        |                                          |

ERECTION & REMOVAL OF PERMANENT SIGNING, TYPE II

| SIGN NO.       | LOCATION                | SIGN CODE | W X H     | 637.2210<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE H<br>S.F. | 637.2230<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE F<br>S.F. | 634.0614<br>POSTS<br>WOOD<br>4x6x14<br>EACH | 634.0616<br>POSTS<br>WOOD<br>4x6x16<br>EACH | 638.2602<br>REMOVING<br>SIGNS<br>TYPE II<br>EACH | 638.3000<br>REMOVING<br>SMALL<br>SIGN<br>SUPPORTS<br>EACH | REMARKS                                  |
|----------------|-------------------------|-----------|-----------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|---------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|------------------------------------------|
| 36             | CTH J                   | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 35                      |
| 37             | "                       | R1-1      | 36" X 36" | 7.46                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 38             | "                       | R1-1      | 36" X 36" | 7.46                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 39             | "                       | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 40             | "                       | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | SEE PLAN SHEET, MOUNT TO BACK OF SIGN 39 |
| 41             | STH 42, N. OF CTH J     | J4-2      | 48" X 36" | 12.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 42             | "                       | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 41                      |
| 43             | "                       | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 44             | "                       | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 45             | "                       | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 46             | "                       | R7-53D    | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 45                      |
| 47             | PARK ST                 | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 48             | "                       | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 49             | STH 42, N. OF PARK ST   | W11-8     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 1                                                         |                                          |
| 50             | "                       | J1-1      | 24" X 39" | 6.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 51             | "                       | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 52             | "                       | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 55 MPH                                   |
| 53             | "                       | W3-5      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                                   |
| 54             | "                       | I2-3      | 72" X 24" | 12.00                                                        | ---                                                          | 2                                           | ---                                         | 1                                                | 2                                                         | SEE SIGN DETAILS                         |
| 55             | BRANS RD                | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 56             | STH 42, N. OF BRANS RD  | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 56A            | "                       | D2-1      | 96" X 15" | 10.00                                                        | ---                                                          | 2                                           | ---                                         | ---                                              | ---                                                       | SEE PLAN SHEET                           |
| 57             | "                       | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 58             | CHERRY LN               | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 59             | "                       | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 60             | STH 32, N. OF CHERRY LN | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 61             | "                       | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 62             | "                       | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 63             | MILE RD                 | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 64             | "                       | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 65             | CENTER RD               | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 66             | "                       | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| 67             | STH 42, N. OF CENTER RD | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 68             | "                       | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                                          |
| 69             | "                       | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET                           |
| 70             | ELM RD                  | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                                          |
| PAGE SUBTOTALS |                         |           |           | 168.54                                                       | 47.92                                                        | 13                                          | 20                                          | 31                                               | 32                                                        |                                          |

ERECTION & REMOVAL OF PERMANENT SIGNING, TYPE II

| SIGN NO.       | LOCATION             | SIGN CODE | W X H     | 637.2210<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE H<br>S.F. | 637.2230<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE F<br>S.F. | 634.0614<br>POSTS<br>WOOD<br>4x6x14<br>EACH | 634.0616<br>POSTS<br>WOOD<br>4x6x16<br>EACH | 638.2602<br>REMOVING<br>SIGNS<br>TYPE II<br>EACH | 638.3000<br>REMOVING<br>SMALL<br>SIGN<br>SUPPORTS<br>EACH | REMARKS                  |
|----------------|----------------------|-----------|-----------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|---------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|--------------------------|
| 71             | ELM RD               | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                          |
| 72             | STH 42, N. OF ELM RD | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 73             | "                    | W3-5      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| 74             | "                    | J4-2      | 48" X 36" | 12.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 75             | "                    | I2-3      | 72" X 24" | 12.00                                                        | ---                                                          | 2                                           | ---                                         | 1                                                | 2                                                         | SEE SIGN DETAILS         |
| 76             | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| 77             | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         | 55 MPH                   |
| 78             | "                    | J1-1      | 24" X 39" | 6.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 79             | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| 80             | "                    | R7-1L     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 79      |
| 81             | "                    | R7-1R     | 18" X 24" | 3.00                                                         | ---                                                          | 1                                           | ---                                         | ---                                              | ---                                                       |                          |
| 82             | "                    | R7-1D     | 18" X 24" | 3.00                                                         | ---                                                          | 1                                           | ---                                         | ---                                              | ---                                                       |                          |
| 83             | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| 84             | "                    | R7-1D     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 83      |
| 85             | "                    | R7-1D     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | 1                                                | 1                                                         |                          |
| 86             | "                    | J4-1      | 24" X 36" | 6.00                                                         | ---                                                          | ---                                         | 1                                           | ---                                              | ---                                                       | SEE PLAN SHEET           |
| 87             | "                    | R7-1L     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 86      |
| 88             | "                    | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 89             | "                    | R7-1R     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 88      |
| 90             | CTH H                | R1-1      | 36" X 36" | 7.46                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         |                          |
| 91             | "                    | R1-1      | 36" X 36" | 7.46                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         |                          |
| 92             | "                    | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 93             | "                    | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT TO BACK OF SIGN 92 |
| 94             | STH 42, N. OF CTH H  | J13-1     | 24" X 45" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 95             | "                    | R7-1R     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 94      |
| 96             | "                    | J4-2      | 48" X 36" | 12.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 97             | "                    | R7-1L     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 96      |
| 98             | "                    | R7-1D     | 18" X 24" | 3.00                                                         | ---                                                          | 1                                           | ---                                         | ---                                              | ---                                                       |                          |
| 99             | "                    | R7-1R     | 18" X 24" | 3.00                                                         | ---                                                          | 1                                           | ---                                         | ---                                              | ---                                                       |                          |
| 100            | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| 101            | "                    | J4-1      | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       |                          |
| 102            | "                    | R7-1D     | 18" X 24" | 3.00                                                         | ---                                                          | 1                                           | ---                                         | ---                                              | ---                                                       |                          |
| 103            | "                    | J1-1      | 24" X 39" | 6.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET           |
| 104            | "                    | R7-1L     | 18" X 24" | 3.00                                                         | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT BELOW SIGN 103     |
| 105            | "                    | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                   |
| PAGE SUBTOTALS |                      |           |           | 178.60                                                       | 9.00                                                         | 9                                           | 17                                          | 20                                               | 21                                                        |                          |

ERECTION & REMOVAL OF PERMANENT SIGNING, TYPE II

| SIGN NO.       | LOCATION               | SIGN CODE | W X H     | 637.2210<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE H<br>S.F. | 637.2230<br>SIGNS<br>TYPE II<br>REFLECTIVE<br>TYPE F<br>S.F. | 634.0614<br>POSTS<br>WOOD<br>4x6x14<br>EACH | 634.0616<br>POSTS<br>WOOD<br>4x6x16<br>EACH | 638.2602<br>REMOVING<br>SIGNS<br>TYPE II<br>EACH | 638.3000<br>REMOVING<br>SMALL<br>SIGN<br>SUPPORTS<br>EACH | REMARKS                   |
|----------------|------------------------|-----------|-----------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|---------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|---------------------------|
| 106            | STH 42, N. OF CTH H    | M1-93     | ---       | ---                                                          | ---                                                          | ---                                         | ---                                         | ---                                              | ---                                                       |                           |
| 107            | "                      | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                    |
| 108            | "                      | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                    |
| 109            | "                      | R2-1      | 24" X 30" | 5.00                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | 55 MPH                    |
| 110            | "                      | I2-3      | 72" X 24" | 12.00                                                        | ---                                                          | 2                                           | ---                                         | 1                                                | 2                                                         | SEE SIGN DETAILS          |
| 111            | "                      | W3-5      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         | 35 MPH                    |
| 112            | "                      | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET            |
| 113            | FRANKS RD              | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                           |
| 114            | "                      | I55-56    | 30" X 36" | 7.50                                                         | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET            |
| 115            | COISMAN RD             | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                           |
| 116            | FEEST RD               | R1-1      | 30" X 30" | 5.18                                                         | ---                                                          | 1                                           | ---                                         | 1                                                | 1                                                         |                           |
| 117            | STH 42, N. OF FEEST RD | W1-7      | 48" X 24" | ---                                                          | 8.00                                                         | 1                                           | ---                                         | 1                                                | 1                                                         |                           |
| 118            | "                      | W14-3     | 48" X 36" | ---                                                          | 5.56                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                           |
| 119            | "                      | J1-2      | 48" X 39" | 13.00                                                        | ---                                                          | ---                                         | 1                                           | 1                                                | 1                                                         | SEE PLAN SHEET            |
| 120            | "                      | J2-3      | 72" X 57" | 28.50                                                        | ---                                                          | ---                                         | 2                                           | 1                                                | 2                                                         | SEE PLAN SHEET            |
| 121            | "                      | D2-3      | 84" X 36" | 21.00                                                        | ---                                                          | ---                                         | 2                                           | 1                                                | 2                                                         | SEE SIGN DETAILS          |
| 122            | "                      | W3-1      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                           |
| 123            | "                      | S3-1      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | ---                                         | ---                                              | ---                                                       | MOUNT TO BACK OF SIGN 122 |
| 124            | "                      | W3-1      | 36" X 36" | ---                                                          | 9.00                                                         | ---                                         | 1                                           | 1                                                | 1                                                         |                           |
| PAGE SUBTOTALS |                        |           |           | 120.04                                                       | 49.56                                                        | 6                                           | 14                                          | 17                                               | 20                                                        |                           |
| PROJECT TOTALS |                        |           |           | 633.00                                                       | 135.60                                                       | 36                                          | 70                                          | 95                                               | 104                                                       |                           |

3

| TRAFFIC CONTROL ITEMS             |                        |                |                 |                |      |                 |      |                 |      |                 |      |                 |      |                |      |            |
|-----------------------------------|------------------------|----------------|-----------------|----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|----------------|------|------------|
| LOCATION                          | 643.0300               |                | 643.0705        |                |      | 643.0715        |      | 643.0410        |      | 643.0420        |      | 643.0900        |      | 643.1050       |      | 644.1601.S |
|                                   | TRAFFIC                |                | TRAFFIC CONTROL |                |      | TRAFFIC CONTROL |      | TRAFFIC CONTROL |      | TRAFFIC CONTROL |      | TRAFFIC CONTROL |      | TRAFFIC        |      | TEMPORARY  |
|                                   | CONTROL DRUMS          |                | WARNING LIGHTS  |                |      | WARNING LIGHTS  |      | BARRICADES TYPE |      | BARRICADES TYPE |      | CONTROL         |      | CONTROL SIGNS  |      | CURB RAMP  |
|                                   | APPROX. SERVICE PERIOD | NO. IN SERVICE | DAYS            | NO. IN SERVICE | DAYS | NO. IN SERVICE  | DAYS | NO. IN SERVICE  | DAYS | NO. IN SERVICE  | DAYS | NO. IN SERVICE  | DAYS | NO. IN SERVICE | DAYS | EA         |
| STH 42 SB APPROACH                | 7                      | ---            | ---             | ---            | ---  | ---             | ---  | ---             | ---  | ---             | ---  | ---             | ---  | 1              | 7    | ---        |
| STH 42 NB APPROACH                | 7                      | ---            | ---             | ---            | ---  | ---             | ---  | ---             | ---  | ---             | ---  | ---             | ---  | 1              | 7    | ---        |
| MAINLINE/SIDE ROADS               | 47                     | ---            | ---             | ---            | ---  | ---             | ---  | ---             | ---  | ---             | ---  | 30              | 1410 | ---            | ---  | ---        |
| CURB RAMPs AT CTH J               | 6                      | 10             | 60              | 8              | 48   | 10              | 60   | ---             | ---  | 8               | 48   | 16              | 96   | ---            | ---  | 2          |
| CURB RAMPs AT AHNAPEE STATE TRAIL | 6                      | 10             | 60              | 4              | 24   | 10              | 60   | 4               | 24   | ---             | ---  | 2               | 12   | ---            | ---  | ---        |
| BEAM GUARD INSTALLATION           | 1                      | 15             | 15              | ---            | ---  | ---             | ---  | ---             | ---  | ---             | ---  | 5               | 5    | ---            | ---  | ---        |
| UNDISTRIBUTED                     | ---                    | ---            | 100             | ---            | ---  | ---             | ---  | ---             | ---  | ---             | ---  | ---             | 75   | ---            | ---  | ---        |
| TOTAL=                            |                        | 235            |                 | 72             |      | 120             |      | 24              |      | 48              |      | 1598            |      | 14             |      | 2          |

| GRADING SHAPING AND FINISHING DITCH |          |        |     |
|-------------------------------------|----------|--------|-----|
| SPV.0090.01                         |          |        |     |
| STATION                             |          |        |     |
| FROM                                | TO       | OFFSET | LF  |
| 338+67                              | - 340+96 | RT     | 229 |
| TOTAL=                              |          |        | 229 |

3

| SAWING    |    |         |                 |                      |          |     |           |      |           |
|-----------|----|---------|-----------------|----------------------|----------|-----|-----------|------|-----------|
|           |    |         |                 | 690.0150             | 690.0250 |     |           |      |           |
|           |    |         |                 | SAWING               | SAWING   |     |           |      |           |
|           |    |         |                 | ASPHALT              | CONCRETE |     |           |      |           |
| STATION   | TO | STATION | OFFSET          | LOCATION             | LF       | LF  | STATION   | TO   | STATION   |
| 243+00    |    |         | 15' LT/RT       | BEGIN PROJECT        | 30       | --- | 389+61    | -    | 389+90    |
| 525+53    | -  | 252+73  | 109' RT         | CTH X/COUNTY LINE RD | 22       | --- | 391+41    | -    | 391+63    |
| 253+08    | -  | 253+31  | 96' LT          | CTH X/COUNTY LINE RD | 23       | --- | 399+08    | -    | 399+39    |
| 290+08    | -  | 290+42  | 23' RT          | DRIVEWAY             | 33       | --- | 400+99    | -    | 401+22    |
| 292+33    | -  | 292+58  | 25' RT          | DRIVEWAY             | ---      | 24  | 414+56    | -    | 416+31    |
| 293+67    | -  | 293+96  | 25' RT          | DRIVEWAY             | 29       | --- | 416+67    | -    | 416+92    |
| 293+79    | -  | 294+02  | 27' LT          | DRIVEWAY             | 23       | --- | 417+38    | -    | 417+59    |
| 295+45    | -  | 295+79  | 25' RT          | DRIVEWAY             | ---      | 34  | 417+43    | -    | 417+65    |
| 296+01    | -  | 296+20  | 25' RT          | DRIVEWAY             | 20       | --- | 454+17    | -    | 454+37    |
| 296+12    | -  | 296+85  | 20' LT/RT       | CULVERT REPLACEMENT  | 80       | --- | 470+17    | -    | 470+41    |
| 297+30    | -  | 297+56  | 24' RT          | DRIVEWAY             | 25       | --- | 470+19    | -    | 470+41    |
| 297+68    | -  | 297+94  | 26' LT          | DRIVEWAY             | 26       | --- | 479+45    | -    | 479+65    |
| 298+79    | -  | 299+11  | 24' RT          | DRIVEWAY             | ---      | 32  | 501+62    | -    | 501+98    |
| 300+36    | -  | 300+59  | 25' LT          | DRIVEWAY             | 23       | --- | 513+18    | -    | 513+32    |
| 304+32    | -  | 304+74  | 12'-21' LT      | STORM SEWER REPAIR   | 52       | 5   | 514+14    | -    | 514+36    |
| 306+14    | -  | 306+37  | 20' LT/23' RT   | STORM SEWER REPAIR   | 43       | 5   | 515+21    | -    | 515+36    |
| 308+31    | -  | 309+64  | 28' LT/20' RT   | STORM SEWER REPAIR   | 278      | 5   | 515+47    | -    | 515+76    |
| 308+44    | -  | 308+86  | 41' LT          | COMMERCIAL ST        | 44       | --- | 517+96    | -    | 518+22    |
| 311+10    | -  | 311+27  | 8'-20' LT       | STORM SEWER REPAIR   | 40       | --- | 523+04    | -    | 523+70    |
| 312+01    | -  | 312+21  | 18'-44' LT      | CURB RAMP/SW QUAD    | 37       | 16  | 523+29    | -    | 523+68    |
| 312+21    | -  | 312+66  | 43'-44' LT      | CTH J                | 45       | --- | 523+39    | -    | 523+61    |
| 312+28    | -  | 312+66  | 66'-67' RT      | CTH J                | 40       | --- | 524+90    | -    | 526+31    |
| 312+28    | -  | 312+67  | 44'-54' RT      | STORM SEWER REPAIR   | 80       | --- | 529+88    | -    | 530+18    |
| 312+66    | -  | 312+83  | 19'-43' LT      | CURB RAMP/NW QUAD    | 32       | 24  | 530+28    | -    | 530+46    |
| 313+52    | -  | 313+70  | 10'-20' LT      | STORM SEWER REPAIR   | 38       | --- | 531+11    | -    | 531+32    |
| 315+23    | -  | 313+51  | 20' LT - 23' RT | STORM SEWER REPAIR   | 93       | 5   | 532+77    | -    | 532+97    |
| 316+43    | -  | 318+23  | 19' - 23' RT    | STORM SEWER REPAIR   | 188      | 5   | 534+18    | -    | 534+35    |
| 318+55    | -  | 318+76  | 65' LT          | W. PARK ST           | 21       | --- | 551+15    | -    | 551+75    |
| 318+93    | -  | 319+16  | 70' RT          | E. PARK ST           | 23       | --- | 576+45    | -    | 576+63    |
| 322+14    | -  | 322+46  | 24' LT          | DRIVEWAY             | 32       | --- | 608+00    | -    | 608+15    |
| 323+53    | -  | 323+76  | 23' RT          | DRIVEWAY             | 21       | --- | 628+29    | -    | 628+50    |
| 323+99    | -  | 324+25  | 21' LT          | DRIVEWAY             | 24       | --- | 655+48    | -    | 655+77    |
| 338+36    | -  | 338+59  | 50'-51' RT      | BRANS RD             | 24       | --- | 656+91    |      | 15' LT/RT |
| 349+65    | -  | 349+97  | 23' LT          | DRIVEWAY             | 33       | --- |           |      |           |
| 354+63    | -  | 354+96  | 23' RT          | DRIVEWAY             | 33       | --- |           |      |           |
| 356+24    | -  | 356+45  | 23' RT          | DRIVEWAY             | 22       | --- |           |      |           |
| 359+92    | -  | 360+08  | 23' RT          | DRIVEWAY             | 16       | --- |           |      |           |
| 364+64    | -  | 364+85  | 79'-90' LT      | CHERRY LN            | 21       | --- |           |      |           |
| 364+71    | -  | 364+86  | 80'-81' RT      | CHERRY LN            | 16       | --- |           |      |           |
| 372+47    | -  | 373+32  | 15' LT/RT       | CULVERT REPLACEMENT  | 60       | --- |           |      |           |
| SUBTOTAL= |    |         |                 |                      | 1690     | 155 | SUBTOTAL= |      |           |
|           |    |         |                 |                      |          |     |           | 1239 | 25        |
|           |    |         |                 |                      |          |     | TOTAL     |      |           |
|           |    |         |                 |                      |          |     |           | 2929 | 180       |

| PERMANENT PAVEMENT MARKINGS                                                                                                                                                                     |          |                        |                    |                              |                     |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|--------------------|------------------------------|---------------------|----------------------------|
|                                                                                                                                                                                                 |          | 649.0120               | 646.1020           | 646.1040                     | 648.0100            | REMARKS                    |
|                                                                                                                                                                                                 |          | TEMPORARY MARKING LINE | MARKING LINE EPOXY | MARKING LINE GROOVED WET REF | LOCATION NO-PASSING |                            |
| STATION                                                                                                                                                                                         | TO       | EPOXY 4-INCH* LF       | 4-INCH** LF        | EPOXY 4-INCH LF              | ZONES LF            |                            |
| 243+00                                                                                                                                                                                          | - 249+00 | 3000                   | 750                | 1200                         | 0.11                | CENTERLINE SKIPS AND SOLID |
| 249+00                                                                                                                                                                                          | - 254+25 | 4200                   | 1050               | 1050                         | 0.10                | CENTERLINE DOUBLE SOLID    |
| 254+25                                                                                                                                                                                          | - 266+00 | 5875                   | 1469               | 2350                         | 0.22                | CENTERLINE SKIPS AND SOLID |
| 266+00                                                                                                                                                                                          | - 302+26 | 3626                   | 907                | 7252                         | 0.69                | CENTERLINE SKIPS           |
| 302+26                                                                                                                                                                                          | - 303+45 | 298                    | 149                | 238                          | 0.02                | CENTERLINE SKIPS AND SOLID |
| 304+18                                                                                                                                                                                          | - 308+35 | 1043                   | 521                | 834                          | 0.08                | CENTERLINE SKIPS AND SOLID |
| 308+35                                                                                                                                                                                          | - 312+25 | 1560                   | 780                | 780                          | 0.07                | CENTERLINE DOUBLE SOLID    |
| 312+25                                                                                                                                                                                          | - 316+90 | 1163                   | 581                | 930                          | 0.09                | CENTERLINE SKIPS AND SOLID |
| 316+90                                                                                                                                                                                          | - 346+10 | 2920                   | 730                | 5840                         | 0.55                | CENTERLINE SKIPS           |
| 346+10                                                                                                                                                                                          | - 368+15 | 11025                  | 2756               | 4410                         | 0.42                | CENTERLINE SKIPS AND SOLID |
| 368+15                                                                                                                                                                                          | - 388+60 | 2045                   | 511                | 4090                         | 0.39                | CENTERLINE SKIPS           |
| 388+60                                                                                                                                                                                          | - 399+25 | 5325                   | 1331               | 2130                         | 0.20                | CENTERLINE SKIPS AND SOLID |
| 399+25                                                                                                                                                                                          | 400+45   | 120                    | 30                 | 240                          | 0.02                | CENTERLINE SKIPS           |
| 400+45                                                                                                                                                                                          | 411+00   | 5275                   | 1319               | 2110                         | 0.20                | CENTERLINE SKIPS AND SOLID |
| 411+00                                                                                                                                                                                          | 420+65   | 965                    | 241                | 1930                         | 0.18                | CENTERLINE SKIPS           |
| 420+65                                                                                                                                                                                          | 430+10   | 4725                   | 1181               | 1890                         | 0.18                | CENTERLINE SKIPS AND SOLID |
| 430+10                                                                                                                                                                                          | 432+40   | 230                    | 58                 | 460                          | 0.04                | CENTERLINE SKIPS           |
| 432+40                                                                                                                                                                                          | 442+10   | 4850                   | 1213               | 1940                         | 0.18                | CENTERLINE SKIPS AND SOLID |
| 442+10                                                                                                                                                                                          | 516+90   | 7480                   | 1870               | 14960                        | 1.42                | CENTERLINE SKIPS           |
| 516+90                                                                                                                                                                                          | 528+40   | 2875                   | 1438               | 2300                         | 0.22                | CENTERLINE SKIPS AND SOLID |
| 528+40                                                                                                                                                                                          | - 638+35 | 10995                  | 2749               | 21990                        | 2.08                | CENTERLINE SKIPS           |
| 638+35                                                                                                                                                                                          | - 649+60 | 5625                   | 1406               | 2250                         | 0.21                | CENTERLINE SKIPS AND SOLID |
| 649+60                                                                                                                                                                                          | 656+91   | 5848                   | 1462               | 1462                         | 0.14                | CENTERLINE DOUBLE SOLID    |
| TOTAL=                                                                                                                                                                                          |          | 85219                  | 23039              | 81174                        | 7.69                |                            |
| *TEMPORARY MARKING LINE APPLIED AS SHOWN ON "PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS" & PRIOR TO PLACEMENT OF CENTER LINE RUMBLE STRIPS PER SPECIAL PROVISIONS. |          |                        |                    |                              |                     |                            |
| **MARKING LINE EPOXY 4-INCH FOR CENTER LINE APPLICATION. IN LOCATIONS WHERE CENTER LINE RUMBLE STRIPS ARE INSTALLED, APPLY PER SPECIAL PROVISIONS.                                              |          |                        |                    |                              |                     |                            |

| CONSTRUCTION STAKING*                                                                                                |             |                      |               |     |                             |
|----------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------|-----|-----------------------------|
|                                                                                                                      |             | 650.8000             | 650.9920      |     |                             |
|                                                                                                                      |             | CONSTRUCTION STAKING | CONSTRUCTION  |     |                             |
|                                                                                                                      |             | RESURFACING          | STAKING SLOPE |     |                             |
|                                                                                                                      |             | REFERENCE            | STAKES        |     |                             |
| STATION                                                                                                              | TO          | OFFSET               | LF            | LF  | REMARKS                     |
| 243+00                                                                                                               | - 656+91.03 | LT                   | 41391         | --- | BEGIN PROJECT - END PROJECT |
| 339+15                                                                                                               | - 344+02    | LT                   | ---           | 487 | BEAM GUARD INSTALLATION     |
| 340+79                                                                                                               | - 344+25    | RT                   | ---           | 346 | BEAM GUARD INSTALLATION     |
| TOTAL=                                                                                                               |             |                      | 41391         | 833 |                             |
| NOTES:                                                                                                               |             |                      |               |     |                             |
| *Other staking items are located elsewhere within the Miscellaneous Quantities, with their associated items of work. |             |                      |               |     |                             |

CONVENTIONAL ABBREVIATIONS AND SYMBOLS

|                            |        |                           |    |
|----------------------------|--------|---------------------------|----|
| ACCESS POINT               | AP     | SECTION CORNER            | SC |
| ACCESS RIGHTS              | AR     | MATERIAL AS NOTED         | MA |
| ACRES                      | AC     | SET R/W MONUMENT W/CAP    | SM |
| CHORD BEARING              | CH BRG | (1-1/4" OUTSIDE DIA. 1/8" |    |
| CHORD DISTANCE             | CH DIS | IRON PIPE 1.13 LBS/FT)    |    |
| DEED                       | DEED   | FOUND TYPE 2 MON.         |    |
| DOCUMENT                   | DOC    | FOUND 3/4" REBAR          |    |
| EAST BOUND                 | EB     | SET P.K., NAIL            |    |
| GAS VALVE                  | GV     | PROPOSED R/W              |    |
| INLET                      | IN     | BOUNDARY POINT            |    |
| LENGTH OF CURVE            | L      | CORPORATE LIMITS          |    |
| MANHOLE                    | MH     | EXISTING R/W              |    |
| MONUMENT                   | MON    | SECTION LINE              |    |
| NORTH BOUND                | NB     | QUARTER LINE              |    |
| PAGE                       | PG     | SIXTEENTH LINE            |    |
| PERMANENT                  | PERM   | PROPOSED OR NEW R/W LINE  |    |
| PERMANENT LIMITED EASEMENT | PLE    | PROPOSED EASEMENT LINE    |    |
| PRIVATE DRIVEWAY           | PD     | PARCEL NUMBER             |    |
| PROPERTY LINE              | PL     | UTILITY NUMBER            |    |
| RADIUS                     | RAD    | SIGN NUMBER               |    |
| REFERENCE LINE             | REF    | PROPERTY LINE             |    |
| REMAINING                  | REM    | LOT, TIE AND OTHER MINOR  |    |
| RIGHT OF WAY               | R/W    | DASHED LINES              |    |
| SECTION                    | SEC    | ACCESS RESTRICTED         |    |
| SECTION LINE               | S      | (By Previous Project/     |    |
| FOUND IRON PIPE            | IP     | Control)                  |    |
| STATION                    | STA    | ACCESS RESTRICTED         |    |
| TEMPORARY LIMITED EASEMENT | TLE    | (By Acquisition)          |    |
| TIE POINT                  | TIE    | NO ACCESS                 |    |
| VOLUME                     | VOL    | (By Statutory Authority)  |    |
| ADJOINING LANDS            |        | LIMITED EASEMENT          |    |
| WITH SAME OWNER            |        | (Temporary)               |    |
| PARALLEL TO LINE           |        | LIMITED EASEMENT          |    |
|                            |        | (Permanent)               |    |

BUILDING TO BE RAZED

FEE ACQUISITION

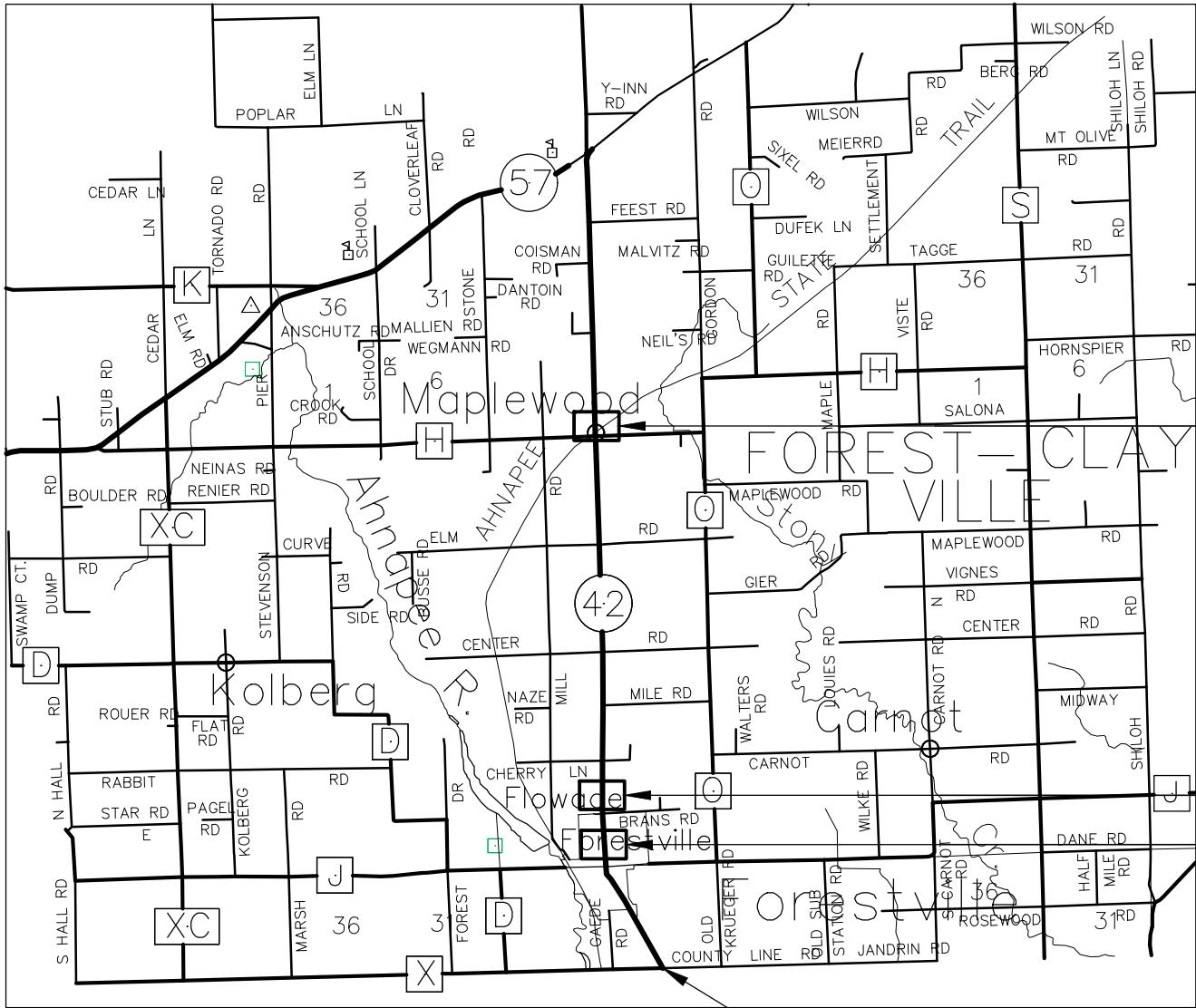
BEGIN POINT

END POINT

CONVENTIONAL UTILITY SYMBOLS

|                    |     |
|--------------------|-----|
| WATER              | W   |
| GAS                | G   |
| TELEPHONE          | T   |
| OVERHEAD           | OH  |
| TRANSMISSION LINES | E   |
| ELECTRIC           | E   |
| CABLE TELEVISION   | TV  |
| FIBER OPTIC        | FO  |
| SANITARY SEWER     | SAN |
| STORM SEWER        | SS  |
| NON-COMPENSABLE    |     |
| POWER POLE         |     |
| TELEPHONE POLE     |     |
| TELEPHONE PEDESTAL |     |
| ELECTRIC TOWER     |     |

BEGIN RELOCATION ORDER  
PROJECT 4430-10-21  
STATION 656+91.03

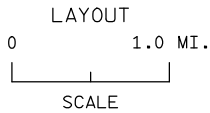


SHEET 4.04

SHEET 4.03

SHEET 4.02

END RELOCATION ORDER  
PROJECT 4430-10-21  
STATION 245+14.09



TOTAL NET LENGTH OF CENTERLINE = 1.00 MI.



*Gregory T. Belanger*

|                              |                                                    |
|------------------------------|----------------------------------------------------|
| REVISION DATE<br>6-14-2018   | STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |
| APPROVED:<br>DATE: 2-23-2018 | CURT VAN E<br>58                                   |



SE 1/4 - SE 1/4

VILLAGE

| POINT | STATION   | OFFSET | COORDINATES  |              |
|-------|-----------|--------|--------------|--------------|
| 536   | 311+82.13 | 0.00'  | Y=105718.910 | X=467081.277 |
| 531   | 312+41.28 | -5.14' | Y=105777.945 | X=467074.954 |
| 500   | 315+00.00 | 0.00'  | Y=106036.720 | X=467074.939 |
| 502   | 316+34.82 | 53.21' | Y=106172.577 | X=467125.447 |
| 501   | 316+35.39 | 24.75' | Y=106172.577 | X=467096.985 |
| 506   | 316+43.92 | 48.23' | Y=106181.577 | X=467120.293 |
| 505   | 316+44.39 | 24.75' | Y=106181.577 | X=467096.805 |
| 516   | 316+50.94 | -2.48' | Y=106187.576 | X=467069.453 |
| 508   | 316+54.93 | 48.26' | Y=106192.577 | X=467120.100 |
| 507   | 316+55.39 | 24.75' | Y=106192.577 | X=467096.586 |
| 504   | 316+64.83 | 53.29' | Y=106202.577 | X=467124.928 |
| 503   | 316+65.30 | 29.75' | Y=106202.577 | X=467101.384 |
| 538   | 317+46.55 | 29.75' | Y=106283.814 | X=467099.764 |
| 537   | 317+46.65 | 24.75' | Y=106283.814 | X=467094.767 |
| 509   | 319+00.00 | 0.00'  | Y=106436.641 | X=467066.964 |
| 532   | 338+46.47 | -0.42' | Y=108382.784 | X=467039.982 |

| POINT - POINT | BEARING       | DISTANCE |
|---------------|---------------|----------|
| 531 - 516     | N 00°46'09" W | 403.67'  |
| 516 - 505     | N 90°00'00" E | 27.27'   |
| 505 - 507     | N 01°08'33" W | 11.00'   |
| 507 - 508     | N 90°00'00" E | 23.51'   |
| 508 - 506     | S 01°00'19" E | 11.00'   |
| 506 - 505     | N 90°00'00" W | 23.49'   |

SCHEDULE OF UTILITIES & INTERESTS REQUIRED

| UTILITY NUMBER | OWNER                                      | INTEREST REQUIRED |
|----------------|--------------------------------------------|-------------------|
| 102            | WISCONSIN PUBLIC SERVICE CORPORATION (GAS) | RELEASE OF RIGHTS |
| 100            | CENTURYLINK                                | RELEASE OF RIGHTS |

SCHEDULE OF LANDS & INTERESTS REQUIRED

| PARCEL NUMBER | OWNER                    | INTEREST REQUIRED | FEE R/W ACRE(S) OR (S.F.) REQUIRED |          |       | T.L.E. AREA | P.L.E. AREA |
|---------------|--------------------------|-------------------|------------------------------------|----------|-------|-------------|-------------|
|               |                          |                   | NEW                                | EXISTING | TOTAL |             |             |
| 3             | RICHARD AND KIM LONGSETH | PLE & TLE         | -                                  | -        | -     | 735 sq. ft. | 217 sq. ft. |
| 4             | MARK A. DAHMS            | PLE & TLE         | -                                  | -        | -     | 267 sq. ft. | 48 sq. ft.  |

EXISTING R/W

STH 42 / N. FORESTVILLE AVE.

SE-SE 318+00 317+00 316+00

SW-SW 400.00' R/L

N00° 46' 09"W 2605.07' S/L

N01° 08' 33"W

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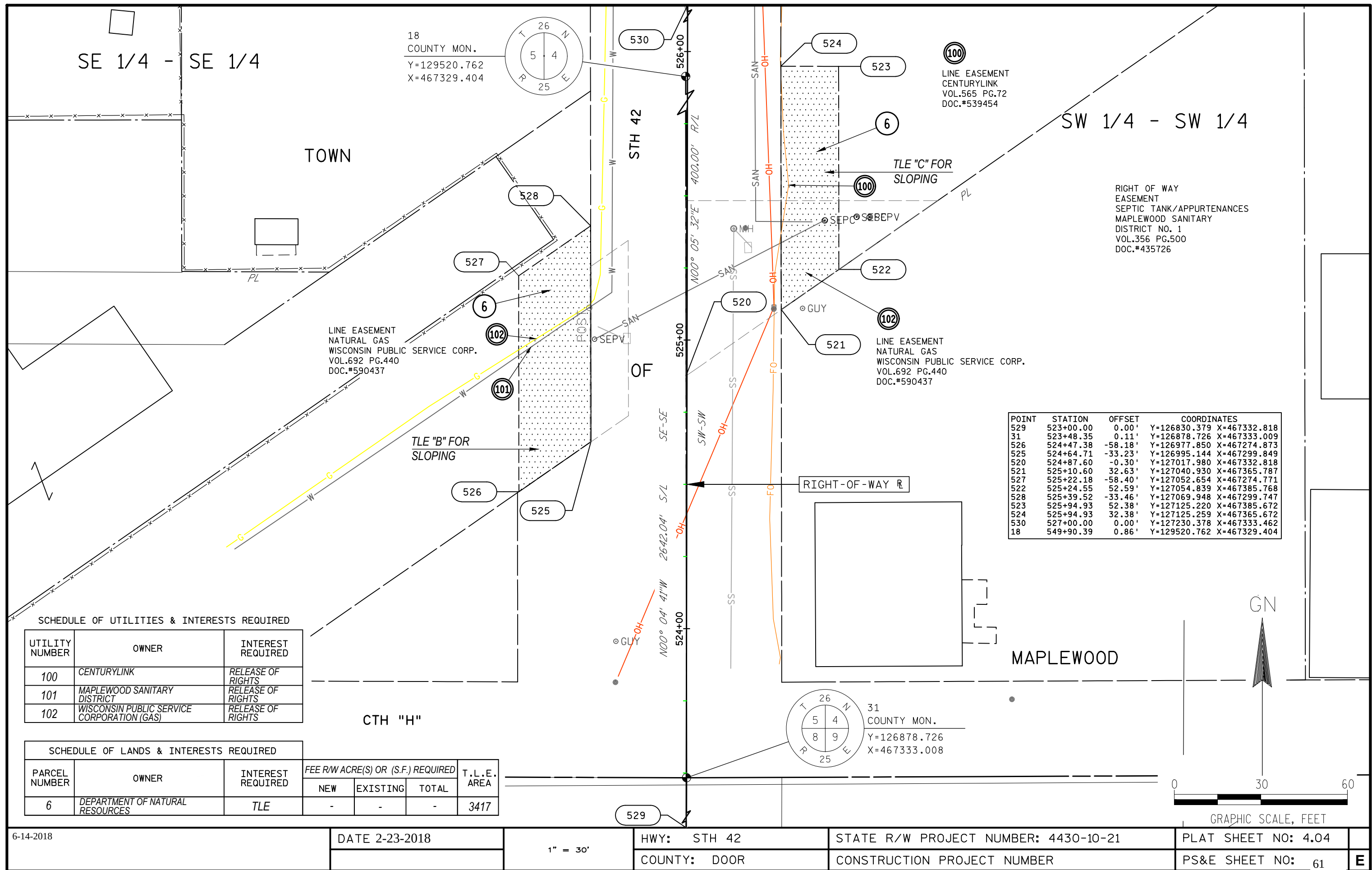
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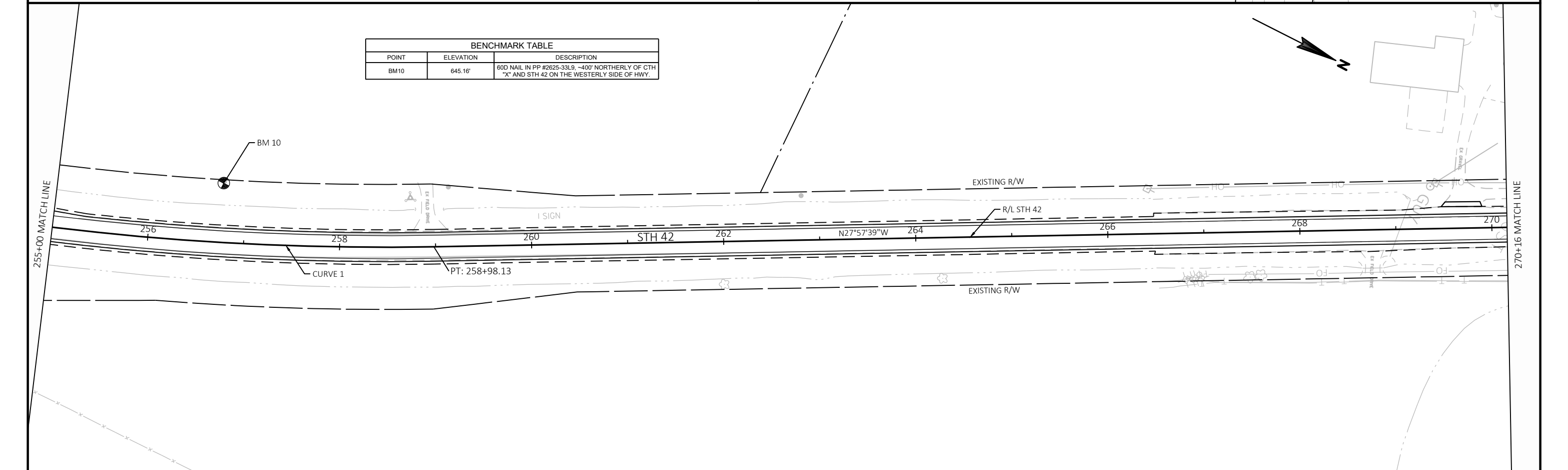
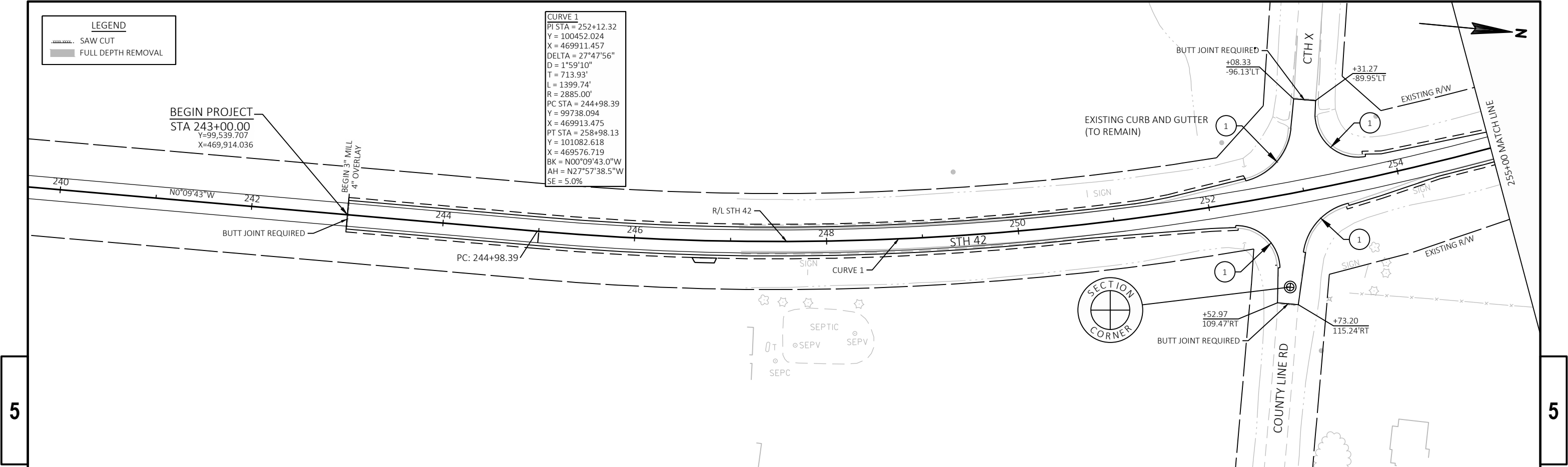
| POINT | STATION   | OFFSET  | COORDINATES  |              |
|-------|-----------|---------|--------------|--------------|
| 529   | 523+00.00 | 0.00'   | Y=126830.379 | X=467332.818 |
| 31    | 523+48.35 | 0.11'   | Y=126878.726 | X=467333.009 |
| 526   | 524+47.38 | -58.18' | Y=126977.850 | X=467274.873 |
| 525   | 524+64.71 | -33.23' | Y=126995.144 | X=467299.849 |
| 520   | 524+87.60 | -0.30'  | Y=127017.980 | X=467332.818 |
| 521   | 525+10.60 | 32.63'  | Y=127040.930 | X=467365.787 |
| 527   | 525+22.18 | -58.40' | Y=127052.654 | X=467274.771 |
| 522   | 525+24.55 | 52.59'  | Y=127054.839 | X=467385.768 |
| 528   | 525+39.52 | -33.46' | Y=127069.948 | X=467299.747 |
| 523   | 525+94.93 | 52.38'  | Y=127125.220 | X=467385.672 |
| 524   | 525+94.93 | 32.38'  | Y=127125.259 | X=467365.672 |
| 530   | 527+00.00 | 0.00'   | Y=127230.378 | X=467333.462 |
| 18    | 549+90.39 | 0.86'   | Y=129520.762 | X=467329.404 |

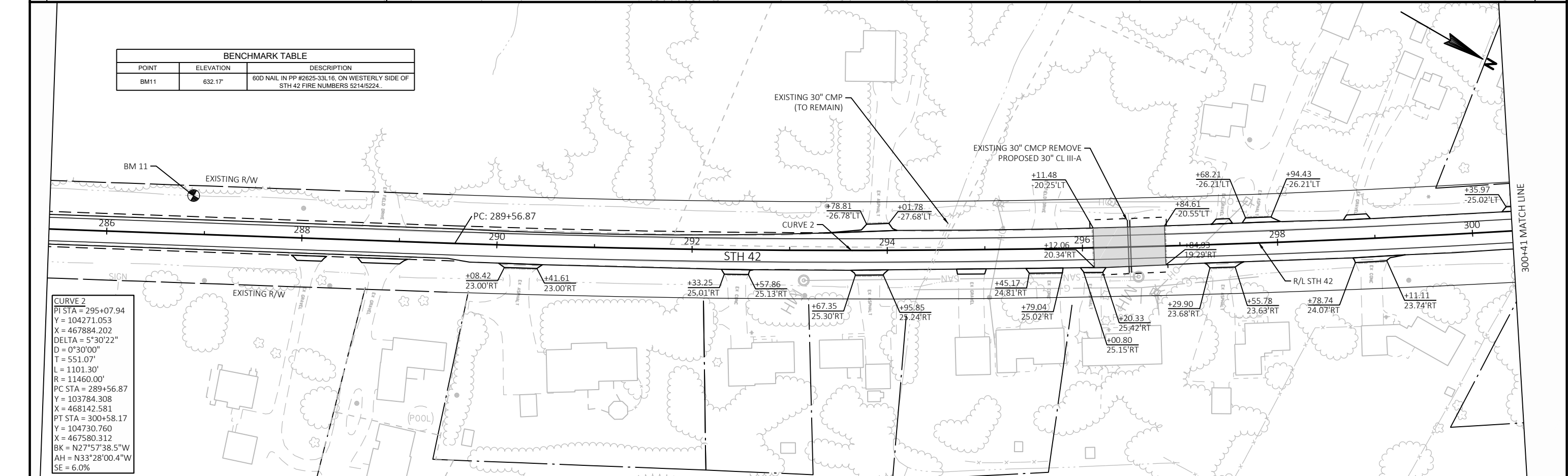
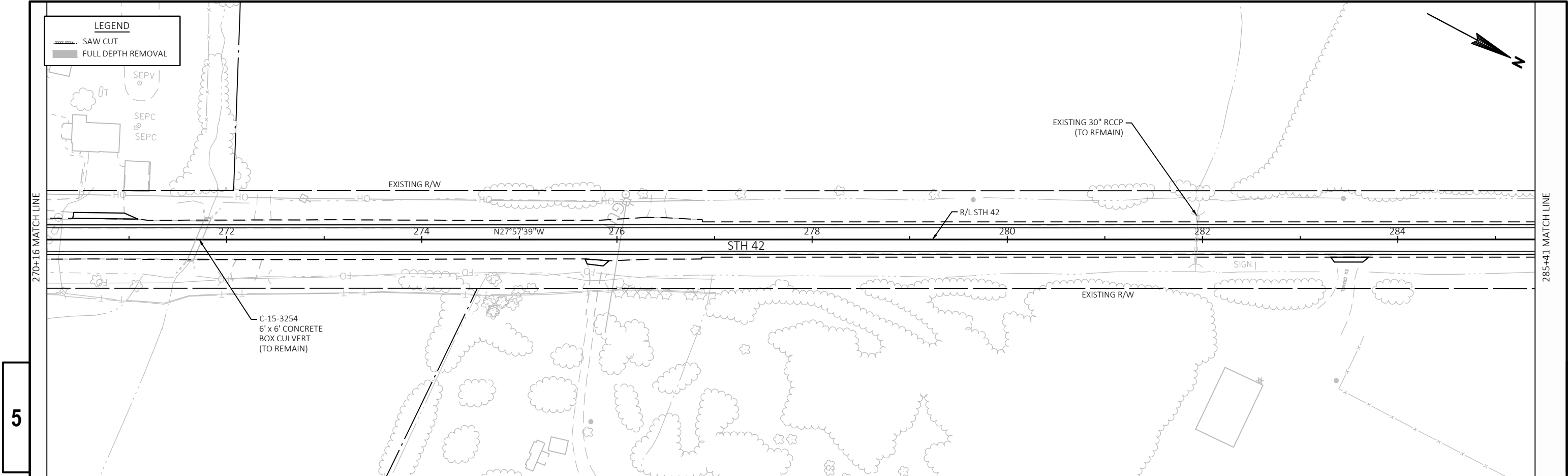
SCHEDULE OF UTILITIES & INTERESTS REQUIRED

| UTILITY NUMBER | OWNER                                      | INTEREST REQUIRED |
|----------------|--------------------------------------------|-------------------|
| 100            | CENTURYLINK                                | RELEASE OF RIGHTS |
| 101            | MAPLEWOOD SANITARY DISTRICT                | RELEASE OF RIGHTS |
| 102            | WISCONSIN PUBLIC SERVICE CORPORATION (GAS) | RELEASE OF RIGHTS |

SCHEDULE OF LANDS & INTERESTS REQUIRED

| PARCEL NUMBER | OWNER                           | INTEREST REQUIRED | FEE R/W ACRE(S) OR (S.F.) REQUIRED |          |       | T.L.E. AREA |
|---------------|---------------------------------|-------------------|------------------------------------|----------|-------|-------------|
|               |                                 |                   | NEW                                | EXISTING | TOTAL |             |
| 6             | DEPARTMENT OF NATURAL RESOURCES | TLE               | -                                  | -        | -     | 3417        |





PROJECT NO: 4430-10-71

HWY: STH 42

COUNTY: DOOR

PLAN: STH 42

SHEET

63

E

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LAYOUT NAME - 050202-pn

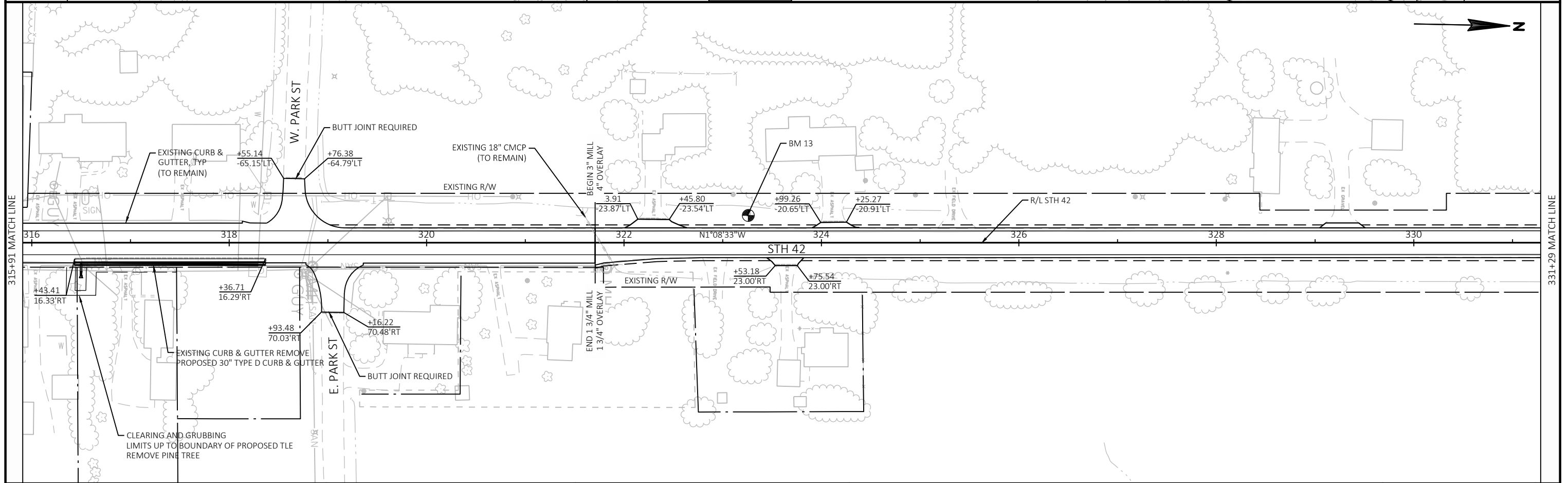
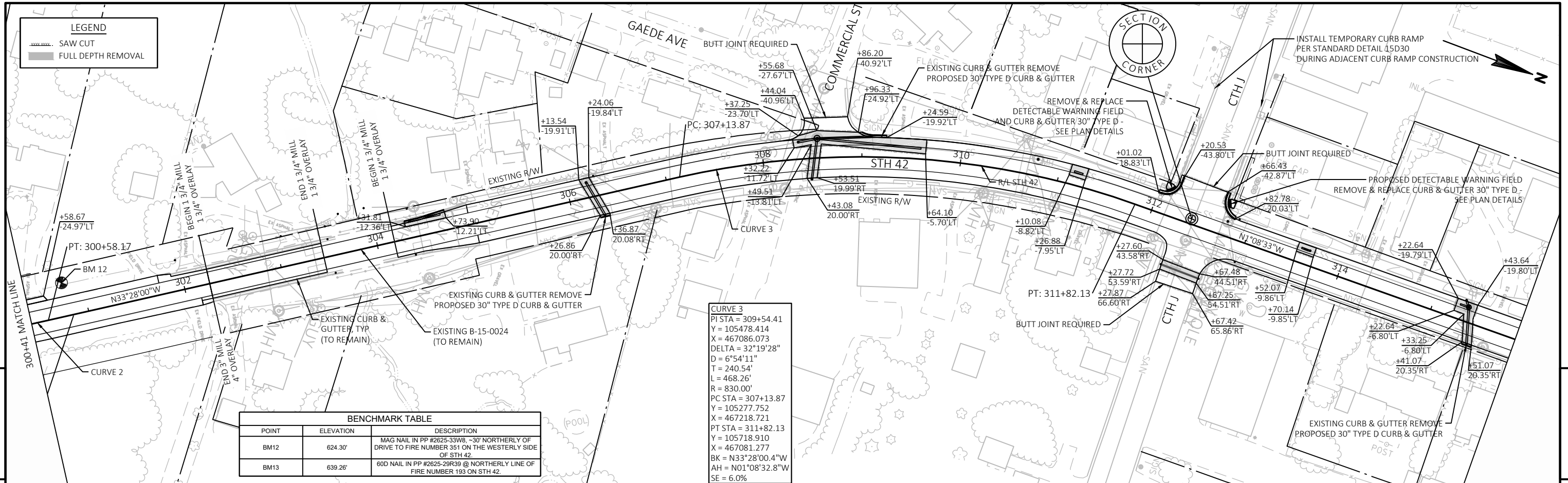
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PLOT BY : JOLIVETTE, ERIN ELIZ

PLOT NAME :

PLOT SCALE : 1 IN=100 FT

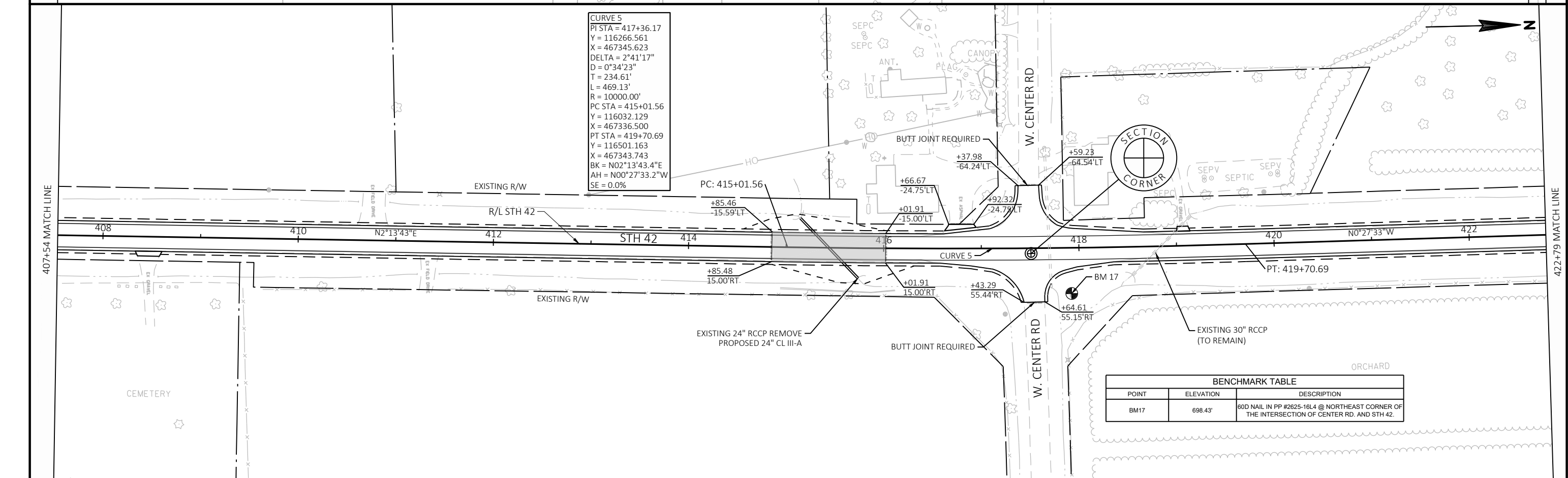
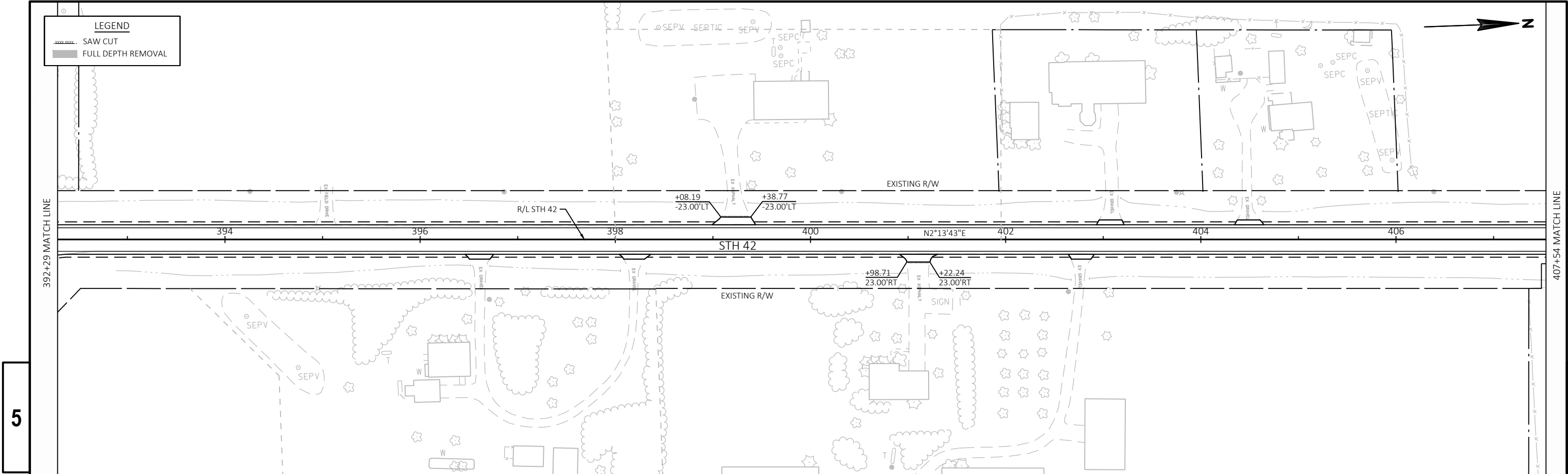
WISDOT/CADDs SHEET 44

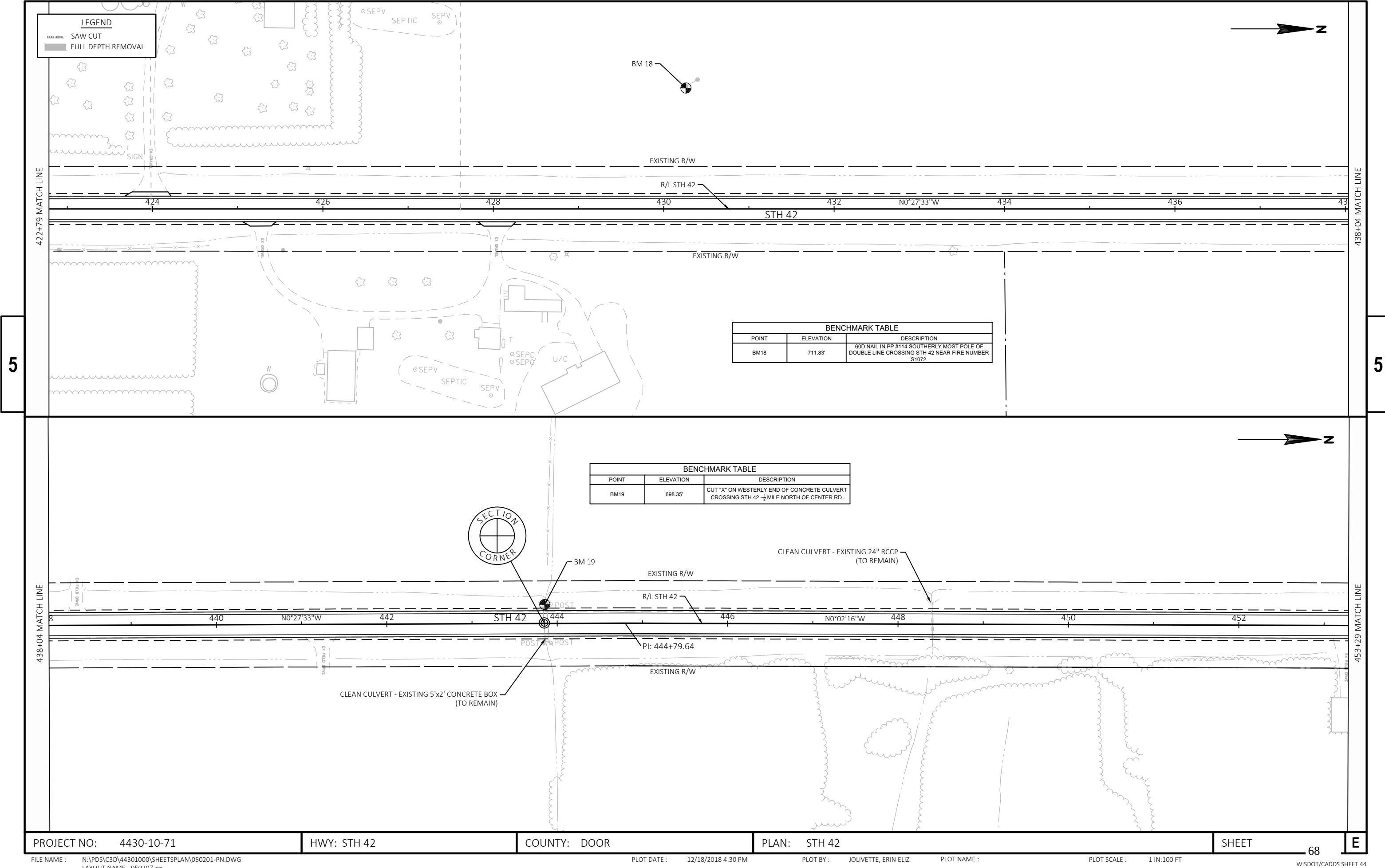




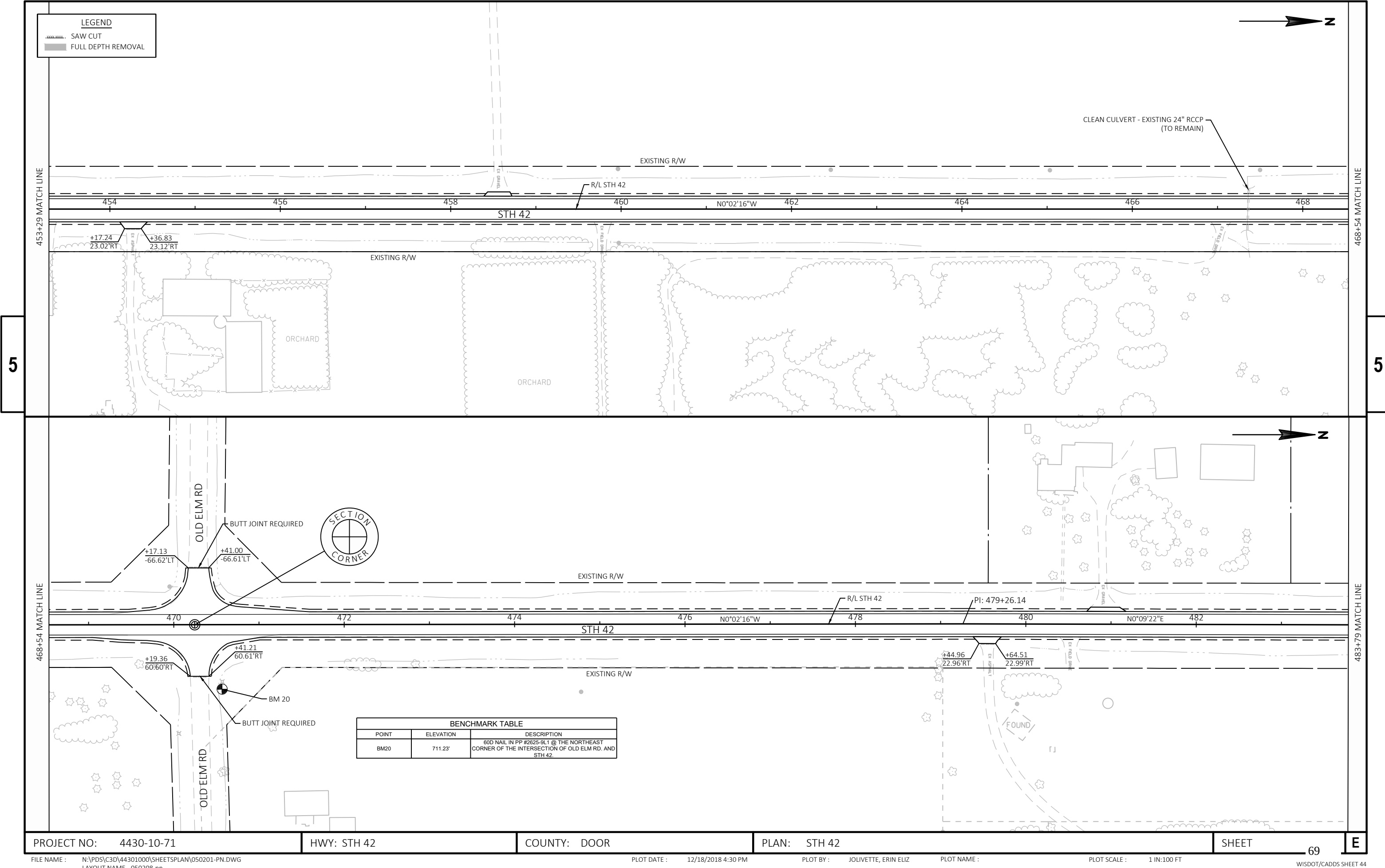












PROJECT NO: 4430-10-71

HWY: STH 42

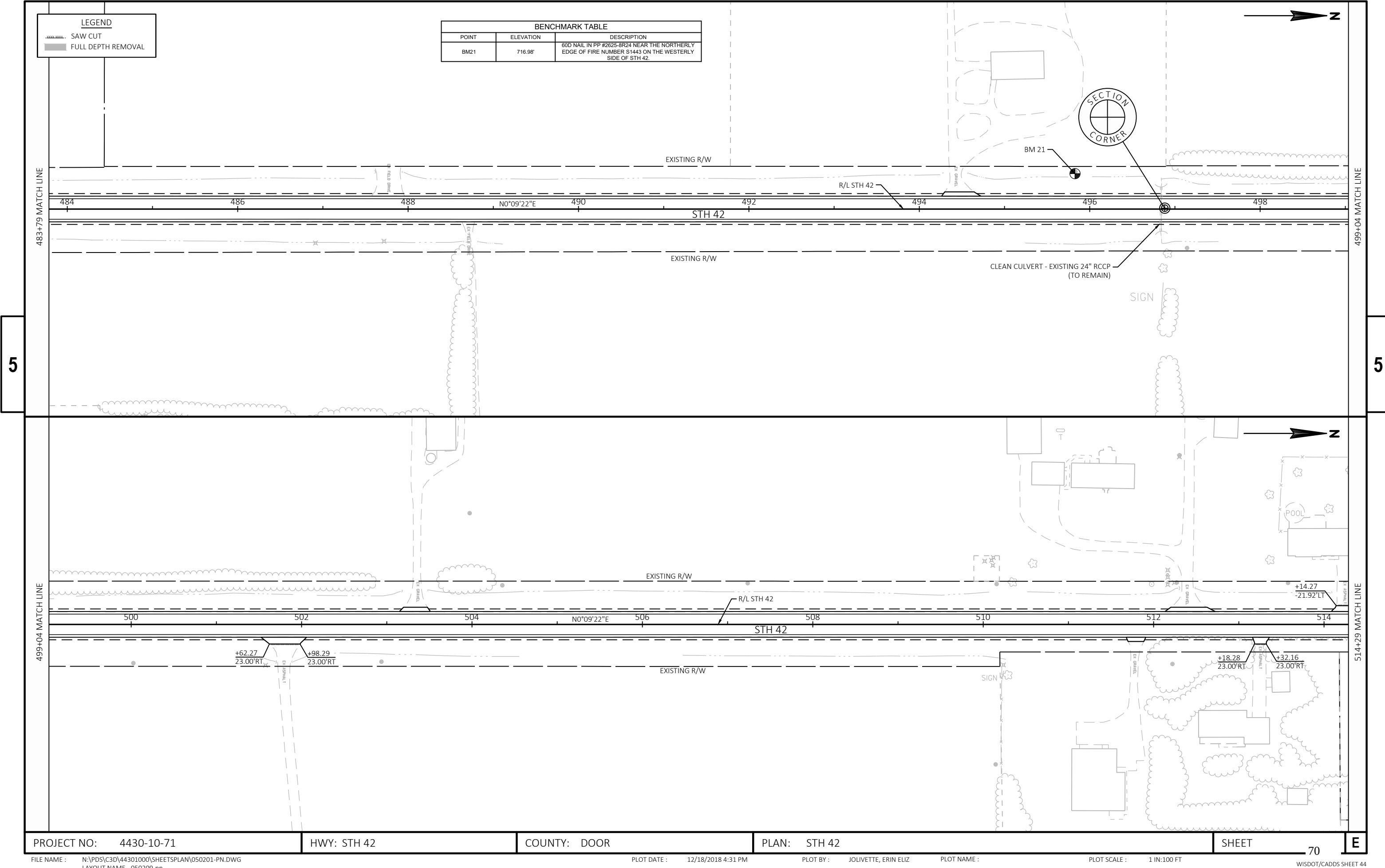
COUNTY: DOOR

PLAN: STH 42

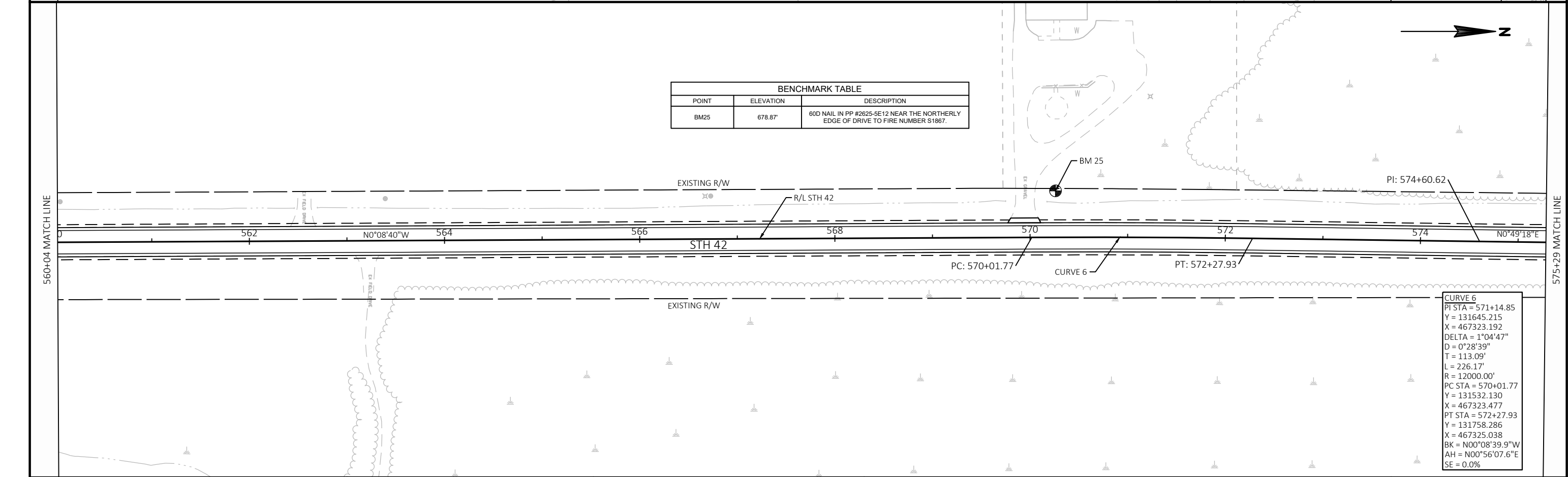
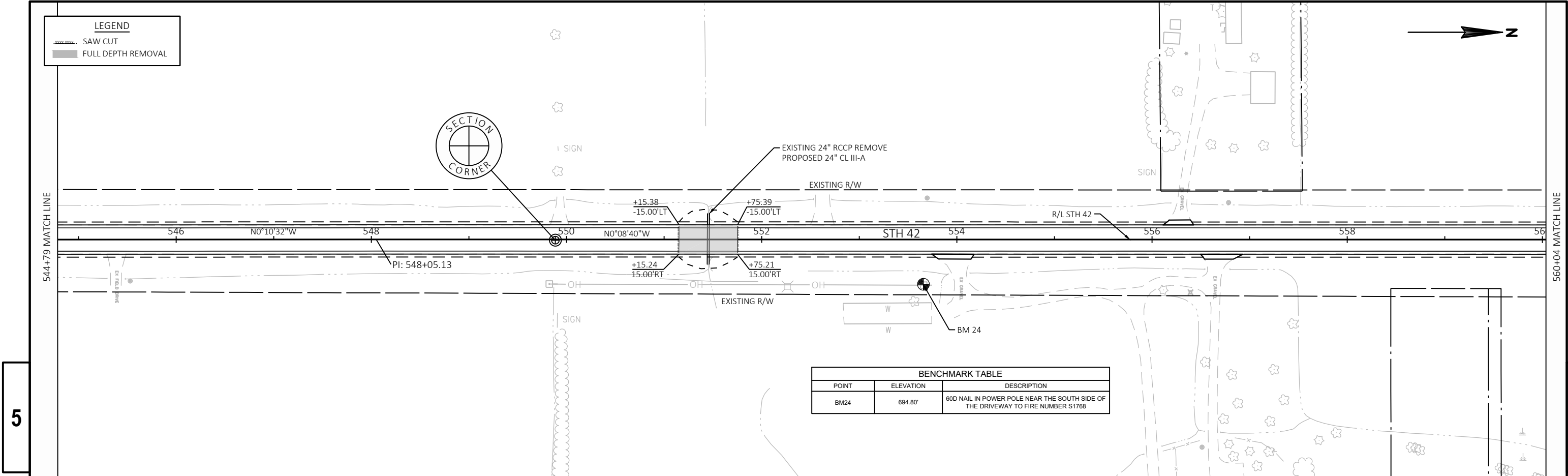
SHEET

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PROJECT NO: 4430-10-71

HWY: STH 42

COUNTY: DOOR

PLAN: STH 42

SHEET

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E

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LAYOUT NAME - 050211-pn

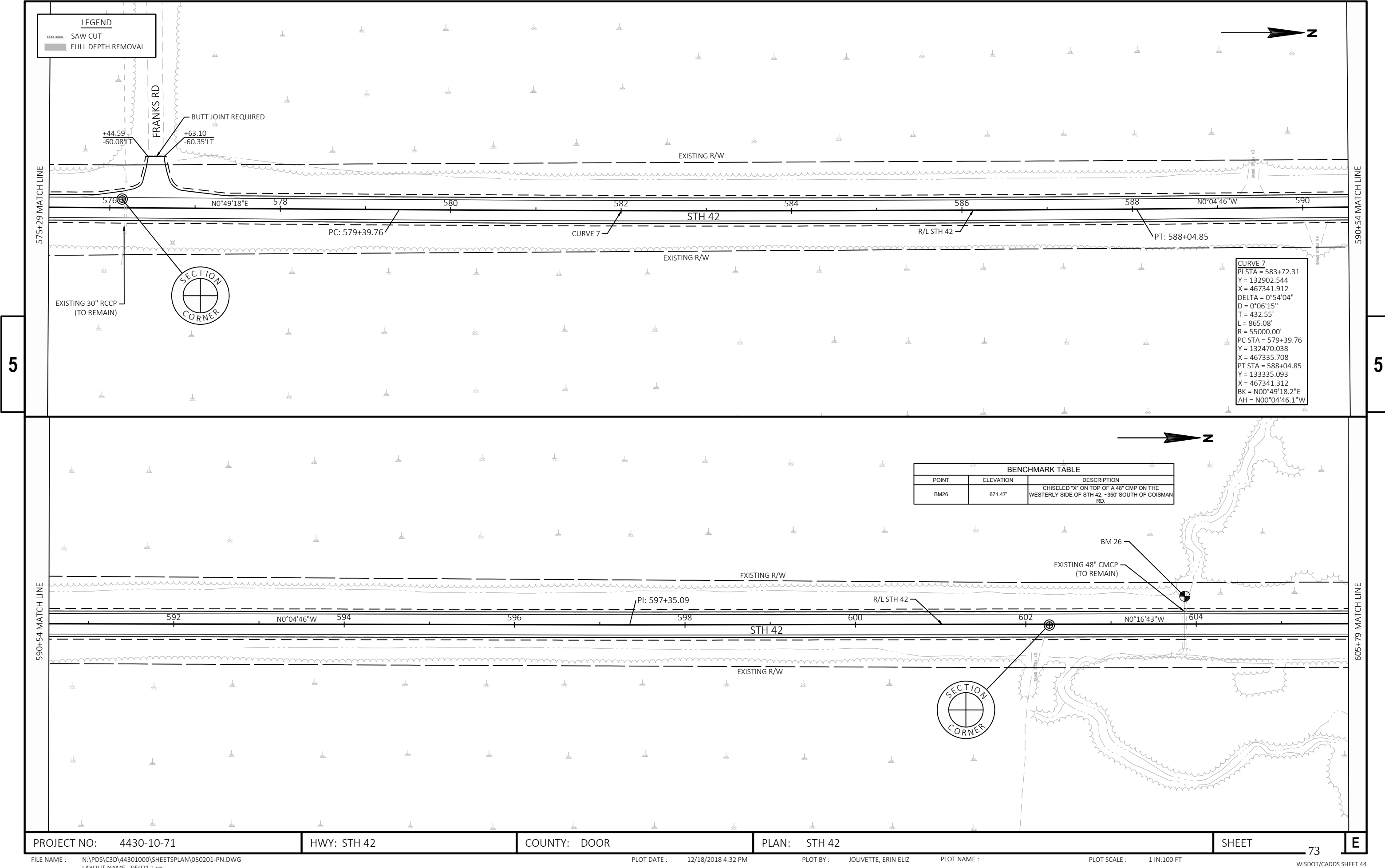
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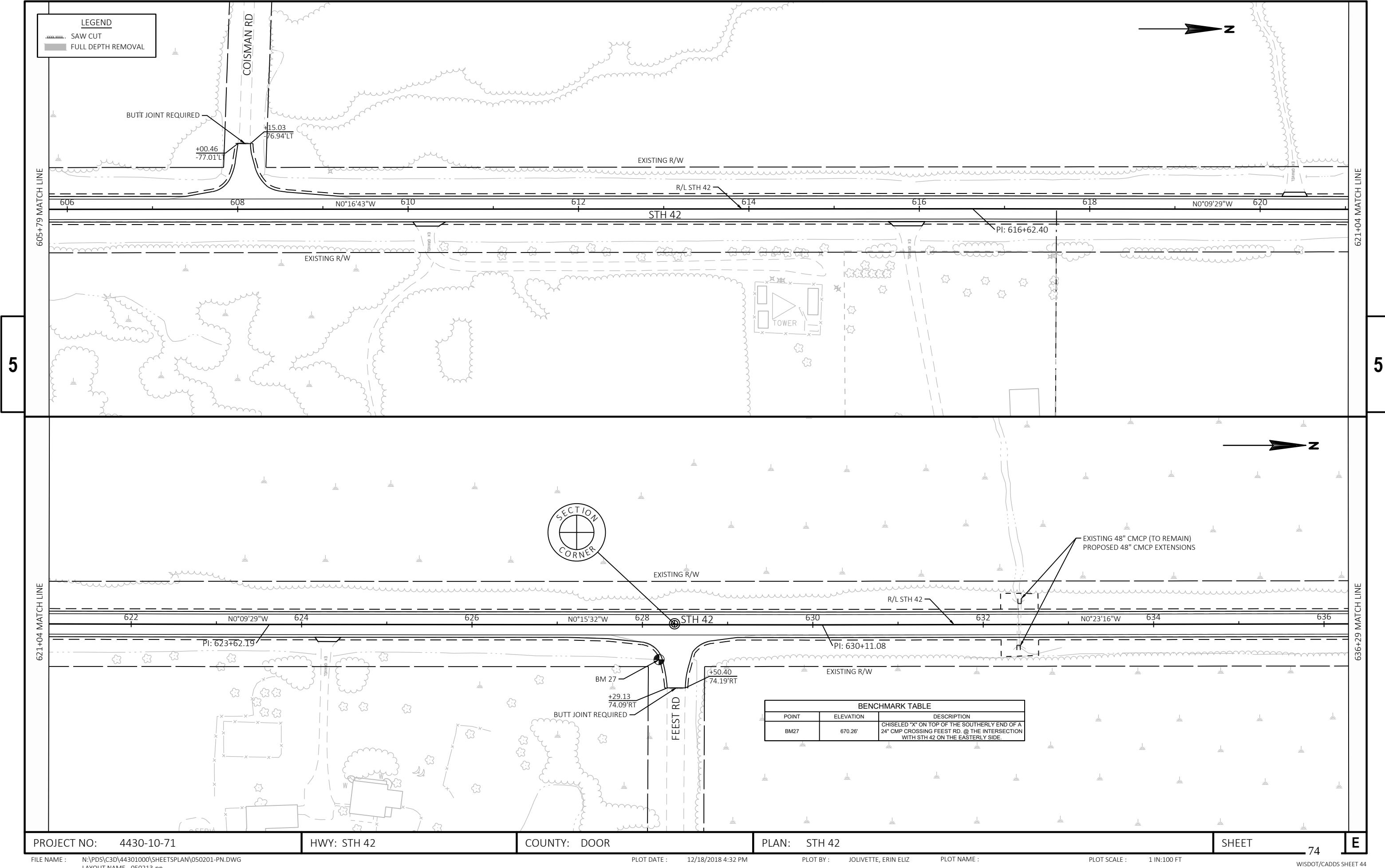
PLOT BY : JOLIVETTE, ERIN ELIZ

PLOT NAME :

PLOT SCALE : 1 IN=100 FT

WISDOT/CADD5 SHEET 44





PROJECT NO: 4430-10-71

HWY: STH 42

COUNTY: DOOR

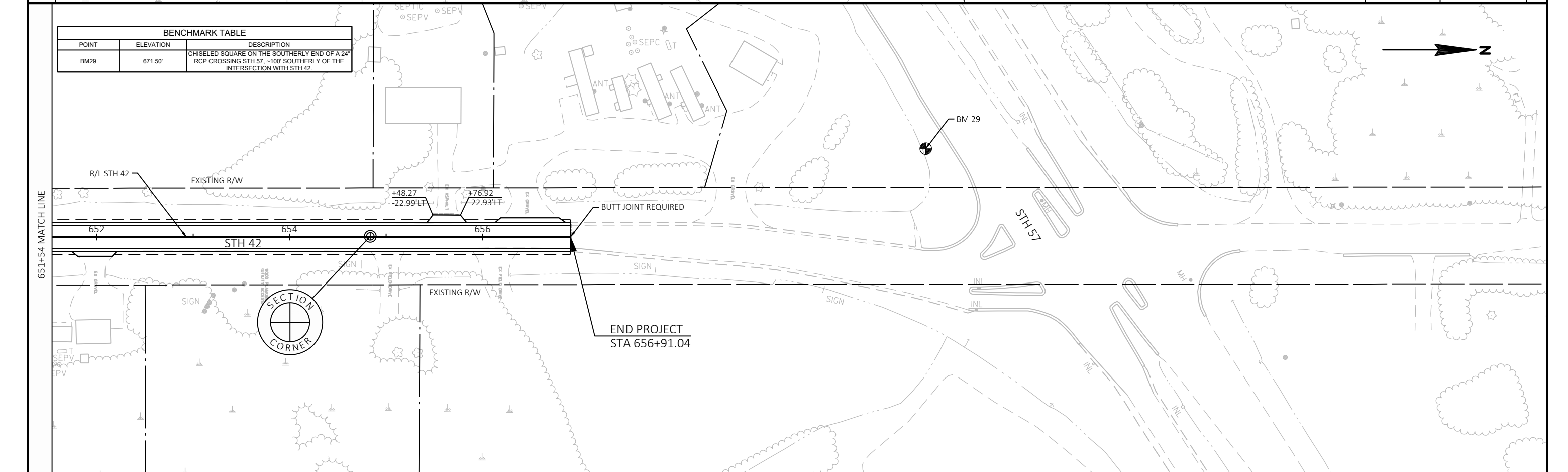
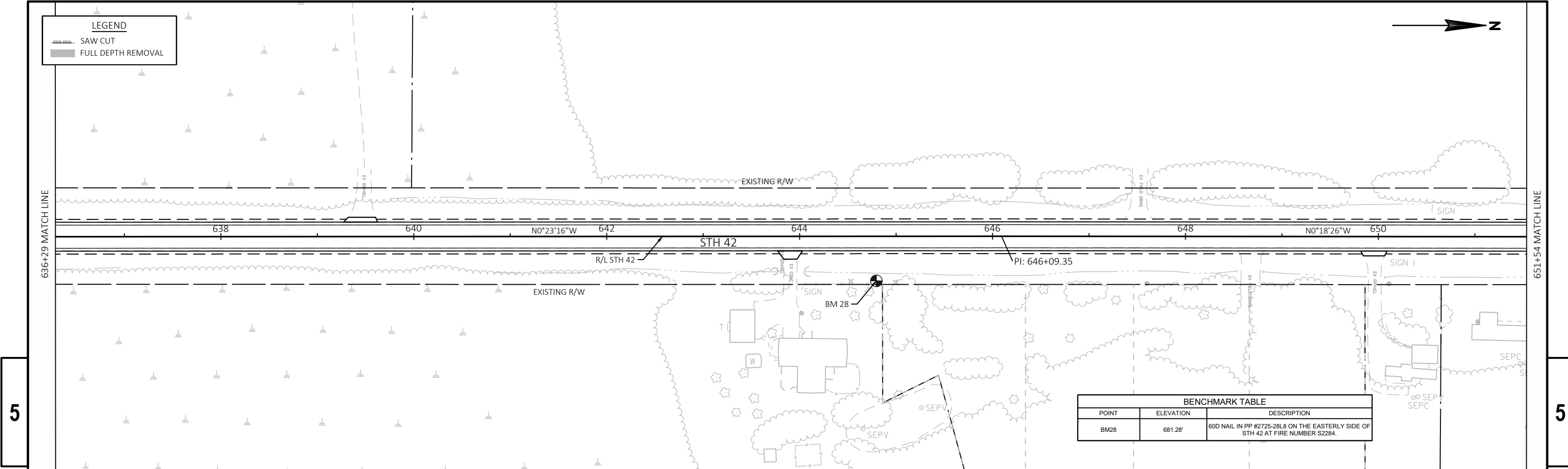
PLAN: STH 42

SHEET

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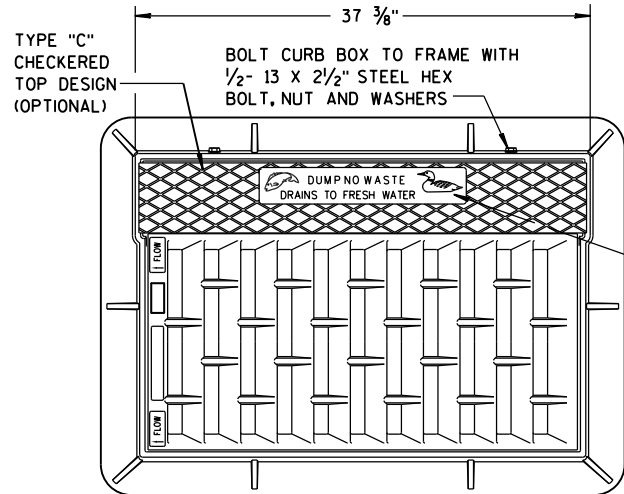




Standard Detail Drawing List

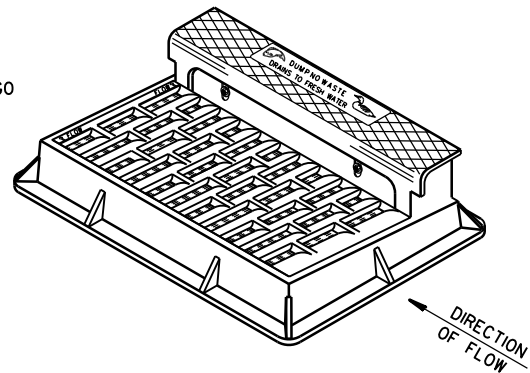
|           |                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------|
| 08A05-19A | INLET COVERS TYPE A, H, A-S, H-S & Z                                                               |
| 08A05-19B | INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM                                                        |
| 08A05-19D | INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M                                         |
| 08A08-02  | CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER                                                    |
| 08B09-02  | MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER                                            |
| 08C07-02  | INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT                                                       |
| 08D01-20A | CONCRETE CURB & GUTTER                                                                             |
| 08D01-20B | CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS                                               |
| 08D04-05  | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES                                                         |
| 08D05-19A | CURB RAMPS TYPES 1 AND 1-A                                                                         |
| 08D05-19B | CURB RAMPS TYPES 2 AND 3                                                                           |
| 08D05-19C | CURB RAMPS TYPES 4A AND 4A1                                                                        |
| 08D05-19D | CURB RAMPS TYPE 4B AND 4B1                                                                         |
| 08D05-19E | CURB RAMPS TYPES 5, 6, 7A, 7B & 8                                                                  |
| 08D05-19F | CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS                                            |
| 08D05-19G | CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES                                        |
| 08D22-01  | DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL                                         |
| 08E09-06  | SILT FENCE                                                                                         |
| 08E10-02  | INLET PROTECTION TYPE A, B, C AND D                                                                |
| 08F01-11  | APRON ENDWALLS FOR CULVERT PIPE                                                                    |
| 08F04-07  | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL                                            |
| 13A11-03A | 2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING                                                     |
| 13A11-03B | 2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING                                                     |
| 14B29-01  | SAFETY EDGE                                                                                        |
| 14B42-06A | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                           |
| 14B42-06B | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                           |
| 14B42-06C | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                           |
| 14B42-06D | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                                                           |
| 14B43-04A | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                                         |
| 14B43-04B | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                                         |
| 14B43-04C | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                                         |
| 14B44-04A | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)                                           |
| 14B44-04B | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)                                           |
| 14B44-04C | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)                                           |
| 14B53-01A | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01B | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01C | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01D | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01E | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01F | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01G | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01H | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 14B53-01I | SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)                                          |
| 15A03-02A | FLEXIBLE MARKER POST FOR CULVERT END                                                               |
| 15A03-02B | FLEXIBLE MARKER POST FOR CULVERT END                                                               |
| 15C04-05  | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC |
| 15C05-05  | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS                                           |
| 15C08-19A | LONGITUDINAL MARKING (MAINLINE)                                                                    |
| 15C11-07B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS                                  |
| 15C12-06  | TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION                                           |
| 15C19-05A | MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY                                         |
| 15C35-03A | PAVEMENT MARKING (INTERSECTIONS)                                                                   |
| 15D28-03  | TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY                               |
| 15D30-04A | TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION                                                          |
| 15D30-04B | TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION                                  |
| 15D30-04C | TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION                                                          |
| 15D38-02A | TEMPORARY TRAFFIC CONTROL SIGN MOUNTING                                                            |
| 15D38-02B | ATTACHMENT OF SIGNS TO POSTS                                                                       |



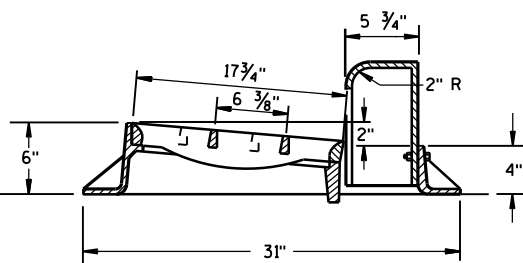
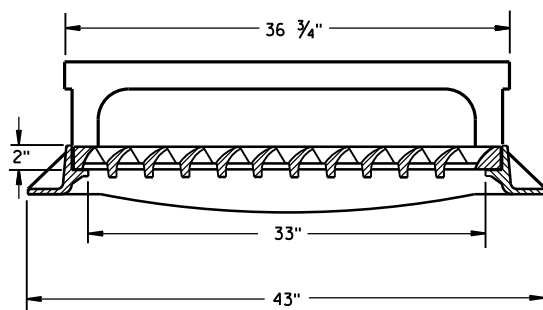
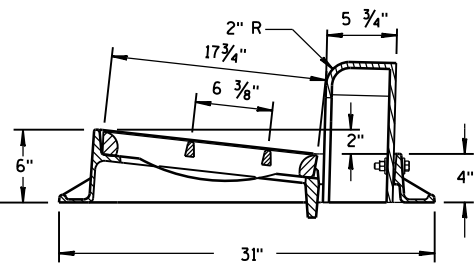
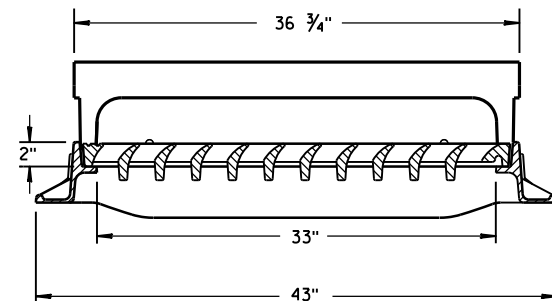
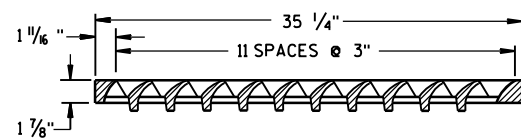


SEE LOGO  
DETAIL

**NOTE:**  
**GRATE IS REVERSIBLE.**

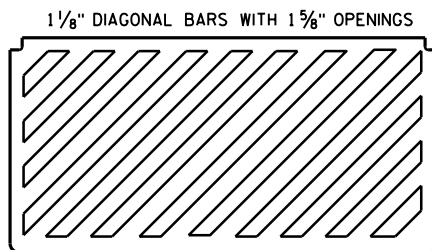


**NOTE:** CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



**TYPE "H"**

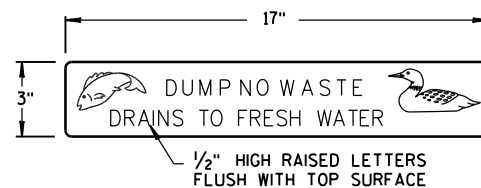
**NOTE: EITHER CASTING IS ACCEPTABLE**



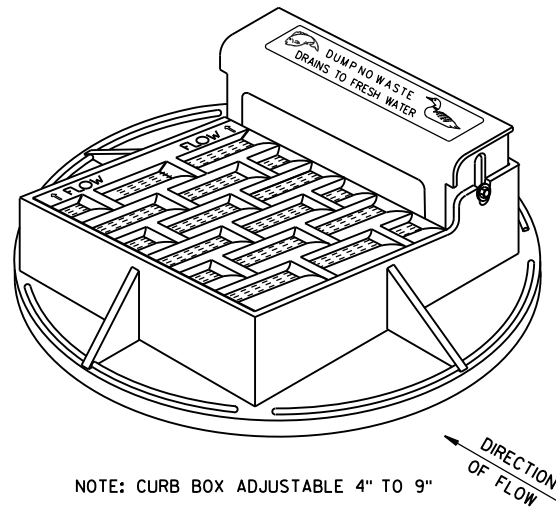
**SPECIAL GRATE FOR  
TYPE "H" COVER**

(MEASURES 35 1/4" X 17 3/4" X 2")

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

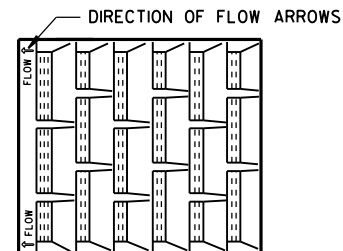


**LOGO DETAIL**

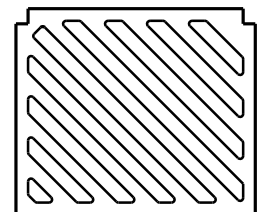


**NOTE:** CURB BOX ADJUSTABLE 4" TO 9"

**NOTE:**  
**GRATE IS REVERSIBLE.**



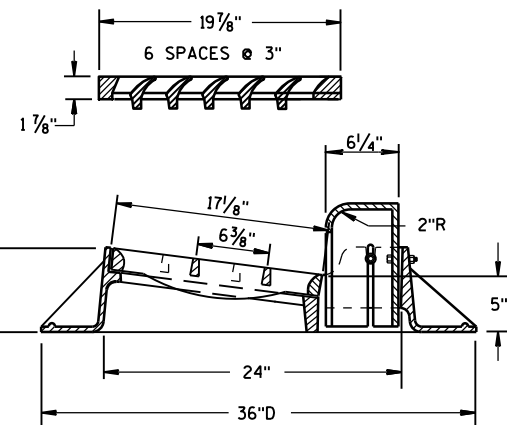
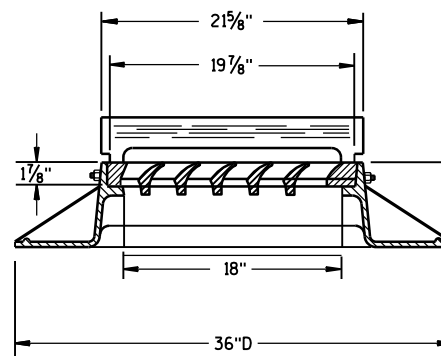
1" DIAGONAL BARS  
WITH 1 1/2" OPENINGS



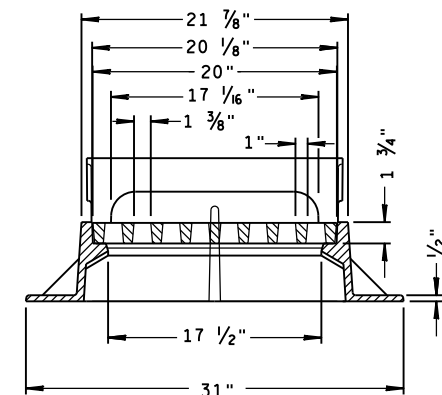
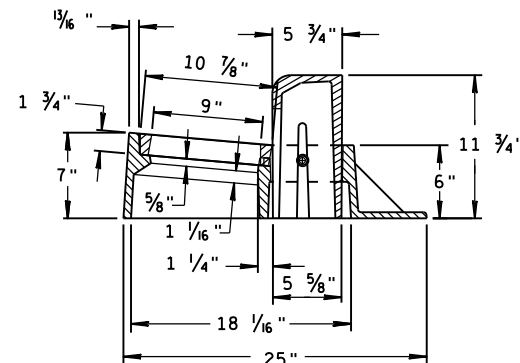
**SPECIAL GRATE FOR  
TYPE "A" COVER**

(MEASURES 19 3/4" X 17" X 1 1/8")

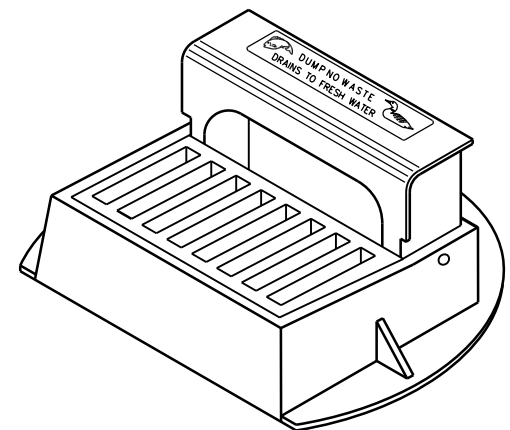
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



**TYPE "Z"**



**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

**STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION**

**APPROVED**

11-27-13

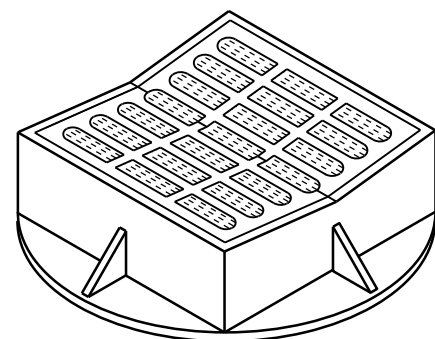
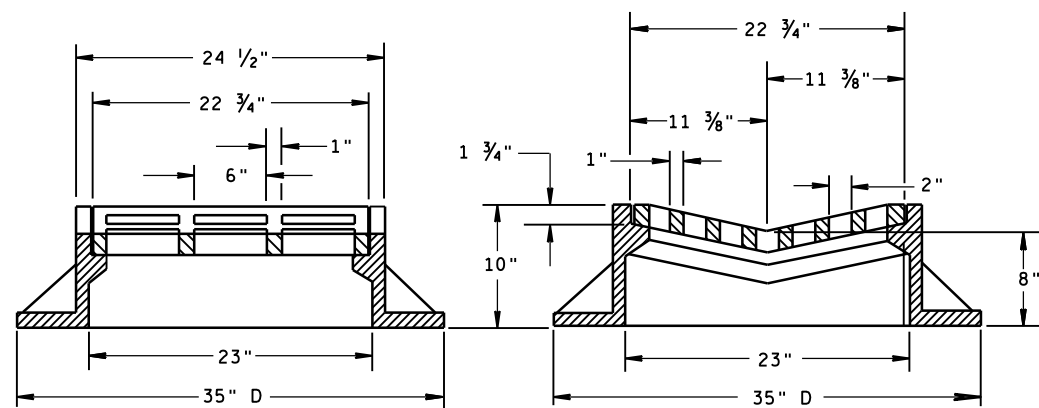
DATE

FHWA

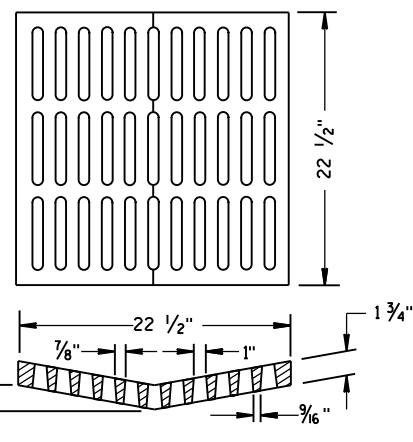
/S/ Jerry H. Zogg

ROADWAY STANDARDS ENGINEER

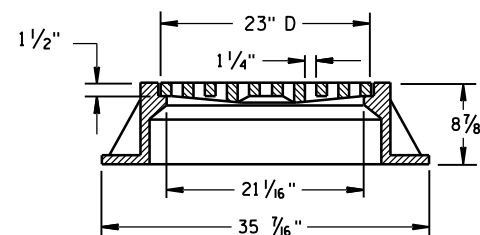
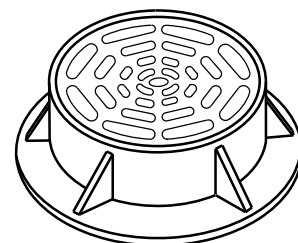
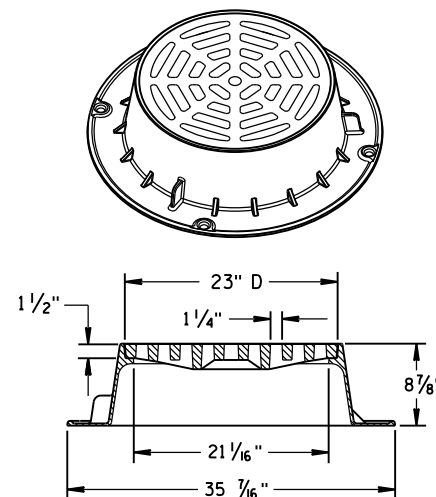
ENT



TYPE "B"

ALTERNATIVE GRATE FOR  
TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.  
 NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

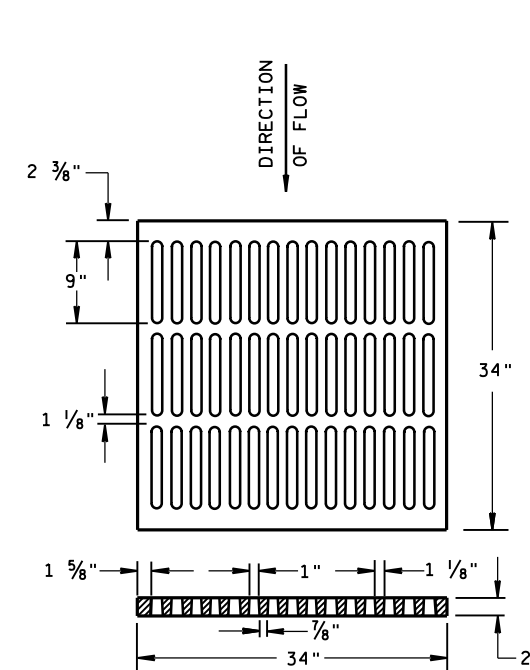
NOTE: EITHER CASTING IS ACCEPTABLE

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

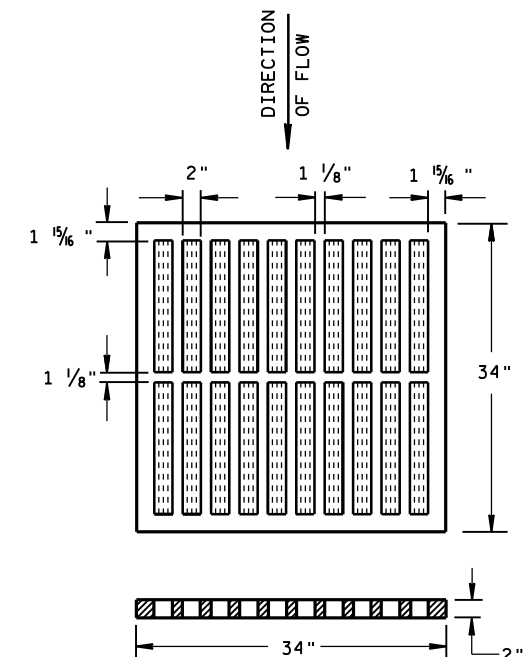
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



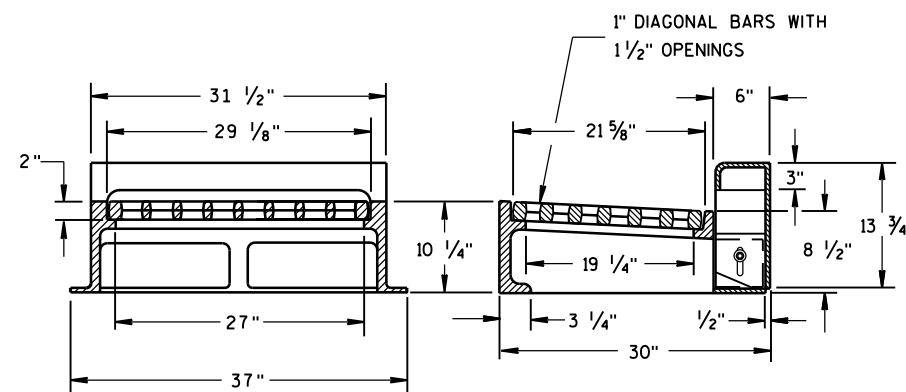
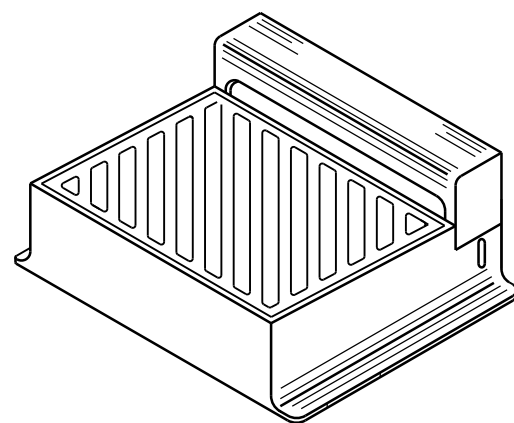
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED  
 NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS  
 NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

DIAGONAL SLOTS, SHALL BE ORIENTED  
 TO THE DIRECTION OF FLOW AS ILLUSTRATED.  
 GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION  
OF FLOW

INLET COVERS  
 TYPE B, B-A, C,  
 MS, MS-A, & WM

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

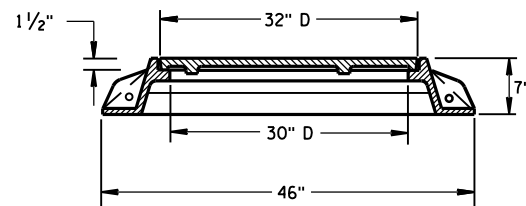
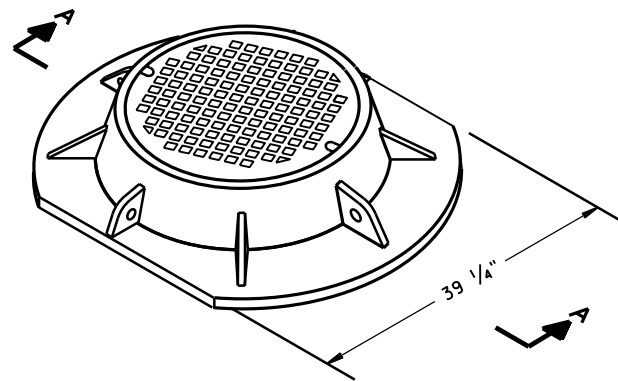
APPROVED

11/27/2013  
 DATE

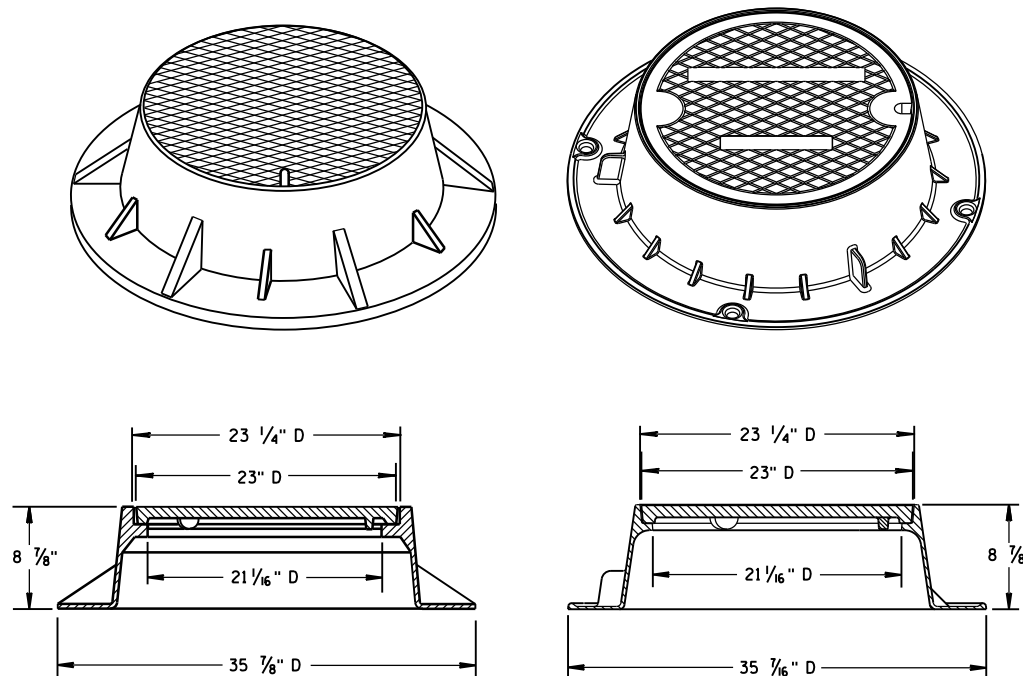
FHWA

/S/ Jerry H. Zogg  
 ROADWAY STANDARDS ENGINEER

NT

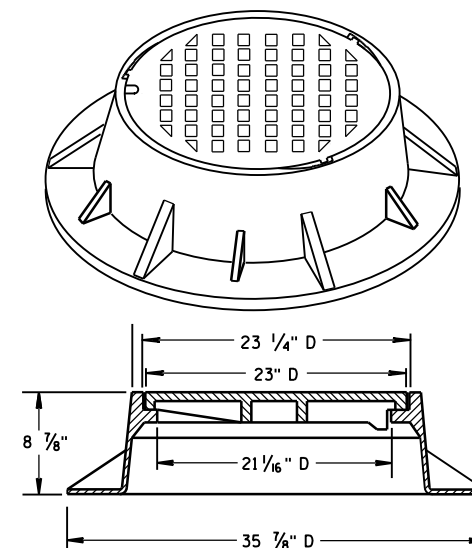
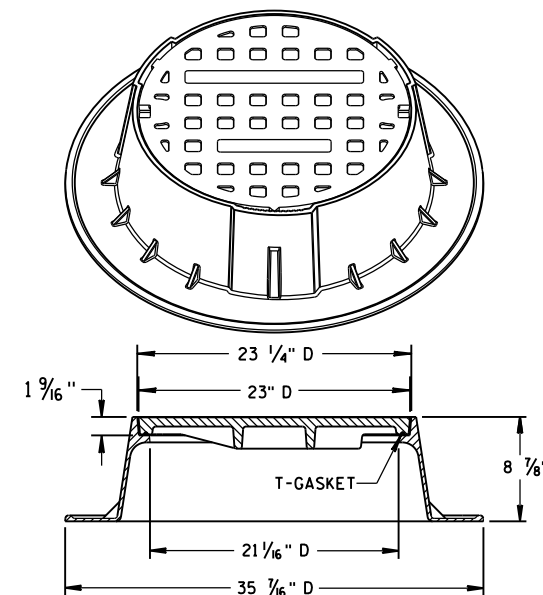


SECTION A-A  
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

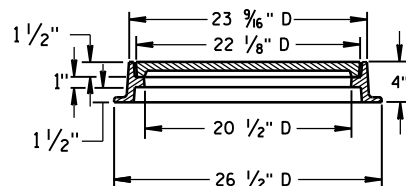
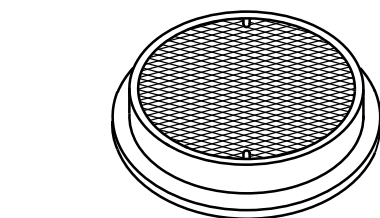


TYPE "J" SPECIAL

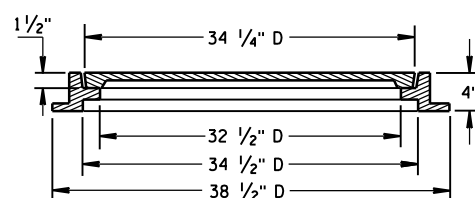
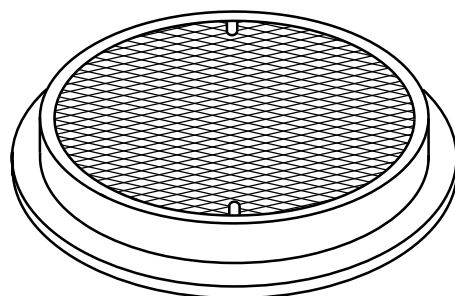
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

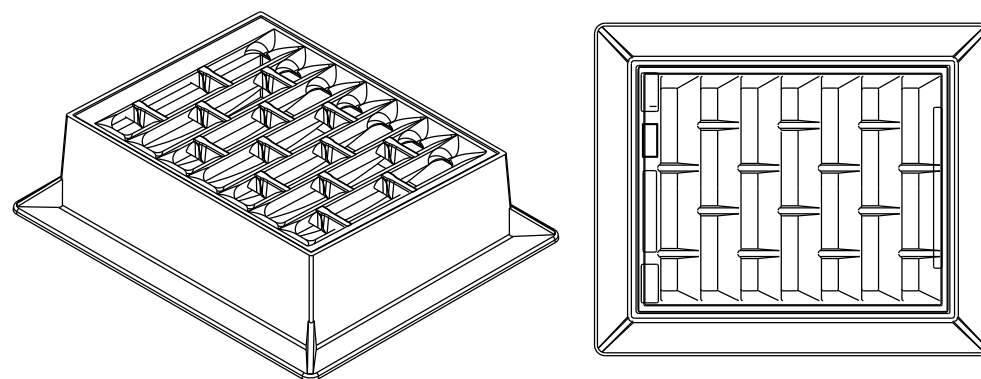
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW  
MANHOLE COVERS, TYPE K,  
J, J-S, L & M

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

11/27/2013

DATE

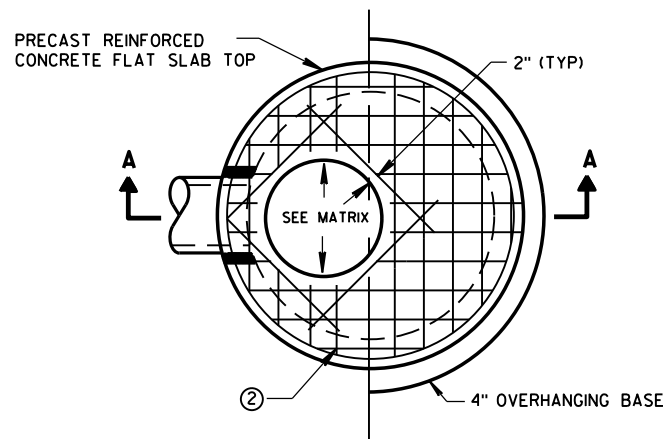
FHWA

/S/ Jerry H. Zogg

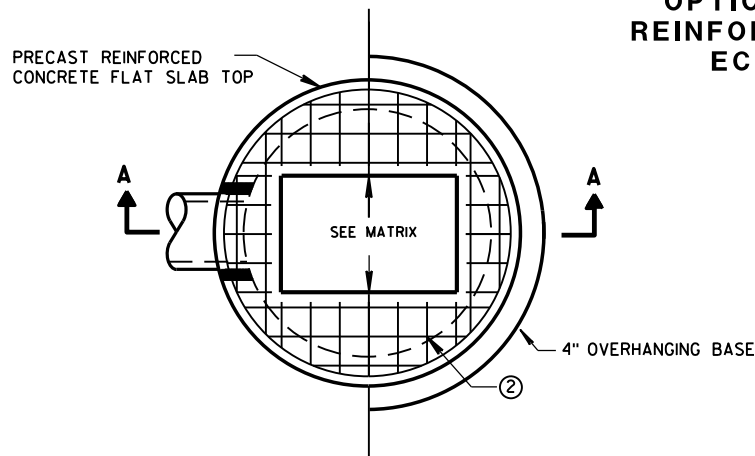
ROADWAY STANDARDS 079

ENGINEER

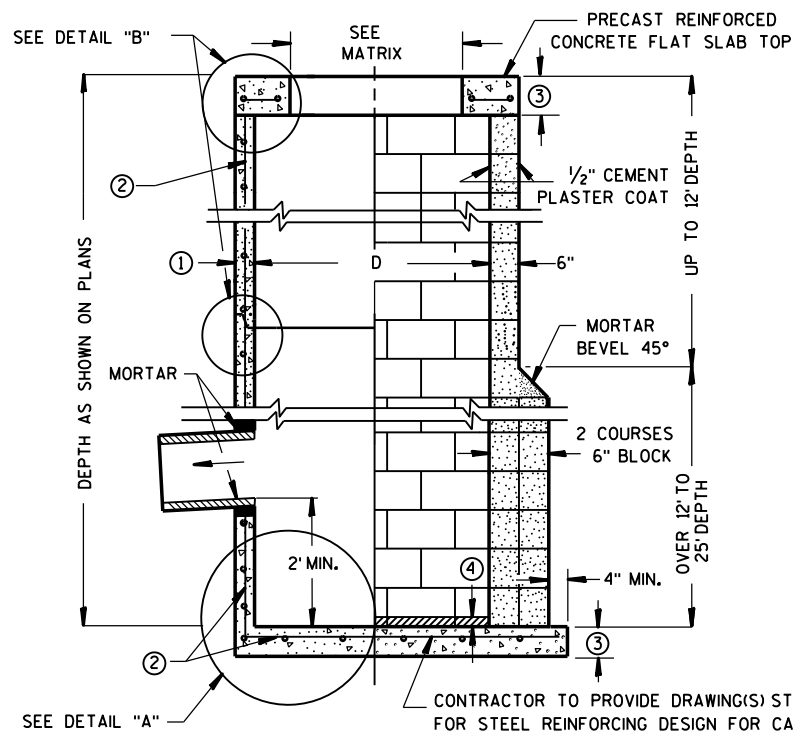
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PLAN VIEW CIRCULAR OPENING



PLAN VIEW RECTANGULAR OPENING

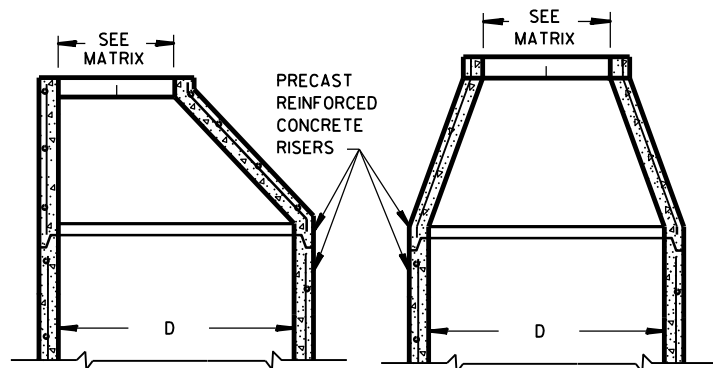


SECTION A-A

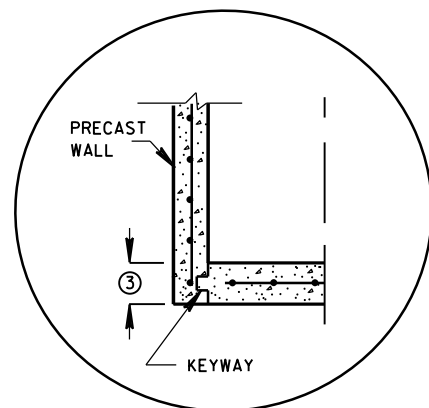
PRECAST REINFORCED  
CONCRETE WITH  
MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-  
IN-PLACE OR PRECAST  
REINFORCED CONCRETE BASE ②

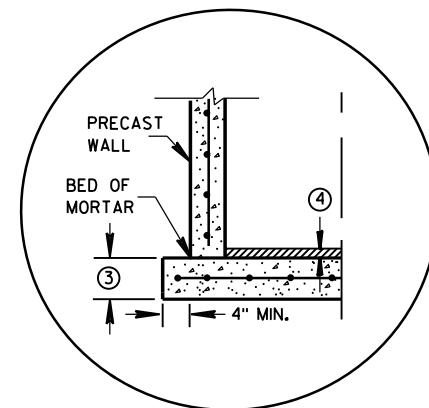
OPTIONAL PRECAST  
REINFORCED CONCRETE  
ECCENTRIC TOP



OPTIONAL PRECAST  
REINFORCED CONCRETE  
CONCENTRIC TOP



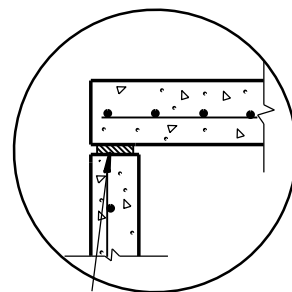
PRECAST REINFORCED  
CONCRETE WITH INTEGRAL BASE OPTION



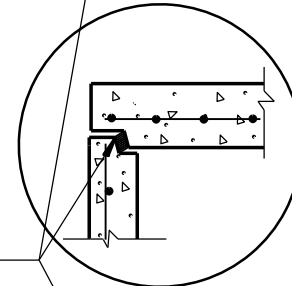
SEPARATE PRECAST REINFORCED  
CONCRETE BASE OPTION

DETAIL "A"

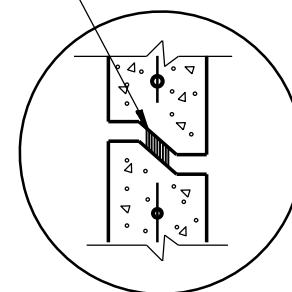
JOINTS TO BE SEALED WITH  
A BUTYL RUBBER SEAL PER  
SEALANT MANUFACTURERS  
RECOMMENDATIONS  
CONFORMING TO ASTM C 990  
(TYP)



TOP WITH PLAIN END JOINT

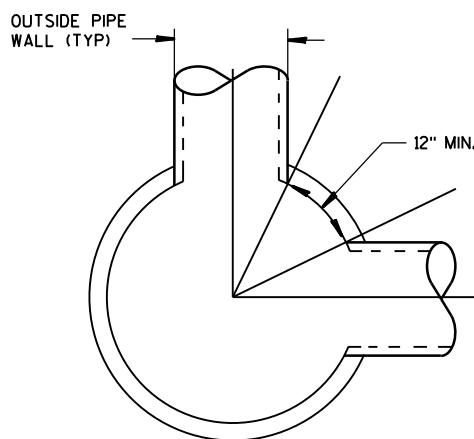


TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"



DETAIL "C"

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2" SUMP MEASURED FROM TOP OF KEY.

## CATCH BASIN COVER OPENING MATRIX

| CATCH BASIN SIZE | INLET COVER TYPE<br>OPENING SIZE (FT) | ALL A'S | ALL B'S | BW | C | F | ALL H'S | S | T | V | WM | Z |
|------------------|---------------------------------------|---------|---------|----|---|---|---------|---|---|---|----|---|
| 3-FT             | 2X2                                   | X       | X       |    |   |   |         | X |   | X |    |   |
|                  | 2 DIA.                                |         |         |    | X |   |         |   |   |   |    | X |
| 4-FT-<br>6-FT    | 2X2                                   | X       | X       |    |   |   |         | X |   | X |    |   |
|                  | 2X2.5                                 |         |         | X  |   |   |         | X | X | X | X  |   |
|                  | 2 DIA.                                |         |         |    | X |   |         |   |   |   |    | X |
|                  | 2X3                                   |         |         |    |   |   | X       |   |   |   |    |   |
|                  | 2.5X3                                 |         |         |    |   | X |         |   |   |   |    |   |

## PIPE MATRIX

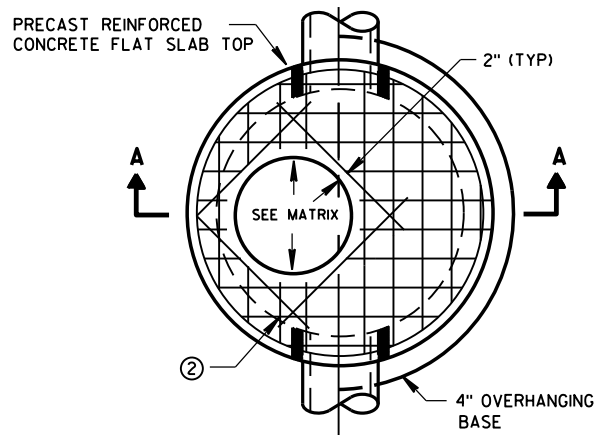
| CATCH BASIN SIZE | MAXIMUM INSIDE PIPE DIAMETER<br>FOR TWO PIPES |                     |
|------------------|-----------------------------------------------|---------------------|
|                  | 180° SEPARATION (IN)                          | 90° SEPARATION (IN) |
| 3-FT             | 15                                            | 12                  |
| 4-FT             | 24                                            | 18                  |
| 5-FT             | 36                                            | 24                  |
| 6-FT             | 42                                            | 30                  |

CATCH BASINS 3-FT,  
4-FT, 5-FT AND  
6-FT DIAMETER

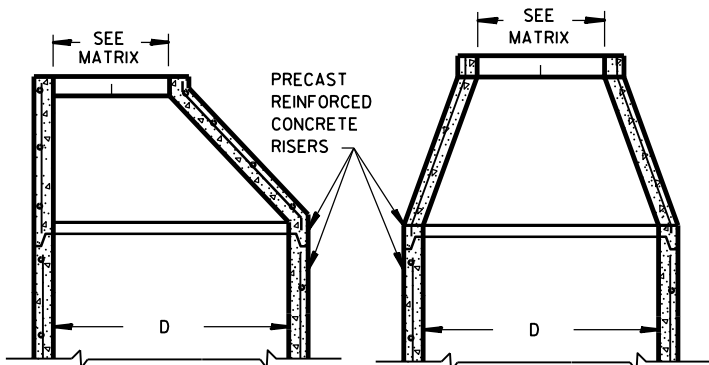
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS 80 ENT  
FHWA UNIT SUPERVISOR

CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

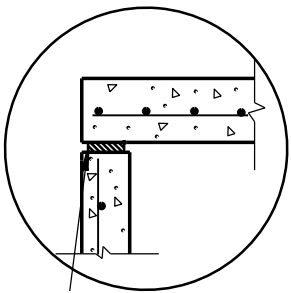


PLAN VIEW CIRCULAR OPENING

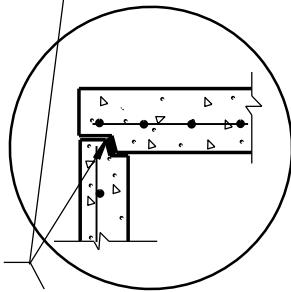


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

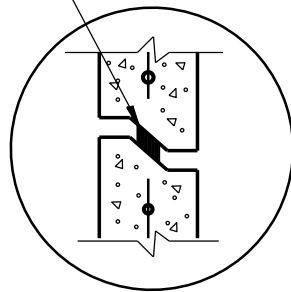
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT



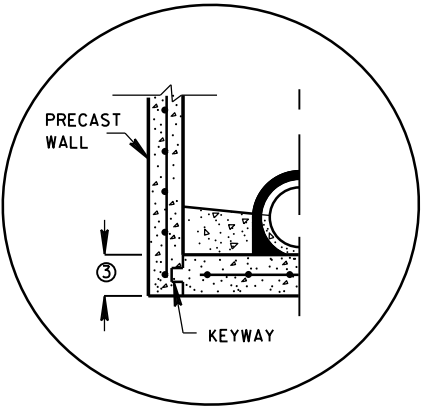
TOP WITH TONGUE AND GROOVE JOINT



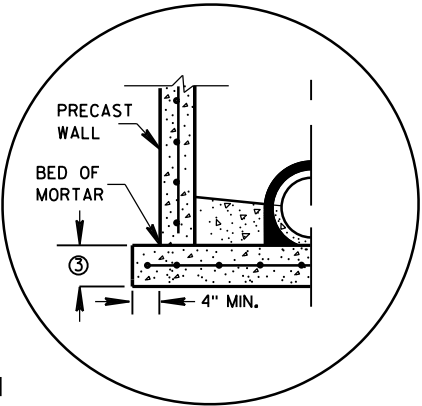
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

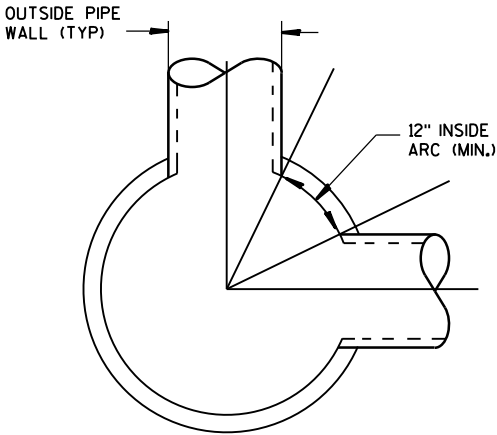


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

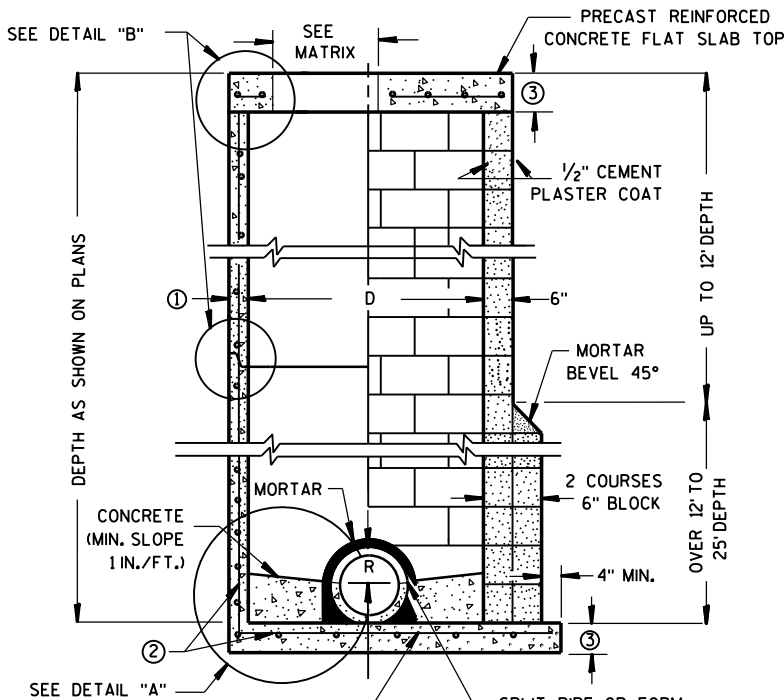


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

| MANHOLE COVER TYPE | C | ALL J'S | K | L | M |
|--------------------|---|---------|---|---|---|
| OPENING SIZE (FT)  |   |         |   |   |   |
| 2 DIA.             | X | X       |   | X |   |
| 3 DIA.             |   |         | X |   | X |

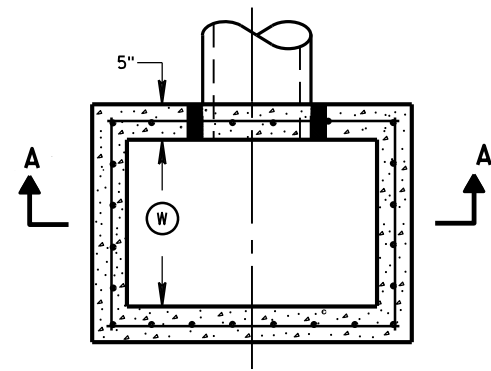
PIPE MATRIX

| MANHOLE SIZE | MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES |                     |
|--------------|--------------------------------------------|---------------------|
|              | 180° SEPARATION (IN)                       | 90° SEPARATION (IN) |
| 3-FT         | 15                                         | 12                  |
| 4-FT         | 24                                         | 18                  |
| 5-FT         | 36                                         | 24                  |
| 6-FT         | 42                                         | 36                  |
| 7-FT         | 48                                         | 36                  |
| 8-FT         | 60                                         | 42                  |

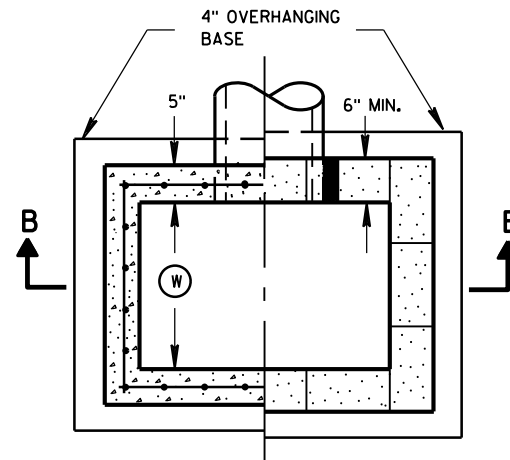
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

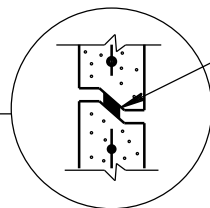
APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERV 81



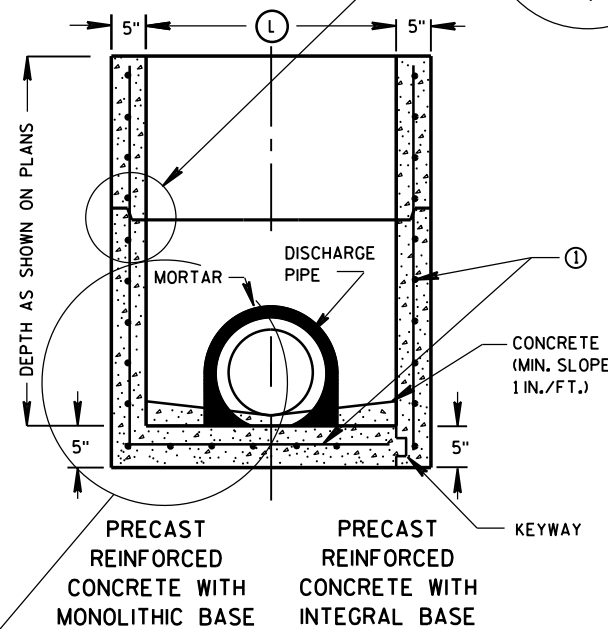
PLAN VIEW



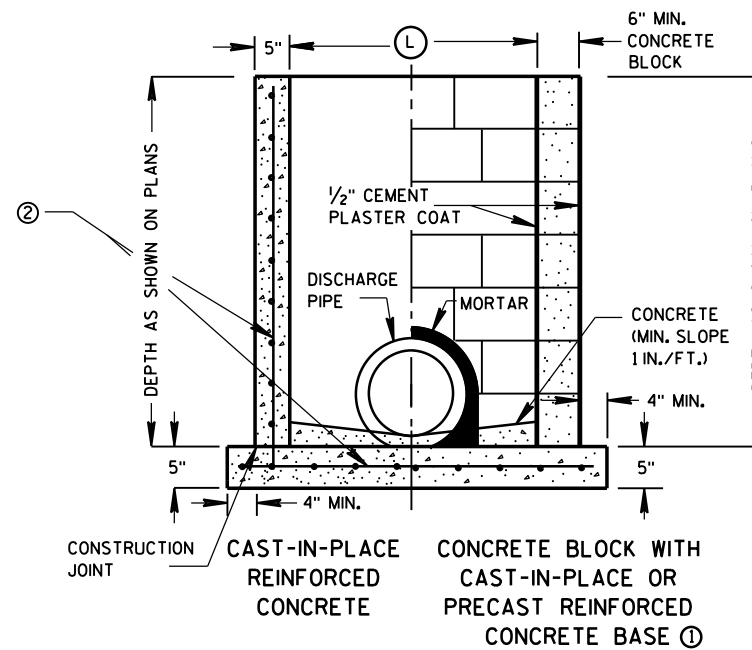
PLAN VIEW



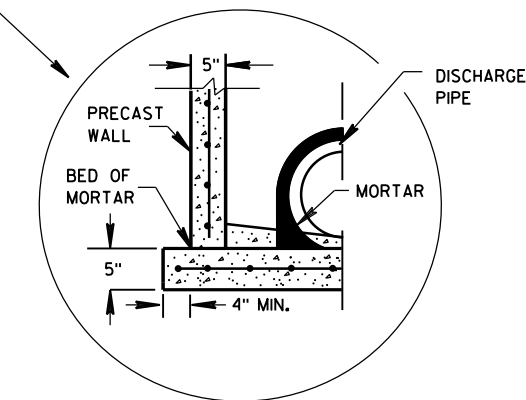
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

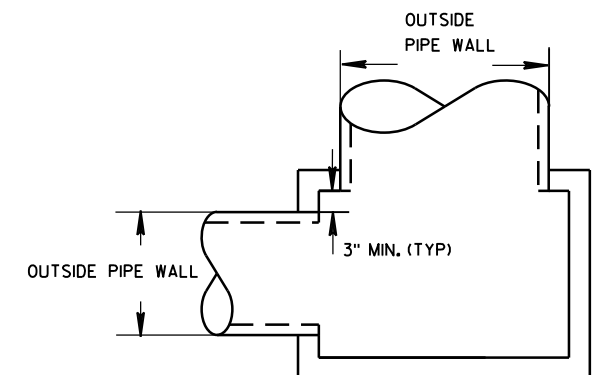
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

## INLET COVER MATRIX

| INLET SIZE |              | INLET COVER TYPE | ALL A'S | ALL B'S | BW | F | ALL H'S | S | T | V | WM |
|------------|--------------|------------------|---------|---------|----|---|---------|---|---|---|----|
|            | WIDTH ① (FT) | LENGTH ② (FT)    |         |         |    |   |         |   |   |   |    |
| 2X2-FT     | 2            | 2                | X       | X       |    |   |         | X |   | X |    |
| 2X2.5-FT   | 2            | 2.5              |         |         | X  |   |         | X | X | X | X  |
| 2X3-FT     | 2            | 3                |         |         |    |   | X       |   |   |   |    |
| 2.5X3-FT   | 2.5          | 3                |         |         |    | X |         |   |   |   |    |

## PIPE MATRIX

| INLET SIZE | MAXIMUM INSIDE PIPE DIAMETER |             |
|------------|------------------------------|-------------|
|            | WIDTH (IN)                   | LENGTH (IN) |
| 2X2-FT     | 12                           | 12          |
| 2X2.5-FT   | 12                           | 18          |
| 2X3-FT     | 12                           | 24          |
| 2.5X3-FT   | 18                           | 24          |



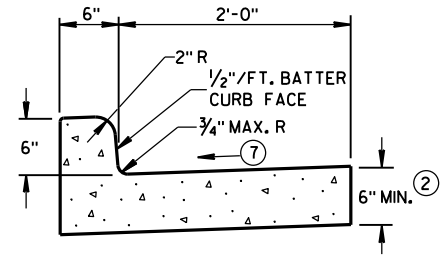
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT,  
2X3-FT AND 2.5X3-FT

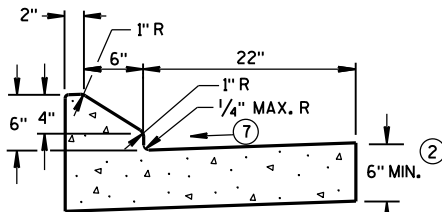
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept., 2016 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS D 82 IT  
FHWA UNIT SUPERVIS

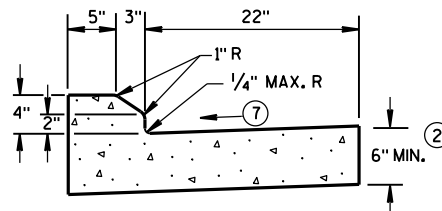




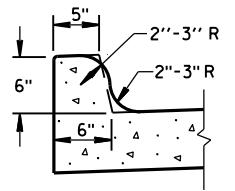
TYPES A<sup>①</sup> & D



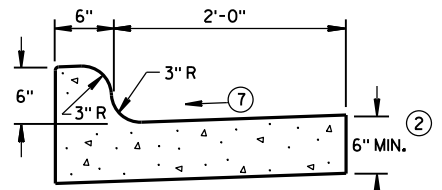
6" SLOPED CURB TYPES G<sup>①</sup> & J



4" SLOPED CURB TYPES G<sup>①</sup> & J

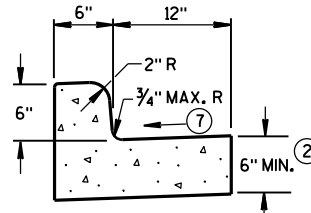


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



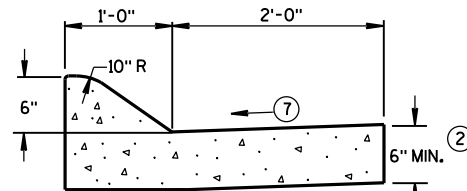
TYPES K<sup>①</sup> & L

CONCRETE CURB & GUTTER 30"

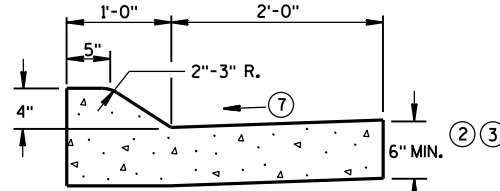


TYPES A<sup>①</sup> & D

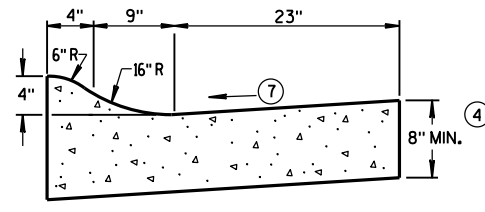
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A<sup>①</sup> & D

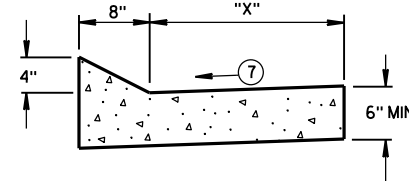


4" SLOPED CURB TYPES A<sup>①</sup> & D



4" SLOPED CURB TYPES R<sup>①</sup> & T<sup>⑤</sup>

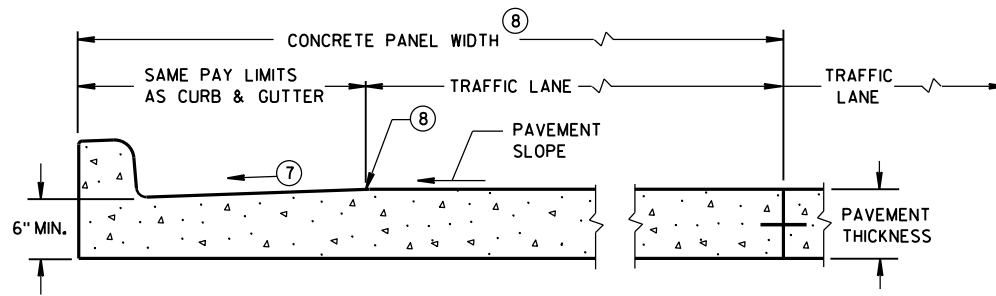
CONCRETE CURB & GUTTER 36"



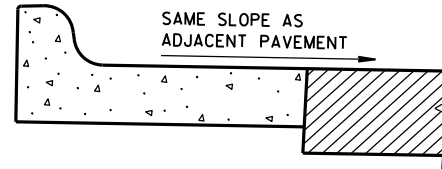
TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB & GUTTER

| TBT & TBTT | "X" |
|------------|-----|
| 30"        | 22" |
| 36"        | 28" |



PARTIAL SECTION OF PAVEMENT  
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER<sup>⑥</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

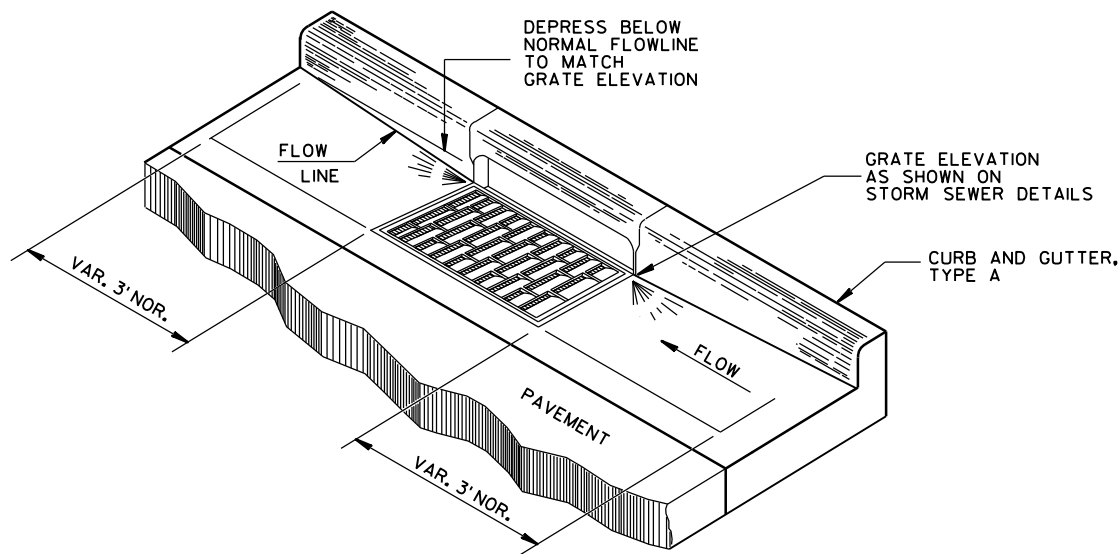
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

| PAVEMENT THICKNESS | MAXIMUM PANEL WIDTH |
|--------------------|---------------------|
| LESS THAN 10"      | 12'                 |
| 10" & ABOVE        | 15'                 |

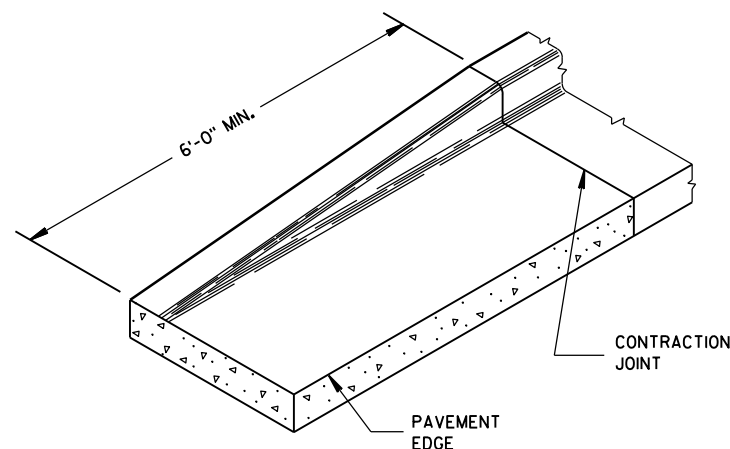
\* BIKE LANE IS NOT SHOWN.

CONCRETE CURB & GUTTER

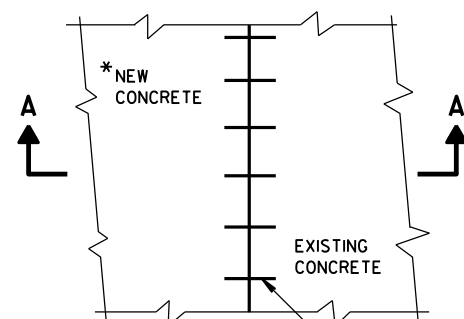
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



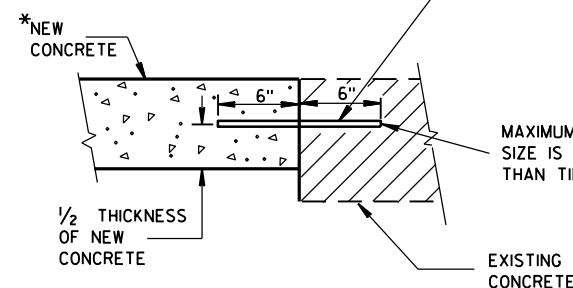
DETAIL OF CURB AND GUTTER AT INLETS  
(TYPE H INLET COVER SHOWN)



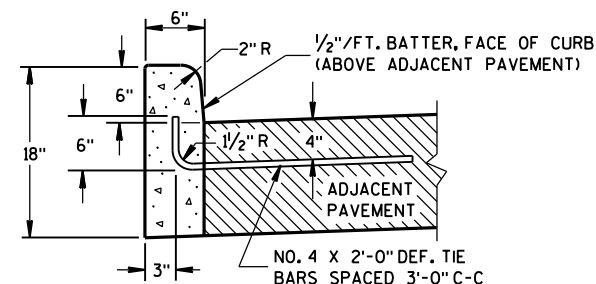
END SECTION CURB & GUTTER



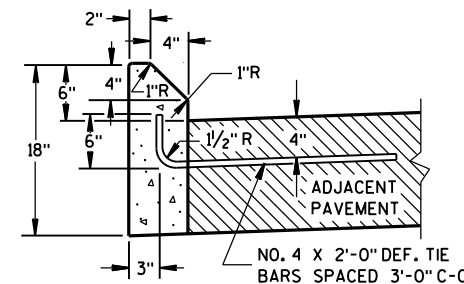
PLAN VIEW



SECTION A-A  
TIE BARS DRILLED  
INTO EXISTING PAVEMENT



TYPES A<sup>①</sup> & D

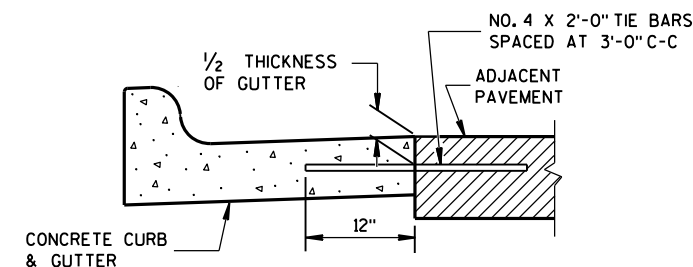


TYPES G<sup>①</sup> & J

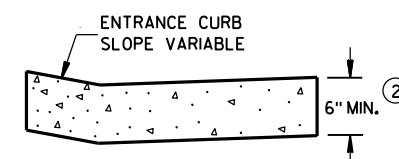
### GENERAL NOTES

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.
- UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
  - ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
  - ③ REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

### CONCRETE CURB



TYPICAL TIE BAR LOCATION<sup>①</sup>



DRIVEWAY ENTRANCE CURB<sup>⑨</sup>  
(WHEN DIRECTED BY THE ENGINEER)

| CONCRETE CURB, TIES<br>AND<br>CURB AND GUTTER APPLICATIONS |                                                              |     |  |
|------------------------------------------------------------|--------------------------------------------------------------|-----|--|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION         |                                                              |     |  |
| APPROVED<br>June, 2017<br>DATE                             | /S/ Rodney Taylor<br>ROADWAY STANDARDS 84<br>UNIT SUPERVISOR | ENT |  |
| FHWA                                                       |                                                              |     |  |



## 6



PLAN VIEW  
FLUME AT CURB END



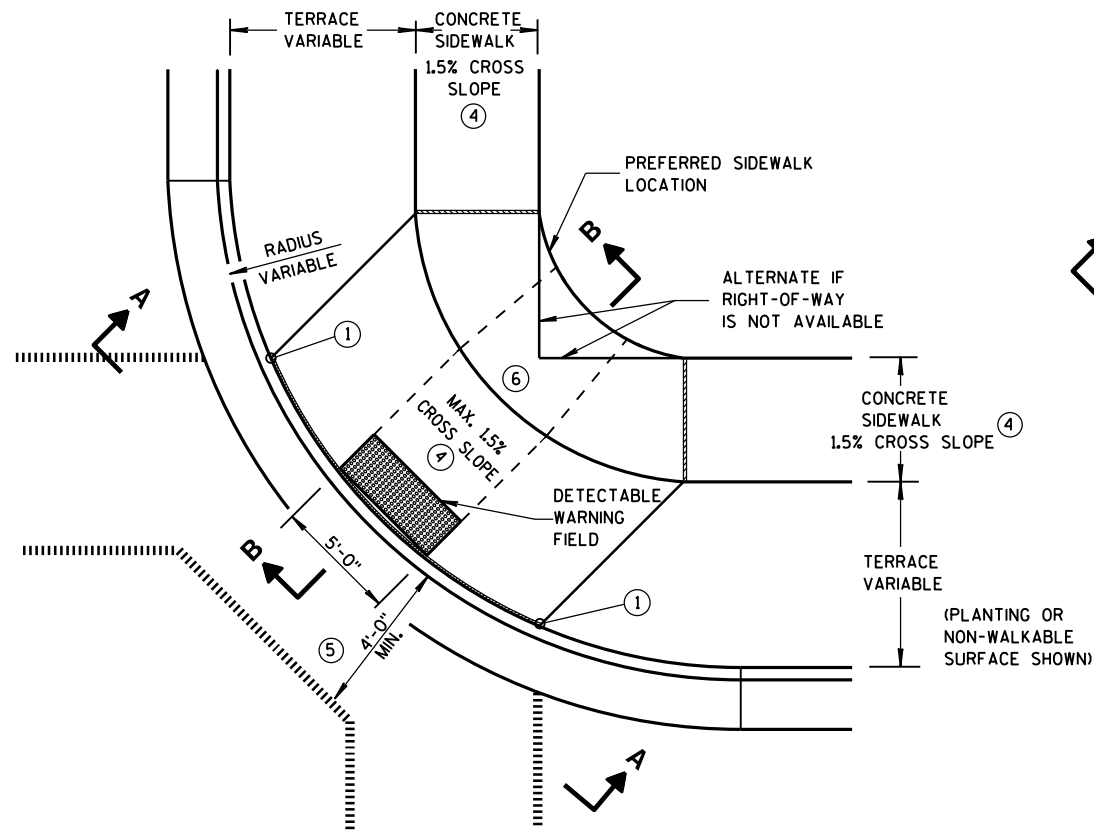
## 6

WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

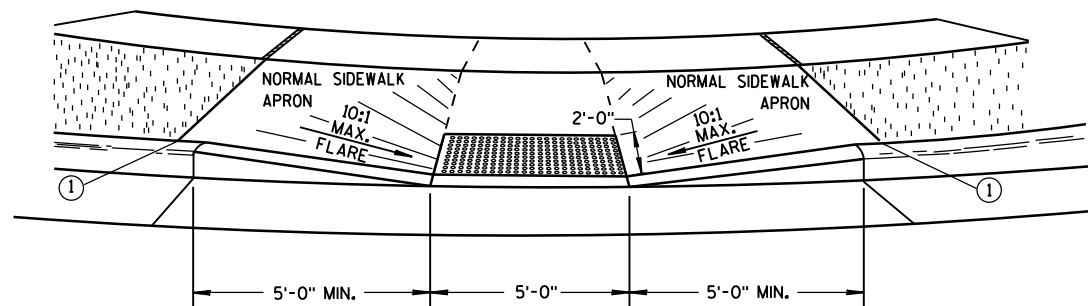
- ### ③ CONCRETE SURFACE DRAIN



APPROVED  
9-4-08 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS 85  
ENGINEER

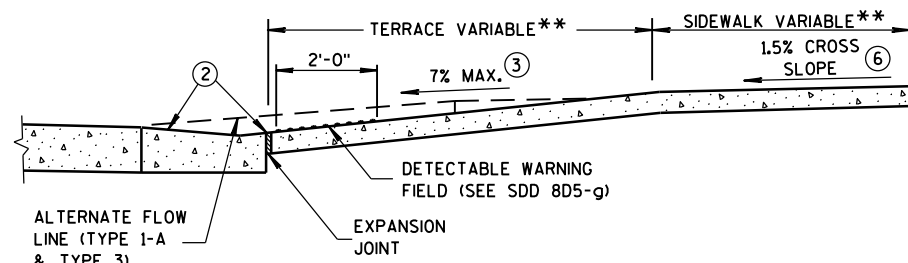


**PLAN VIEW  
TYPE 1 RAMP**  
(CENTER OF CORNER RADIUS)

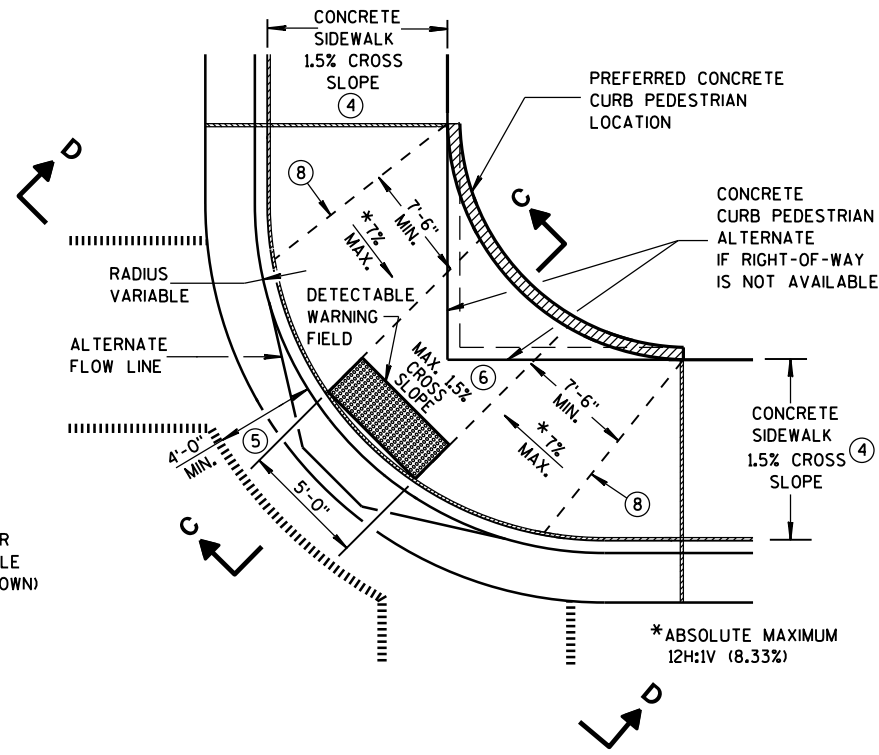


**VIEW A-A**

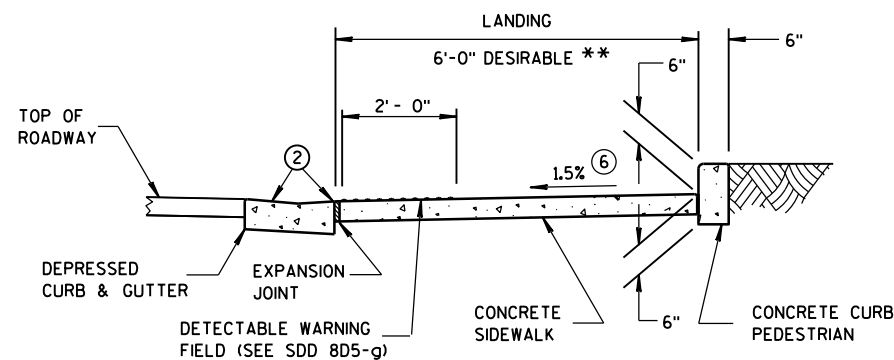
\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



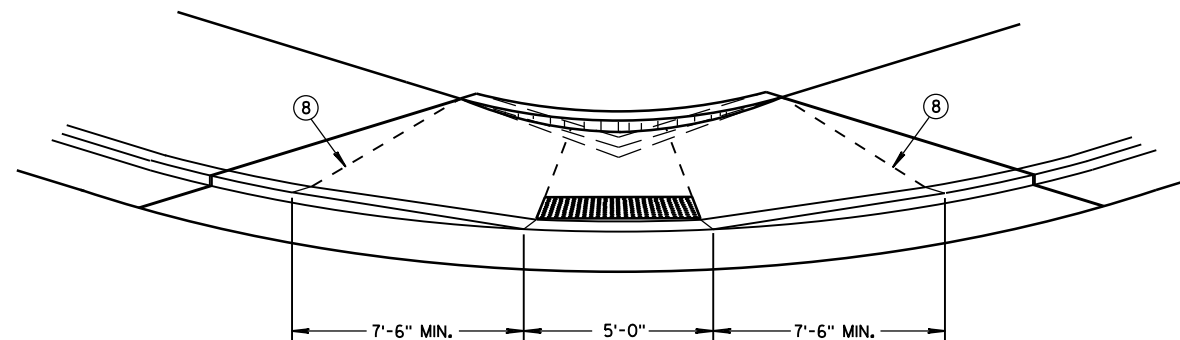
**SECTION B-B**



**PLAN VIEW  
TYPE 1-A RAMP**  
(NO TERRACE)



**SECTION C-C**



**VIEW D-D**

## GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

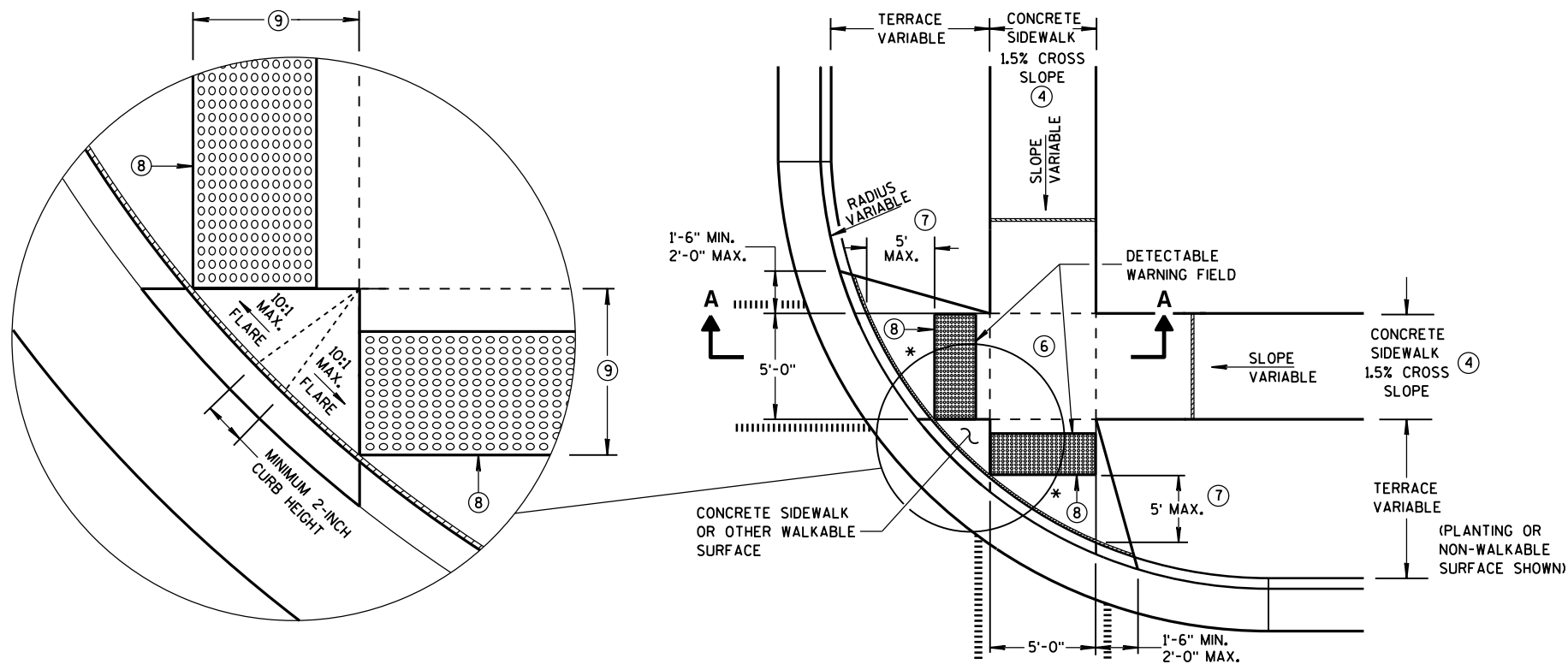
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

## LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

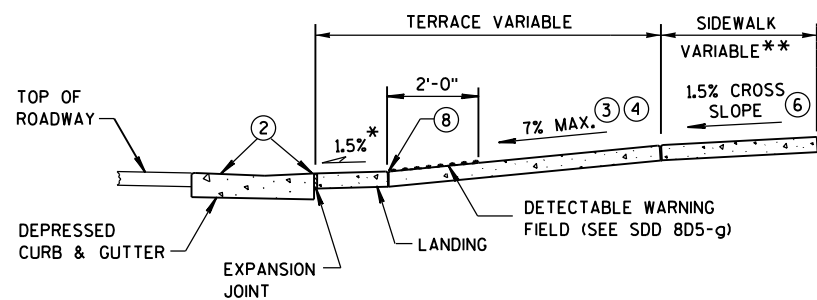
**CURB RAMPS  
TYPES 1 AND 1-A**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



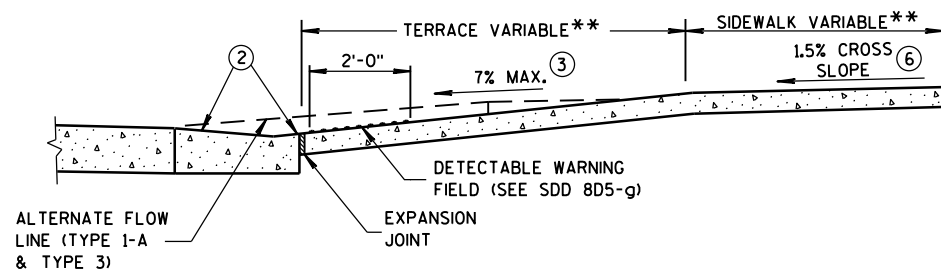
**PLAN VIEW  
TYPE 2 RAMP**  
(ON LINE WITH SIDEWALK)

\* MAXIMUM 2.0% SLOPE  
IN ALL DIRECTIONS IN  
FRONT OF GRADE BREAK



**SECTION A-A**

\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



**SECTION B-B**

## GENERAL NOTES

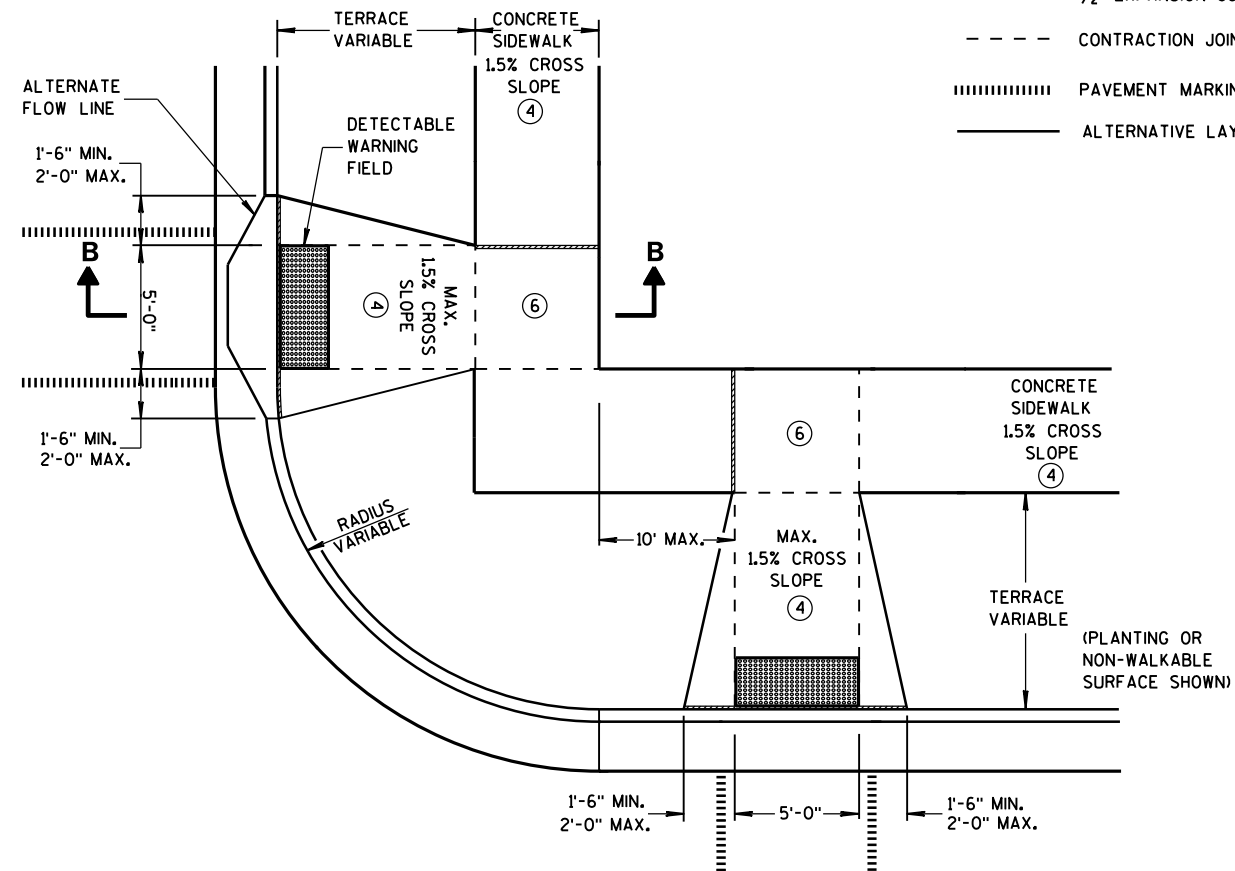
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

## LEGEND

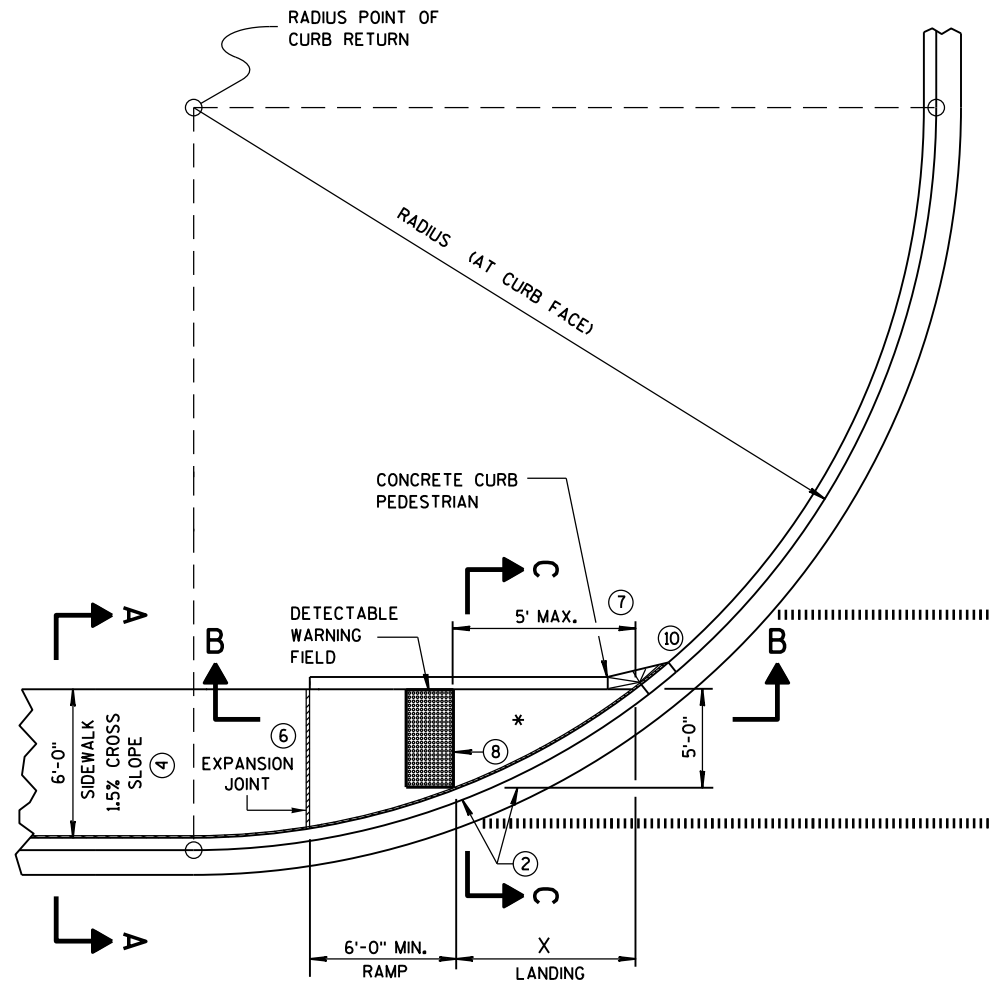
- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



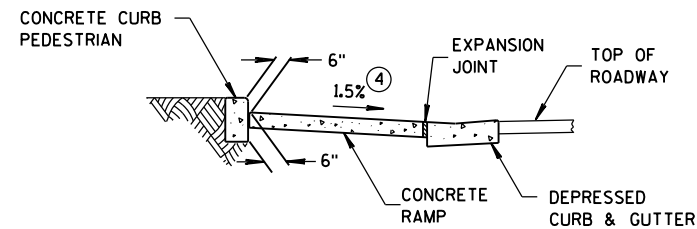
**PLAN VIEW  
TYPE 3 RAMP**  
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS  
TYPES 2 AND 3**

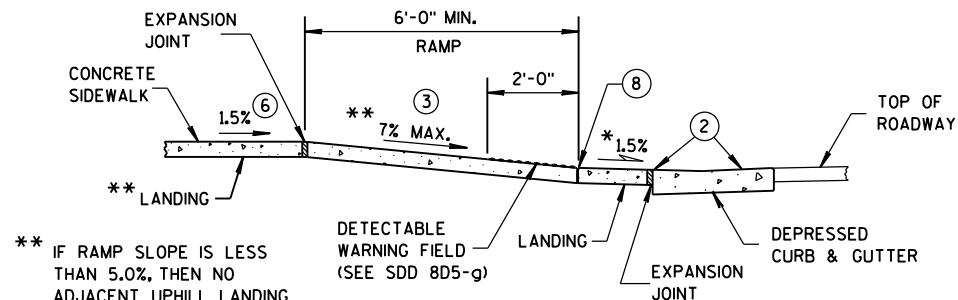
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**CURB RAMP TYPE 4A**  
PLAN VIEW



**SECTION C-C FOR TYPE 4A**



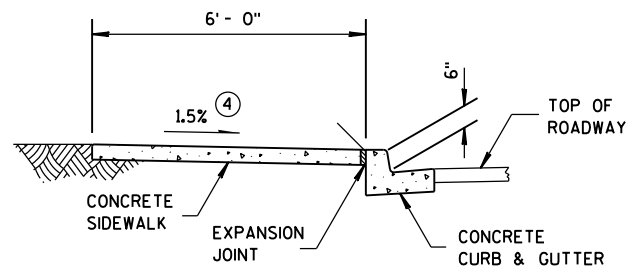
**SECTION B-B FOR TYPE 4A**

\*\* IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

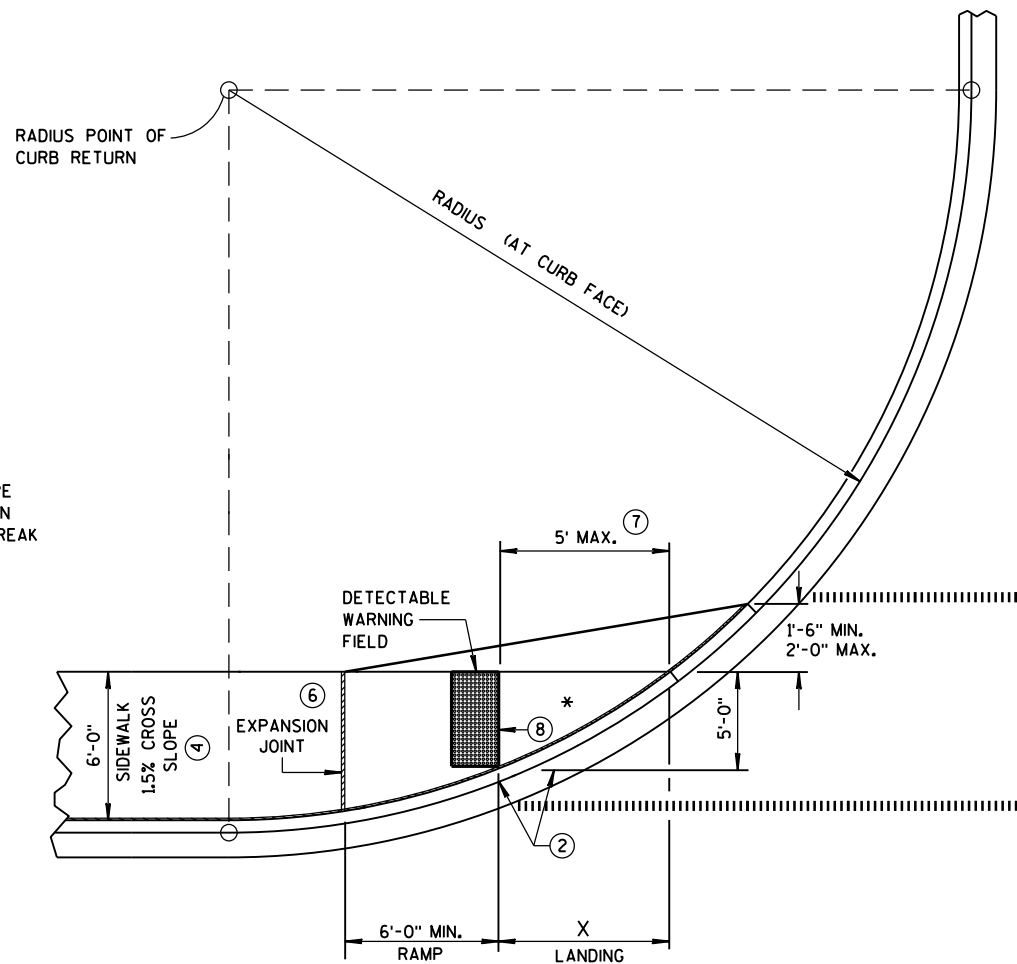
\* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

| RADIUS (AT CURB FACE) | X      |
|-----------------------|--------|
| 10 FEET               | 4'-7"  |
| 15 FEET               | 6'-5½" |

INTERMEDIATE RADII CAN BE INTERPOLATED



**SECTION A-A FOR TYPE 4A**



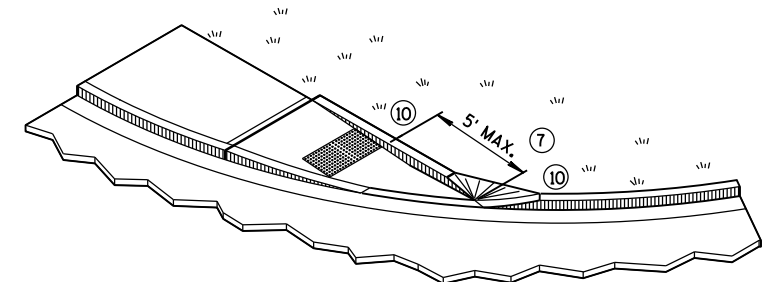
**CURB RAMP TYPE 4A1**  
PLAN VIEW

## GENERAL NOTES

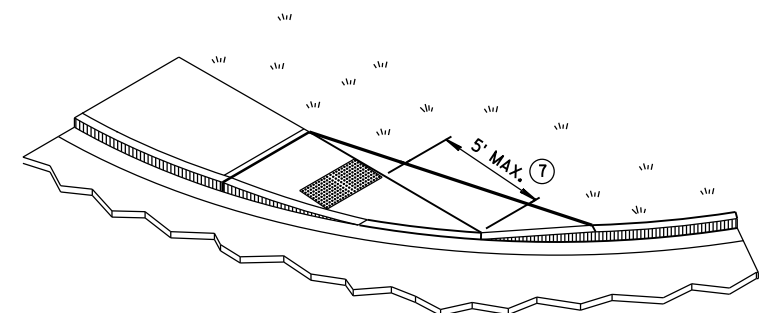
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



**ISOMETRIC VIEW FOR TYPE 4A**



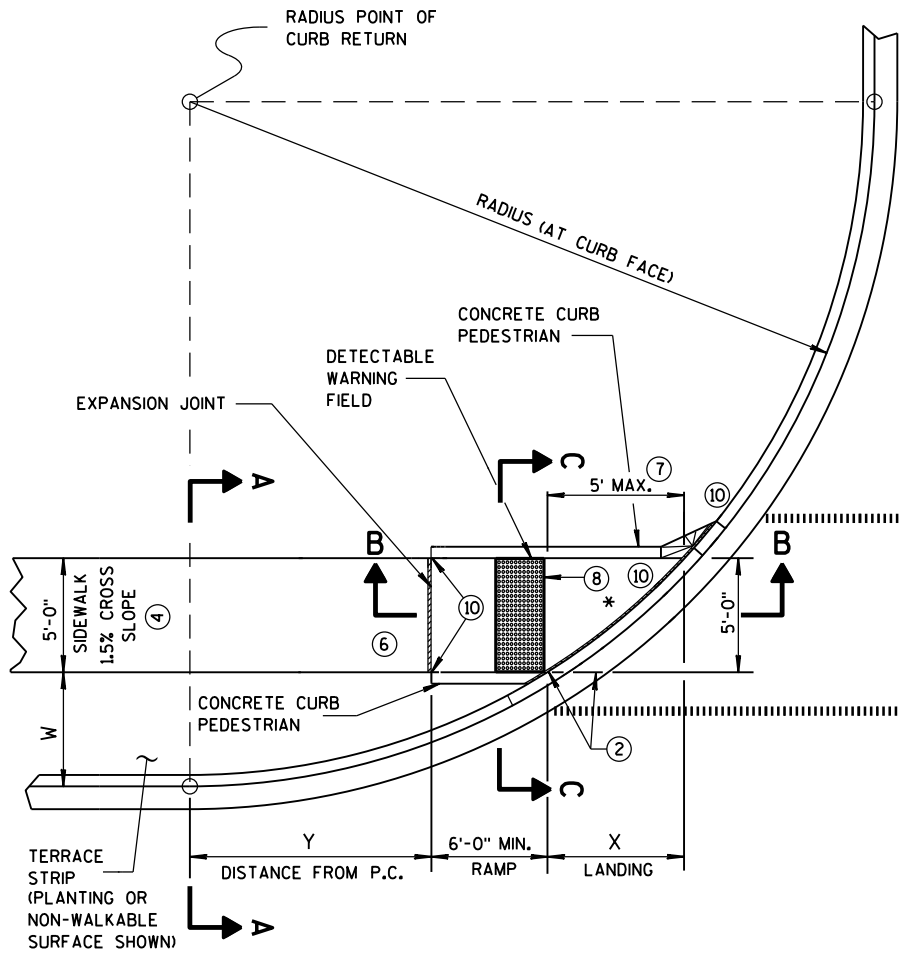
**ISOMETRIC VIEW FOR TYPE 4A1**

## LEGEND

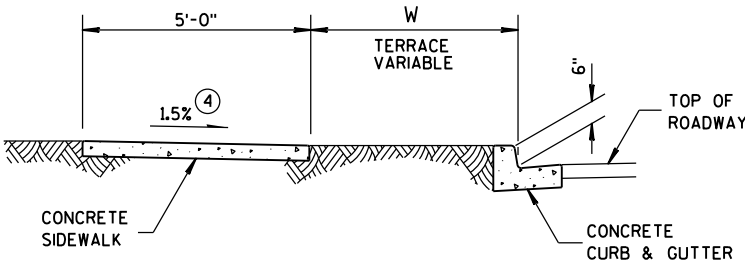
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS**  
**TYPES 4A AND 4A1**

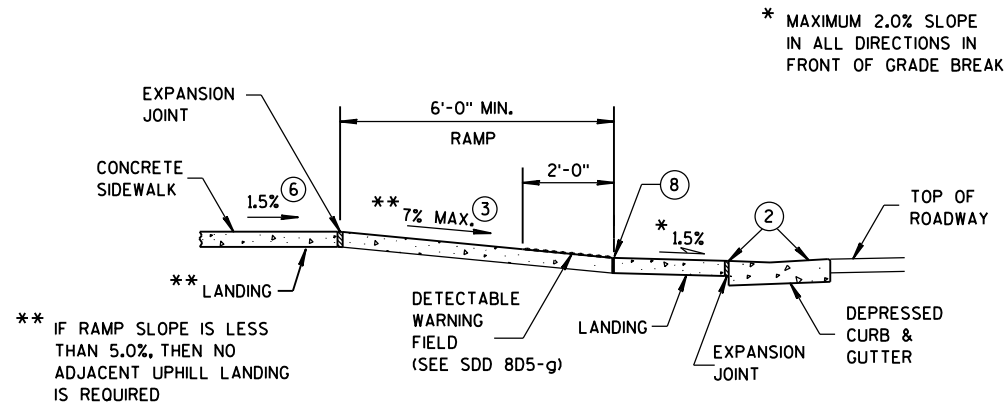
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**CURB RAMP TYPE 4B  
PLAN VIEW**



**SECTION A-A FOR TYPE 4B**



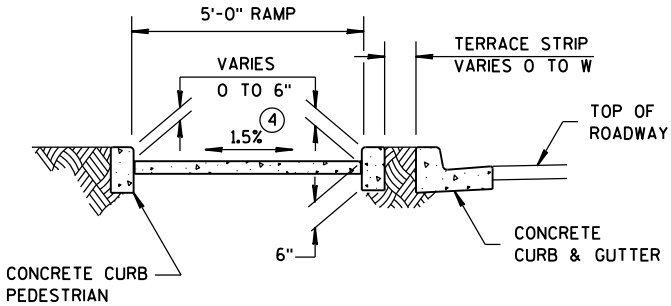
**SECTION B-B FOR TYPE 4B**

| RADIUS<br>(AT CURB FACE) | W = 3' - 0" |           | W = 4' - 0" |            | W = 5' - 0" |           | W = 6' - 0" |            | W = 7' - 0" |            | W = 8' - 0" |            | W = 9' - 0" |            | W = 10' - 0" |            |
|--------------------------|-------------|-----------|-------------|------------|-------------|-----------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|--------------|------------|
|                          | X           | Y         | X           | Y          | X           | Y         | X           | Y          | X           | Y          | X           | Y          | X           | Y          | X            | Y          |
| 10 FEET                  | 2'-10 1/4"  | 0'-5"     | 2'-1"       | 1'-4 1/2"  | 1'-5"       | 2'-1"     | 0'-10"      | 2'-7 1/2"  | 0'-3 1/4"   | 3'-0 1/4"  |             |            |             |            |              |            |
| 15 FEET                  | 4'-6 3/4"   | 2'-1 3/4" | 3'-9"       | 3'-5 1/4"  | 3'-1 1/4"   | 4'-6"     | 2'-6 3/4"   | 5'-4 1/2"  | 2'-1"       | 6'-1"      | 1'-8"       | 6'-8 1/2"  | 1'-3 1/4"   | 7'-2 1/2"  | 0'-10 3/4"   | 7'-7 1/4"  |
| 20 FEET                  | 5'-9 3/4"   | 3'-6 1/2" | 4'-11 1/2"  | 5'-1 3/4"  | 4'-3 1/4"   | 6'-5 1/2" | 3'-8 3/4"   | 7'-7"      | 3'-3"       | 8'-6 1/2"  | 2'-10"      | 9'-4 1/2"  | 2'-5 1/2"   | 10'-1 1/4" | 2'-1 1/4"    | 10'-9"     |
| 30 FEET                  |             |           | 6'-9 1/4"   | 7'-11 1/4" | 6'-0 1/4"   | 9'-8"     | 5'-5"       | 11'-1 3/4" | 4'-10 3/4"  | 12'-5 3/4" | 4'-5 1/2"   | 13'-7 3/4" | 4'-0 3/4"   | 14'-8 1/2" | 3'-8 1/2"    | 15'-8 1/4" |
| 40 FEET                  |             |           |             |            |             |           |             |            | 6'-1 3/4"   | 15'-8 1/2" | 5'-8"       | 17'-2"     | 5'-3"       | 18'-5 3/4" | 4'-10 3/4"   | 19'-8 1/4" |
| 50 FEET                  |             |           |             |            |             |           |             |            |             |            |             |            |             |            | 5'-10 1/4"   | 23'-2"     |

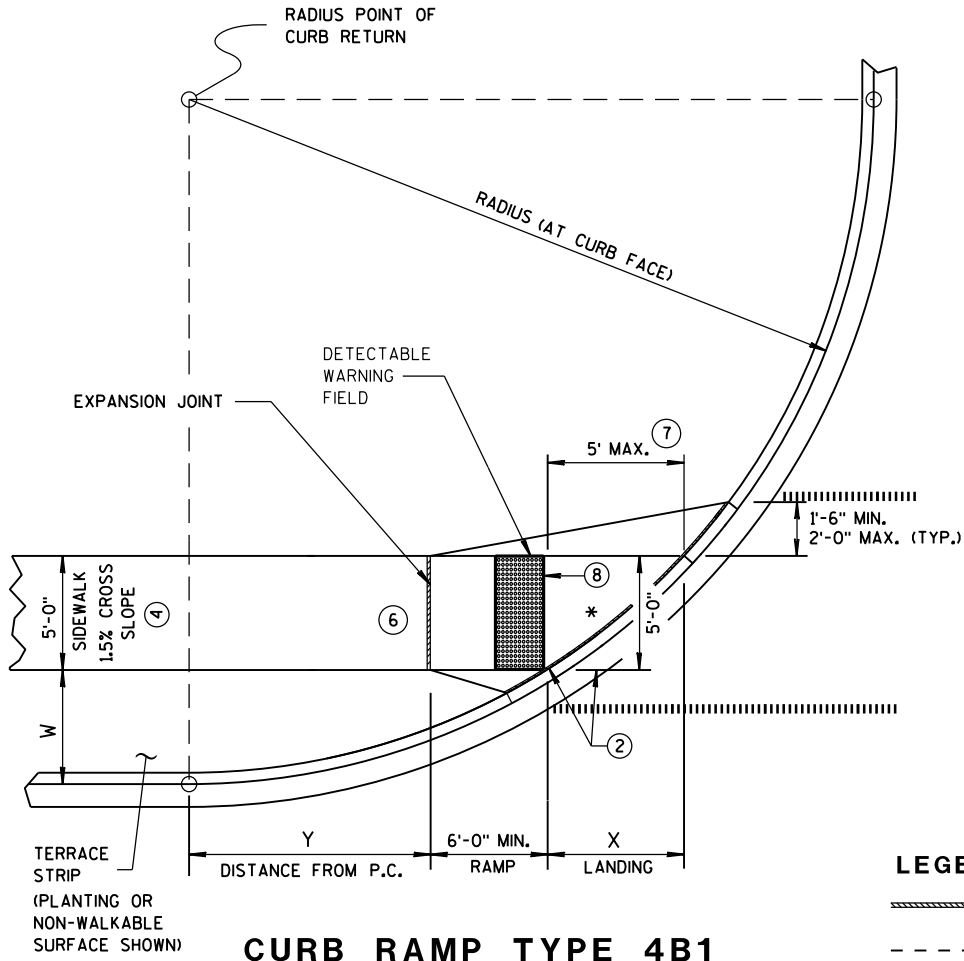
INTERMEDIATE RADII CAN BE INTERPOLATED  
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH  
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH

**GENERAL NOTES**

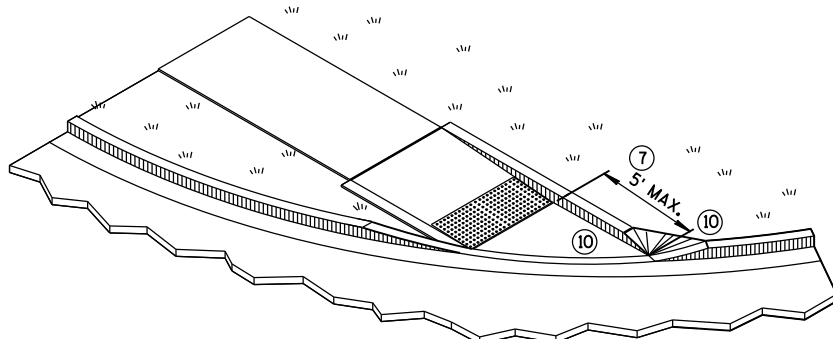
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



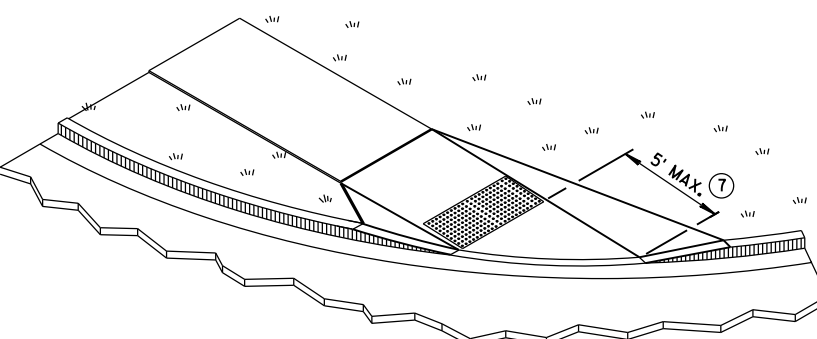
**SECTION C-C FOR TYPE 4B**



**CURB RAMP TYPE 4B1  
PLAN VIEW**



**ISOMETRIC VIEW FOR TYPE 4B**



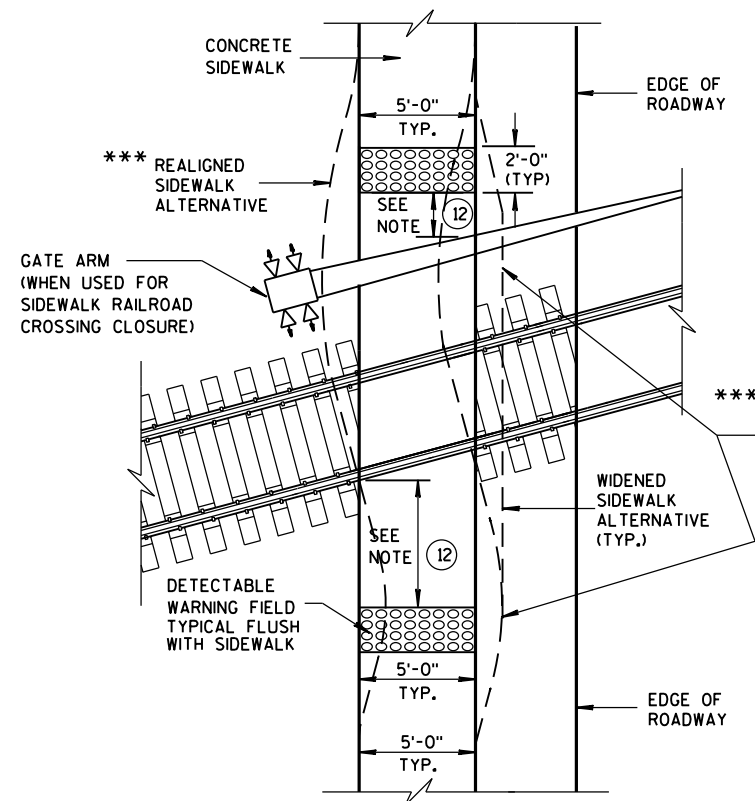
**ISOMETRIC VIEW FOR TYPE 4B1**

**LEGEND**

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

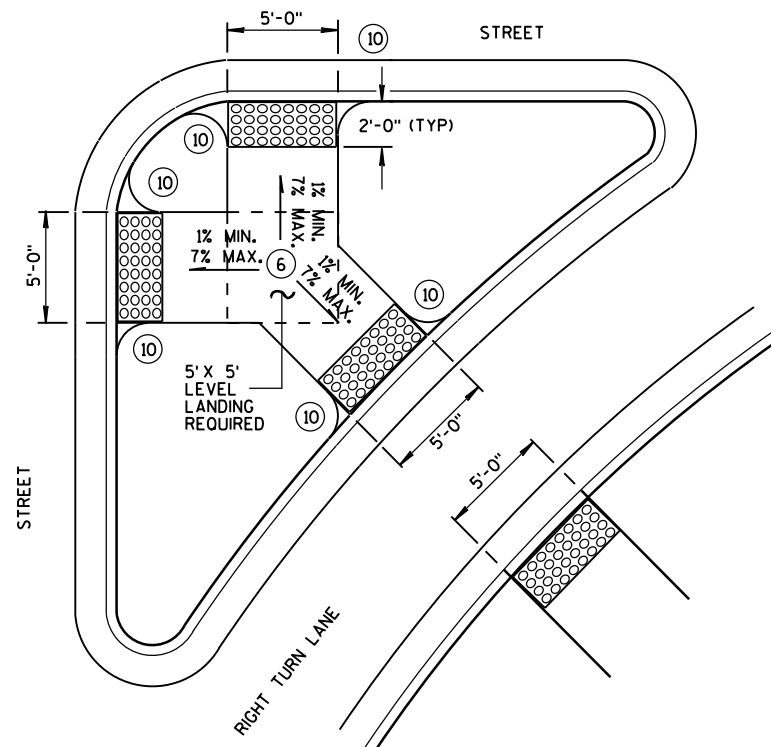
**CURB RAMPS  
TYPE 4B AND 4B1**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

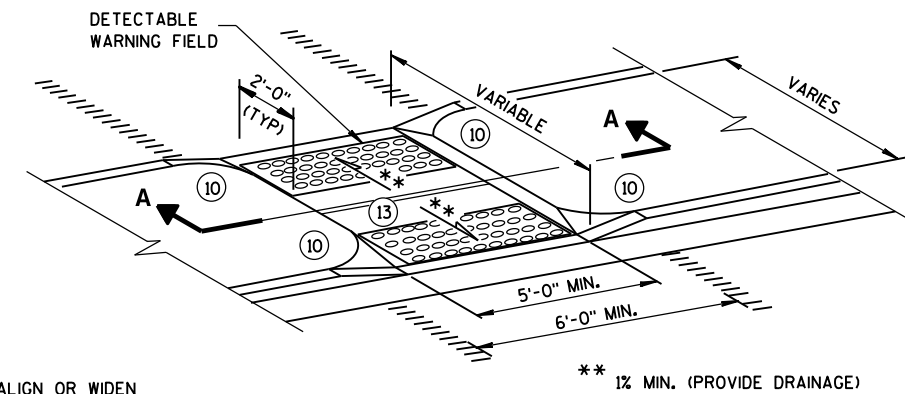


**TYPE 8**  
**DETECTABLE WARNINGS**  
**AT RAILROAD CROSSING**

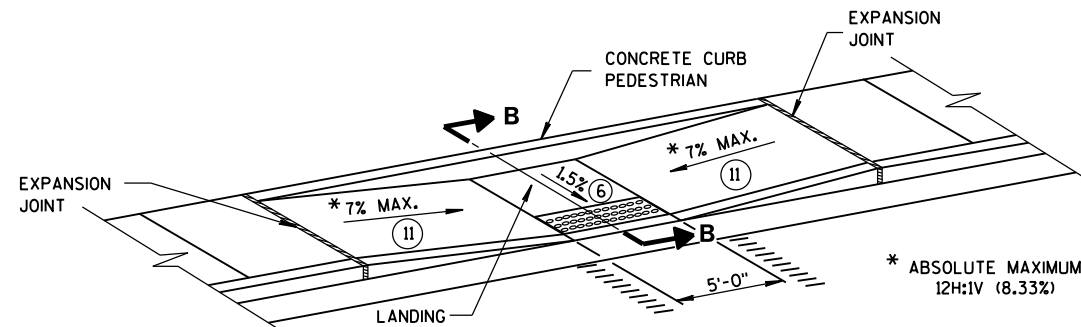
REFER TO GENERAL NOTES ② AND ③  
FOR ALL ISLAND CURB RAMP



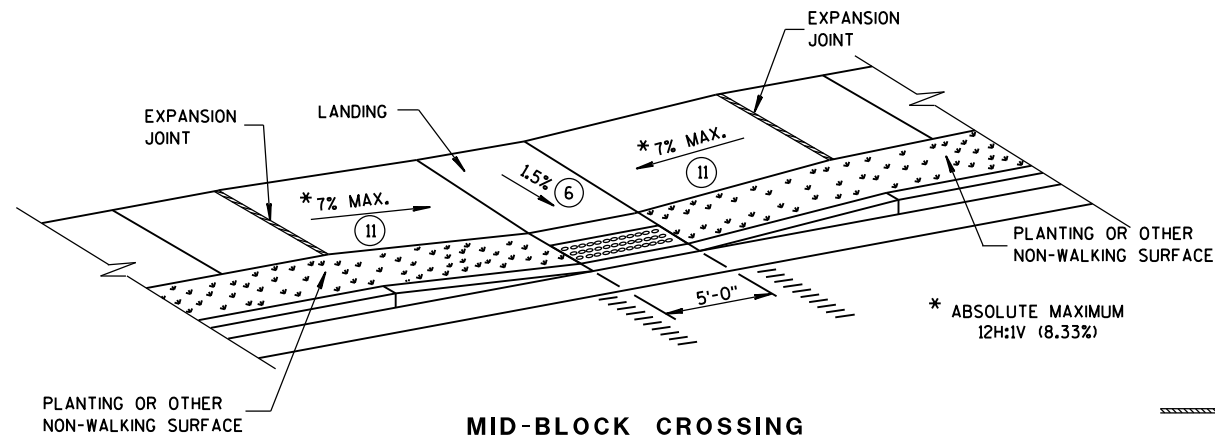
**TYPE 6**  
**DETECTABLE WARNING AT ISLANDS**



**MEDIAN ISLAND**  
**NON-ELEVATED PEDESTRIAN CROSSING**  
**TYPE 5**



**MID-BLOCK CROSSING**  
**TYPE 7A**



**MID-BLOCK CROSSING**  
**TYPE 7B**

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMP  
MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

## GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.

③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

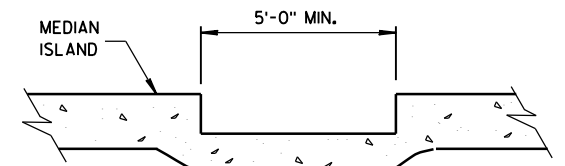
⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

⑩ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

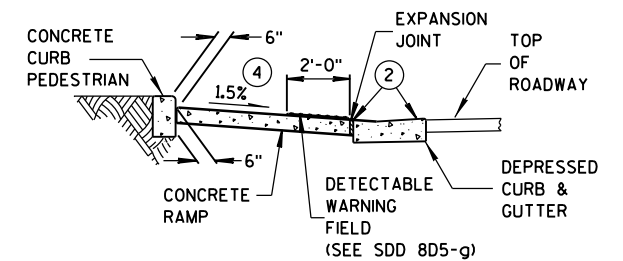
⑪ SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

⑫ THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 15 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

⑬ DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2-FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.



**SECTION A-A**



**SECTION B-B**

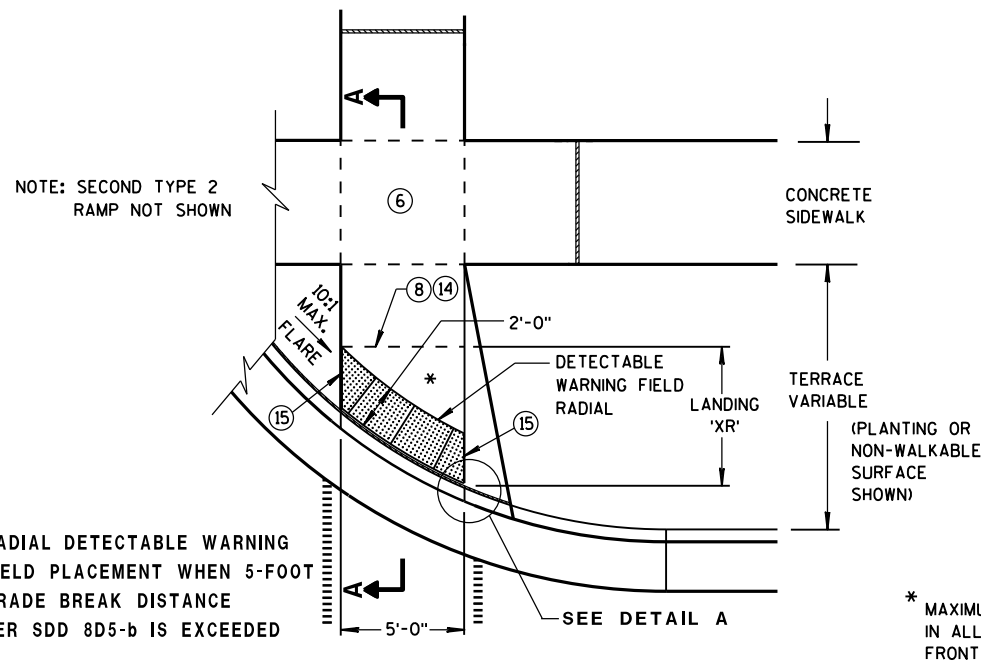
## LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

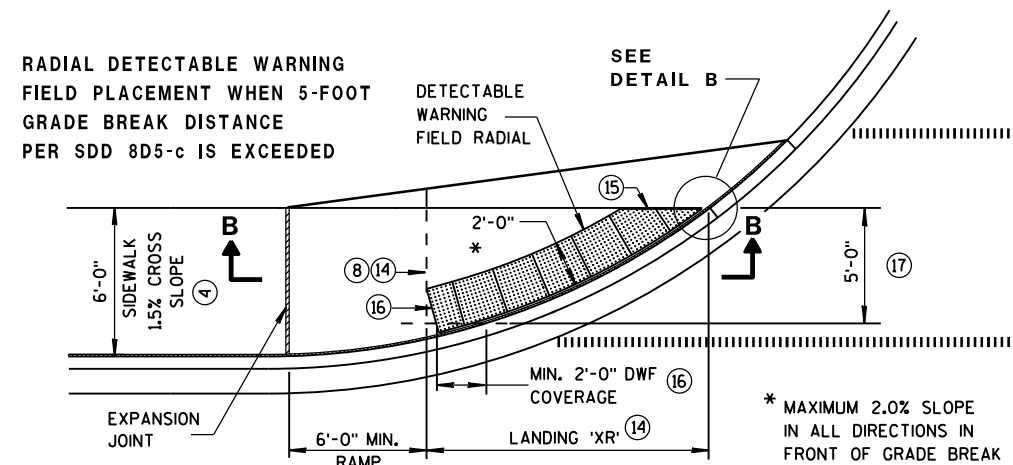
**CURB RAMP**  
**TYPES 5, 6, 7A, 7B & 8**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

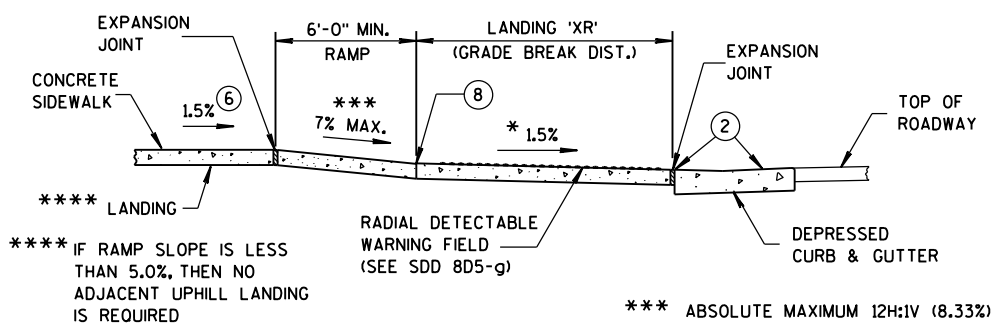




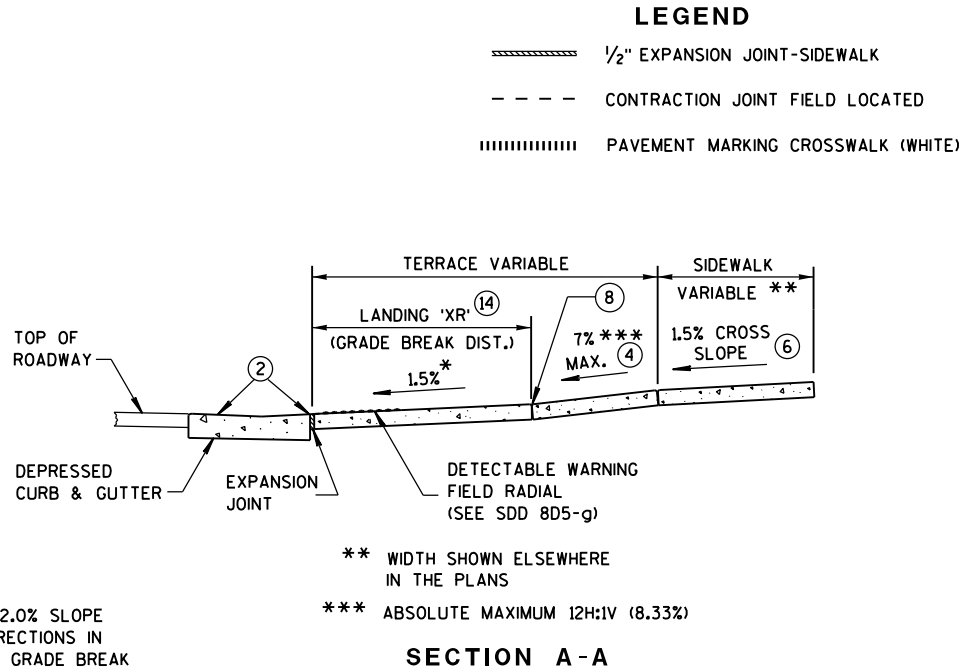
**TYPE 2 RAMP**  
**PLAN VIEW**  
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)  
(ON LINE WITH SIDEWALK)



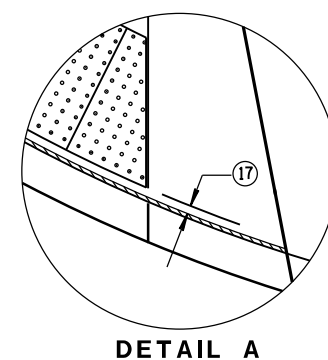
**CURB RAMP TYPE 4A1**  
**PLAN VIEW**  
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)



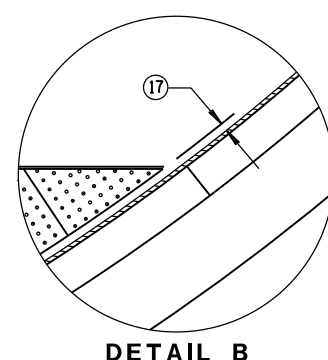
**SECTION B-B FOR TYPE 4A1**



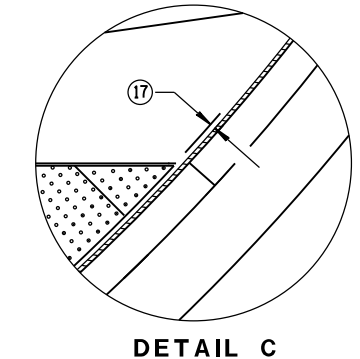
**SECTION A-A**



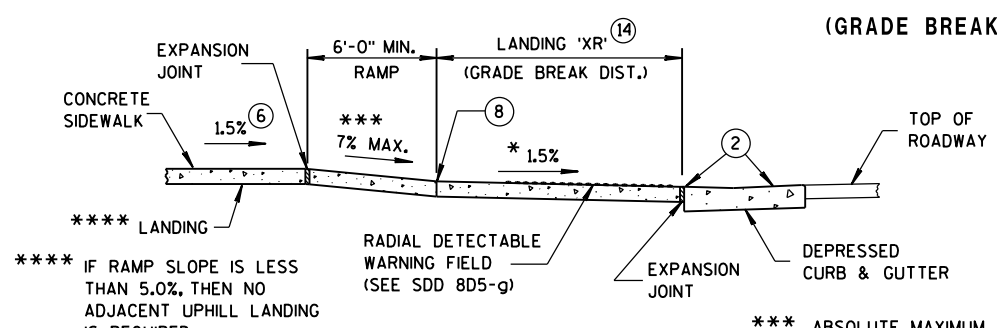
**DETAIL A**



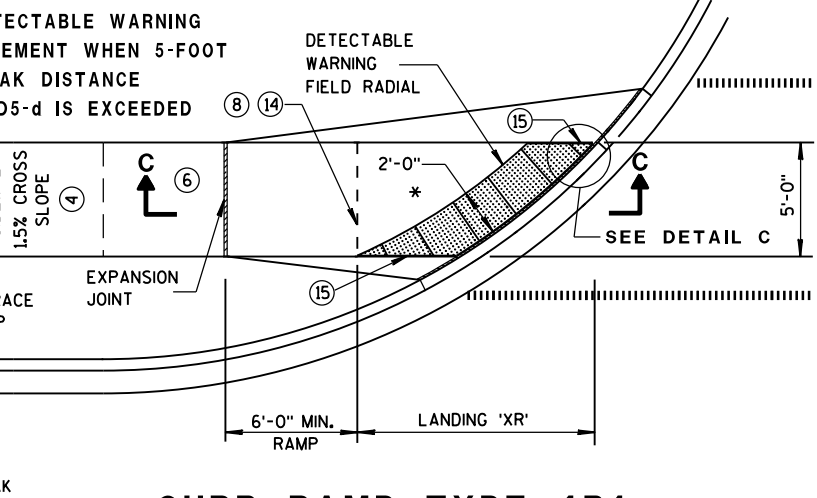
**DETAIL B**



**DETAIL C**



**SECTION C-C FOR TYPE 4B1**



**CURB RAMP TYPE 4B1**  
**PLAN VIEW**  
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)

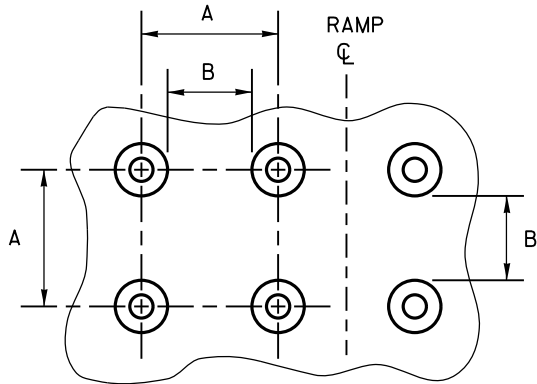
- LEGEND**
- 1/2" EXPANSION JOINT-SIDEWALK
  - CONTRACTION JOINT FIELD LOCATED
  - PAVEMENT MARKING CROSSWALK (WHITE)
- GENERAL NOTES**
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
  - DETECTABLE WARNING FIELDS (DWFs) THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
  - APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B CURB RAMPS ARE NOT SHOWN.
  - REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.
  - FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.
  - DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.
  - GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
  - ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
  - ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
  - PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
  - PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
  - CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION 'XR') REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
  - FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
  - USE 1'X 2' RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2'-0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
  - A MAXIMUM 3-INCH CONCRETE BORDER WIDTH IS ALLOWABLE IN FRONT OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

**CURB RAMPS**  
**RADIAL DETECTABLE WARNING**  
**FIELD APPLICATIONS**

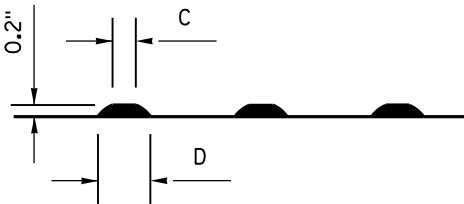
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

|   | MIN.  | MAX. |
|---|-------|------|
| A | 1.6"  | 2.4" |
| B | 0.65" | 1.5" |
| C | *     | *    |
| D | 0.9"  | 1.4" |

\* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

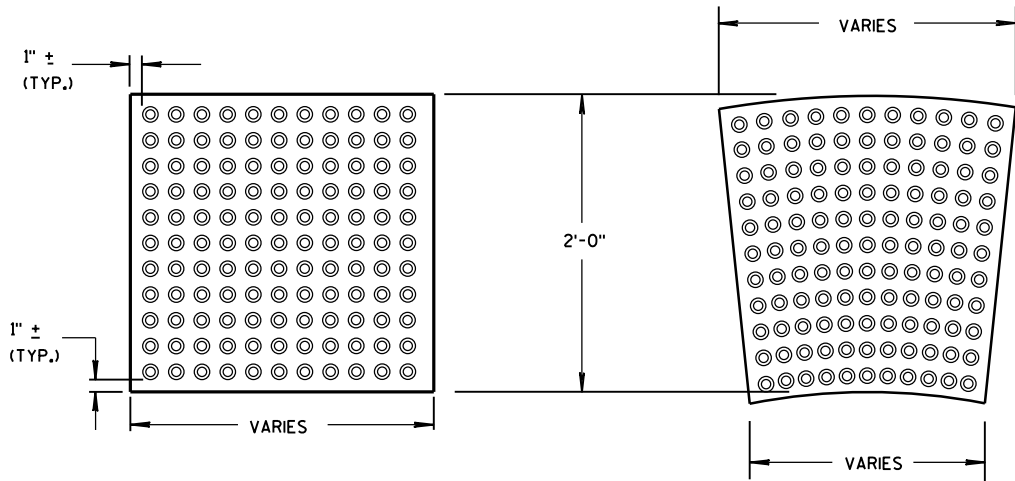


PLAN VIEW



ELEVATION VIEW

TRUNCATED DOMES  
DETECTABLE WARNING PATTERN DETAIL



RECTANGULAR PLATES  
RADIAL PLATES  
DETECTABLE WARNING FIELDS (TYPICAL)

PLAN VIEW

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

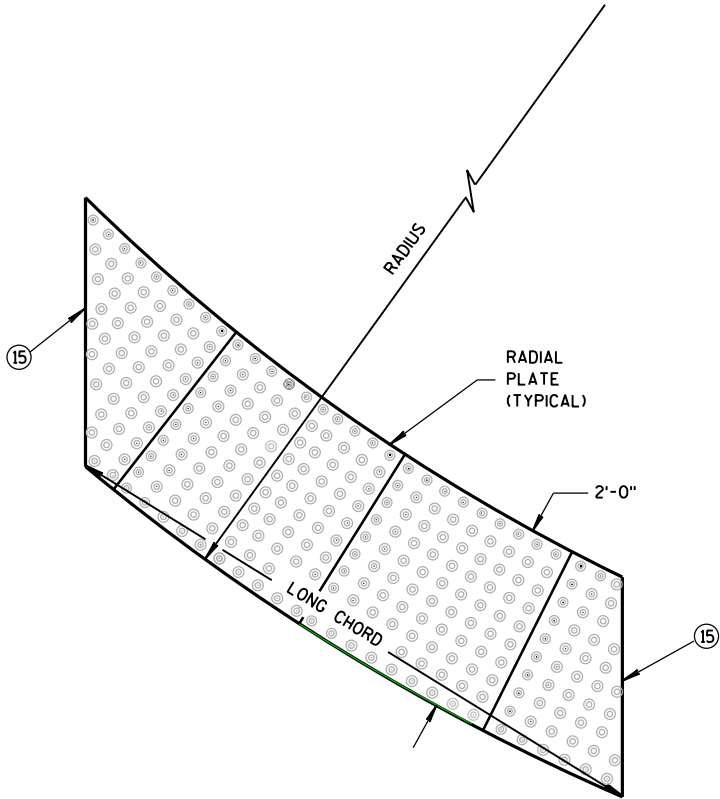
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGES IN COMBINATION WITH SQUARE PANELS ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.



RADIAL DETECTABLE  
WARNING FIELD ATTRIBUTES

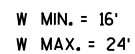
CURB RAMPS  
RECTANGULAR AND RADIAL  
DETECTABLE WARNING PLATES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

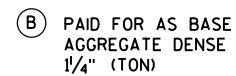
APPROVED  
June, 2017 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS UNIT SUPERV 92 ENT  
FHWA



① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

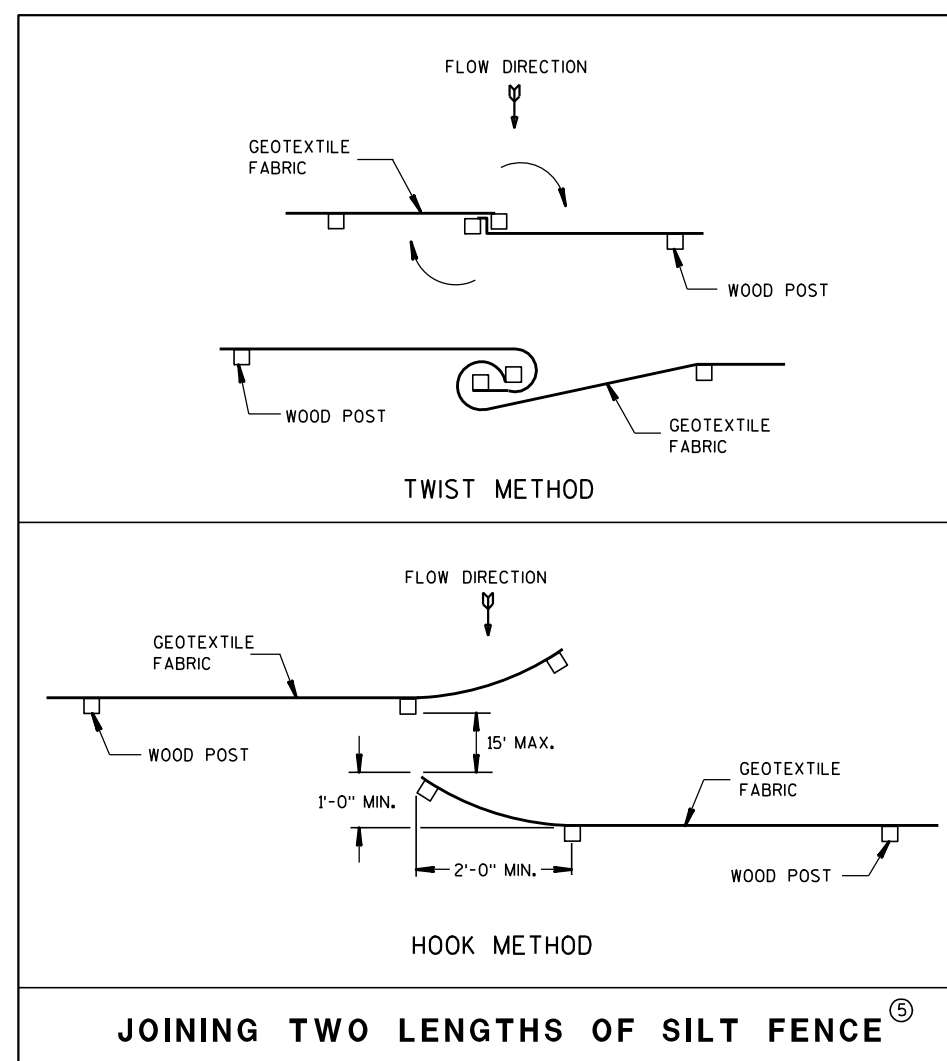
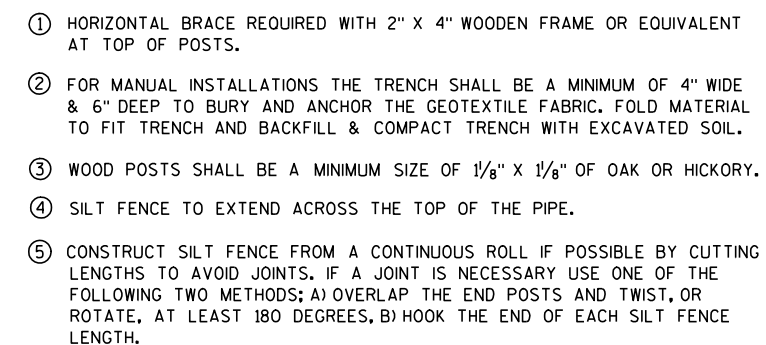


PLAN VIEW  
HALF SECTION



PLAN VIEW  
HALF SECTION



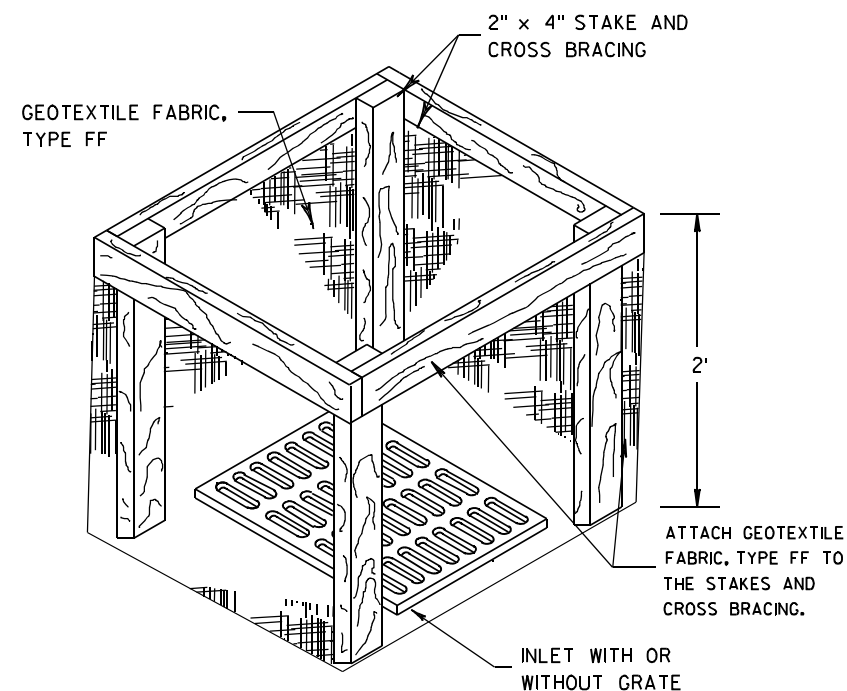
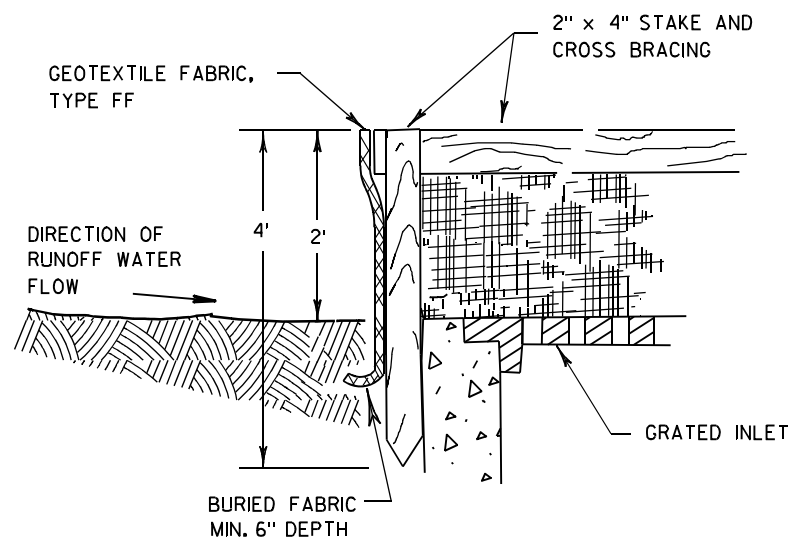


**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05  
DATE \_\_\_\_\_ /S/ Beth Cannata \_\_\_\_\_  
CHIEF ROADWAY DEVELOPMENT 94 INCHES

FHWA



**INLET PROTECTION, TYPE A**

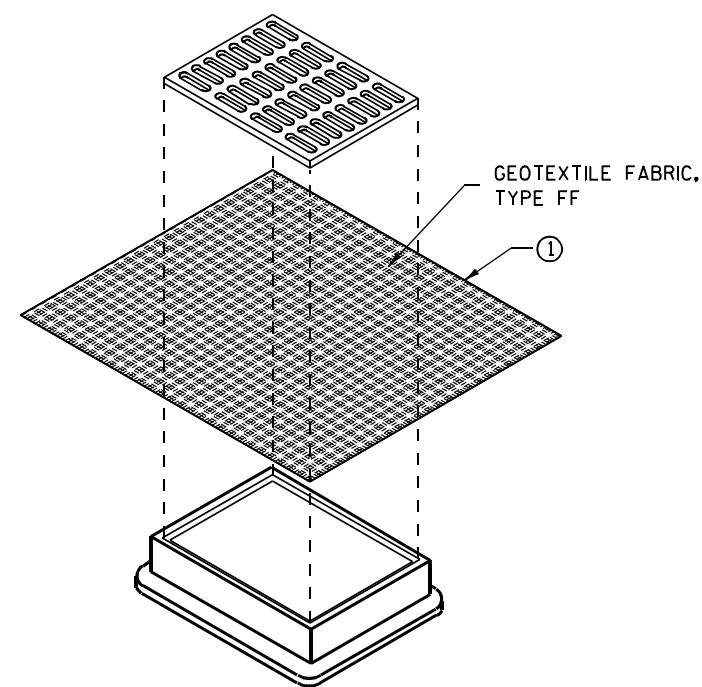
**GENERAL NOTES**

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

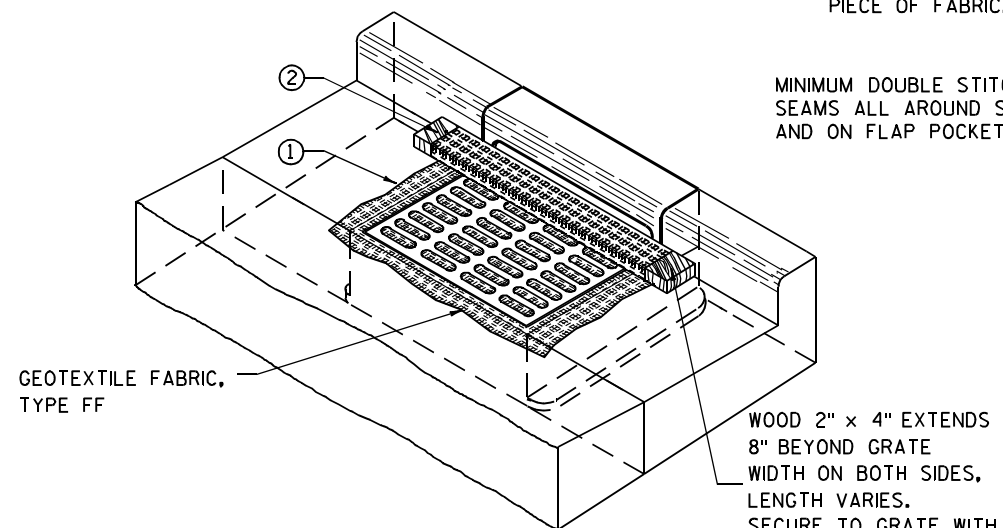
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B  
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

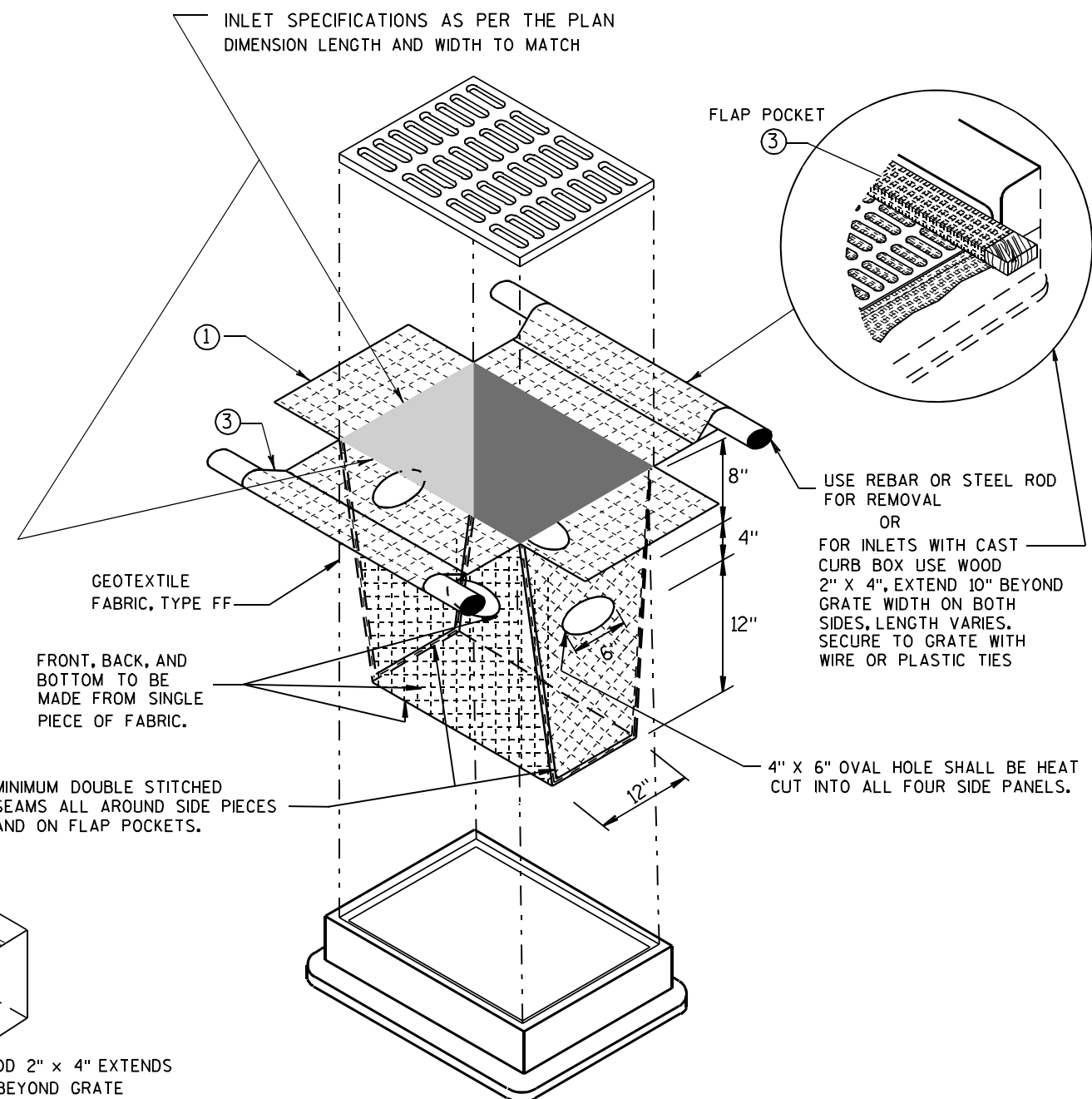
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLower THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



**INLET PROTECTION, TYPE D**

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

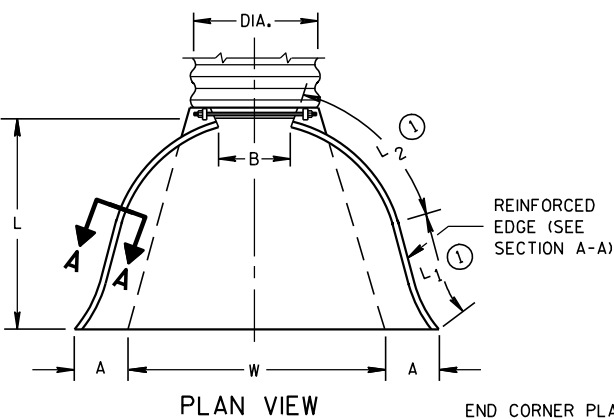
**INLET PROTECTION  
TYPE A, B, C, AND D**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/16/02 /S/ Beth Connolly  
DATE 95  
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

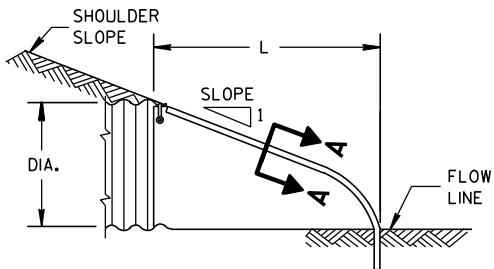
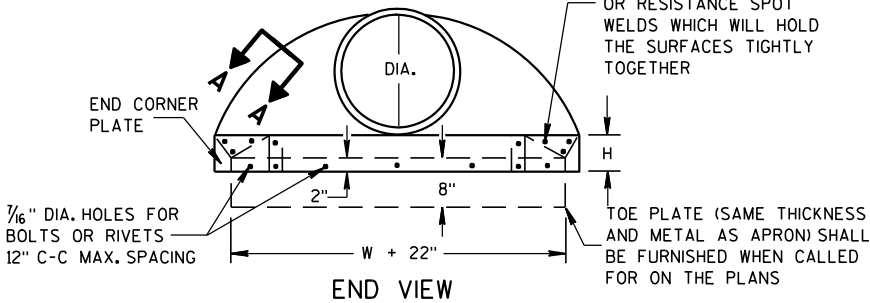
| METAL APRON ENDWALLS |                         |       |                     |             |            |                |                     |                     |            |                  |       |  |
|----------------------|-------------------------|-------|---------------------|-------------|------------|----------------|---------------------|---------------------|------------|------------------|-------|--|
| PIPE DIA.<br>(IN.)   | MIN. THICK.<br>(Inches) |       | DIMENSIONS (Inches) |             |            |                |                     |                     |            | APPROX.<br>SLOPE | BODY  |  |
|                      | STEEL                   | ALUM. | A<br>(±1")          | B<br>(MAX.) | H<br>(±1") | L<br>(±1 1/2") | L <sub>1</sub><br>① | L <sub>2</sub><br>① | W<br>(±2") |                  |       |  |
| 12                   | .064                    | .060  | 6                   | 6           | 6          | 21             | 12                  | 17 1/2              | 24         | 2 1/2 to 1       | 1 Pc. |  |
| 15                   | .064                    | .060  | 7                   | 8           | 6          | 26             | 14                  | 21 3/4              | 30         | 2 1/2 to 1       | 1 Pc. |  |
| 18                   | .064                    | .060  | 8                   | 10          | 6          | 31             | 15                  | 28 1/4              | 36         | 2 1/2 to 1       | 1 Pc. |  |
| 21                   | .064                    | .060  | 9                   | 12          | 6          | 36             | 18                  | 29 5/8              | 42         | 2 1/2 to 1       | 1 Pc. |  |
| 24                   | .064                    | .075  | 10                  | 13          | 6          | 41             | 18                  | 37 1/4              | 48         | 2 1/2 to 1       | 1 Pc. |  |
| 30                   | .079                    | .075  | 12                  | 16          | 8          | 51             | 18                  | 52 1/4              | 60         | 2 1/2 to 1       | 1 Pc. |  |
| 36                   | .079                    | .105  | 14                  | 19          | 9          | 60             | 24                  | 59 3/4              | 72         | 2 1/2 to 1       | 2 Pc. |  |
| 42                   | .109                    | .105  | 16                  | 22          | 11         | 69             | 24                  | 75 5/8              | 84         | 2 1/2 to 1       | 2 Pc. |  |
| 48                   | .109                    | .105  | 18                  | 27          | 12         | 78             | 24                  | 81                  | 90         | 2 1/4 to 1       | 3 Pc. |  |
| 54                   | .109                    | .105  | 18                  | 30          | 12         | 84             | 30                  | 85 1/2              | 102        | 2 1/4 to 1       | 3 Pc. |  |
| 60                   | .109x                   | .105x | 18                  | 33          | 12         | 87             | —                   | —                   | 114        | 2 to 1           | 3 Pc. |  |
| 66                   | .109x                   | .105x | 18                  | 36          | 12         | 87             | —                   | —                   | 120        | 2 to 1           | 3 Pc. |  |
| 72                   | .109x                   | .105x | 18                  | 39          | 12         | 87             | —                   | —                   | 126        | 2 to 1           | 3 Pc. |  |
| 78                   | .109x                   | .105x | 18                  | 42          | 12         | 87             | —                   | —                   | 132        | 1 1/2 to 1       | 3 Pc. |  |
| 84                   | .109x                   | .105x | 18                  | 45          | 12         | 87             | —                   | —                   | 138        | 1 1/2 to 1       | 3 Pc. |  |
| 90                   | .109x                   | .105x | 18                  | 37          | 12         | 87             | —                   | —                   | 144        | 1 1/2 to 1       | 3 Pc. |  |
| 96                   | .109x                   | .105x | 18                  | 35          | 12         | 87             | —                   | —                   | 150        | 1 1/2 to 1       | 3 Pc. |  |

\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

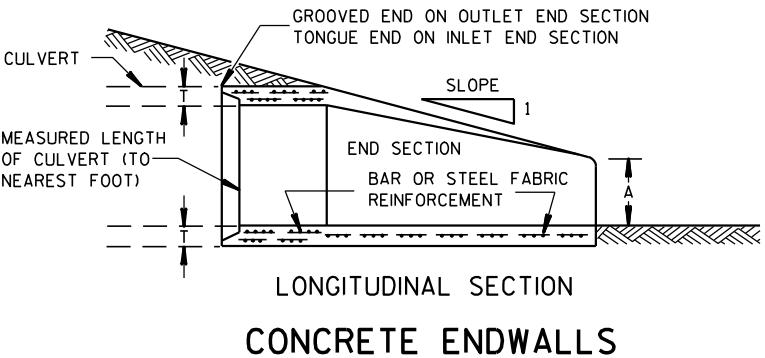
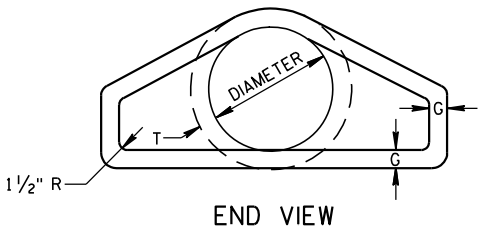
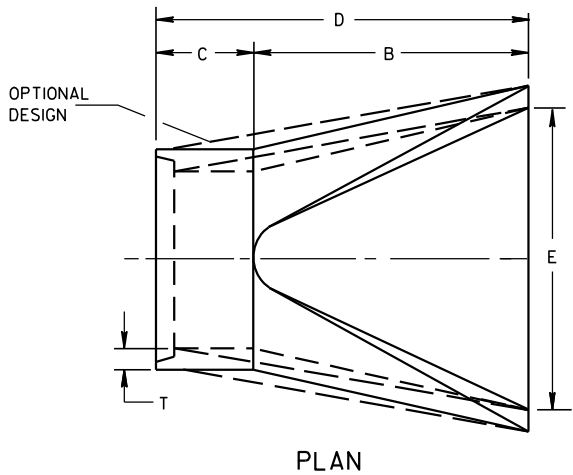
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



SIDE ELEVATION  
METAL ENDWALLS

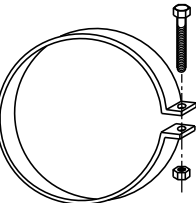
| REINFORCED CONCRETE APRON ENDWALLS |                               |                                |                                |                                    |                                     |     |                               |                                    |
|------------------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------------|-------------------------------------|-----|-------------------------------|------------------------------------|
| PIPE DIA.<br>(IN.)                 | DIMENSIONS (Inches)           |                                |                                |                                    |                                     |     |                               | APPROX.<br>SLOPE                   |
|                                    | T                             | A                              | B                              | C                                  | D                                   | E   | G                             |                                    |
| 12                                 | 2                             | 4                              | 24                             | 48 <sup>7</sup> / <sub>8</sub>     | 72 <sup>1</sup> / <sub>8</sub>      | 24  | 2                             | 3 to 1                             |
| 15                                 | 2 <sup>1</sup> / <sub>4</sub> | 6                              | 27                             | 46                                 | 73                                  | 30  | 2 <sup>1</sup> / <sub>4</sub> | 3 to 1                             |
| 18                                 | 2 <sup>1</sup> / <sub>2</sub> | 9                              | 27                             | 46                                 | 73                                  | 36  | 2 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 21                                 | 2 <sup>3</sup> / <sub>4</sub> | 9                              | 36                             | 37 <sup>1</sup> / <sub>2</sub>     | 73 <sup>1</sup> / <sub>2</sub>      | 42  | 2 <sup>3</sup> / <sub>4</sub> | 3 to 1                             |
| 24                                 | 3                             | 9 <sup>1</sup> / <sub>2</sub>  | 43 <sup>1</sup> / <sub>2</sub> | 30                                 | 73 <sup>1</sup> / <sub>2</sub>      | 48  | 3                             | 3 to 1                             |
| 27                                 | 3 <sup>1</sup> / <sub>4</sub> | 10 <sup>1</sup> / <sub>2</sub> | 49 <sup>1</sup> / <sub>2</sub> | 24                                 | 73 <sup>1</sup> / <sub>2</sub>      | 54  | 3 <sup>1</sup> / <sub>4</sub> | 3 to 1                             |
| 30                                 | 3 <sup>1</sup> / <sub>2</sub> | 12                             | 54                             | 19 <sup>3</sup> / <sub>4</sub>     | 73 <sup>1</sup> / <sub>2</sub>      | 60  | 3 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 36                                 | 4                             | 15                             | 63                             | 34 <sup>3</sup> / <sub>4</sub>     | 97 <sup>3</sup> / <sub>4</sub>      | 72  | 4                             | 3 to 1                             |
| 42                                 | 4 <sup>1</sup> / <sub>2</sub> | 21                             | 63                             | 35                                 | 98                                  | 78  | 4 <sup>1</sup> / <sub>2</sub> | 3 to 1                             |
| 48                                 | 5                             | 24                             | 72                             | 26                                 | 98                                  | 84  | 5                             | 3 to 1                             |
| 54                                 | 5 <sup>1</sup> / <sub>2</sub> | 27                             | 65                             | 33 <sup>1</sup> / <sub>4</sub> -35 | 98 <sup>1</sup> / <sub>4</sub> -100 | 90  | 5 <sup>1</sup> / <sub>2</sub> | 2 <sup>1</sup> / <sub>2</sub> to 1 |
| 60                                 | 6                             | 30-35                          | 60                             | 39                                 | 99                                  | 96  | 5                             | 2 to 1                             |
| 66                                 | 6 <sup>1</sup> / <sub>2</sub> | 24-30                          | 72-78                          | 21-27                              | 99                                  | 102 | 5 <sup>1</sup> / <sub>2</sub> | 2 to 1                             |
| 72                                 | 7                             | 24-36                          | 78                             | 21                                 | 99                                  | 108 | 6                             | 2 to 1                             |
| 78                                 | 7 <sup>1</sup> / <sub>2</sub> | 24-36                          | 78                             | 21                                 | 99                                  | 114 | 6 <sup>1</sup> / <sub>2</sub> | 2 to 1                             |
| 84                                 | 8                             | 36                             | 90 <sup>1</sup> / <sub>2</sub> | 21                                 | 111 <sup>1</sup> / <sub>2</sub>     | 120 | 6 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> to 1 |
| 90                                 | 8 <sup>1</sup> / <sub>2</sub> | 41                             | 87 <sup>1</sup> / <sub>2</sub> | 24                                 | 111 <sup>1</sup> / <sub>2</sub>     | 132 | 6 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> to 1 |

\* MINIMUM  
\*\* MAXIMUM

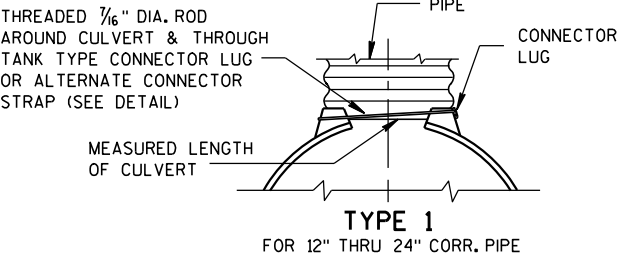


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

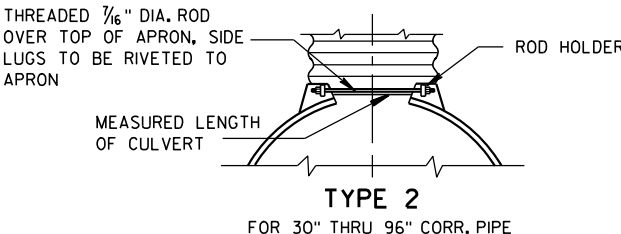
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



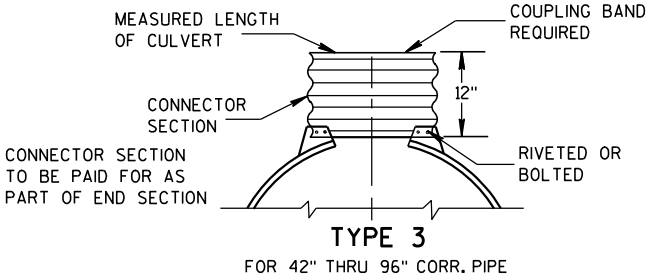
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



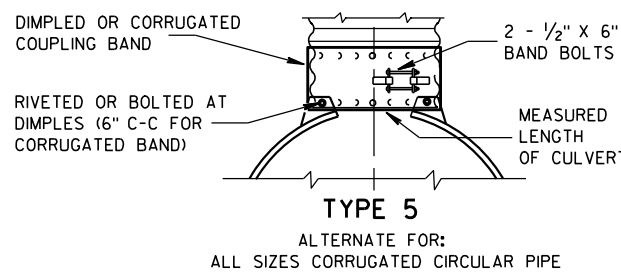
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



TYPE 5  
ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

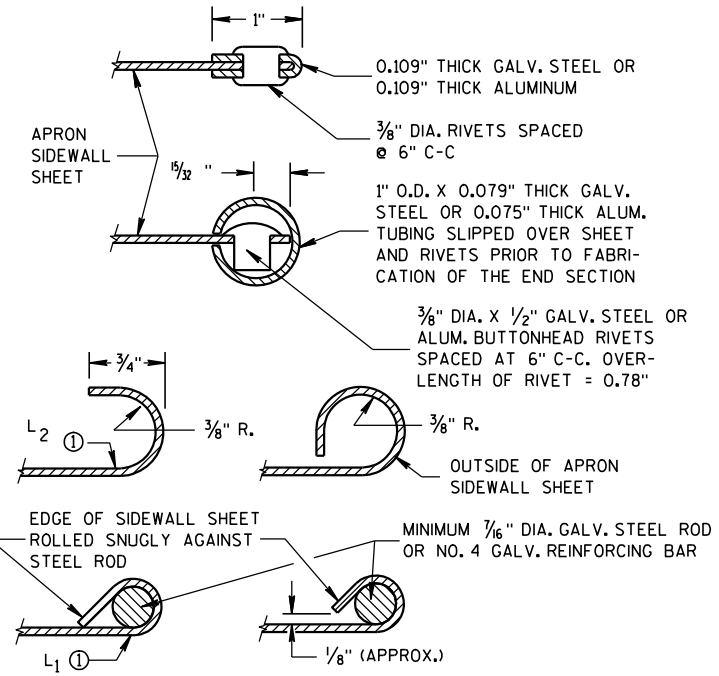
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

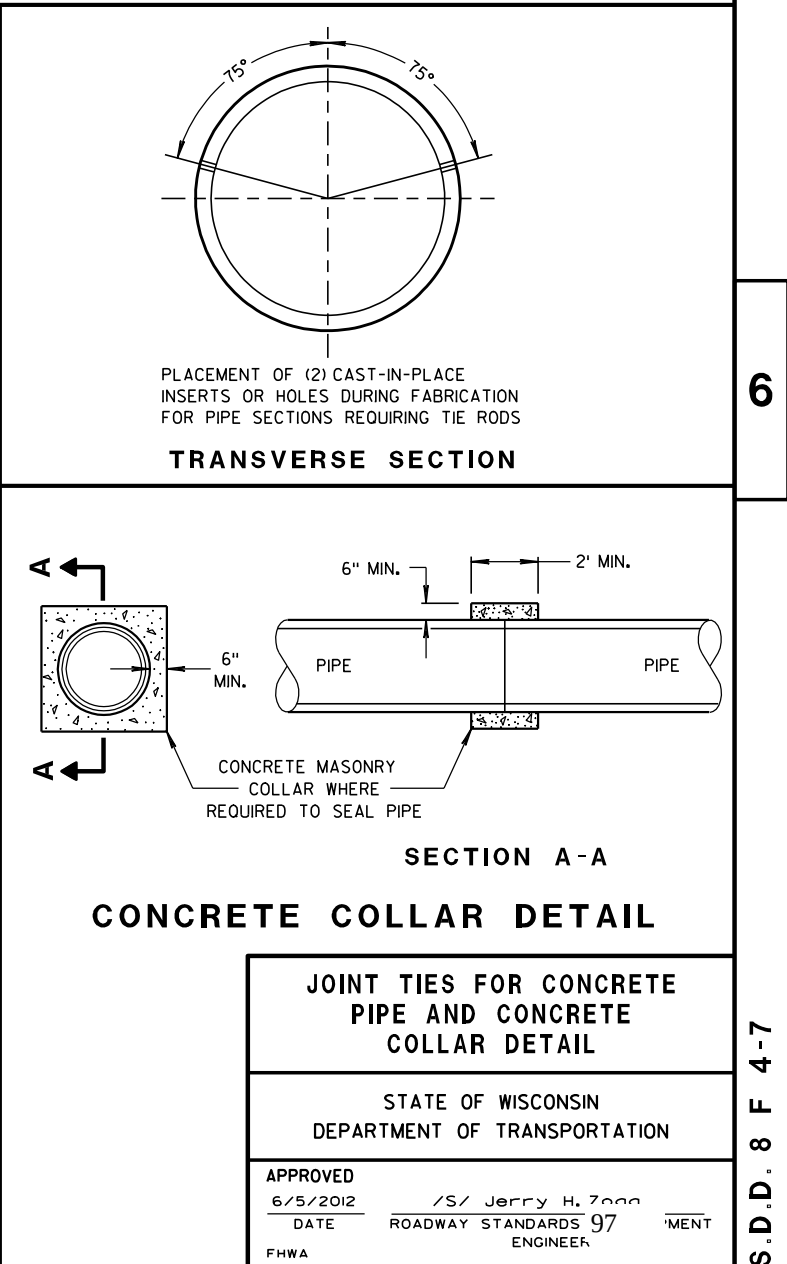
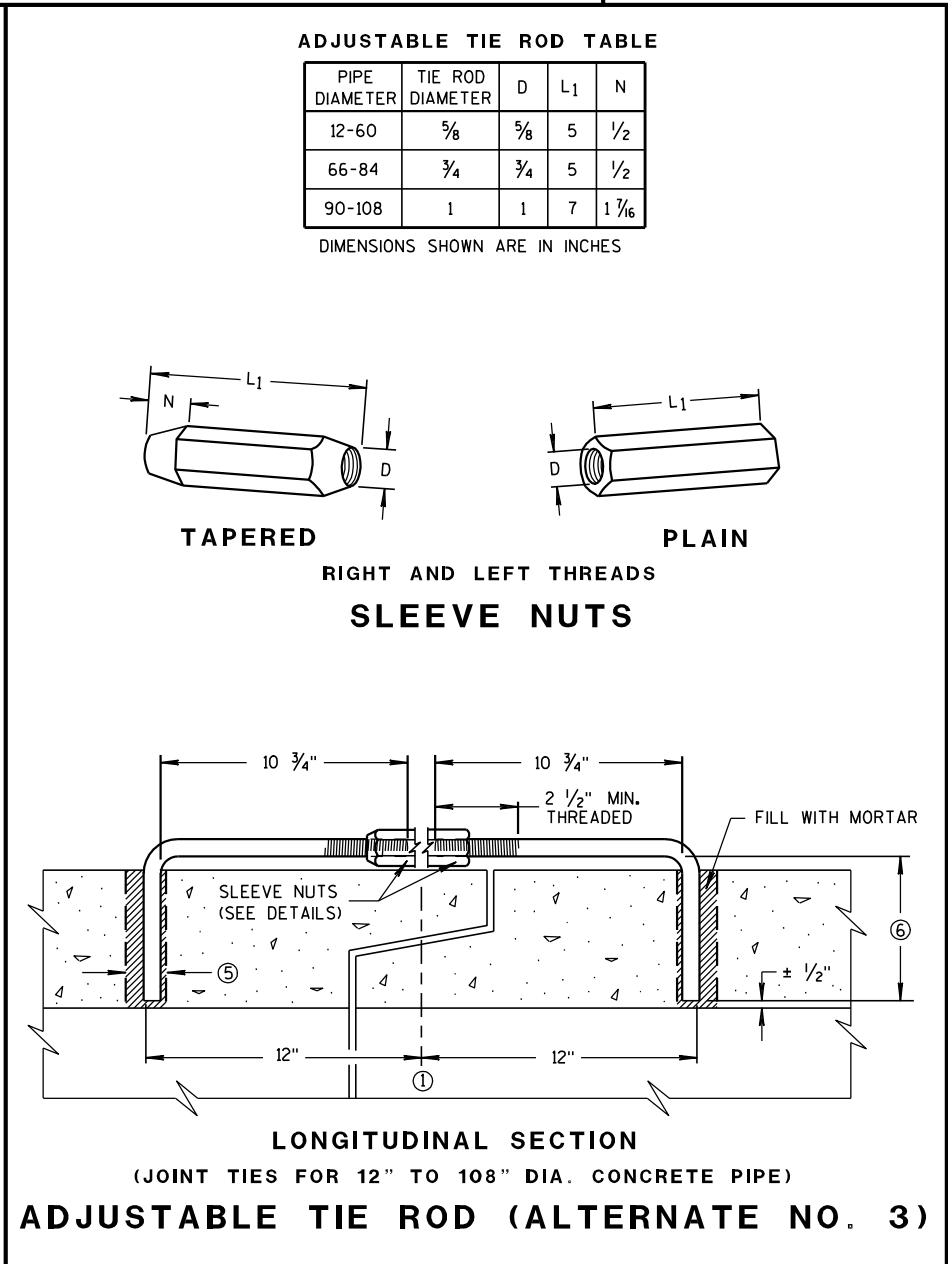
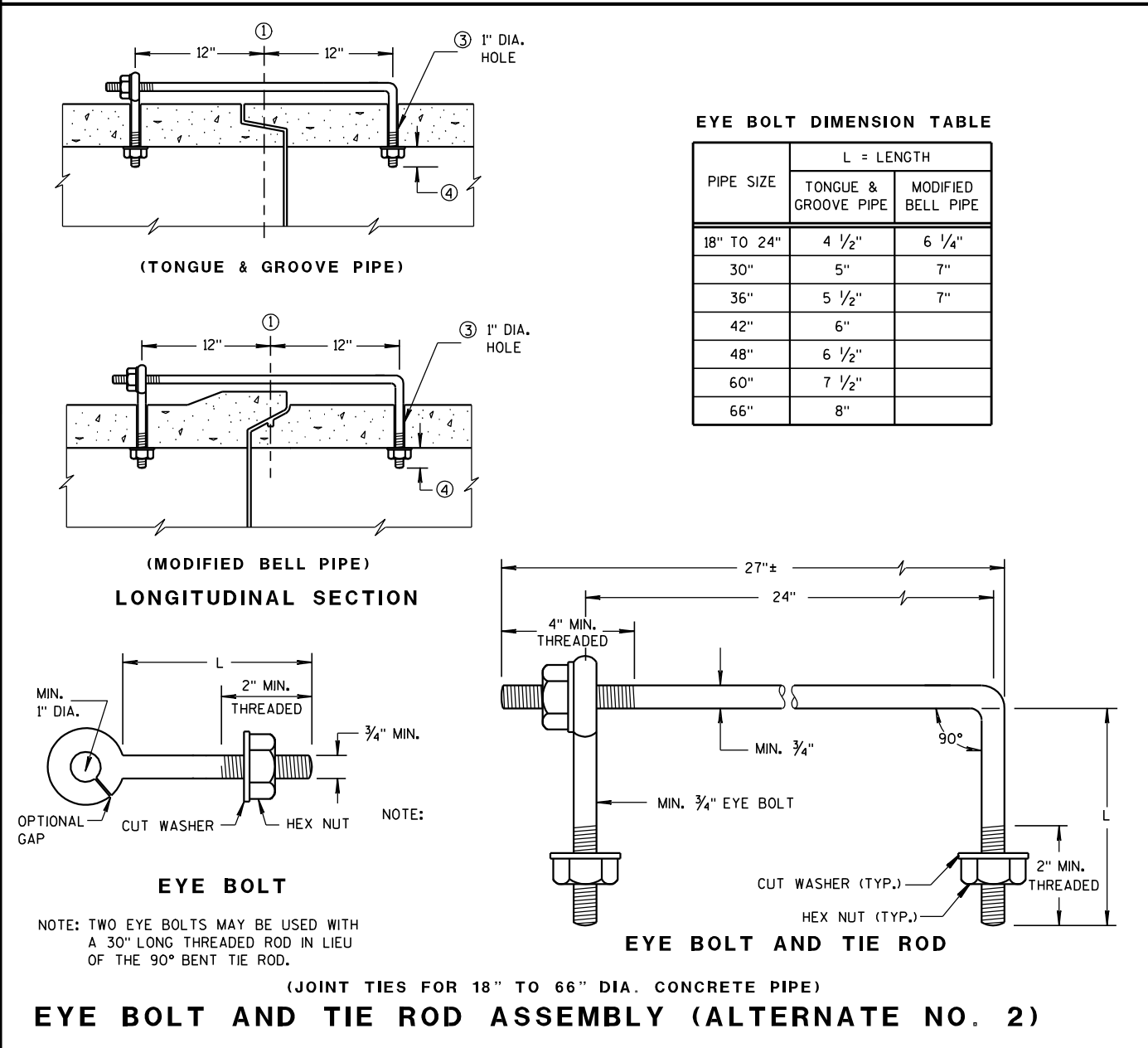
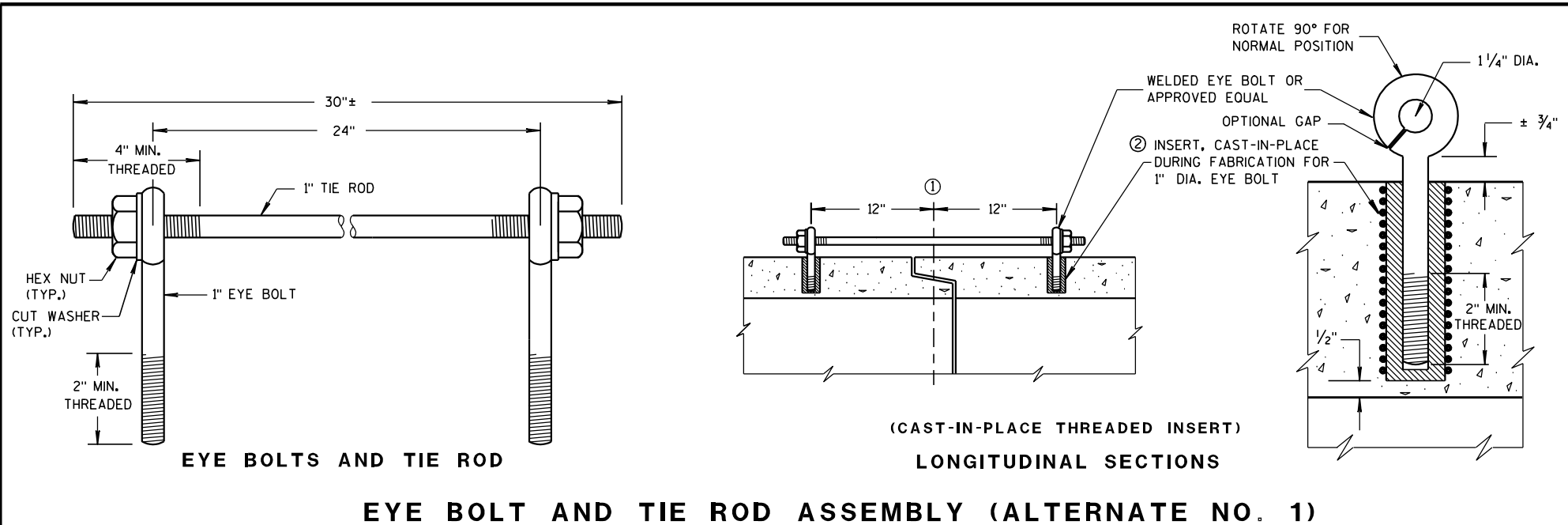
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

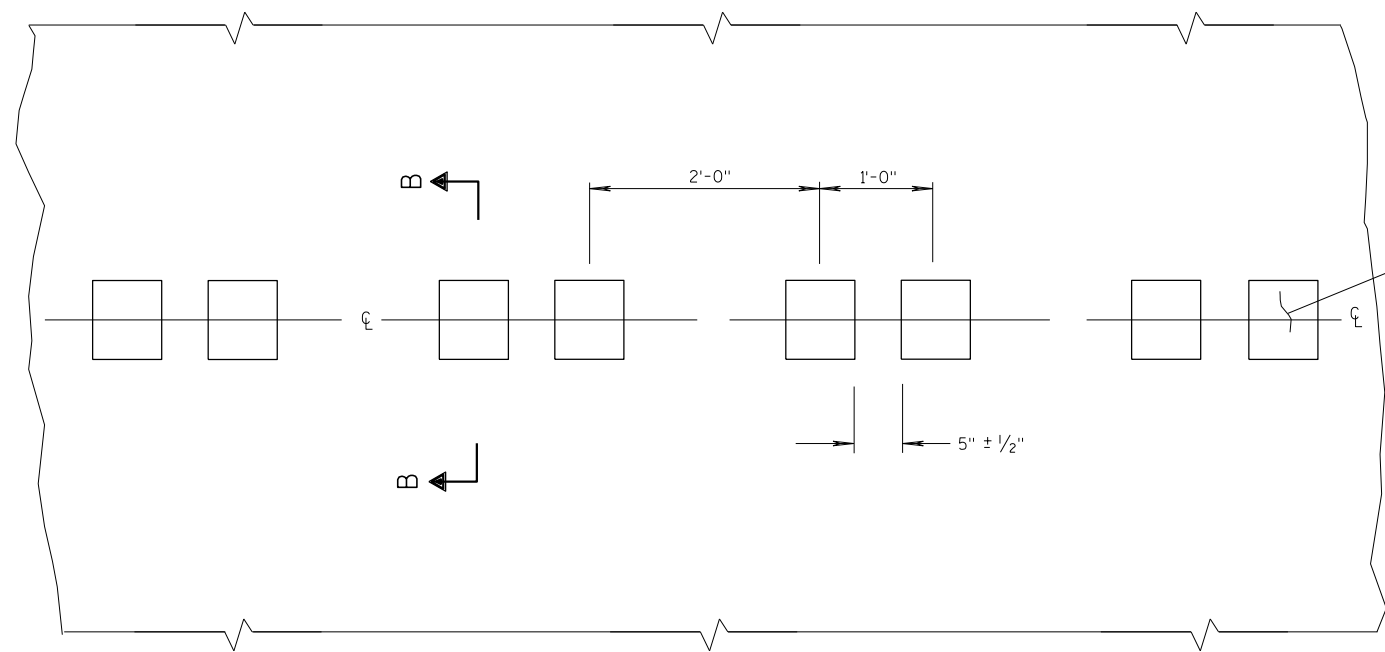
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

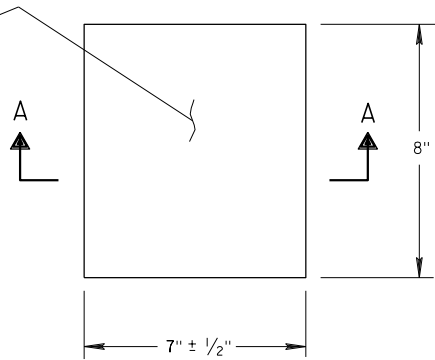
|                                                    |                                                   |      |  |
|----------------------------------------------------|---------------------------------------------------|------|--|
| APRON ENDWALLS FOR<br>CULVERT PIPE                 |                                                   |      |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                                   |      |  |
| APPROVED<br>11/30/94<br>DATE                       | /S/ Rory L. Rhinehart<br>CHIEF ROADWAY DEVELOP 96 | NEER |  |
| FHWA                                               |                                                   |      |  |





PLAN VIEW  
CENTER LINE WITH GROOVES

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



PLAN VIEW  
(SINGLE GROOVE)

GENERAL NOTES

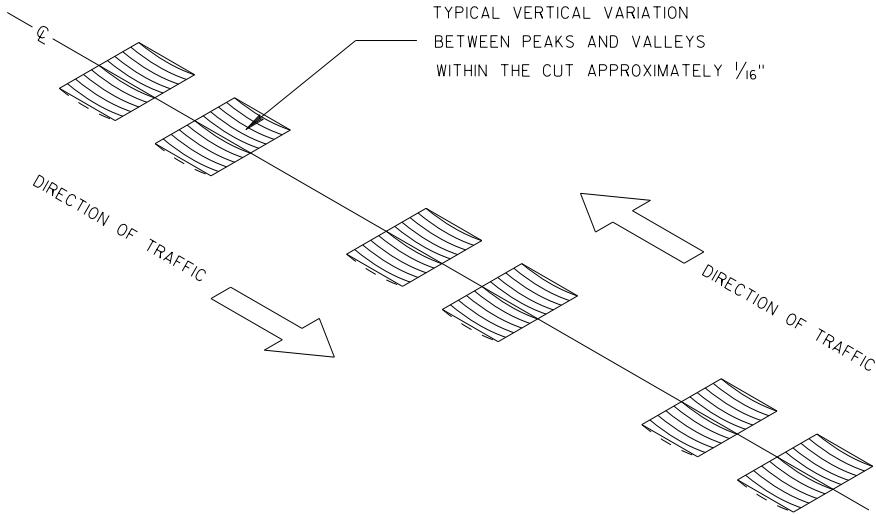
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

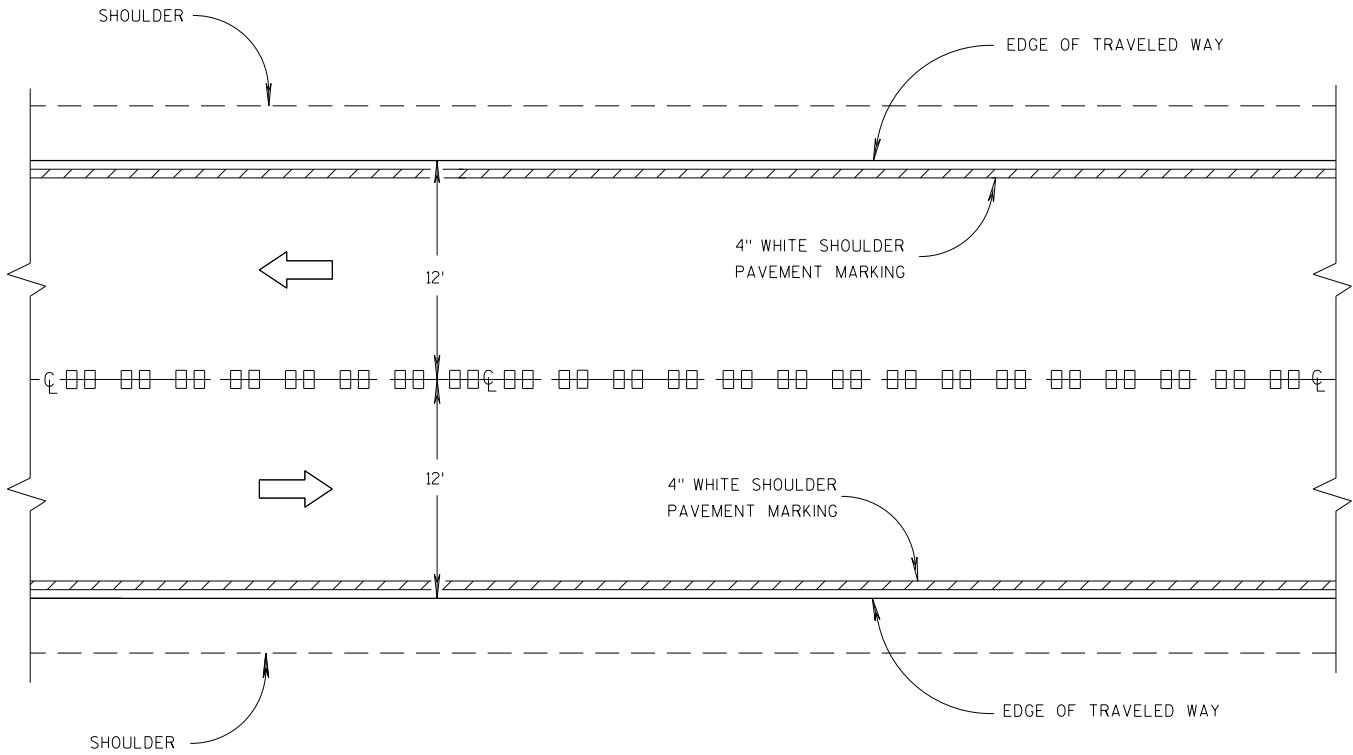
INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

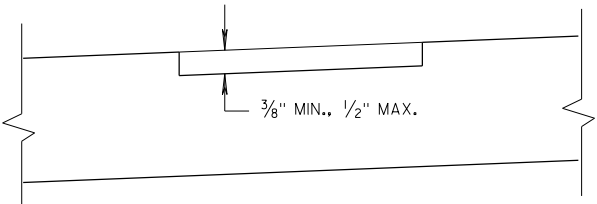
① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



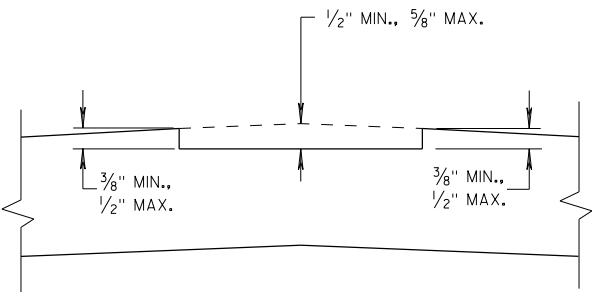
ISOMETRIC



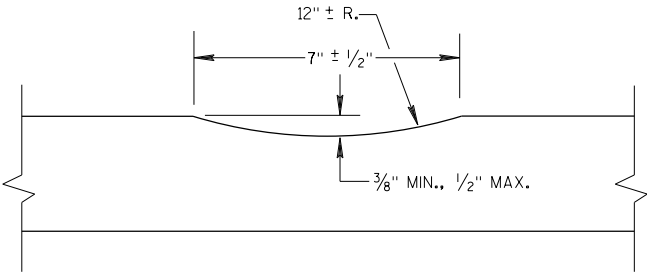
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B  
SUPERELEVATED ROADWAY



SECTION B-B  
CROWNED ROADWAY

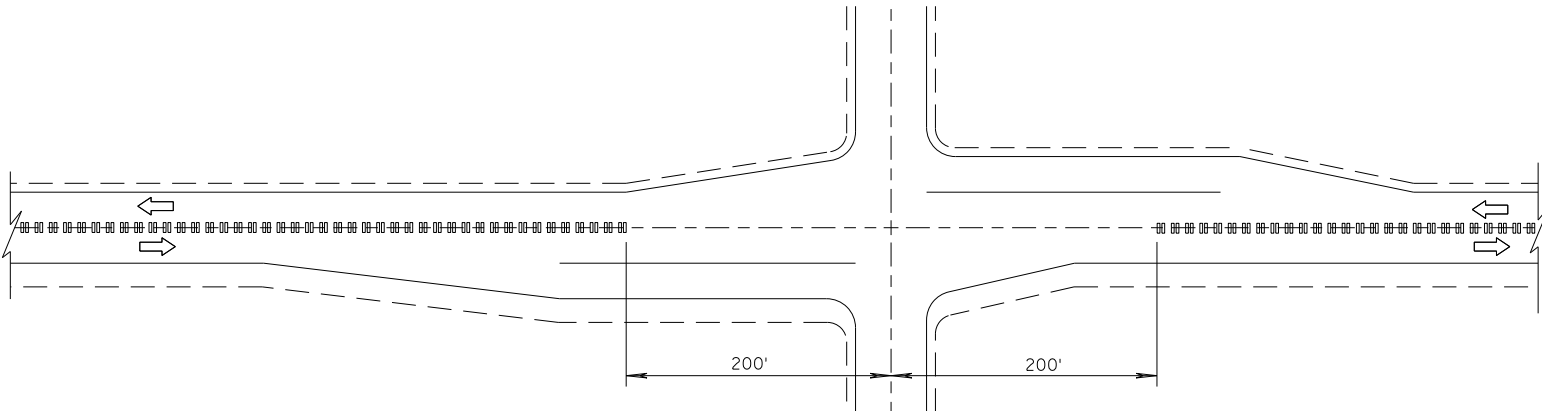


SECTION A-A

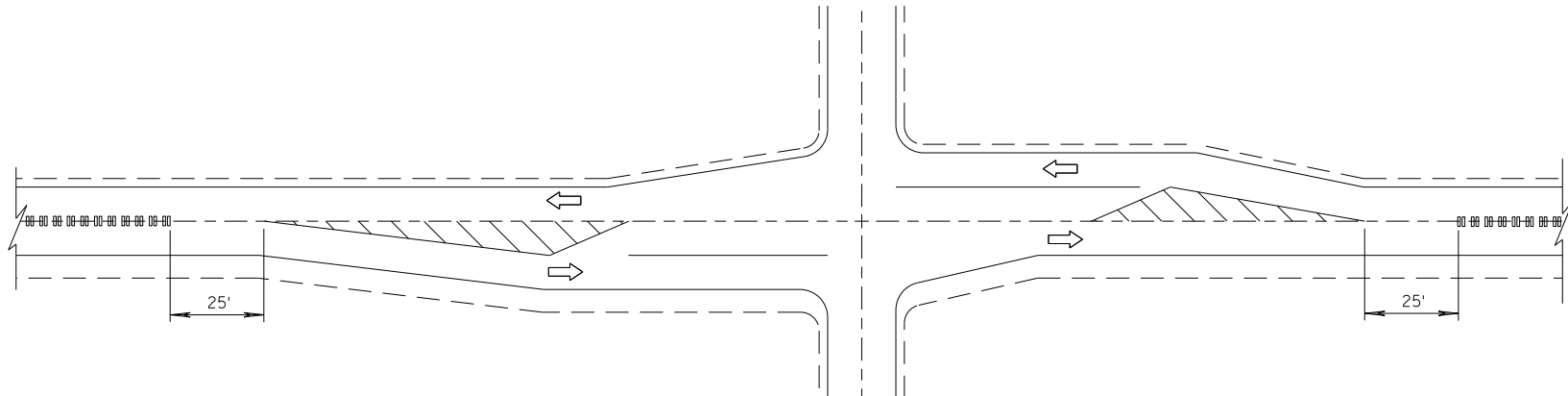
2-LANE RURAL  
CENTER LINE RUMBLE STRIP,  
MILLING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

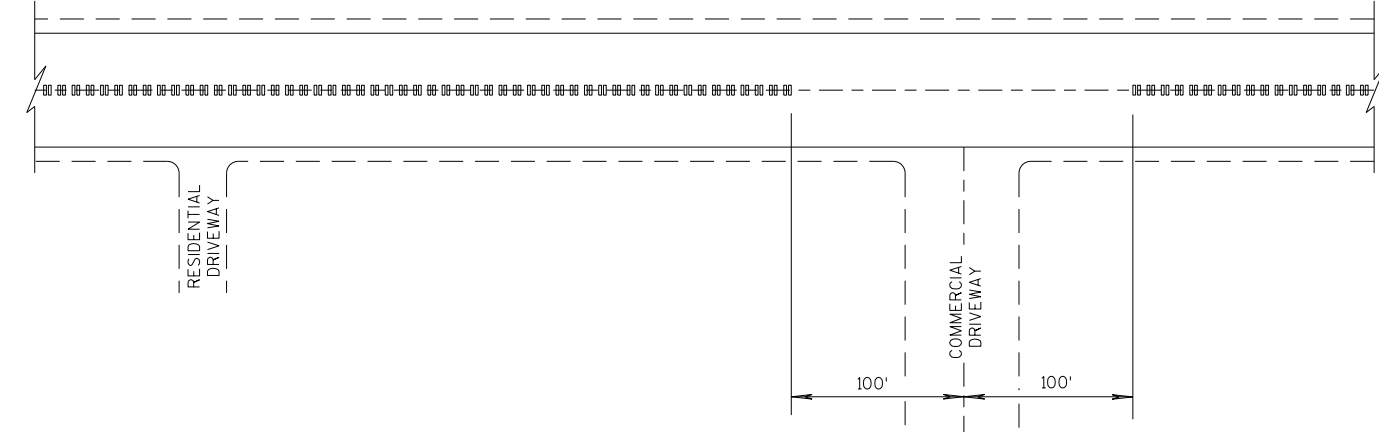




CENTER LINE GROOVES AT INTERSECTIONS



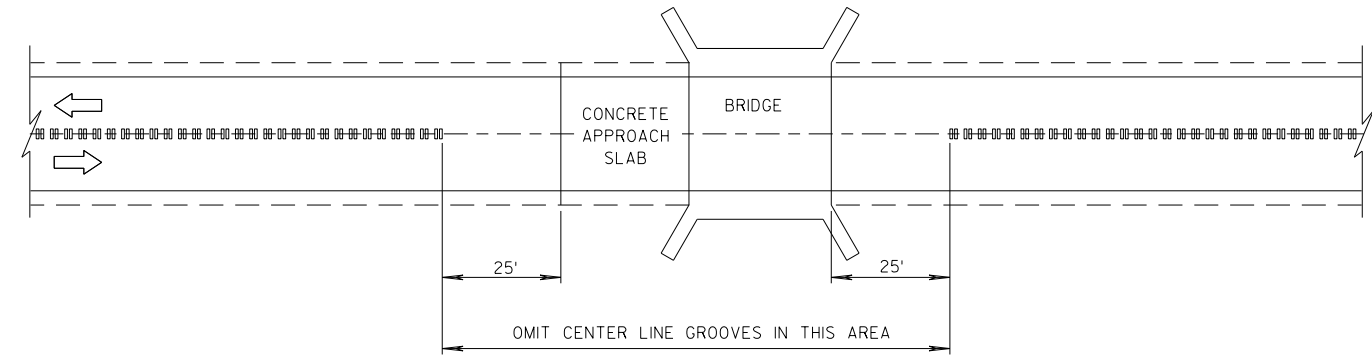
CENTER LINE GROOVES AT INTERSECTIONS  
(WITH LEFT TURN LANES)



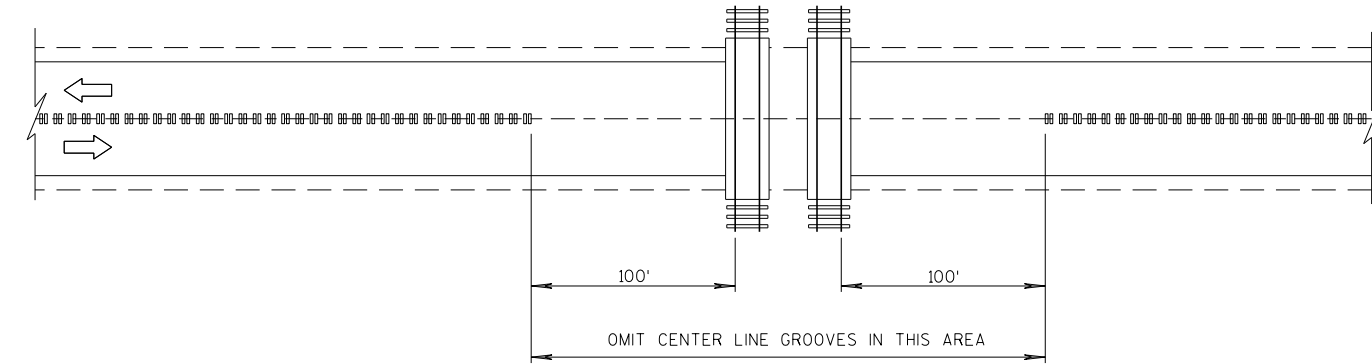
CENTER LINE GROOVES AT DRIVEWAYS

1

1 CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.

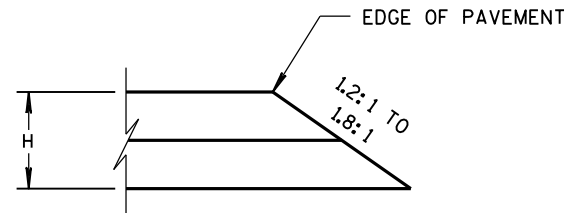


CENTER LINE GROOVES AT BRIDGES

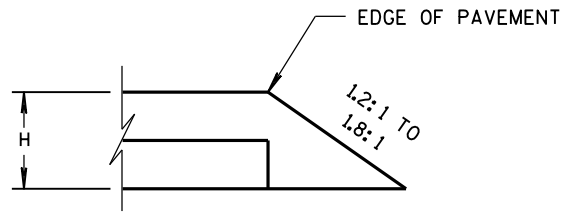


CENTER LINE GROOVES AT RAILROADS

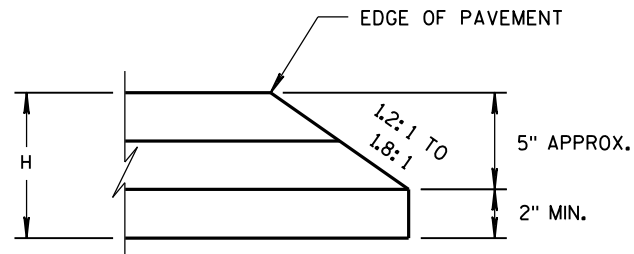
|                                                      |                                                          |    |
|------------------------------------------------------|----------------------------------------------------------|----|
| 2-LANE RURAL<br>CENTER LINE RUMBLE STRIP,<br>MILLING |                                                          |    |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION   |                                                          |    |
| APPROVED<br>7/2018<br>DATE                           | /S/ Rodney T.<br>ROADWAY STANDARDS DE<br>UNIT SUPERVISOR | IT |
| FHWA                                                 |                                                          |    |



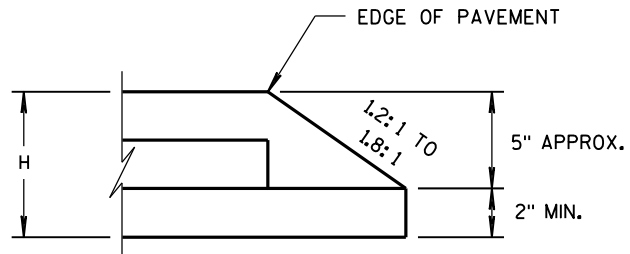
CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER  
FOR H 5" OR LESS

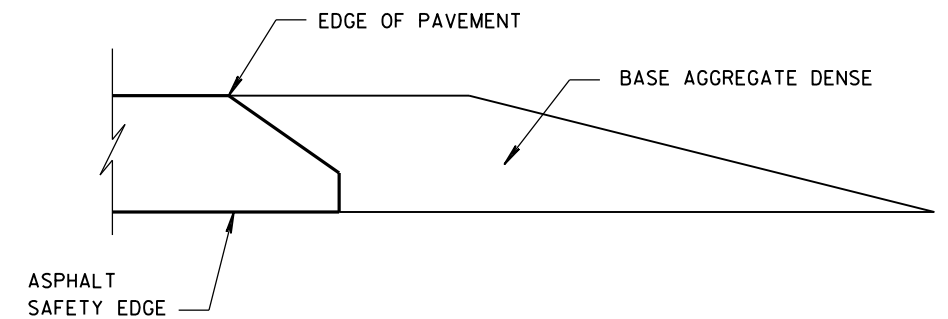


CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER  
FOR H GREATER THAN 5"

## HMA PAVEMENT AND HMA OVERLAYS



## FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE<sub>SM</sub>

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012  
DATE

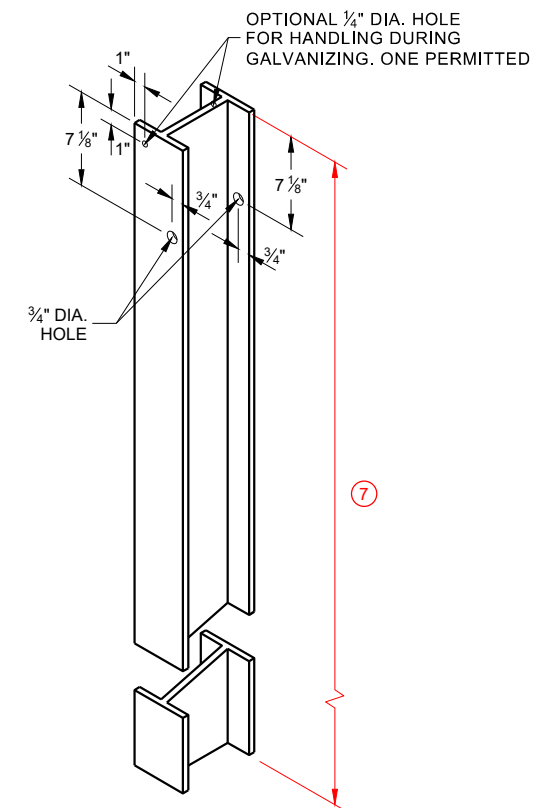
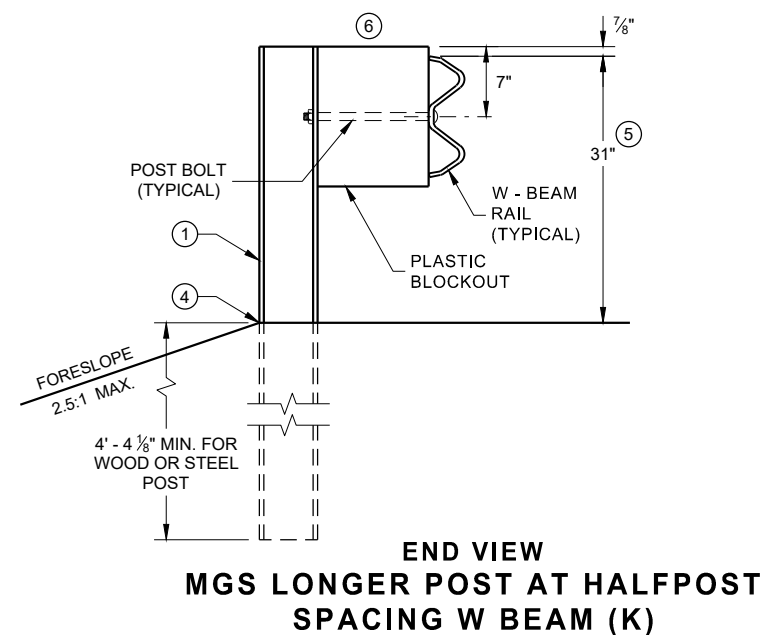
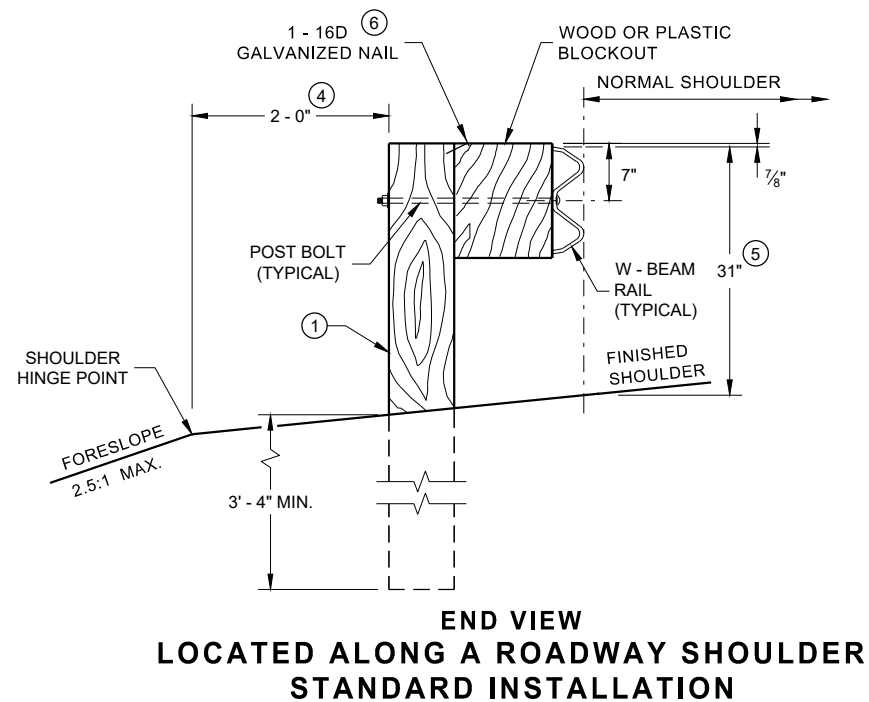
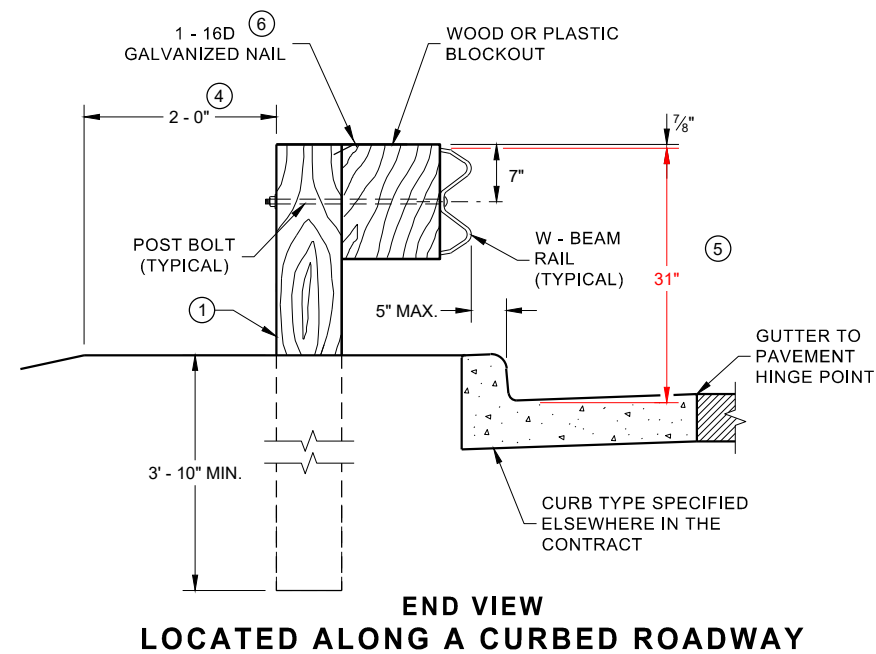
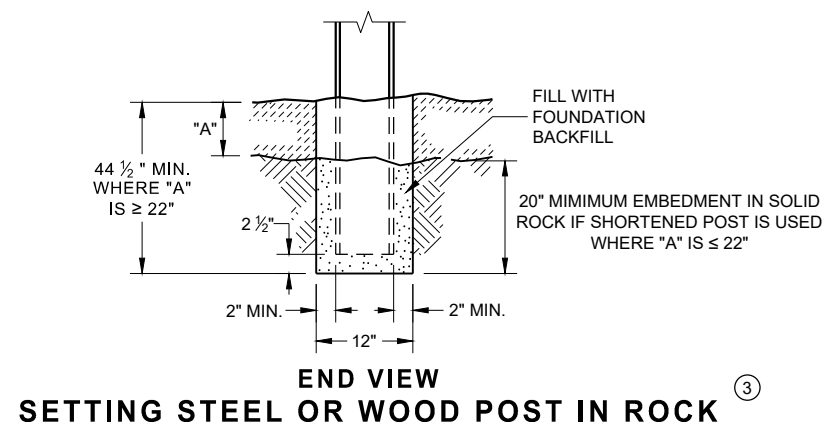
FHWA

/s/ Jerry H. Zoga  
ROADWAY STANDARDS  
ENGINEER

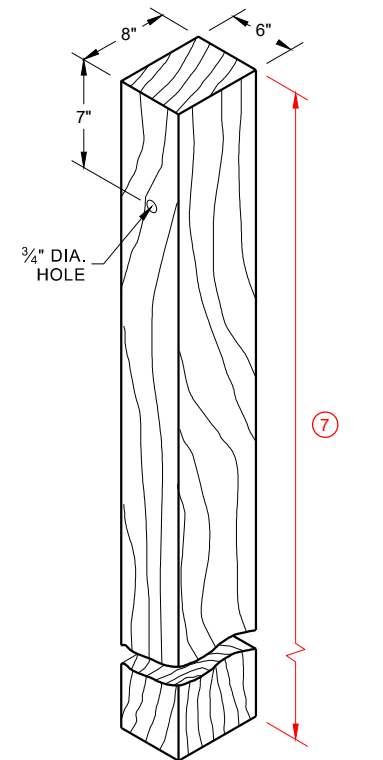
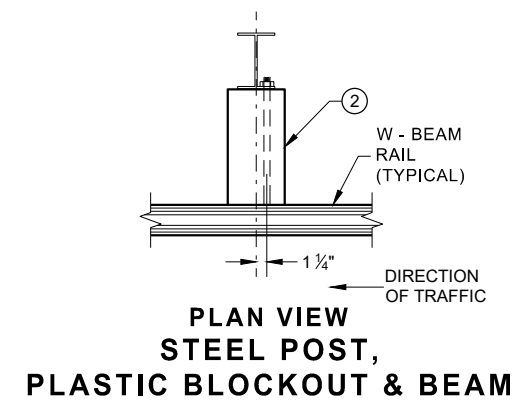
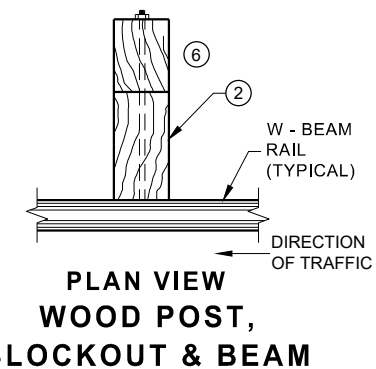
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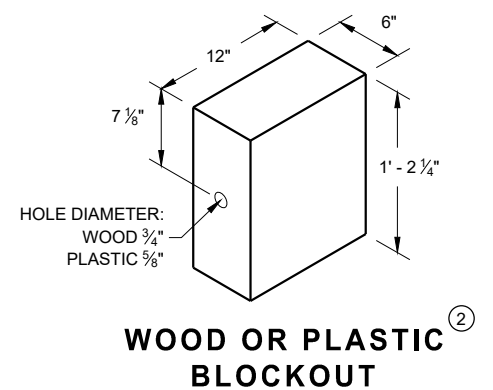
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".  
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



**STEEL POST & HOLE  
PUNCHING DETAIL  
(W 6 X 9) ①**

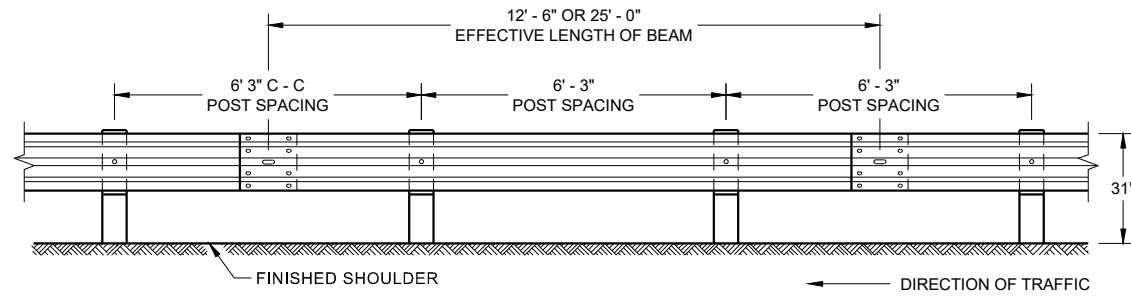


**WOOD POST (6" X 8") NOMINAL** <sup>(1)</sup>

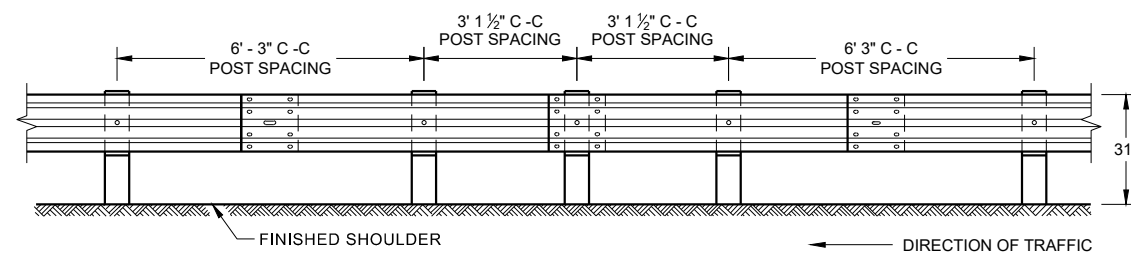


## MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

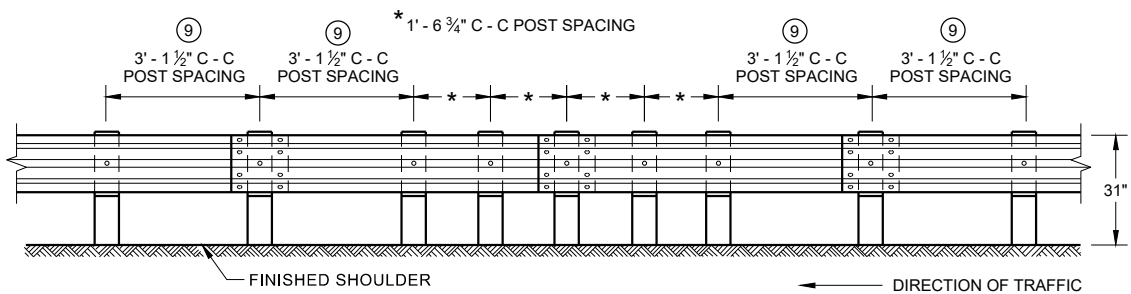
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 101



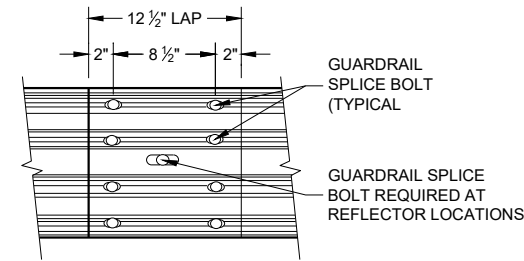
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



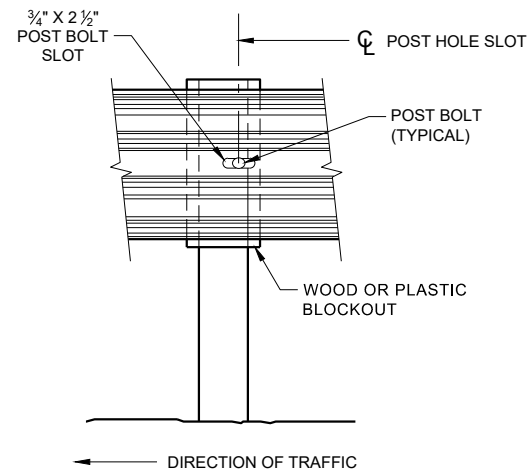
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



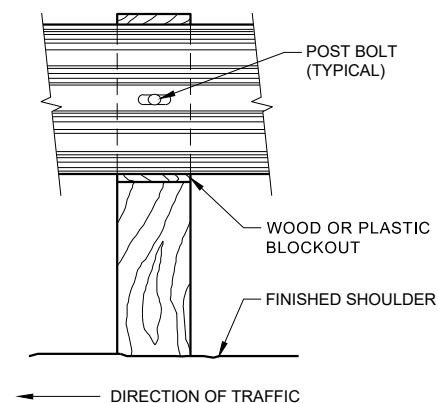
**FRONT VIEW  
QUARTER POST SPACING (QS)**



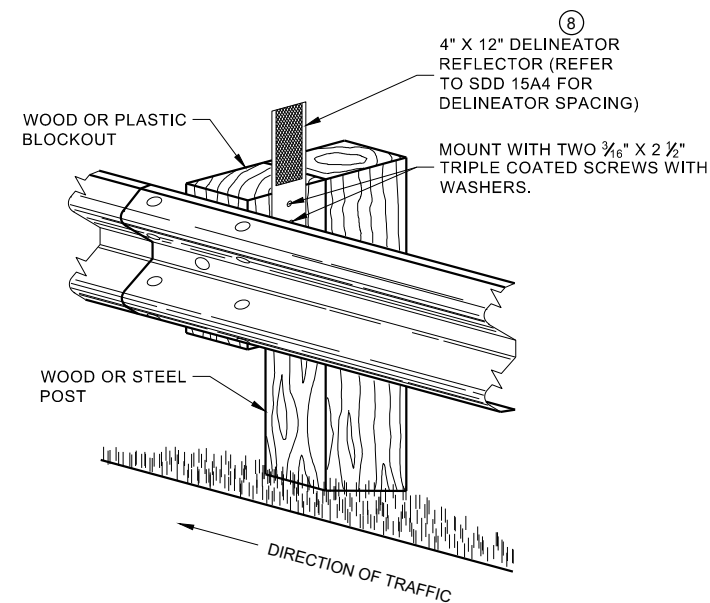
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



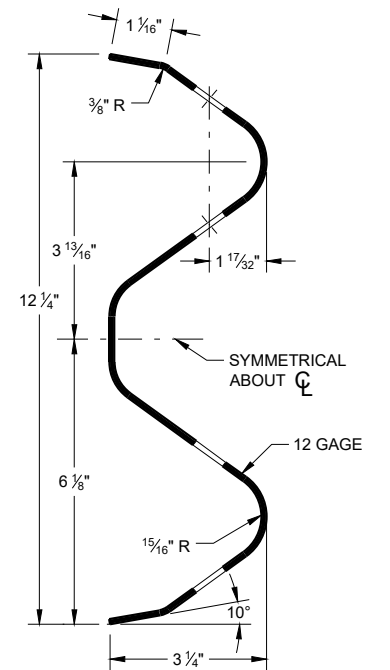
**FRONT VIEW AT WOOD POST**



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**GENERAL NOTES**

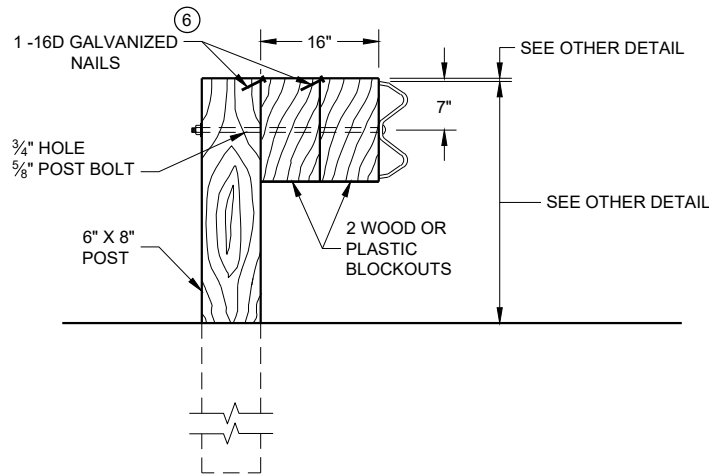
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



**SECTION THRU W-BEAM RAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

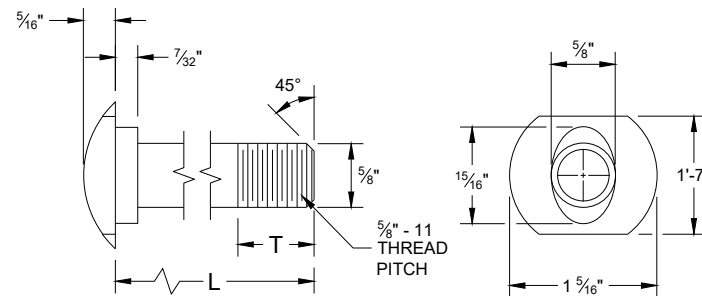
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

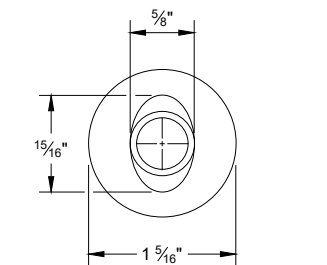
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

- NOTE:
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF  $\frac{3}{16}$ ".
  2. IF THE BOLT EXTENDS MORE THAN  $\frac{1}{4}$ " FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

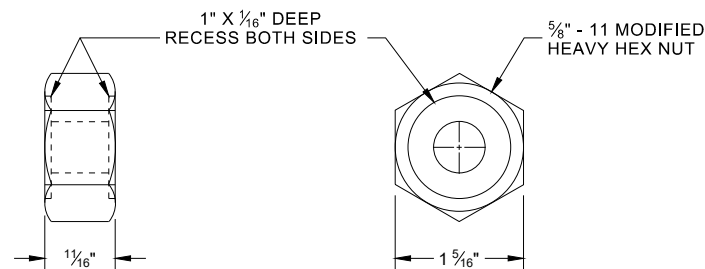


POST BOLT TABLE

| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |

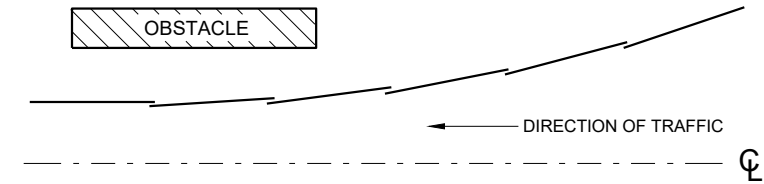


ALTERNATE BOLT HEAD

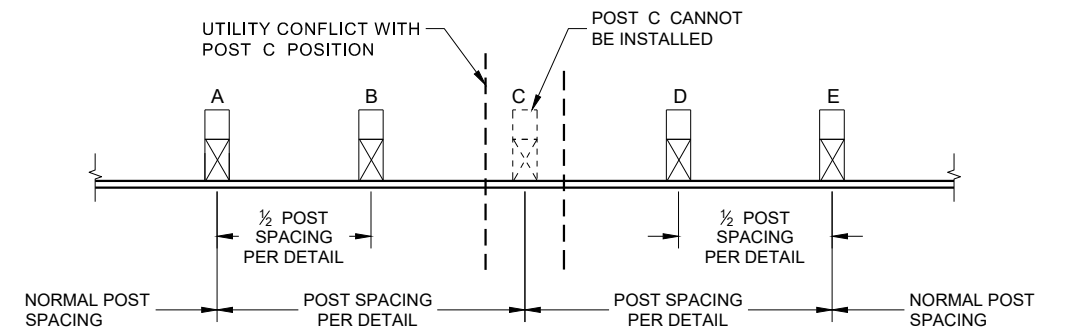


POST BOLT, SPLICE BOLT  
AND RECESS NUT

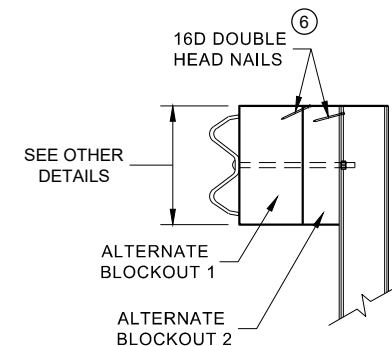
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



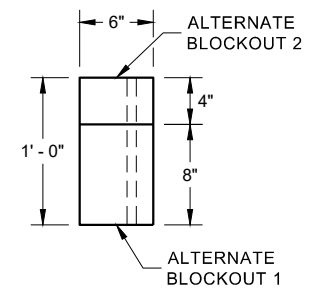
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW



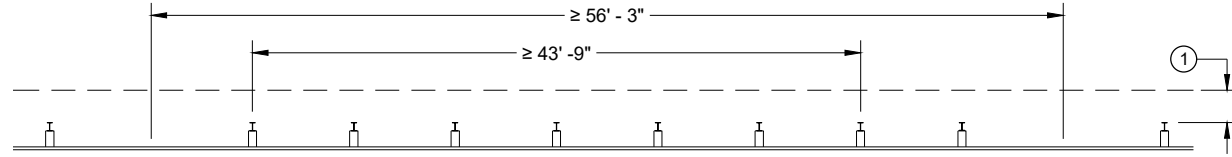
PLAN VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

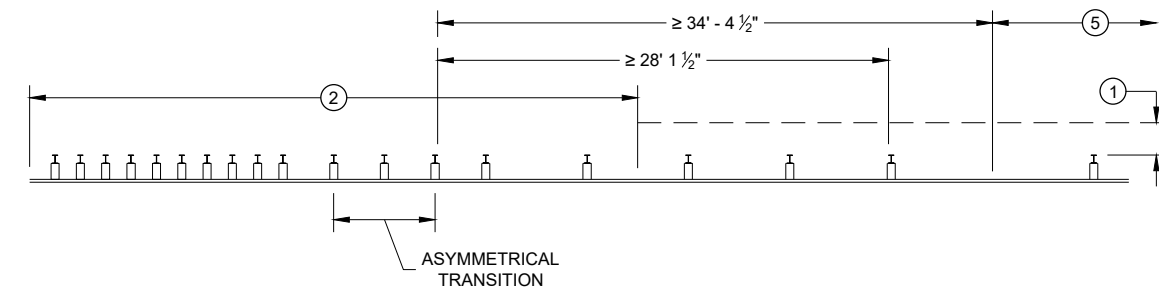
- NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
- DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

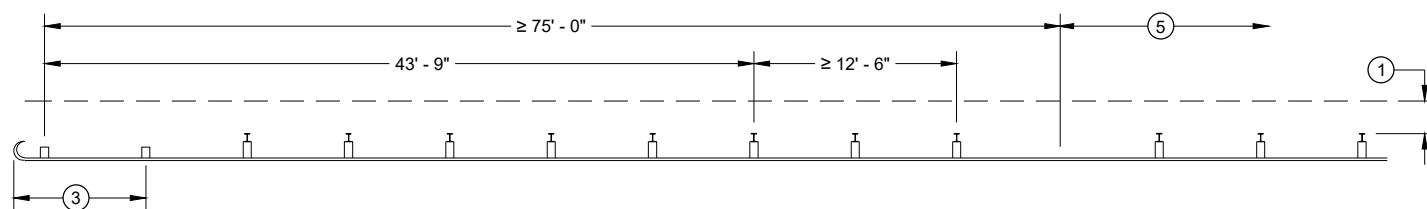
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 103



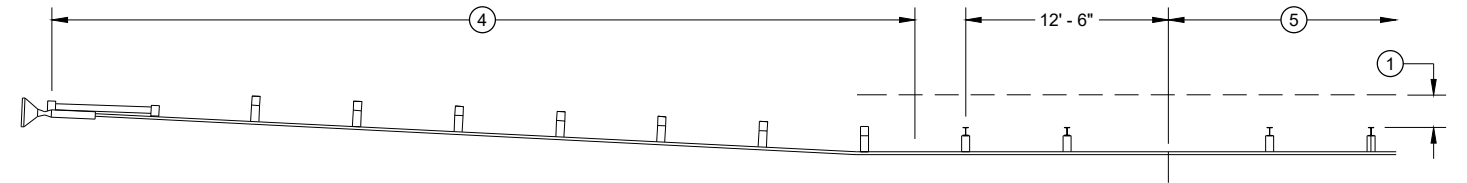
MISSING POST IN NORMAL BEAM GUARD RUN



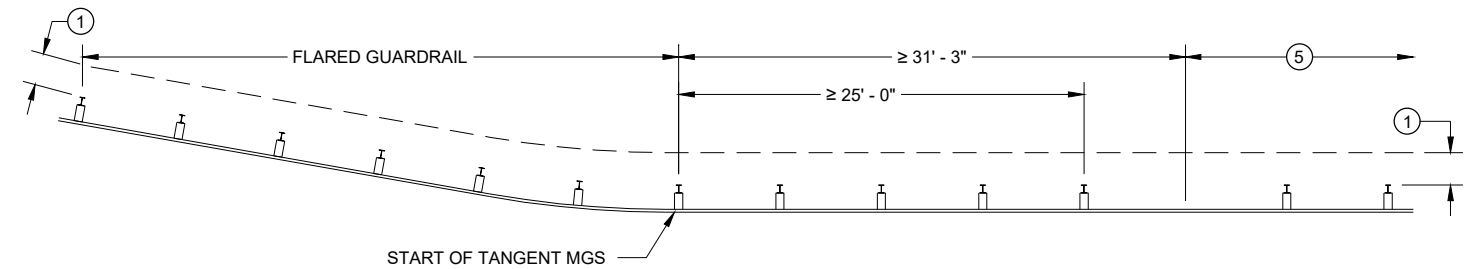
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



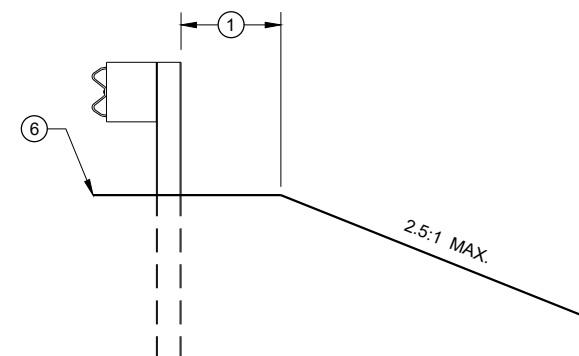
MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018  
DATE

/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA

104

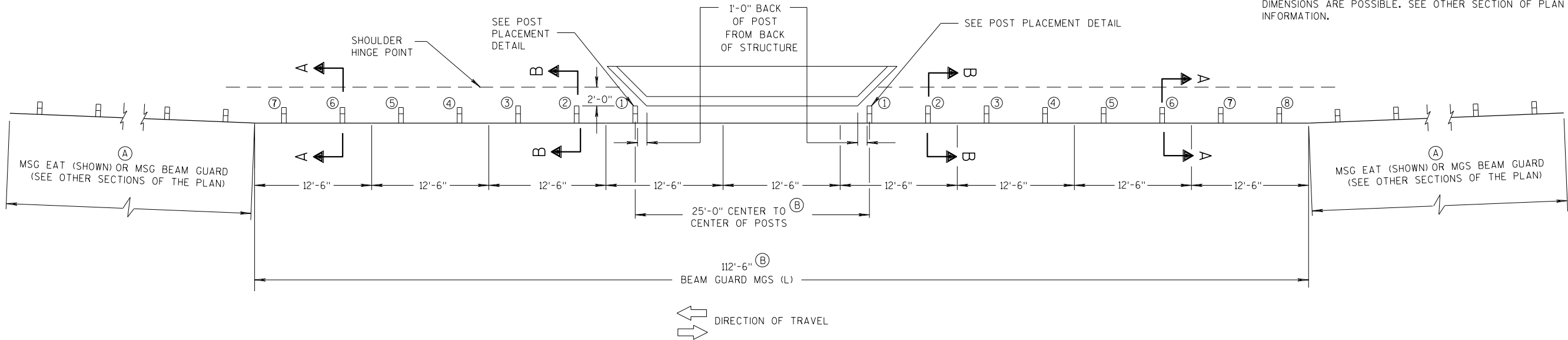
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.  
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

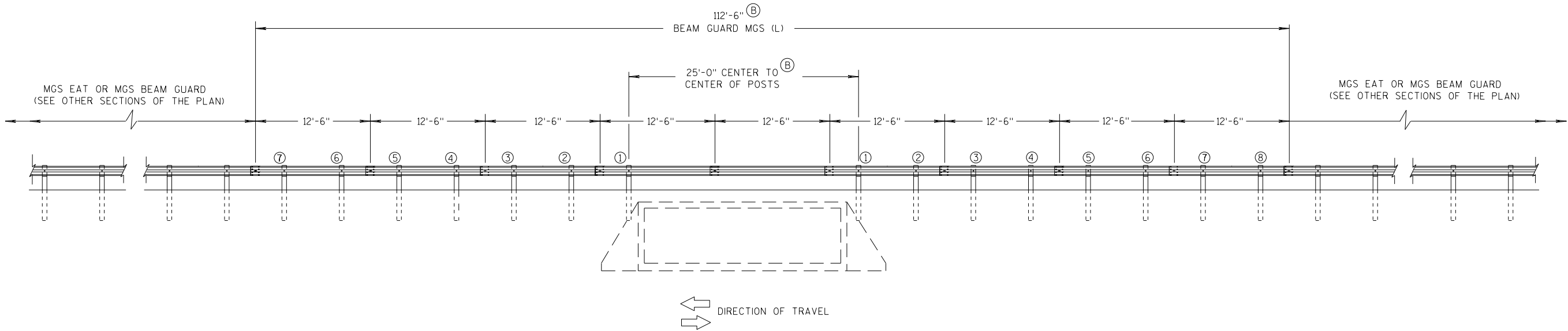
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN, IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

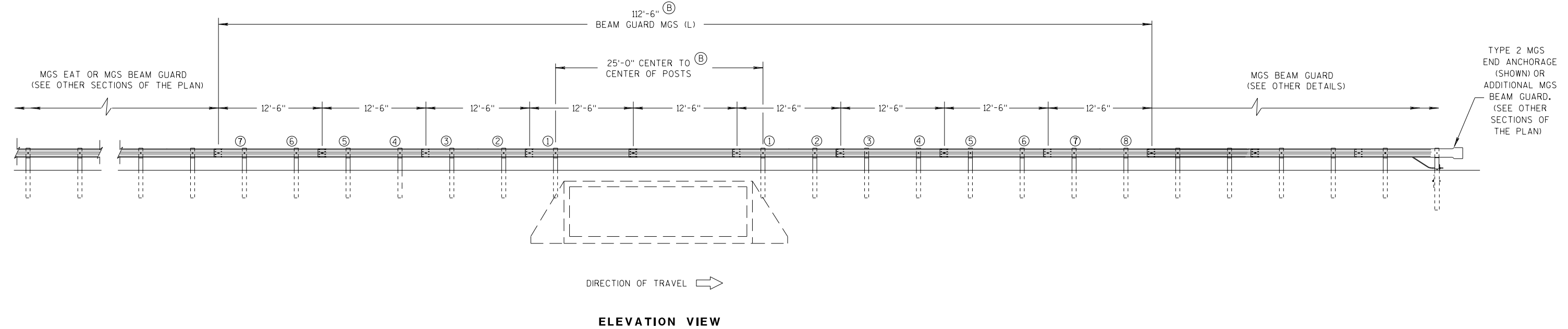
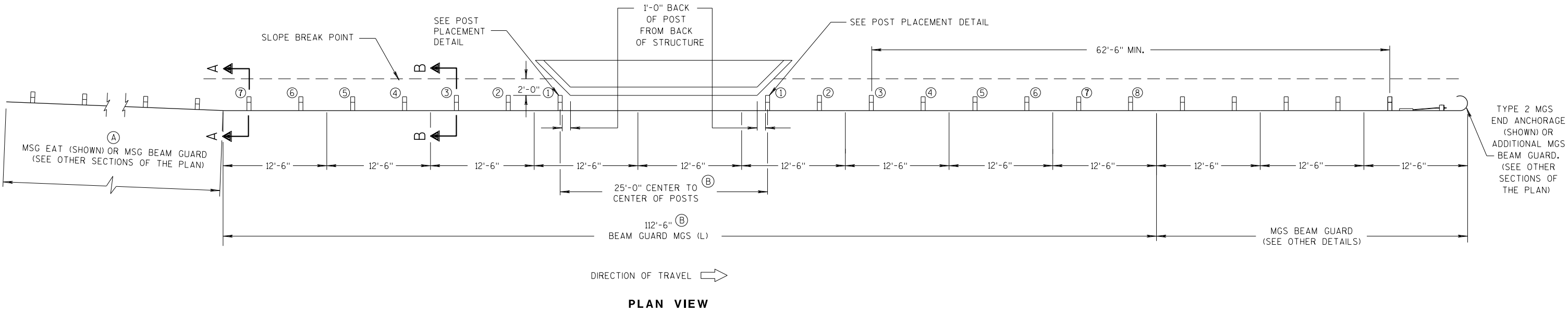
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.  
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.

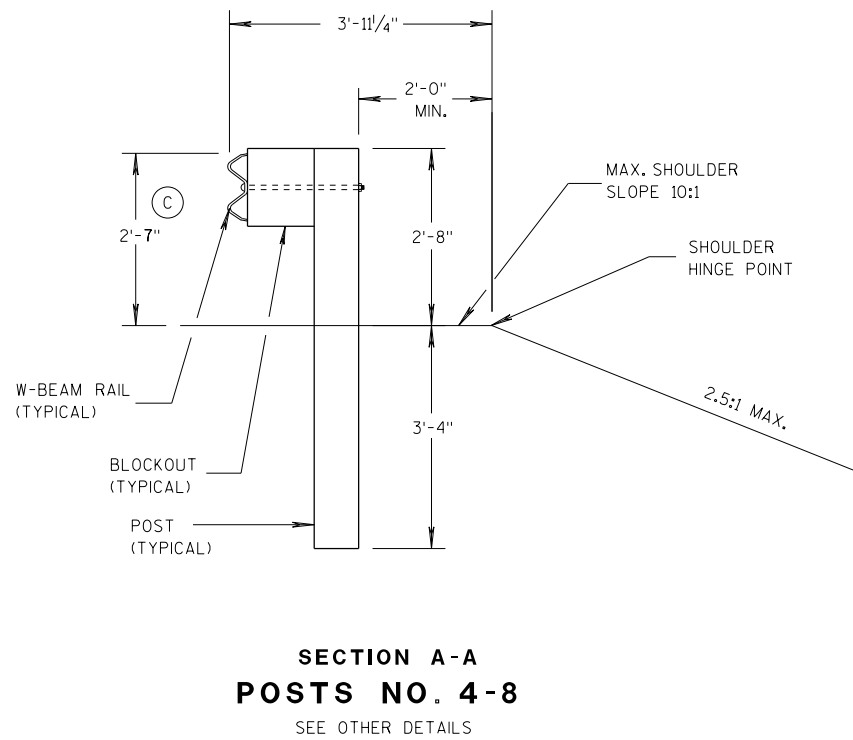
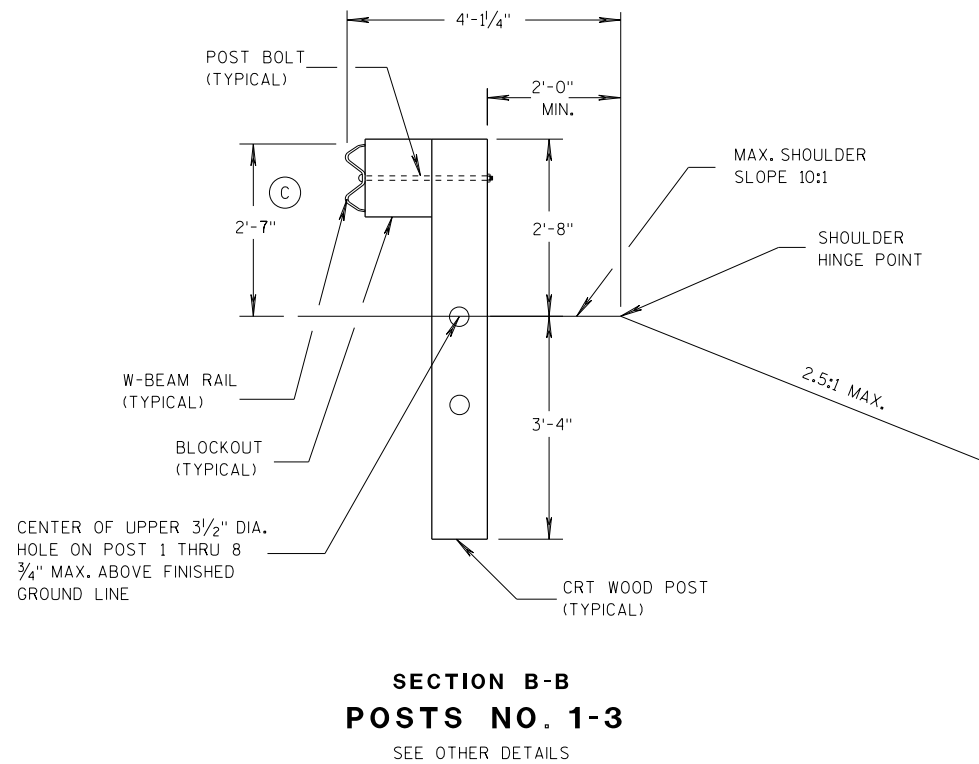
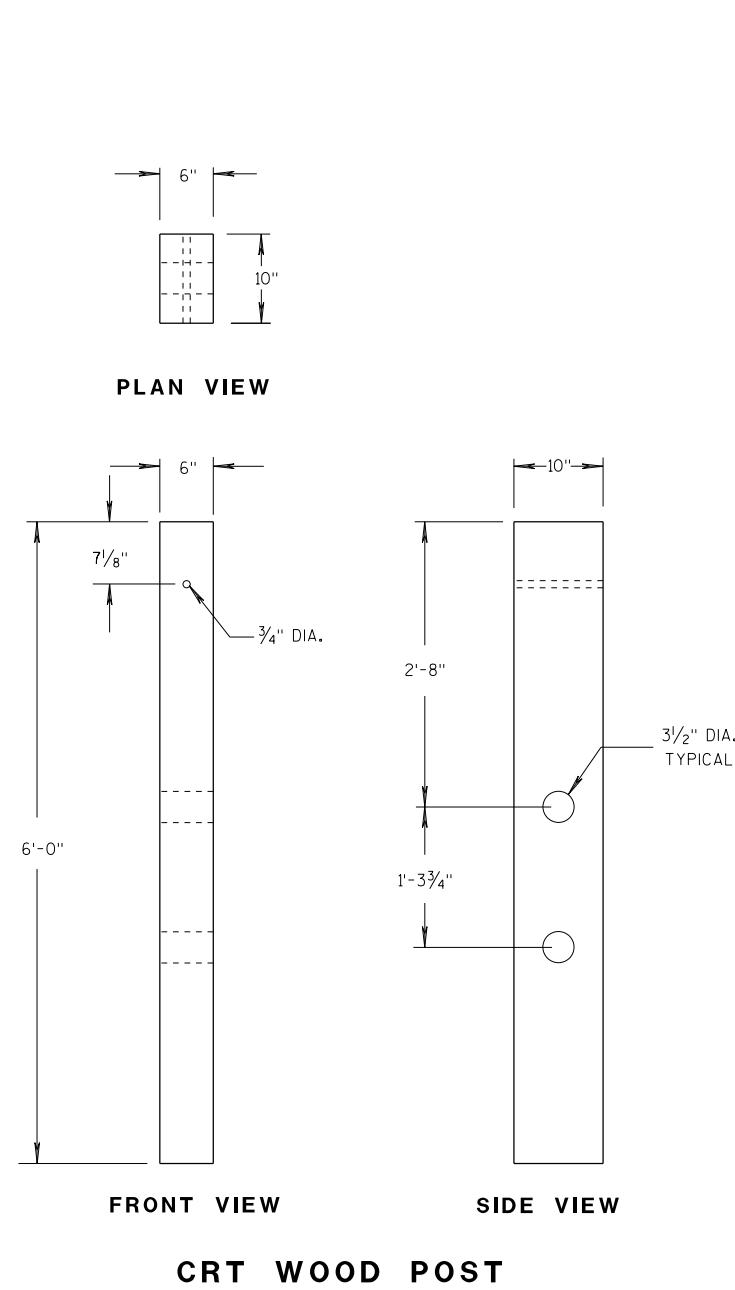


MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

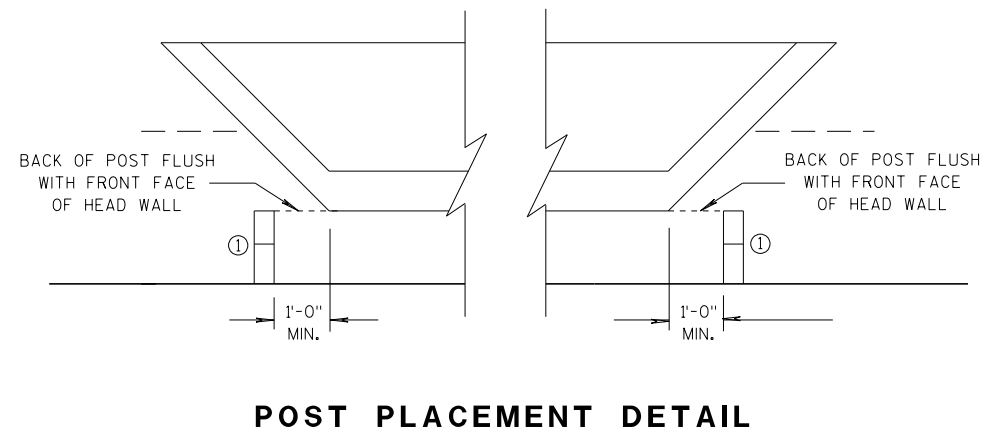
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





**GENERAL NOTES**

(C) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



|                                                    |                   |     |    |
|----------------------------------------------------|-------------------|-----|----|
| MIDWEST GUARDRAIL SYSTEM<br>LONG SPAN MGS (L)      |                   |     |    |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                   |     |    |
| APPROVED                                           |                   |     |    |
| 07/2018                                            | /S/ Rodney Taylor |     |    |
| DATE                                               | ROADWAY STANDARDS | 107 | NT |
| FHWA                                               | ENGINEER          |     |    |

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
  - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
  - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
  - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
  - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

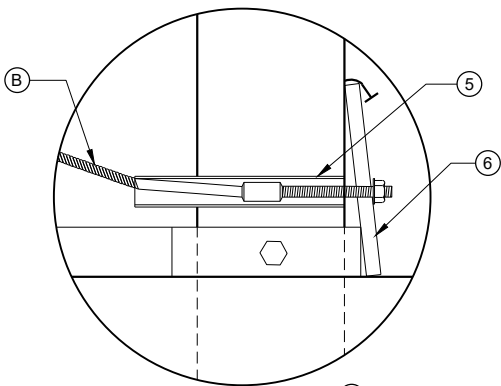
SEE SDD 14B42 FOR MORE INFORMATION.

\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

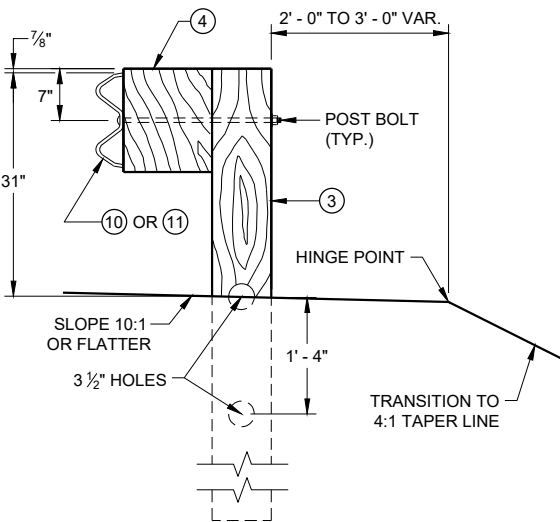
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

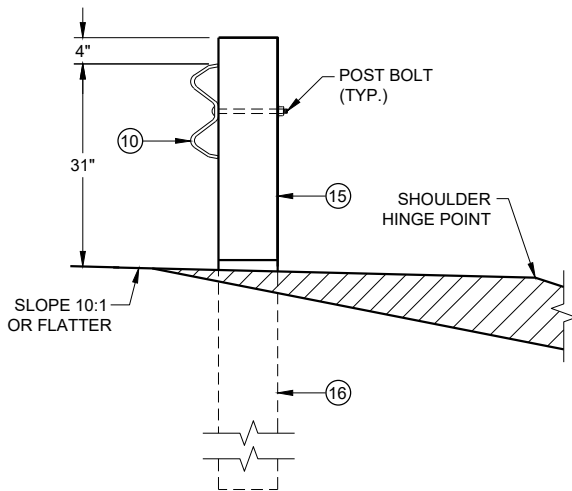
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



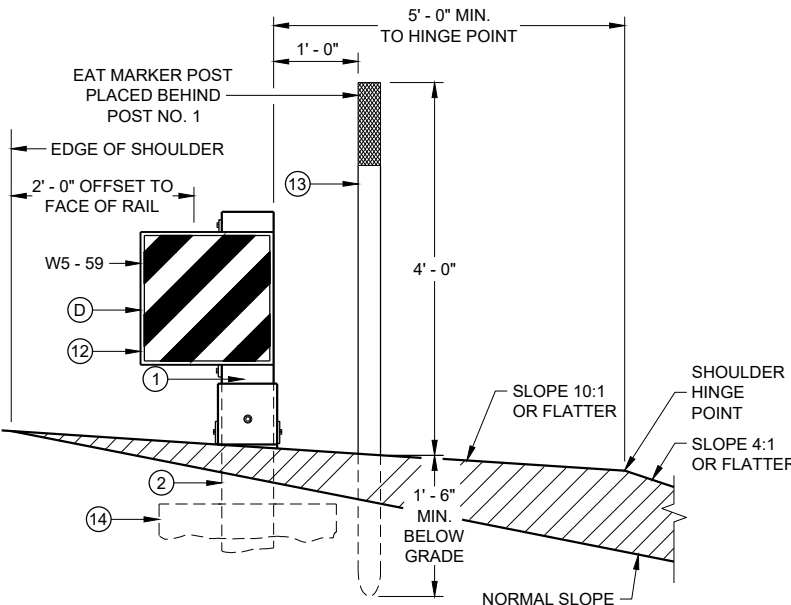
DETAIL "A"



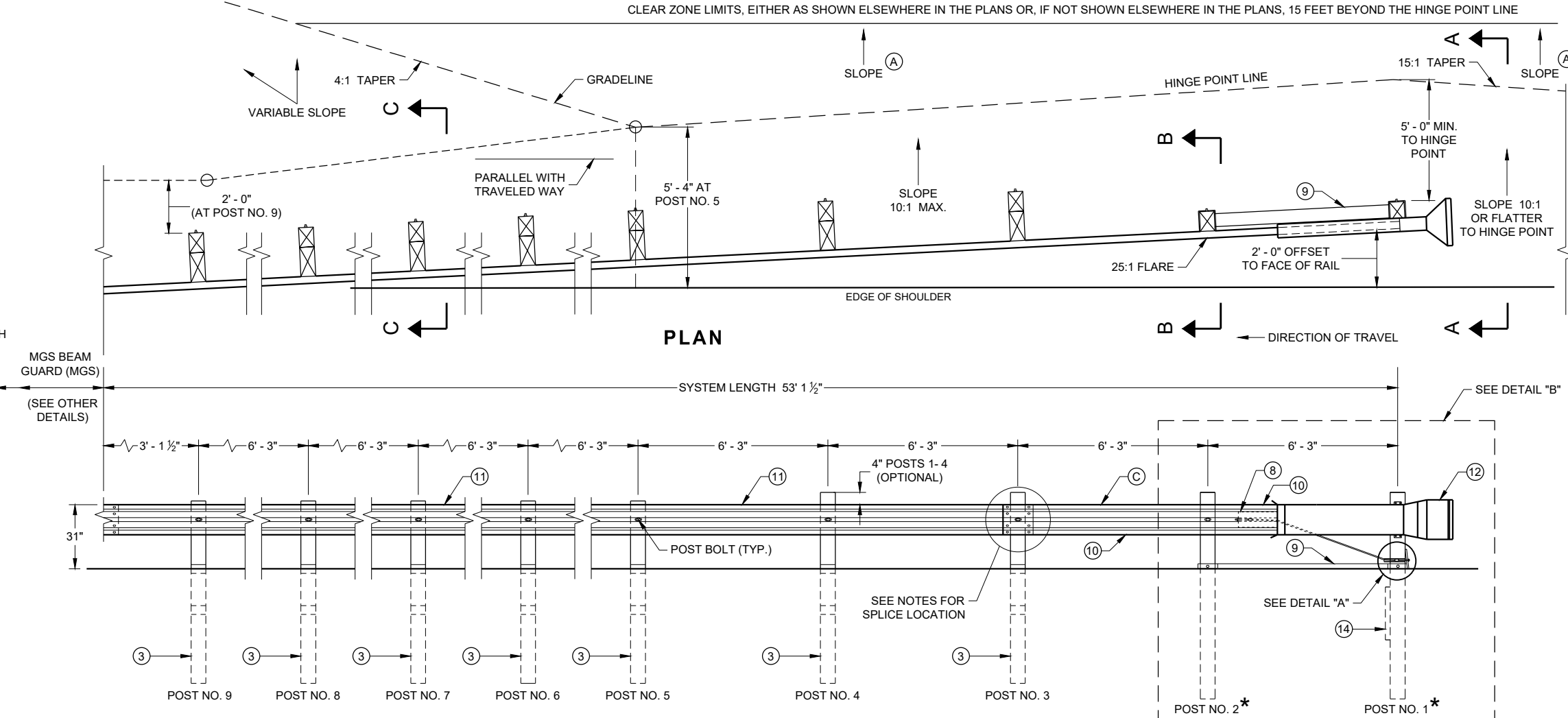
SECTION C - C  
TYPICAL AT POST NOS. 3 - 9



SECTION B - B  
TYPICAL AT POST NO. 2\*

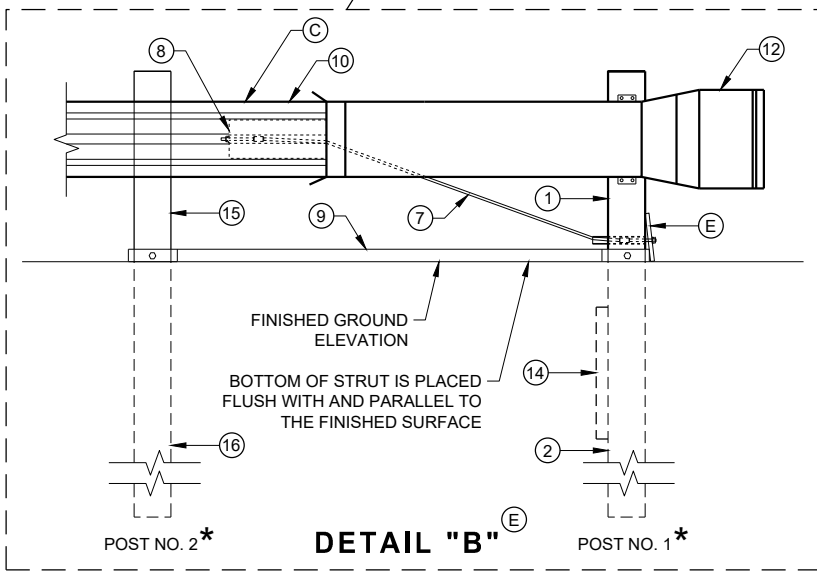


SECTION A - A  
TYPICAL AT POST NO. 1\*



PLAN

ELEVATION

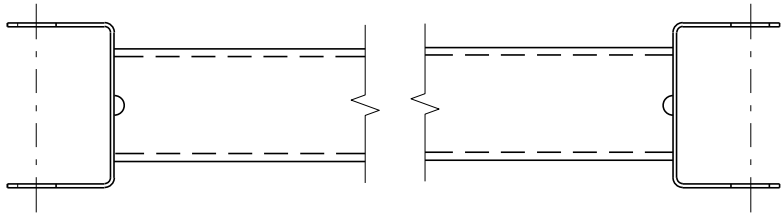


DETAIL "B"

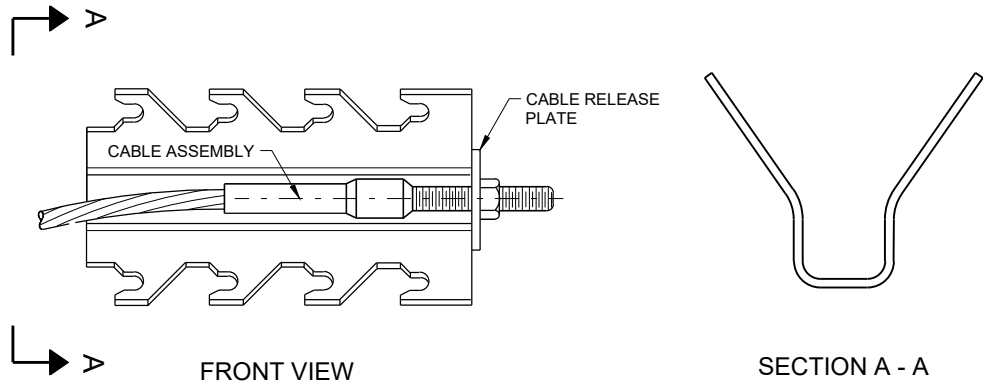
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

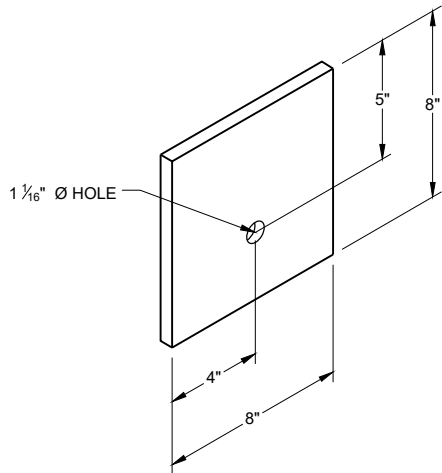




GENERIC GROUND STRUT<sup>9</sup> <sup>E</sup>



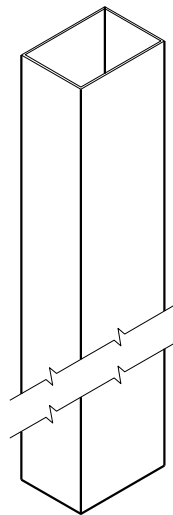
GENERIC ANCHOR CABLE BOX<sup>9</sup> <sup>E</sup>



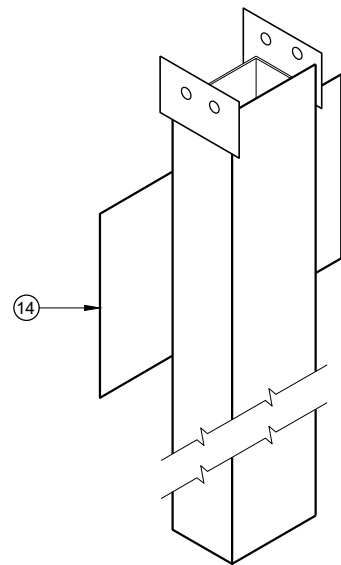
BEARING PLATE<sup>6</sup> <sup>E</sup>

BILL OF MATERIALS

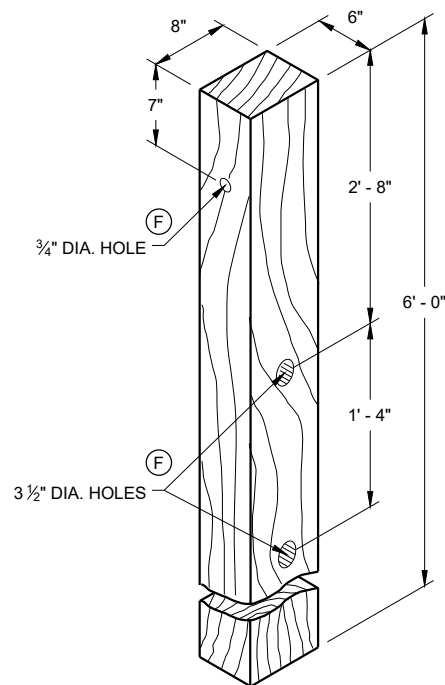
| PART NO. | DESCRIPTION<br>MATERIALS PROVIDED BY MGS EAT MANUFACTURER.<br>SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION. |
|----------|----------------------------------------------------------------------------------------------------------------|
| ①        | UPPER POST NO. 1 6" X 6" TUBE                                                                                  |
| ②        | LOWER POST NO. 1                                                                                               |
| ③        | WOOD CRT                                                                                                       |
| ④        | WOOD BLOCKOUT                                                                                                  |
| ⑤        | PIPE SLEEVE                                                                                                    |
| ⑥        | BEARING PLATE                                                                                                  |
| ⑦        | BCT CABLE ASSEMBLY                                                                                             |
| ⑧        | ANCHOR CABLE BOX                                                                                               |
| ⑨        | GROUND STRUT                                                                                                   |
| ⑩        | PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.                                                                 |
| ⑪        | STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED.<br>SECTIONS VARY IN LENGTH.                                  |
| ⑫        | IMPACT HEAD                                                                                                    |
| ⑬        | EAT MARKER POST - YELLOW<br>(SEE APPROVED PRODUCTS LIST)                                                       |
| ⑭        | SOIL PLATE                                                                                                     |
| ⑮        | UPPER POST NO. 2                                                                                               |
| ⑯        | LOWER POST NO. 2                                                                                               |



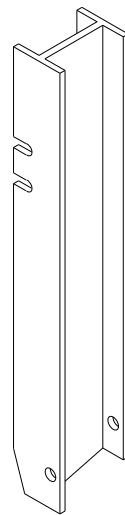
UPPER POST NO. 1 <sup>(1)</sup> (E)



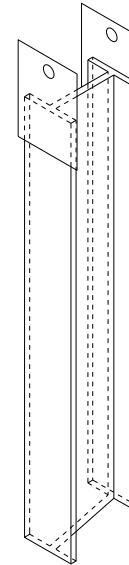
LOWER POST NO. 1 <sup>(2)</sup> (E)



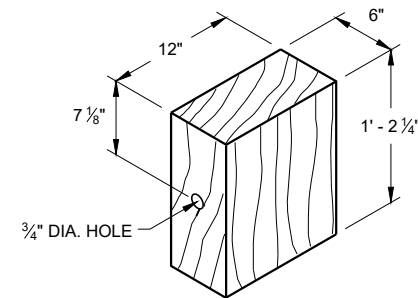
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



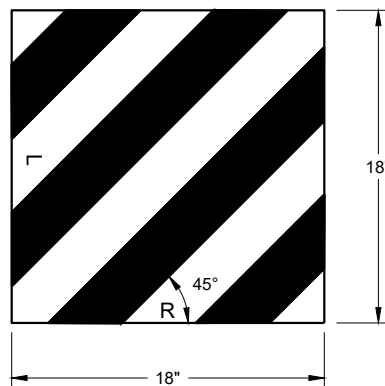
UPPER POST NO. 2 <sup>(15)</sup> (E)



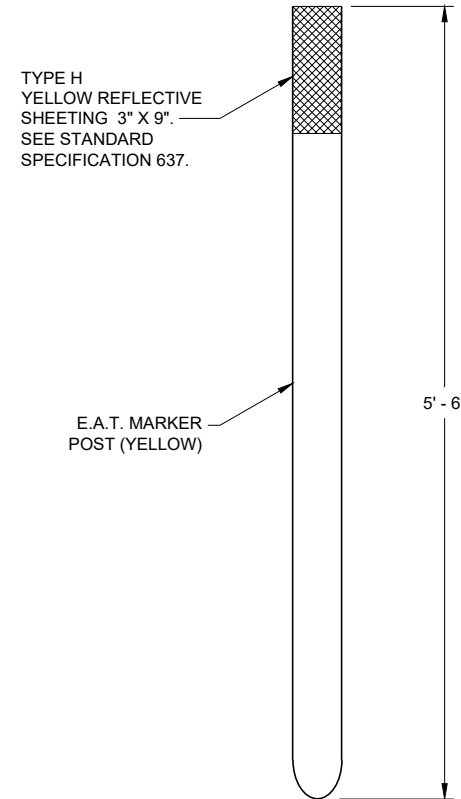
LOWER POST NO. 2 <sup>(16)</sup> (E)



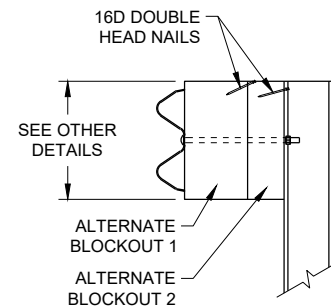
WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

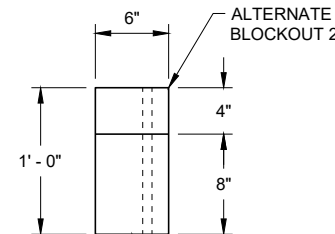


E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

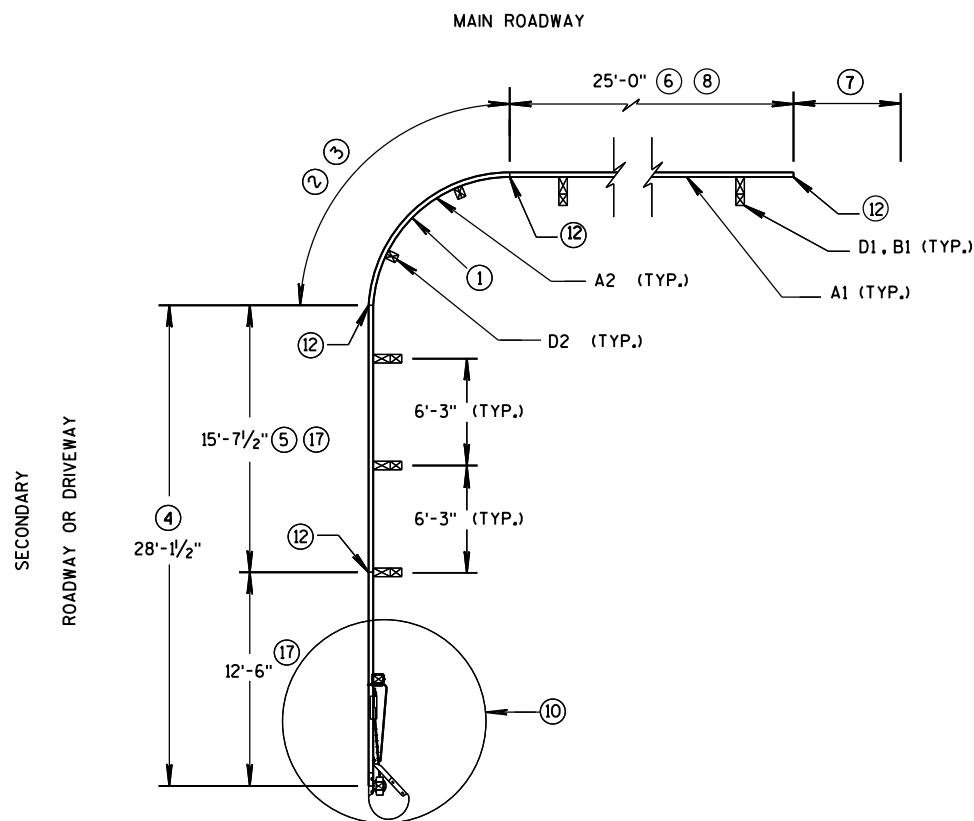


TOP VIEW

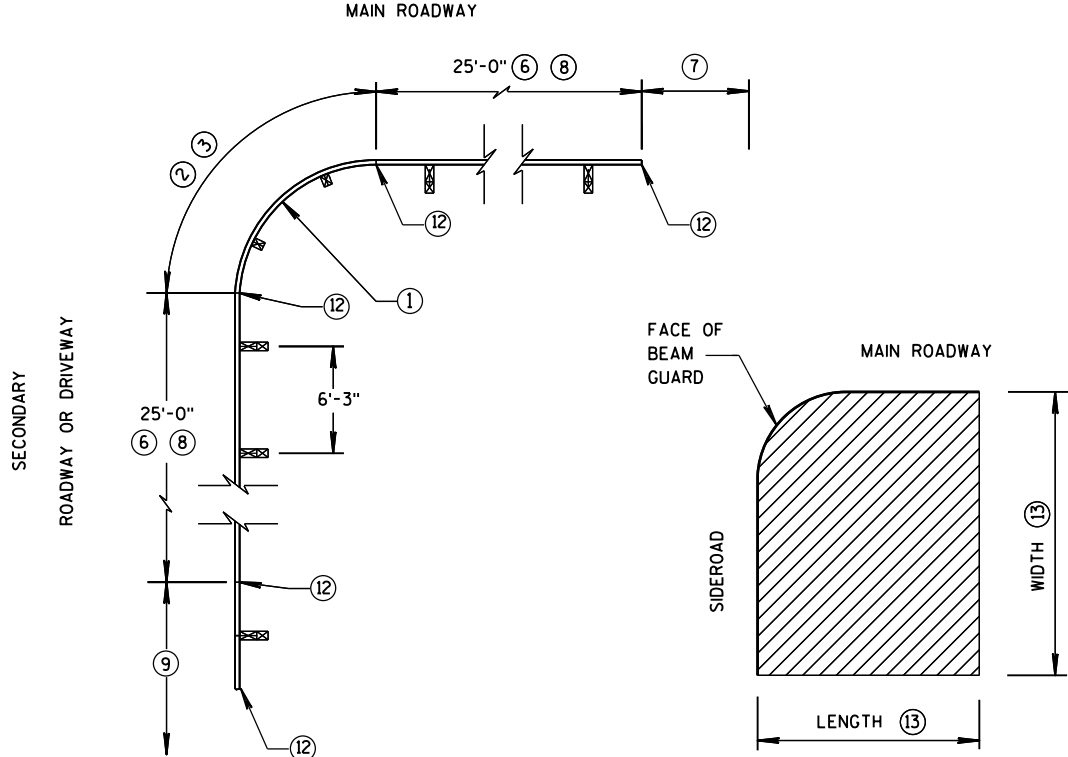
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

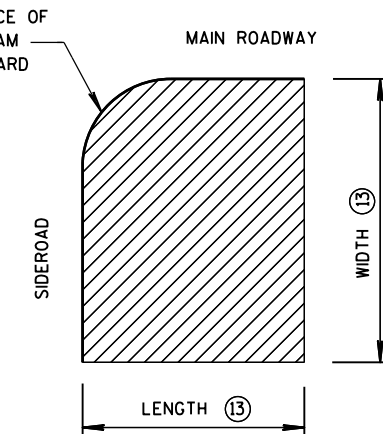
APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR  
FHWA 110



SHORT RADIUS BEAM GUARD WITH  
SHORT RADIUS TERMINAL ON  
SECONDARY ROAD OR DRIVEWAY  
PLAN VIEW



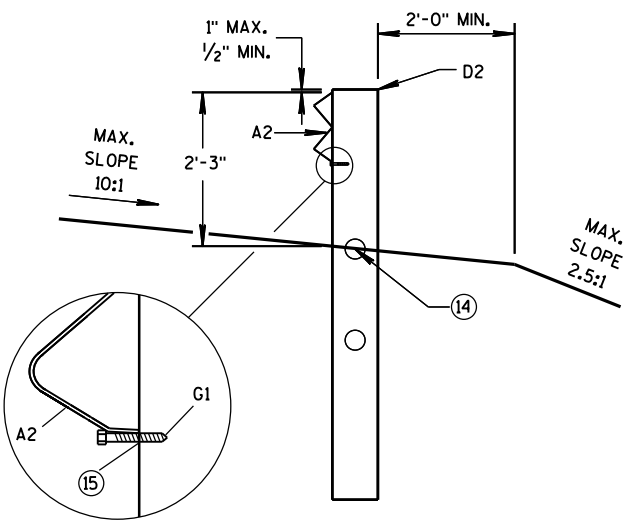
SHORT RADIUS BEAM GUARD WITH  
EAT, ADDITIONAL BEAM GUARD  
OR  
TRANSITION TO RIGID BARRIER  
ON SECONDARY ROAD OR  
DRIVEWAY  
PLAN VIEW



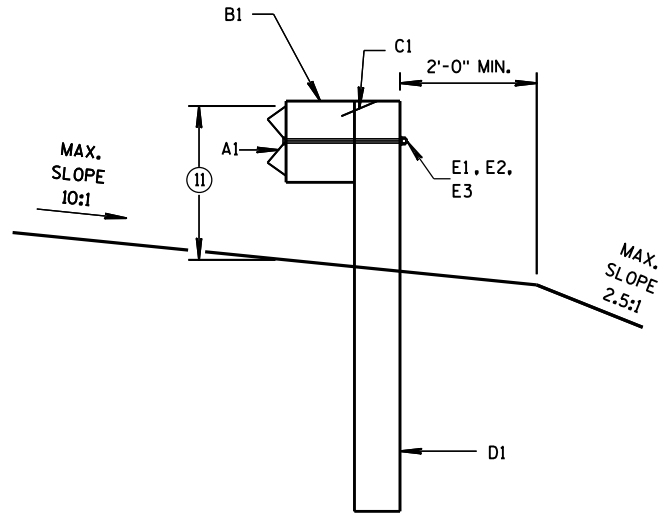
AREA FREE OF  
FIXED OBJECTS FOR  
RADIUS 32' AND LESS

TABLE FOR RADIUS OF 32' AND LESS

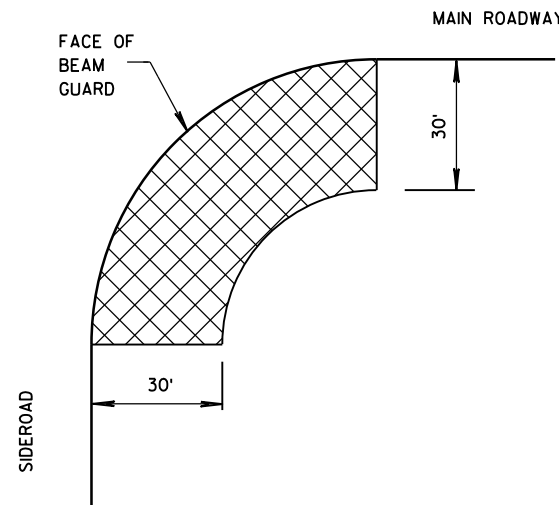
| RADIUS<br>FT | LENGTH<br>FT | WIDTH<br>FT |
|--------------|--------------|-------------|
| 8            | 25           | 15          |
| 16           | 30           | 15          |
| 24           | 40           | 20          |
| 32           | 50           | 30          |



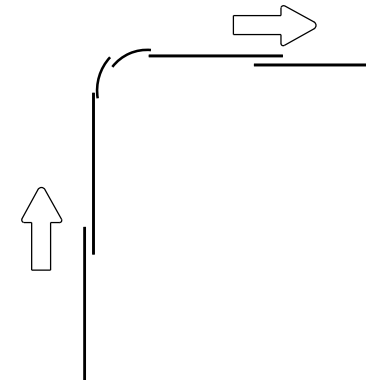
CONTROLLED RELEASE  
TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS  
IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS  
RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

## GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING IS TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERITCAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUTS.

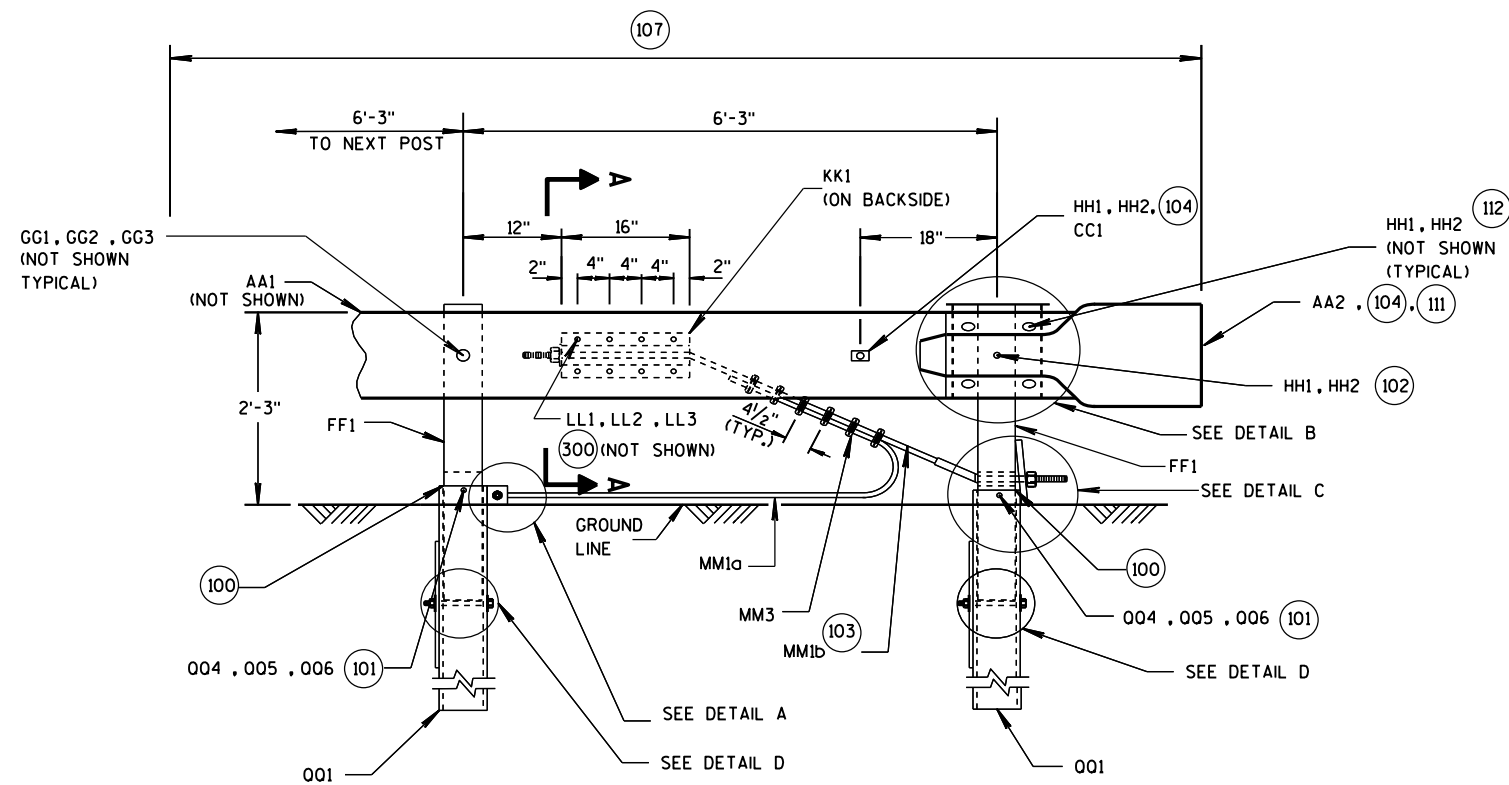
UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

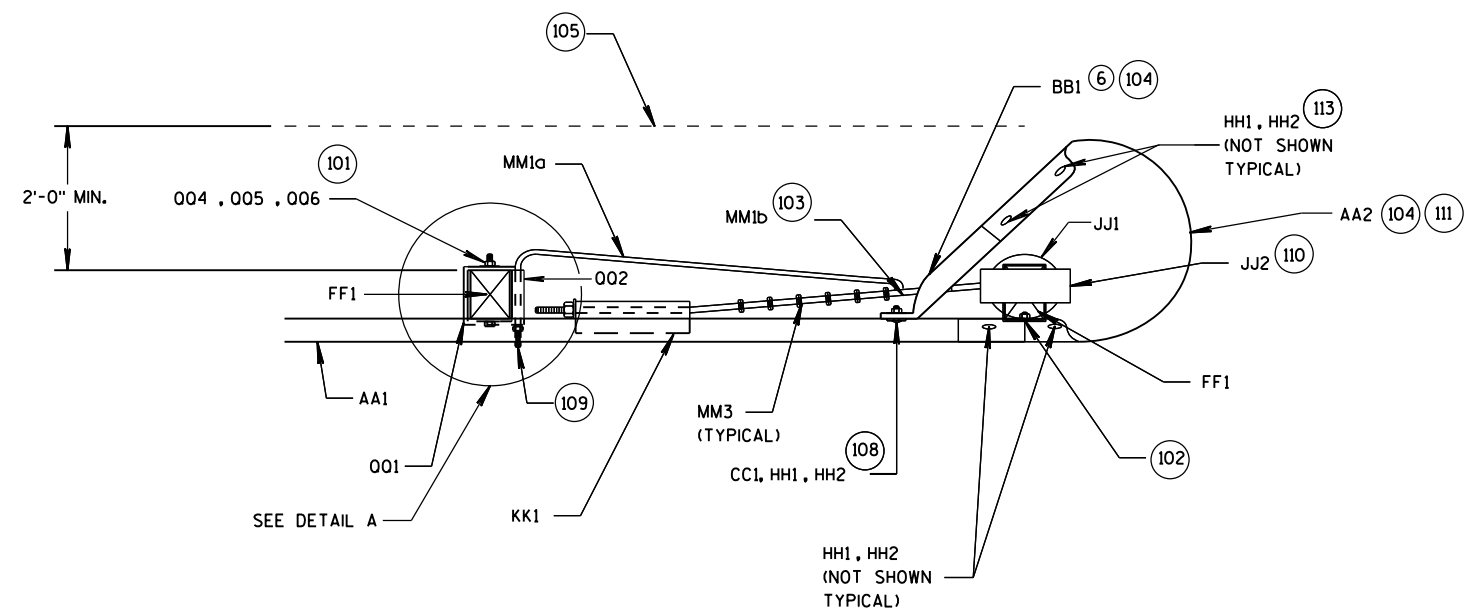
- RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6'-3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE TERMINAL (CRT) POSTS.
- WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAILS RESTED ON TOP OF LAG SCREW.
- MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID FOR WITH BEAM GUARD ITEM.
- ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- SHORT RADIUS TERMINAL (SEE OTHER DETAILS)
- HEIGHT VARIES. SEE NOTE (8) AND (17).
- BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRE PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- SEE TABLE FOR VALUES.
- MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- DRILL 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL.

SHORT RADIUS BEAM GUARD  
(MGS) SHORT RADIUS  
TERMINAL (MGS)

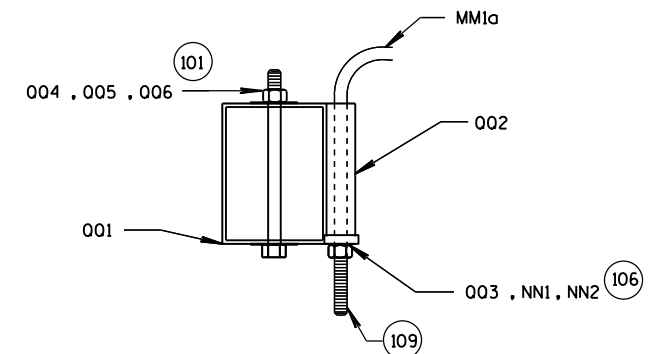
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



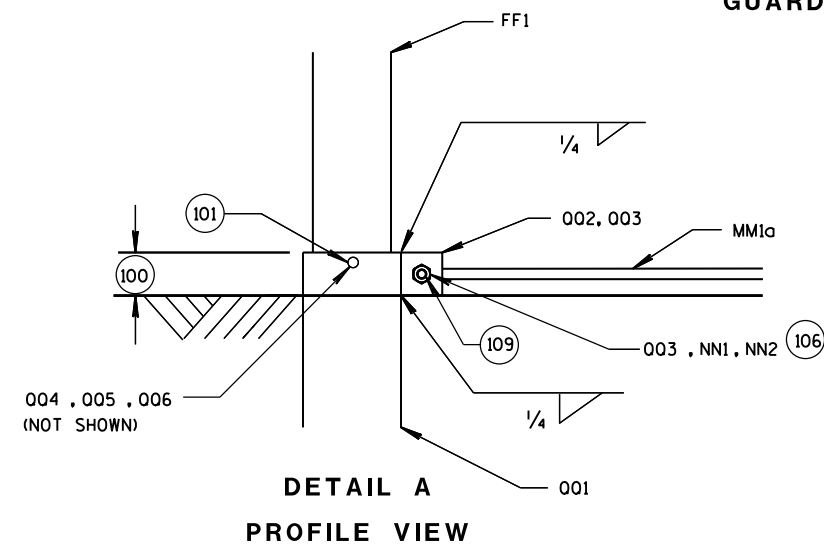
### SHORT RADIUS TERMINAL PROFILE VIEW



SHORT RADIUS TERMINAL  
TOP VIEW



DETAIL A  
TOP VIEW  
(WOOD BREAKAWAY AND BEAM  
GUARD RAIL POSTS NOT SHOWN)

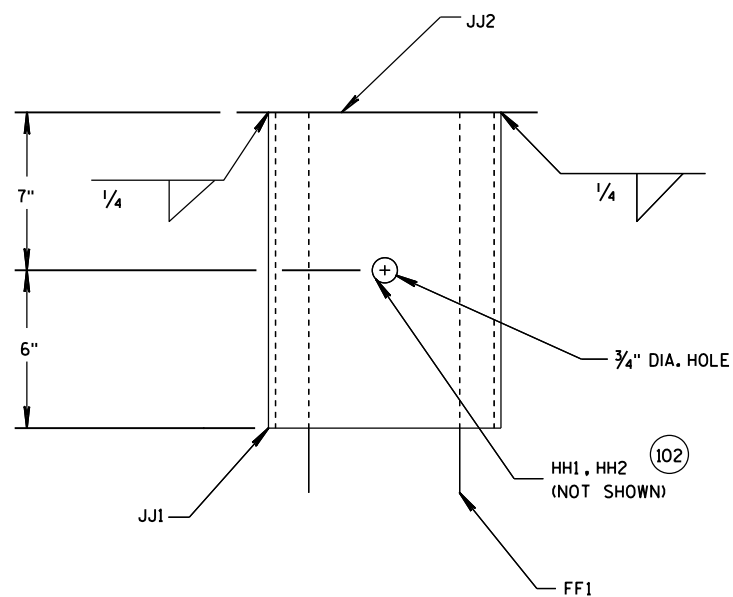


**DETAIL A**  
**PROFILE VIEW**

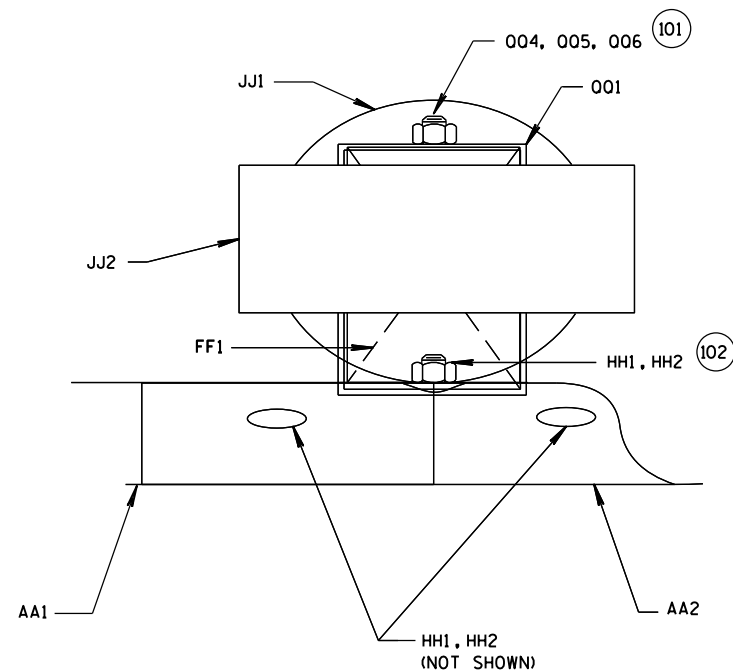
- 100 TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- 101 WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 102 SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM END SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL B.
- 103 CABLE IS TAUT.
- 104 ADJUST AA2 AND BB1 TO FIT.
- 105 BREAK POINT OF SHOULDER.
- 106 TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL A PROFILE VIEW.
- 107 PAY LIMIT FOR BEAM GUARD.
- 108 SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- 109 CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- 110 SEE STEEL PIPE ASSEMBLY DETAILS.
- 111 ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- 112 FOUR HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- 113 FOUR HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.

STEEL PLATE BEAM GUARD  
SHORT RADIUS TERMINAL  
MGS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 112

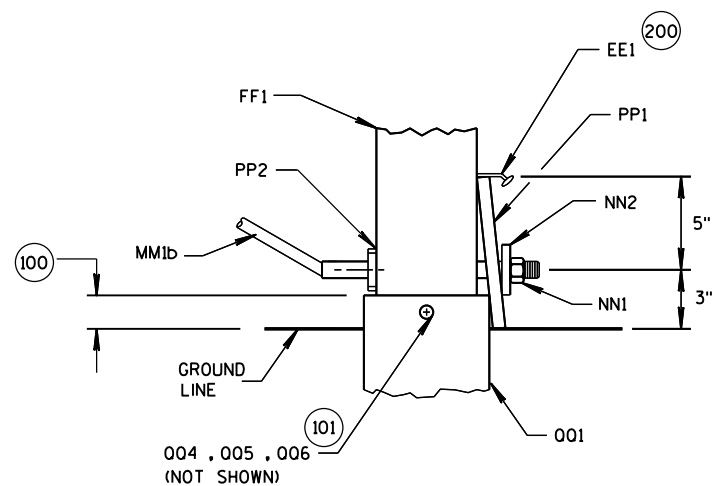


**DETAIL B**  
**PROFILE VIEW OF STEEL PIPE ASSEMBLY**  
 (BEAM GUARD AND W-BEAM  
 END SECTION NOT SHOWN)

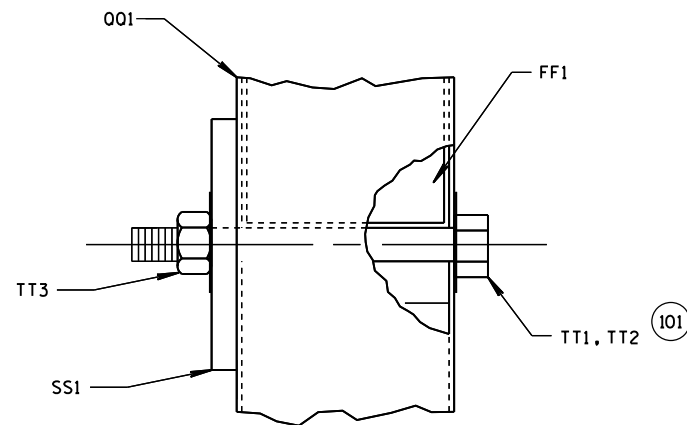


**DETAIL B**  
**PLAN VIEW OF STEEL PIPE ASSEMBLY**

(200) 2 NAILS SPACED 4 INCHES CENTER TO CENTER.



**DETAIL C**  
**PROFILE VIEW**

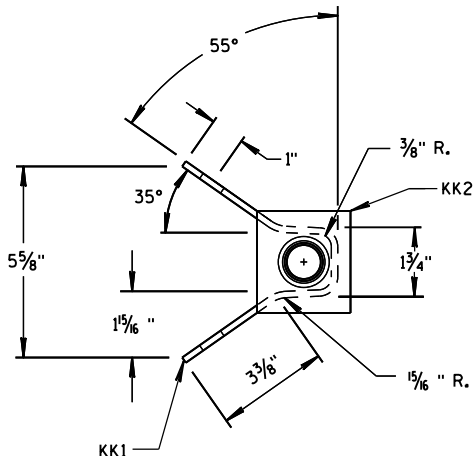
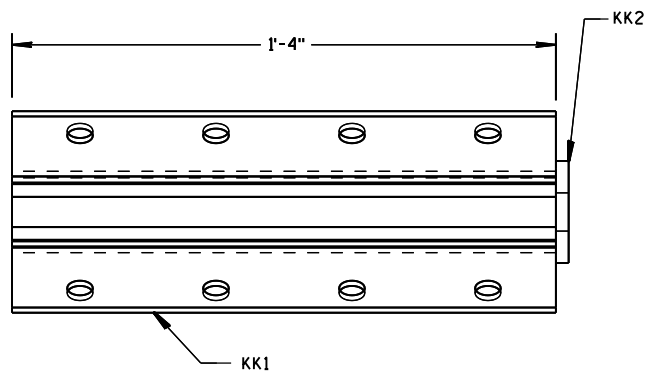
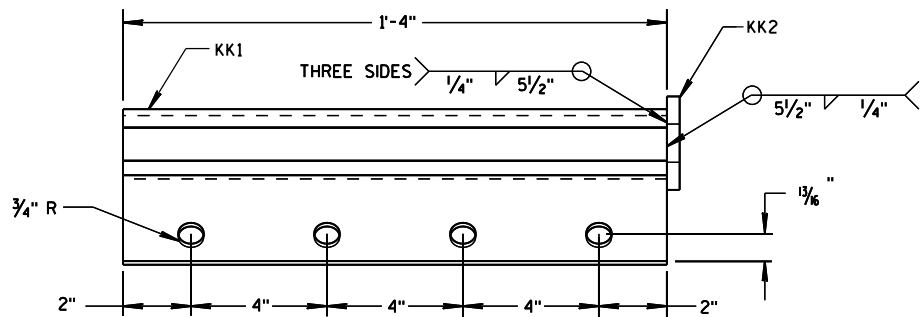


**DETAIL D**  
**PROFILE VIEW**

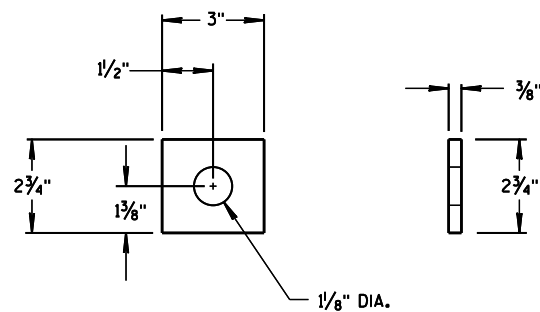
**SHORT RADIUS BEAM GUARD**  
**(MGS) SHORT RADIUS**  
**TERMINAL (MGS)**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

113

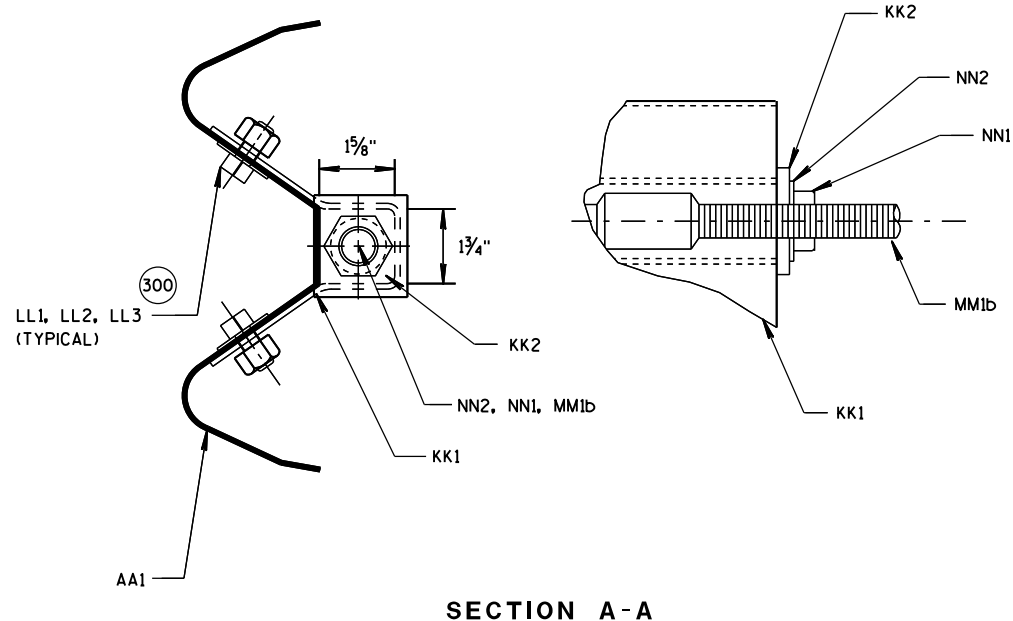


ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)

300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.

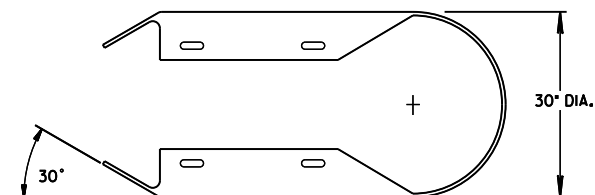


SECTION A-A

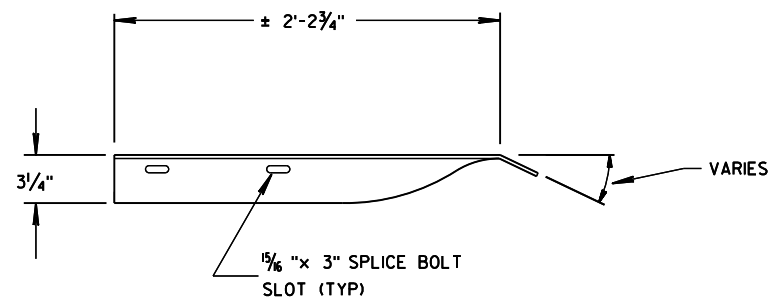
SHORT RADIUS BEAM GUARD  
(MGS) SHORT RADIUS  
TERMINAL (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 114





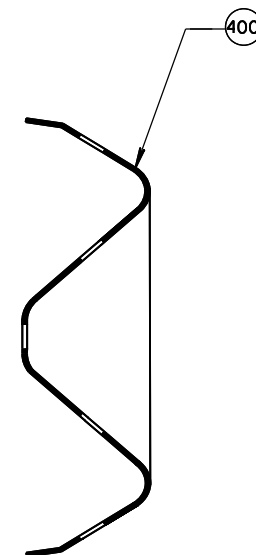
TOP VIEW



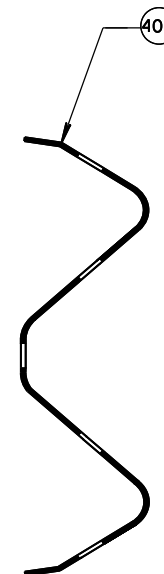
TOP VIEW

400 CROSS SECTION OF PART IS TO FIT OVER AA1.

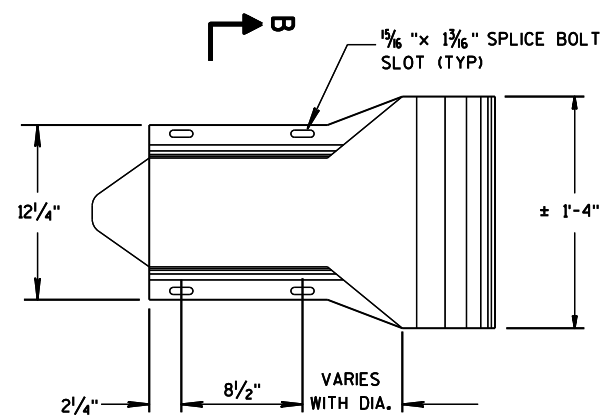
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1.



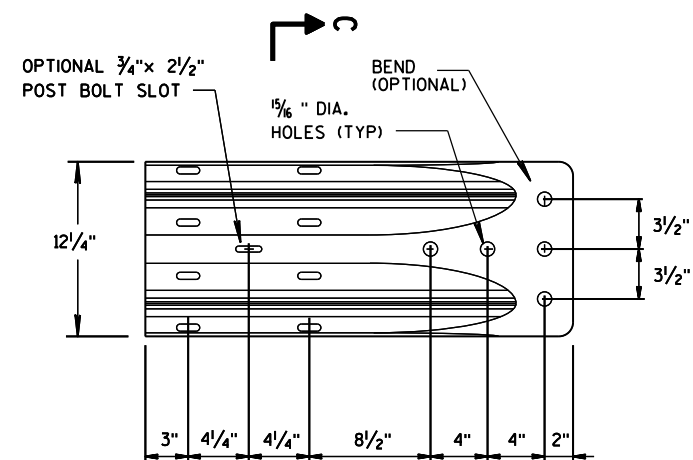
SECTION B-B



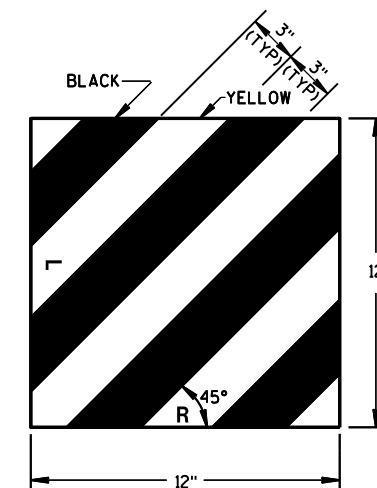
SECTION C-C



W-BEAM  
END SECTION BUFFER (AA2)  
PROFILE VIEW



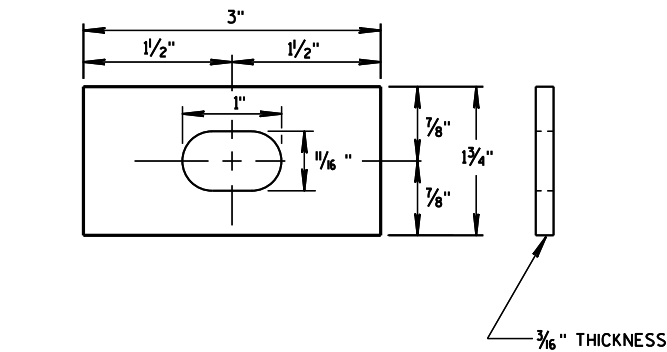
W-BEAM  
TERMINAL CONNECTOR (BB1)  
PROFILE VIEW



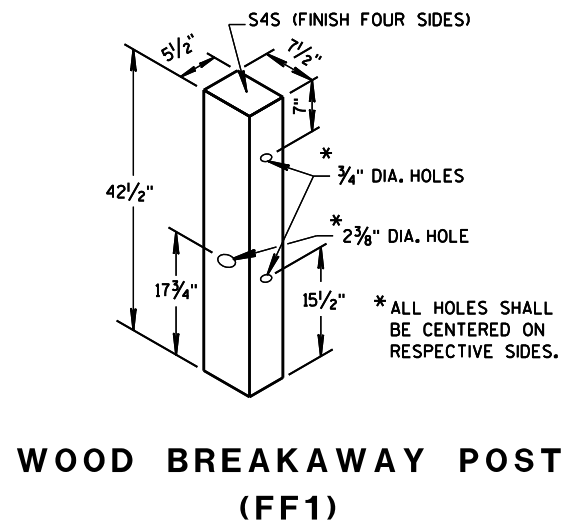
REFLECTIVE SHEETING  
(UU1, UU2)

SHORT RADIUS BEAM GUARD  
(MGS) SHORT RADIUS  
TERMINAL (MGS)

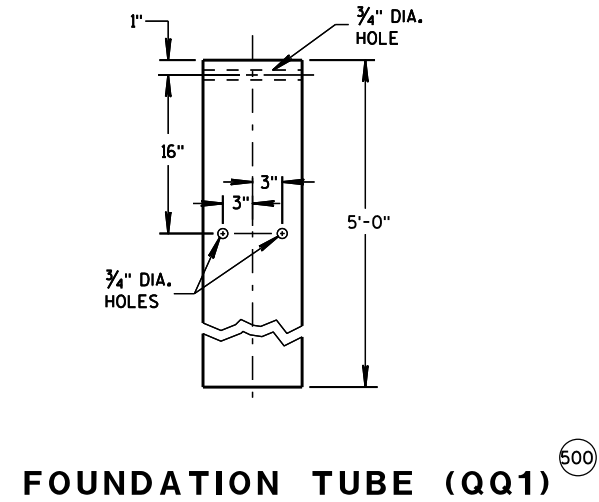
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 115



**RECTANGULAR  
PLATE WASHER (CC1)**

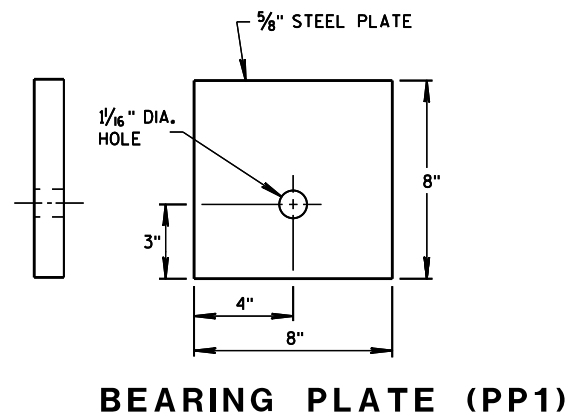


**WOOD BREAKAWAY POST  
(FF1)**

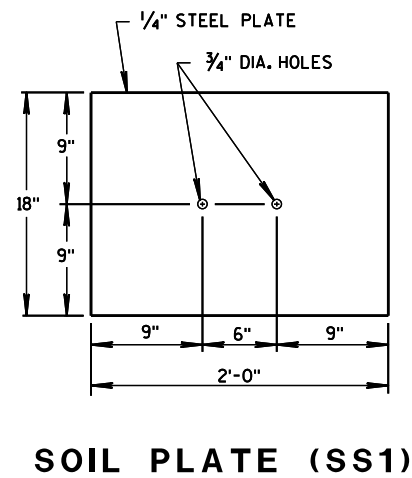


**FOUNDATION TUBE (QQ1)**

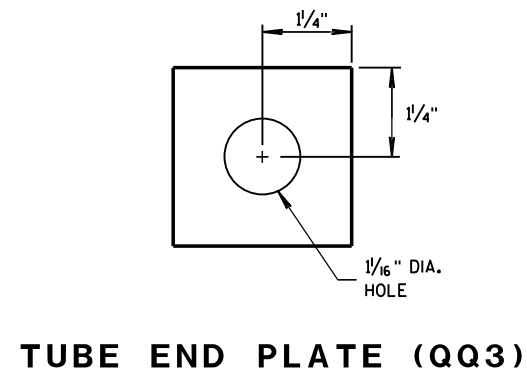
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



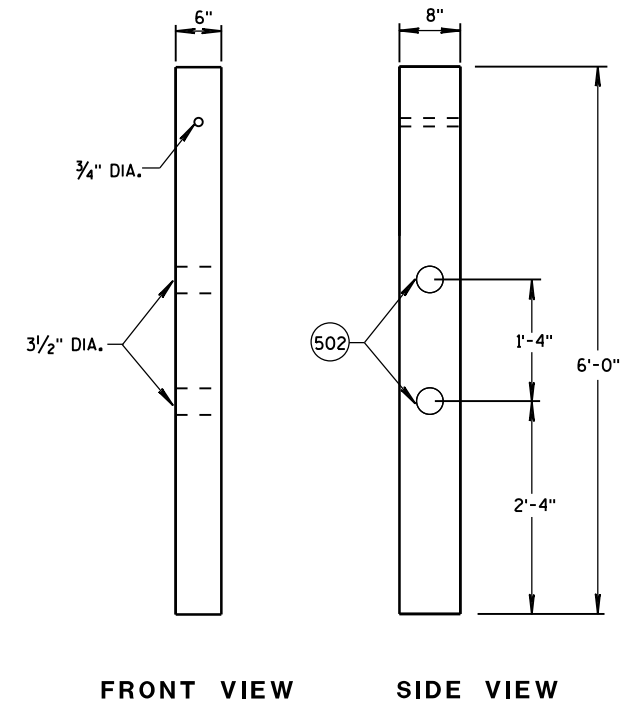
**BEARING PLATE (PP1)**



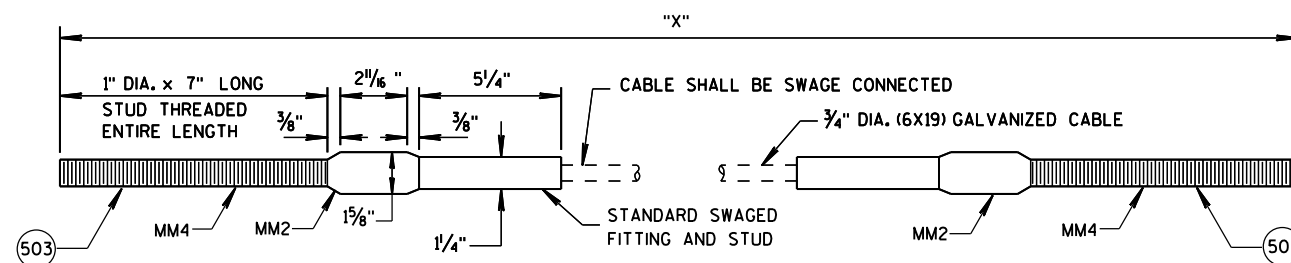
**SOIL PLATE (SS1)**



**TUBE END PLATE (QQ3)**



**CONTROLLED RELEASE  
TERMINAL POST (CRT) (D2)**



**CABLE ASSEMBLY (MM1a , MM1b)**

| "X" LENGTH |       |
|------------|-------|
| MM1a       | 9'-0" |
| MM1b       | 6'-8" |

**SHORT RADIUS BEAM GUARD  
(MGS) SHORT RADIUS  
TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 116



BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

| PART | DESCRIPTION                 | MATERIALS SPECIFICATIONS                                                                                                                              | NOTES                                                         |
|------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| A1   | BEAM GUARD RAIL             | AASHTO M180, CLASS A, TYPE 2                                                                                                                          |                                                               |
|      |                             | APPROVED PRODUCER                                                                                                                                     |                                                               |
| A2   | BEAM GUARD RAIL - SHOP BENT | INDICATE ON BACK OF RAIL RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION. |                                                               |
|      |                             | AASHTO M180, CLASS A, TYPE 2                                                                                                                          |                                                               |
|      |                             | APPROVED PRODUCER                                                                                                                                     |                                                               |
| B1   | BLOCK - WOOD                | WISDOT SPEC. 614                                                                                                                                      | SEE SDD 14B42                                                 |
| C1   | NAIL                        | ASTM A153 HOT DIP CLASS D                                                                                                                             |                                                               |
|      |                             | ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)                                                                                                           |                                                               |
| D1   | POST-STRONG POST-WOOD       | WISDOT SPEC. 614                                                                                                                                      | SEE SDD 14B42                                                 |
| D2   | POST-CRT-WOOD               | WISDOT SPEC. 614                                                                                                                                      |                                                               |
| E1   | POST BOLT                   | ASTM A307 GRADE A OR SAE J429 GRADE 2                                                                                                                 | 5/8" DIA.<br>SEE SDD 14B42 FOR BOLT GEOMETRY                  |
|      |                             | AASHTO M180                                                                                                                                           |                                                               |
|      |                             | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1    |                                                               |
|      |                             | UNC                                                                                                                                                   |                                                               |
| E2   | POST BOLT-WASHER            | ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)                                                     | 5/8" DIA.                                                     |
|      |                             | GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP, TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329                                                    |                                                               |
| E3   | POST BOLT - NUT             |                                                                                                                                                       | 5/8" DIA.<br>SEE SDD 14B42 FOR GEOMETRY                       |
|      |                             | AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD                                                                                                            |                                                               |
|      |                             | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1    |                                                               |
|      |                             | UNC                                                                                                                                                   |                                                               |
|      |                             | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563                                                                                    |                                                               |
|      |                             | ASTM A563 GRADE A HEAVY HEX HEAD                                                                                                                      |                                                               |
| F1   | SPLICE BOLT                 | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1    | 5/8" DIA.<br>SEE SDD 14B42 FOR GEOMETRY AND OTHER INFORMATION |
|      |                             | ASTM A307 GRADE A OR SAE J429 GRADE 2                                                                                                                 |                                                               |
|      |                             | UNC                                                                                                                                                   |                                                               |
|      |                             | AASHTO M180                                                                                                                                           |                                                               |

| PART | DESCRIPTION                                   | MATERIALS SPECIFICATIONS                                                                                                                             | NOTES                                       |
|------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| F2   | SPLICE BOLT - NUT                             | ASTM A563 GRADE A                                                                                                                                    | 5/8" DIA.<br><br>SEE SDD 14B42 FOR GEOMETRY |
|      |                                               | AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD                                                                                                           |                                             |
|      |                                               | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1   |                                             |
|      |                                               | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563                                                                                   |                                             |
| G1   | LAG SCREW                                     | UNC                                                                                                                                                  | 3/8" DIA. 3" LONG                           |
|      |                                               | ASTM A308 GRADE A ASTM A153 CLASS D                                                                                                                  |                                             |
| H1   | DELINEATOR - BEAM GUARD                       |                                                                                                                                                      | SEE SDD 14B42 FOR MORE INFORMATION          |
| H2   | DELINEATION - SHEETING                        | YELLOW OR WHITE                                                                                                                                      |                                             |
|      |                                               | WISDOT SPEC 637 TYPE SH                                                                                                                              |                                             |
| J1   | FOUNDATION BACKFILL                           | APPROVED PRODUCT LIST                                                                                                                                |                                             |
| AA1  | BEAM GUARD RAIL - PUNCHED                     | STANDARD SPEC. 614                                                                                                                                   |                                             |
|      |                                               | AASHTO M180, CLASS A, TYPE 2                                                                                                                         |                                             |
| AA2  | BEAM GUARD RAIL - END SECTION BUFFER          | APPROVED PRODUCER                                                                                                                                    |                                             |
|      |                                               | AASHTO M180, CLASS A, TYPE 2                                                                                                                         |                                             |
| BB1  | BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED | AASHTO M180, CLASS A, TYPE 2                                                                                                                         |                                             |
|      |                                               | APPROVED PRODUCER                                                                                                                                    |                                             |
| CC1  | SHORT RADIUS - SQUARE WASHER                  | AASHTO M180                                                                                                                                          |                                             |
|      |                                               | GALV. AASHTO M111 / ASTM A123                                                                                                                        |                                             |
| EE1  | NAIL                                          | ASTM A153 HOT DIP CLASS D                                                                                                                            |                                             |
|      |                                               | ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)                                                                                                        |                                             |
| FF1  | POST - BCT - WOOD                             | S4S FINISH ON 4 SIDES                                                                                                                                |                                             |
|      |                                               | WISDOT SPEC. 614                                                                                                                                     |                                             |
| GG1  | POST BOLT                                     | ASTM A307 GRADE A OR SAE J429 GRADE 2                                                                                                                | 3/8" DIA.<br>SEE SDD 14B42 FOR GEOMETRY     |
|      |                                               | AASHTO M180                                                                                                                                          |                                             |
|      |                                               | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1 |                                             |
| GG2  | POST BOLT - WASHER                            | UNC                                                                                                                                                  | 3/8" DIA.                                   |
|      |                                               | ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)                                                    |                                             |
|      |                                               | GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329                                             |                                             |

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

| PART | DESCRIPTION                    | MATERIALS SPECIFICATIONS                                                                                                                                            | NOTES                               |
|------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| GG3  | POST BOLT - NUT                | ASTM A563 GRADE A                                                                                                                                                   | 3/8" DIA.                           |
|      |                                | AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD                                                                                                                          | SEE 14B42 FOR GEOMETRY              |
|      |                                | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                |                                     |
|      |                                | UNC                                                                                                                                                                 |                                     |
|      |                                | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563                                                                                                  |                                     |
|      |                                | ASTM A563 GRADE A HEAVY HEX HEAD                                                                                                                                    |                                     |
| HH1  | SPLICE BOLT                    | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                | 3/8" DIA.<br>SEE 14B42 FOR GEOMETRY |
|      |                                | ASTM A307 GRADE A OR SAE J429 GRADE 2                                                                                                                               |                                     |
|      |                                | UNC                                                                                                                                                                 |                                     |
|      |                                | AASHTO M180 HEAD GEOMETRY                                                                                                                                           |                                     |
|      |                                |                                                                                                                                                                     |                                     |
| HH2  | SPLICE BOLT - NUT              | ASTM A563 GRADE A                                                                                                                                                   | 3/8" DIA.                           |
|      |                                | AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD                                                                                                                          | SEE 14B42 FOR GEOMETRY              |
|      |                                | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                |                                     |
|      |                                | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563                                                                                                  |                                     |
|      |                                | UNC                                                                                                                                                                 |                                     |
|      |                                |                                                                                                                                                                     |                                     |
| JJ1  | PIPE - STEEL                   | ASTM A53 GALVANIZED GRADE B SCHEDULE 40                                                                                                                             | 10" O.D.                            |
| JJ2  | TOP PLATE                      | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI | DIMENSIONS<br>3/8" X 4" X 1'-0"     |
|      |                                | GALV. AASHTO M111 / ASTM A123                                                                                                                                       |                                     |
| KK1  | ANCHOR BRACKET                 | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI |                                     |
|      |                                | GALV. AASHTO M111 / ASTM A123                                                                                                                                       |                                     |
| KK2  | ANCHOR BRACKET - BEARING PLATE | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI |                                     |
|      |                                | GALV. AASHTO M111 / ASTM A123                                                                                                                                       |                                     |
| LL1  | ANCHOR BRACKET - BOLT          | ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD                                                                                                 | 5/8" DIA.                           |
|      |                                | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                |                                     |
|      |                                | UNC                                                                                                                                                                 |                                     |
|      |                                | ASTM F436 TYPE 1 (HARDEN WASHER ONLY)                                                                                                                               |                                     |
| LL2  | ANCHOR BRACKET - WASHER        | GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329                                                            | 5/8" DIA.                           |
| LL3  | ANCHOR BRACKET - NUT           | ASTM A563 GRADE A                                                                                                                                                   | 5/8" DIA.                           |
|      |                                | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                |                                     |
|      |                                | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563                                                                                                   |                                     |
|      |                                | UNC                                                                                                                                                                 |                                     |

| PART | DESCRIPTION                                          | MATERIALS SPECIFICATIONS                                                                                                                                                | NOTES                                     |
|------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| MM1a | ANCHOR CABLE                                         | AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED                      |                                           |
| MM1b | ANCHOR CABLE                                         | AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED                      |                                           |
| MM2  | ANCHOR CABLE - SWAGE FITTING                         | ASTM A576 GRADE 1035                                                                                                                                                    |                                           |
|      |                                                      | SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.                                                                                          |                                           |
|      |                                                      | GALV. AASHTO M111 / ASTM A123                                                                                                                                           |                                           |
|      |                                                      | ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE. |                                           |
| MM3  | WIRE ROPE CABLE CLAMPS                               | FF-C-450D TYPE 1 CLASS 1                                                                                                                                                | 3/4"                                      |
|      |                                                      | ASTM A153 HOT DIP CLASS D                                                                                                                                               |                                           |
| MM4  | ANCHOR CABLE - SWAGE FITTING - STUD                  | ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD                                                                                          |                                           |
|      |                                                      | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                    |                                           |
|      |                                                      | UNC                                                                                                                                                                     |                                           |
|      |                                                      |                                                                                                                                                                         |                                           |
| NN1  | ANCHOR CABLE - NUT                                   | ASTM A563 GRADE A                                                                                                                                                       | 1" DIA.                                   |
|      |                                                      | AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD                                                                                                                              |                                           |
|      |                                                      | GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1                    |                                           |
|      |                                                      | OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563                                                                                                       |                                           |
| NN2  | ANCHOR CABLE - NUT - WASHER                          | UNC                                                                                                                                                                     | 1" DIA.                                   |
|      |                                                      | ASTM F436 TYPE 1 (HARDEN WASHER ONLY)                                                                                                                                   |                                           |
|      |                                                      | GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329                                                                |                                           |
| PP1  | BEARING PLATE AT POST                                | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI     |                                           |
|      |                                                      | GALV. AASHTO M111 / ASTM A123                                                                                                                                           |                                           |
| PP2  | PIPE - STEEL                                         | ASTM A53 GALVANIZED GRADE B SCHEDULE 40                                                                                                                                 | 2" DIA. x 6" LONG                         |
| QQ1  | FOUNDATION TUBE                                      | ASTM A500 GRADE B                                                                                                                                                       | 8" X 6" X 3/16"                           |
|      |                                                      | GALV. AASHTO M111 / ASTM A123                                                                                                                                           |                                           |
| QQ2  | SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE | ASTM A500 GRADE B                                                                                                                                                       | DIMENSIONS<br>2 1/2" X 2 1/4" X 1/4" X 8" |
|      |                                                      | GALV. AASHTO M111 / ASTM A123                                                                                                                                           |                                           |

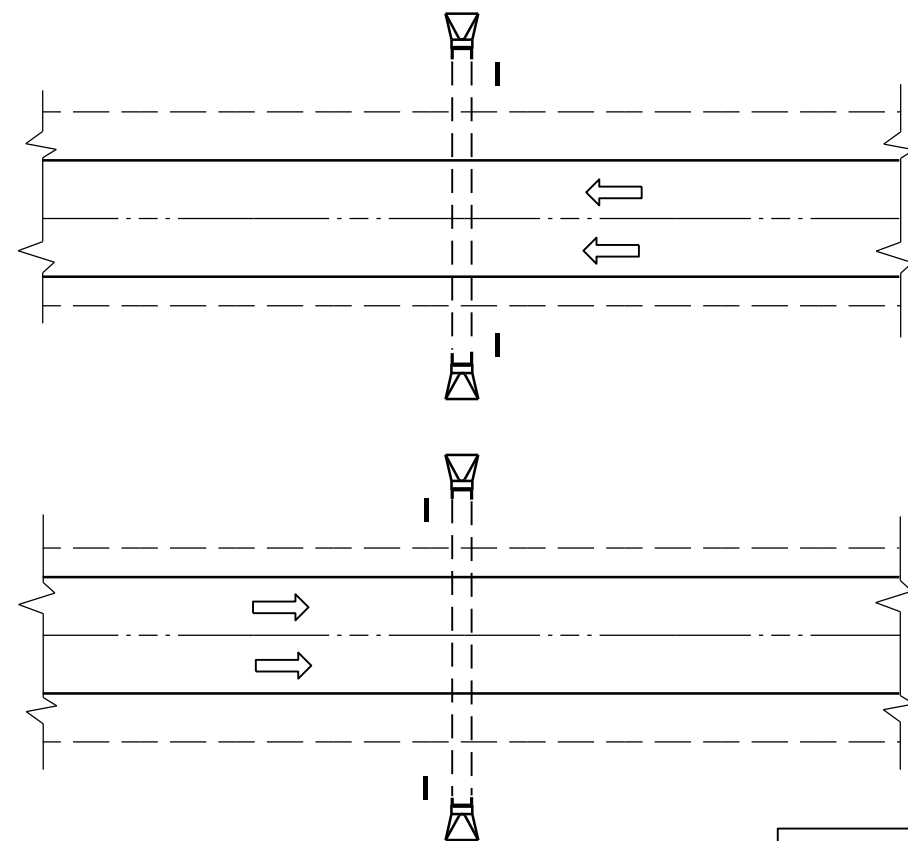
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION 118

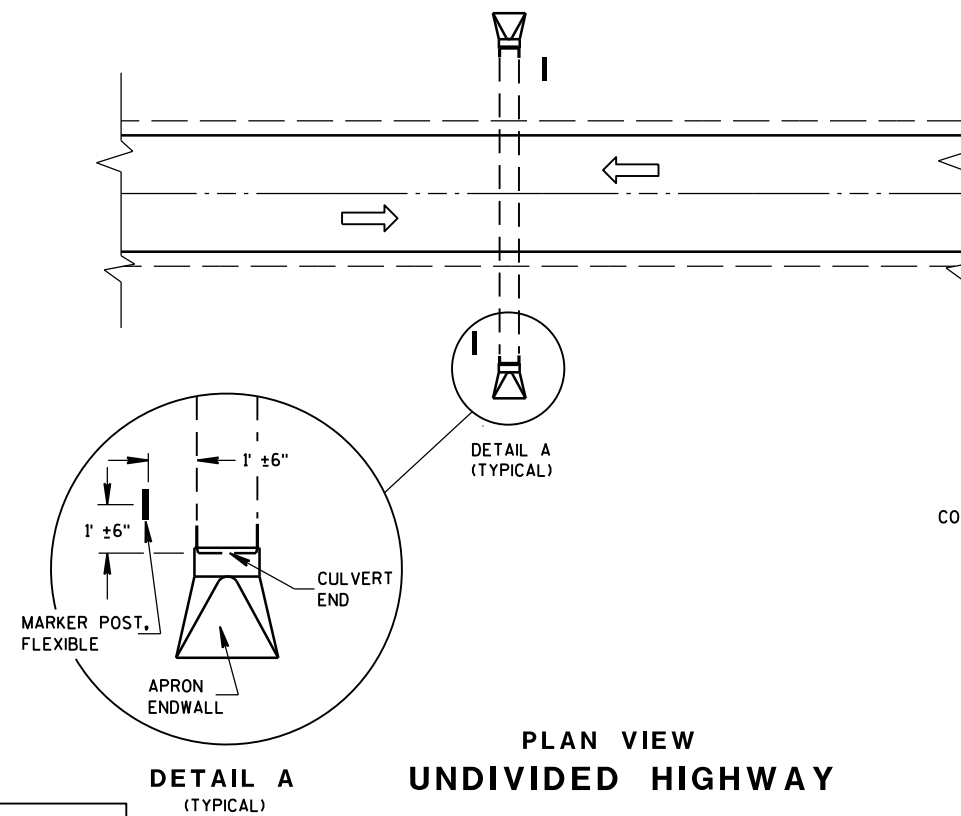
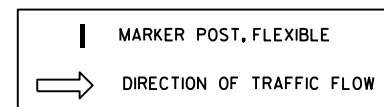
BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

| PART | DESCRIPTION                                                   | MATERIALS SPECIFICATIONS                                                                                                                                                     | NOTES                                                            |
|------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 003  | SHORT RADIUS - SOIL TUBE -<br>ANCHOR CABLE - TUBE - END PLATE | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX.<br>STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI<br>OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992<br>MAX STRENGTH 50 KSI | DIMENSIONS<br>2 1/2" X 2 1/2" X 1/4"                             |
|      |                                                               | GALV. AASHTO M111 / ASTM A123                                                                                                                                                |                                                                  |
| 004  | GROUND STRUT AND YOKE - BOLT                                  | GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153<br>CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO<br>M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1               | 5/8" DIA.                                                        |
|      |                                                               | ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429<br>GRADE 2 HEAVY HEX HEAD                                                                                                       |                                                                  |
|      |                                                               | UNC                                                                                                                                                                          |                                                                  |
| 005  | GROUND PLATE AND YOKE - WASHER                                | ASTM F436 TYPE 1 (HARDEN WASHER ONLY)                                                                                                                                        | 5/8" DIA.                                                        |
|      |                                                               | GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO<br>AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM<br>F2329                                                               |                                                                  |
| 006  | GROUND STRUT AND YOKE - NUT                                   | HEAVY HEX                                                                                                                                                                    | 5/8" DIA.                                                        |
|      |                                                               | UNC                                                                                                                                                                          |                                                                  |
|      |                                                               | ASTM A563 GRADE A                                                                                                                                                            |                                                                  |
|      |                                                               | OVER TAPPED NUTS AS SPECIFIED IN<br>AASHTO 291 / ASTM A 563                                                                                                                  |                                                                  |
|      |                                                               | GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153<br>CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO<br>M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1               |                                                                  |
| SS1  | SOIL PLATE                                                    | ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX.<br>STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI<br>OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992<br>MAX STRENGTH 50 KSI |                                                                  |
|      |                                                               | GALV. AASHTO M111 / ASTM A123                                                                                                                                                |                                                                  |
| TT1  | SOIL PLATE - BOLT                                             | ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429<br>GRADE 2 HEAVY HEX HEAD                                                                                                       | 5/8" DIA.                                                        |
|      |                                                               | GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153<br>CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO<br>AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50,<br>TYPE 1            |                                                                  |
|      |                                                               | UNC                                                                                                                                                                          |                                                                  |
| TT2  | SOIL PLATE - WASHER                                           | ASTM F436 TYPE 1 (HARDEN WASHER ONLY)                                                                                                                                        | 5/8" DIA.                                                        |
|      |                                                               | GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO<br>AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM<br>F2329                                                               |                                                                  |
| TT3  | SOIL PLATE - NUT                                              | GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153<br>CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO<br>M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1               | 5/8" DIA.                                                        |
| UU1  | OBJECT MARKER - SHEETING                                      | MUTCD / WISDOT OBJECT MARKER TYPE 3                                                                                                                                          | PATTERN AND COLOR<br>FOR SHEETING<br>SHEETING TYPE<br>FOR MARKER |
|      |                                                               | WISDOT SPEC 637 TYPE F                                                                                                                                                       |                                                                  |
|      |                                                               | APPROVED PRODUCT LIST                                                                                                                                                        |                                                                  |
| UU2  | OBJECT MARKER - ALUMINUM PLATE                                | WISDOT SPEC 637 ALUMINUM PLATE                                                                                                                                               | MATERIAL AND<br>THICKNESS OF MATERIALS                           |
| UU3  | OBJECT MARKER - SCREWS                                        | STAINLESS SELF-TAPPING SCREWS                                                                                                                                                |                                                                  |
| VV1  | FOUNDATION BACKFILL                                           | WISDOT SPEC 614                                                                                                                                                              |                                                                  |

|                                                                 |                                                          |           |
|-----------------------------------------------------------------|----------------------------------------------------------|-----------|
| SHORT RADIUS BEAM GUARD<br>(MGS) SHORT RADIUS<br>TERMINAL (MGS) |                                                          |           |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION              |                                                          |           |
| APPROVED<br>June 2017<br>DATE                                   | /S/ Rodney Taylor<br>ROADWAY STANDARDS & UNIT SUPERVISOR | 119<br>NT |
| FHWA                                                            |                                                          |           |



PLAN VIEW  
DIVIDED HIGHWAY



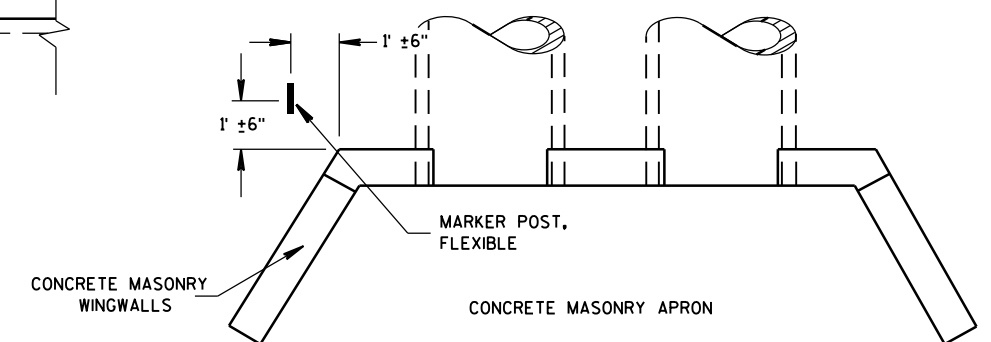
DETAIL A  
(TYPICAL)

PLAN VIEW  
UNDIVIDED HIGHWAY

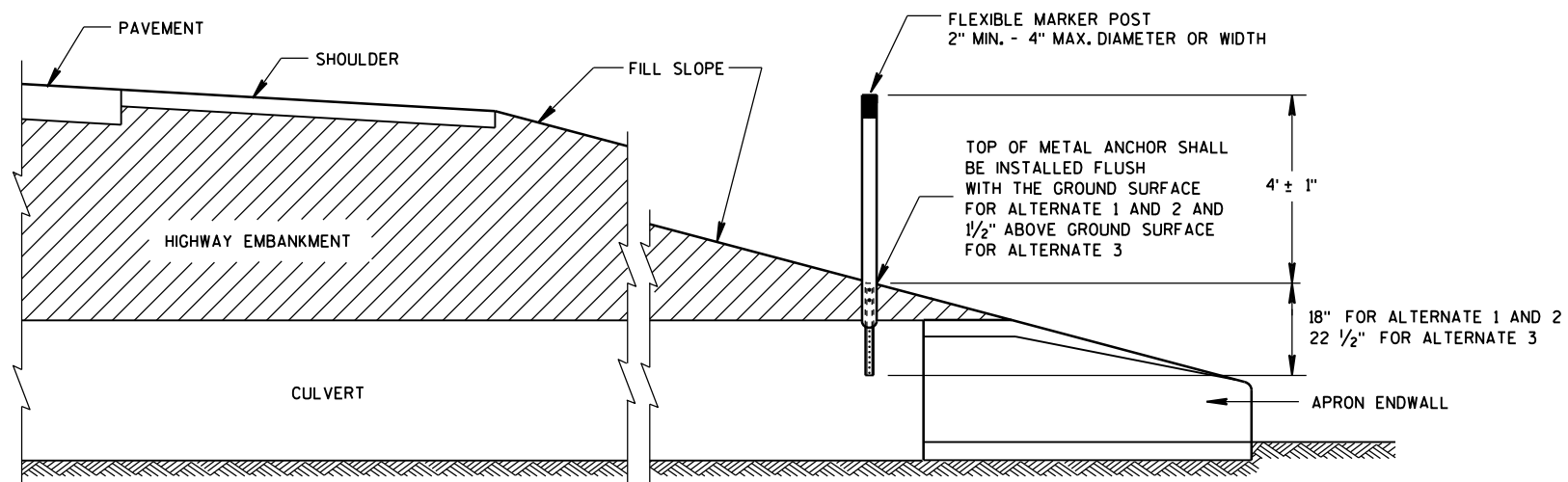
### FLEXIBLE MARKER POST LOCATION

### GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



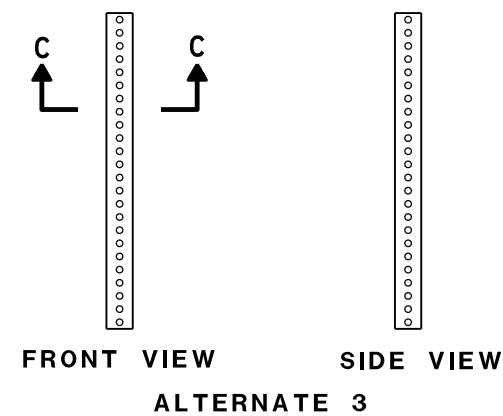
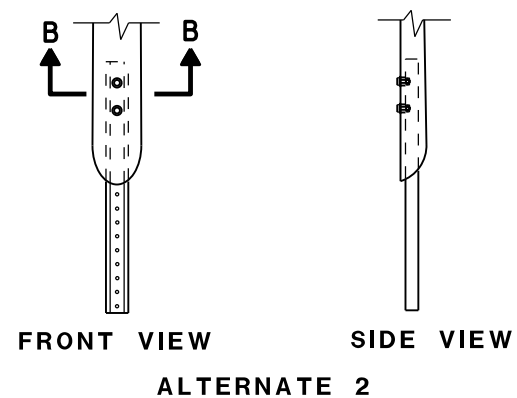
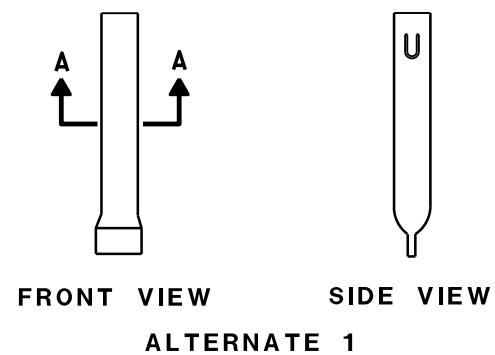
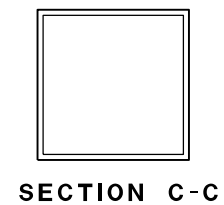
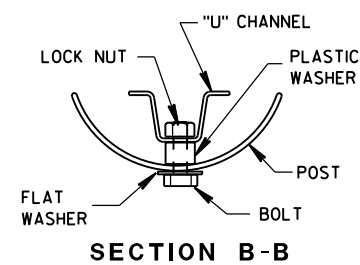
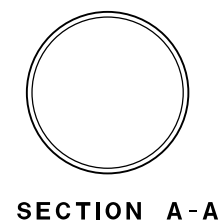
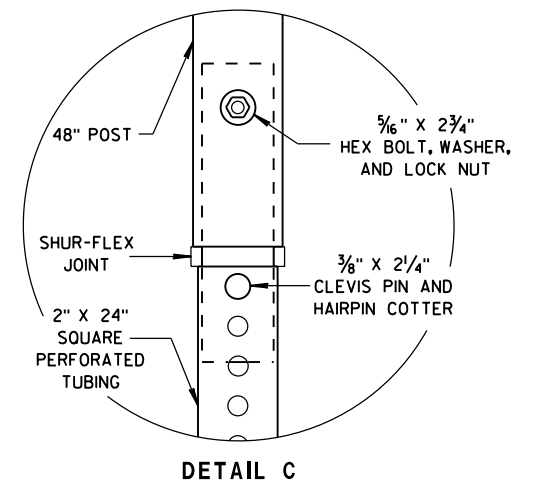
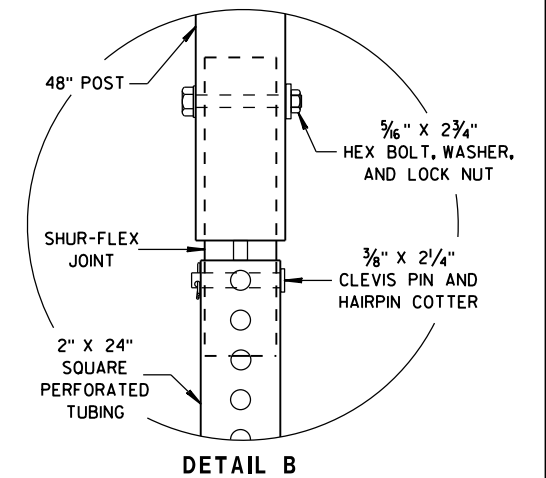
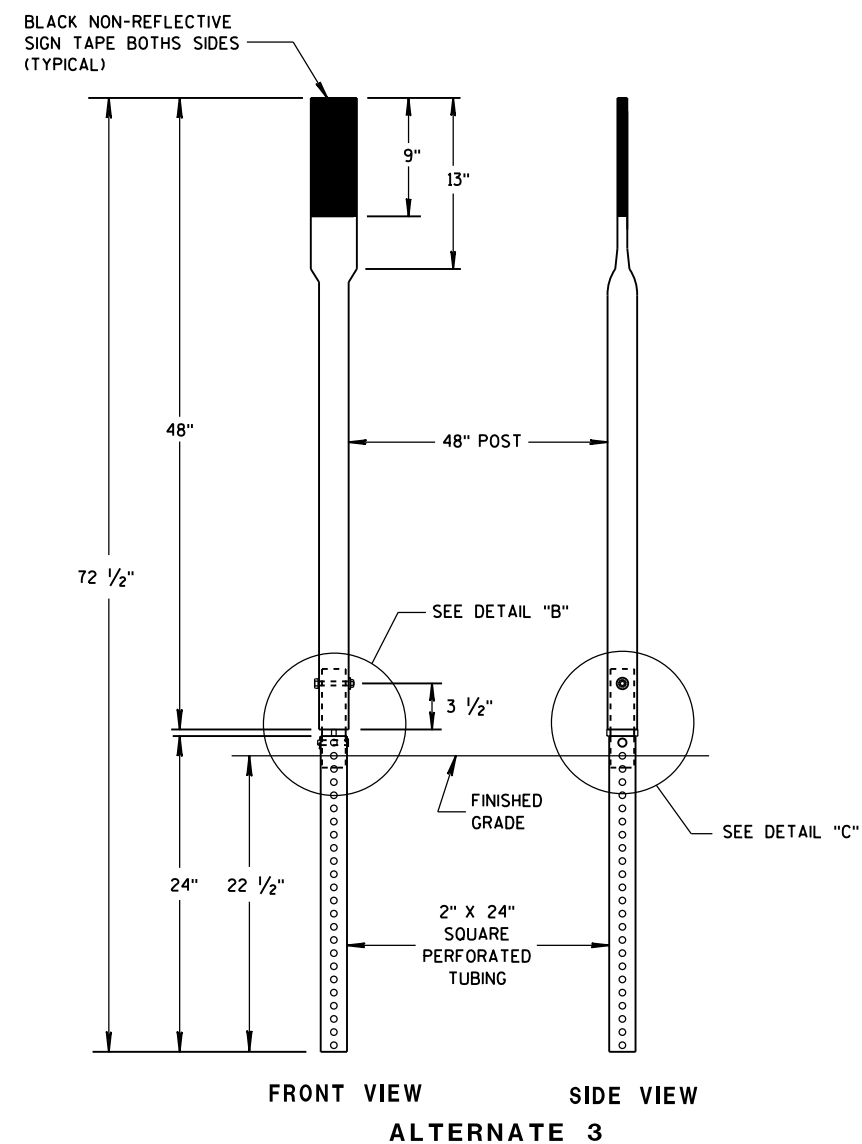
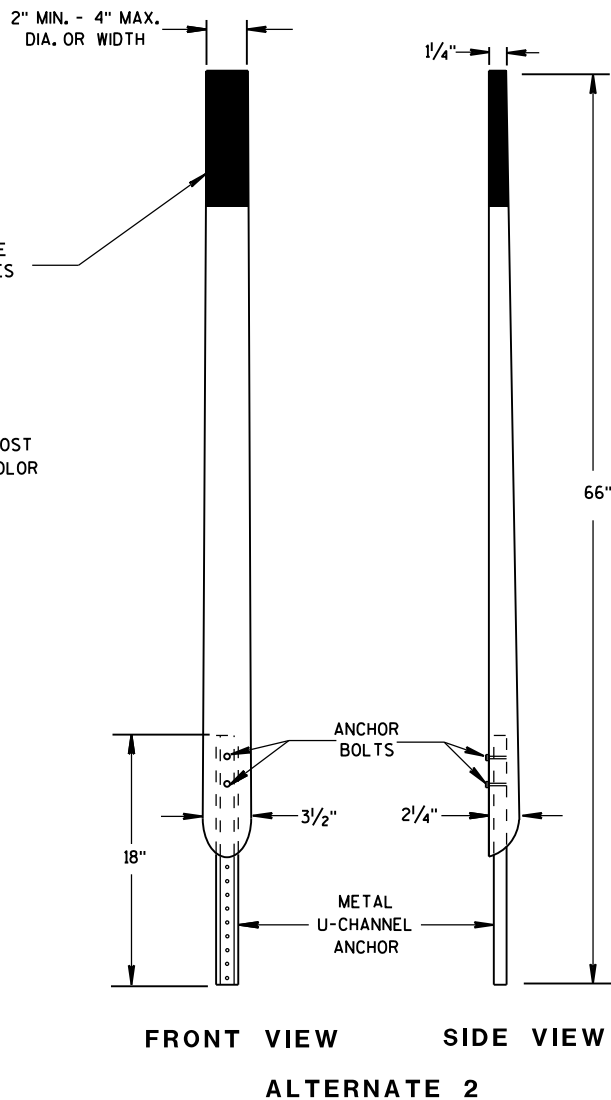
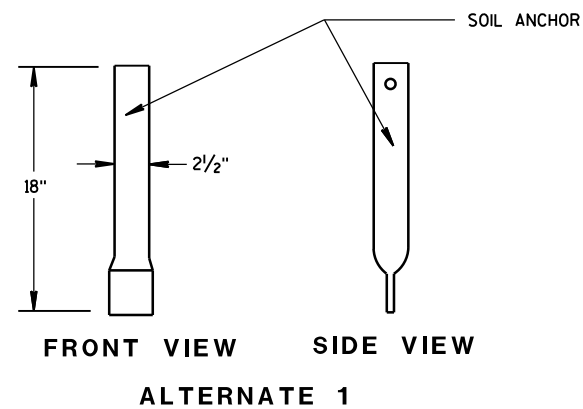
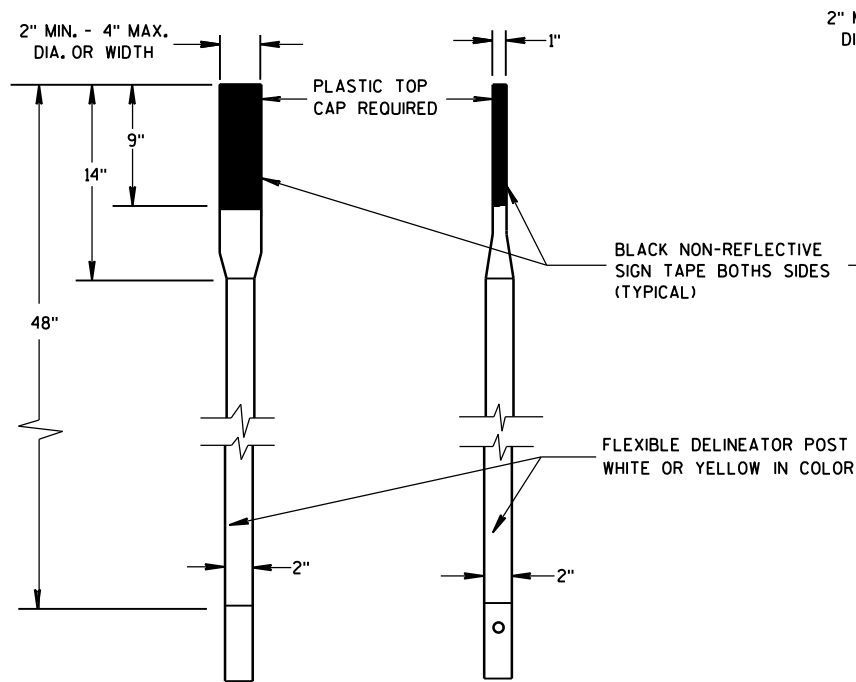
PLAN VIEW  
CONCRETE MASONRY ENDWALLS FOR  
CULVERT PIPE AND PIPE ARCH



CROSS SECTION  
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST  
FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 120



# FLEXIBLE MARKER POST FOR CULVERT END

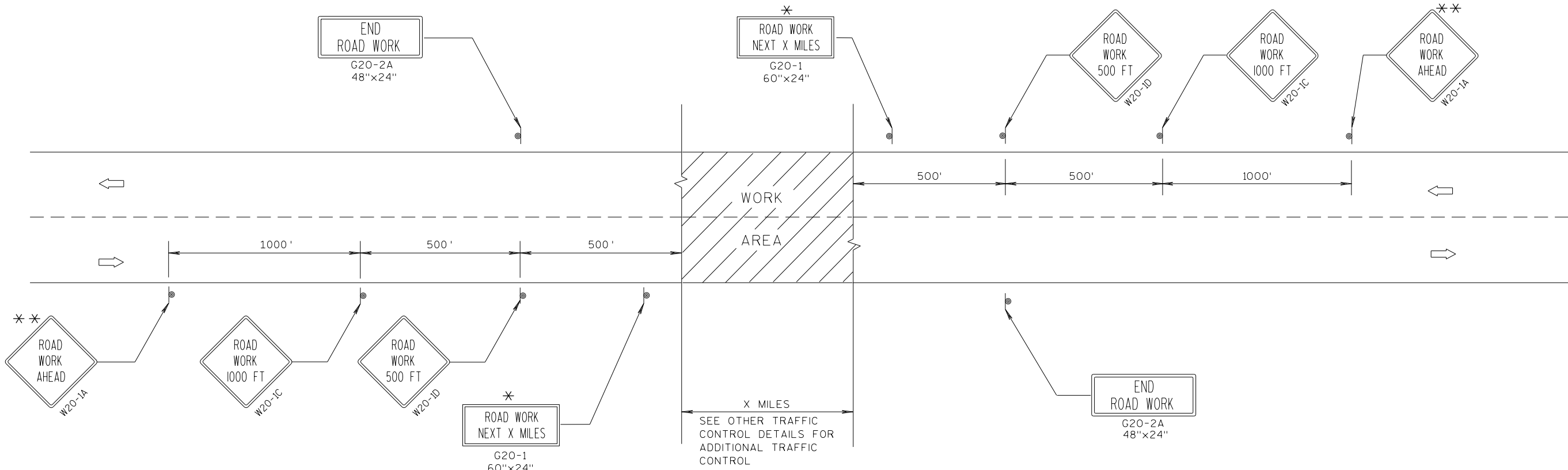
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

10/1/2012  
DATE

FHWA

/S/ Travis Feltes  
STATE TRAFFIC ENGINEER 121 IGN



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

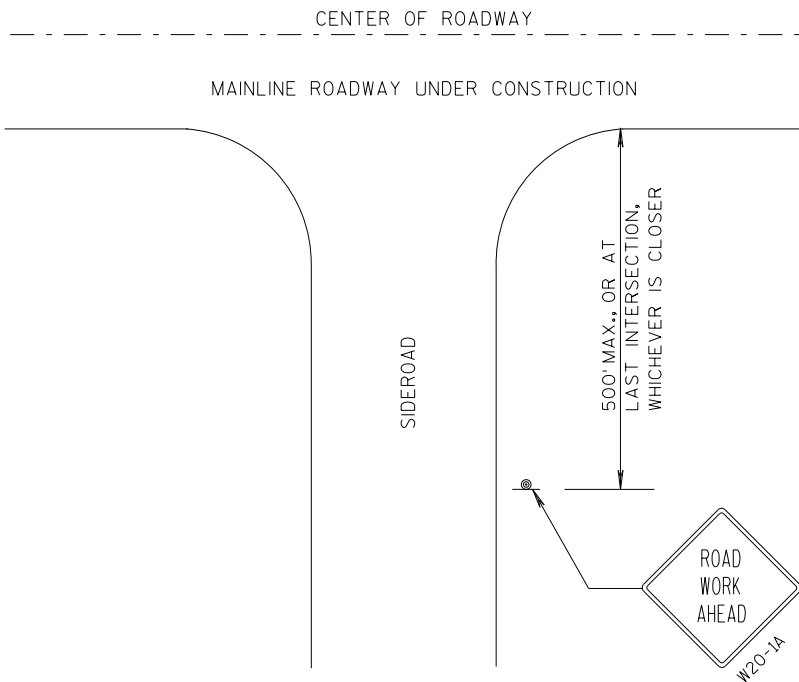
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

\* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

\* \* PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

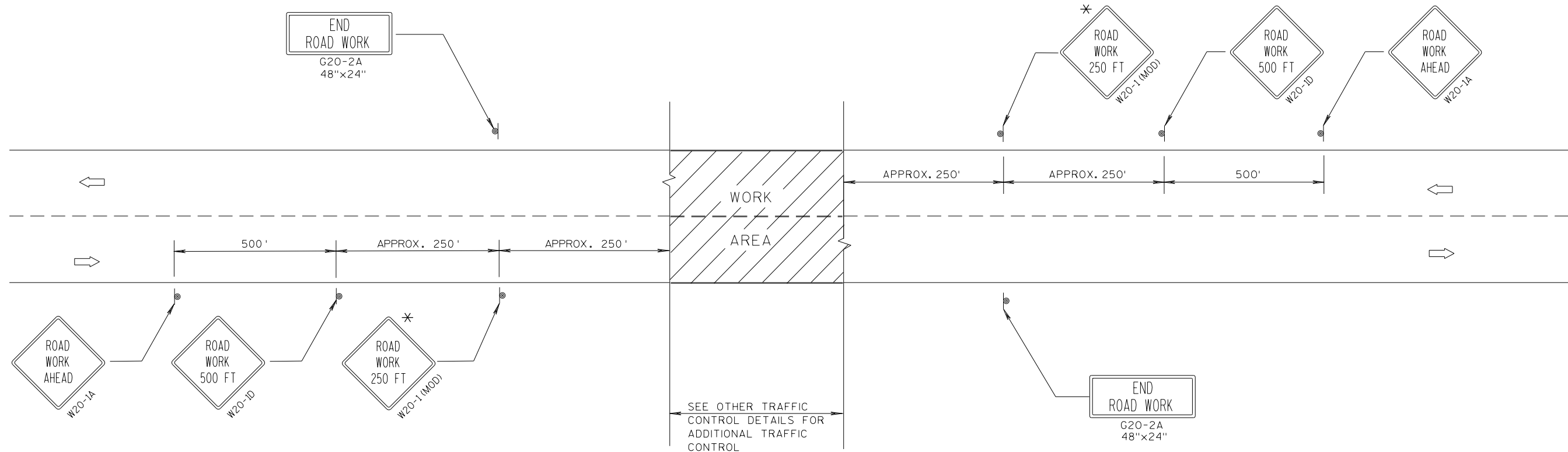
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, ADVANCE  
WARNING SIGNS 45 M.P.H.  
OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGI 122  
FHWA





TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

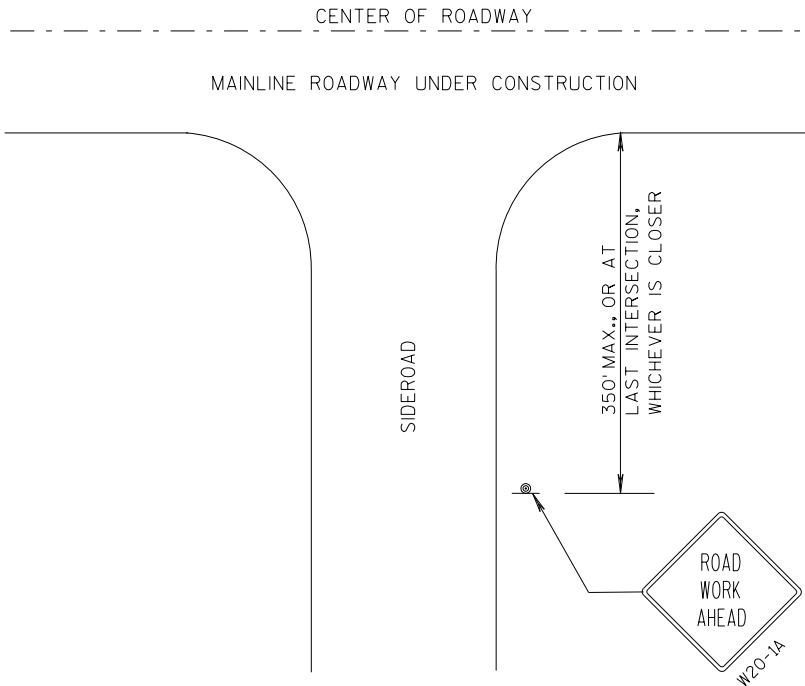
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

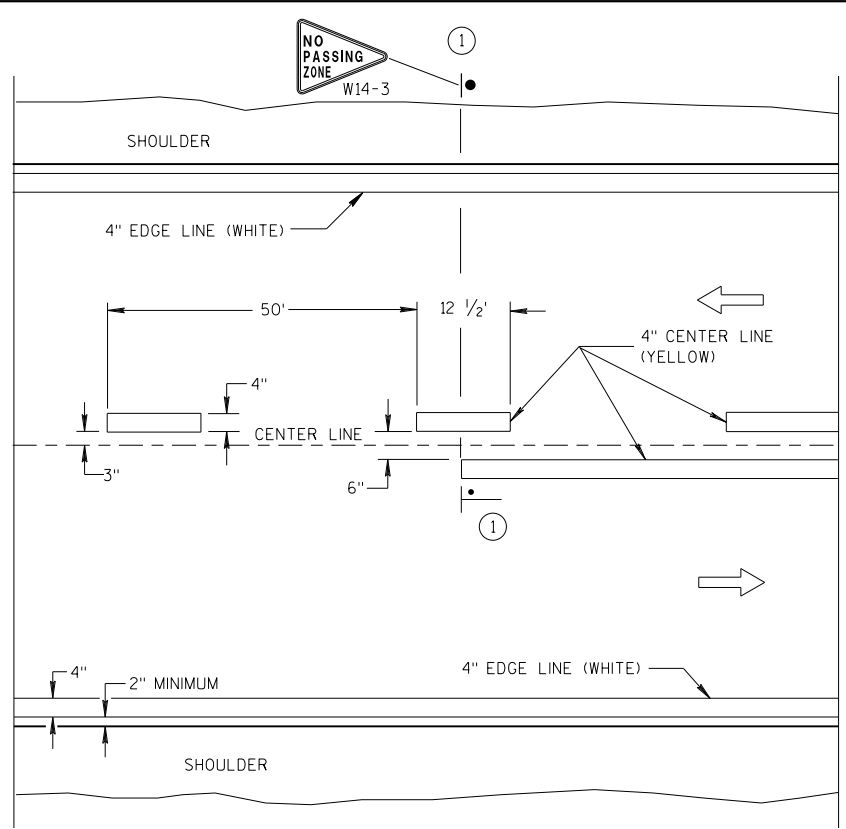
\* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



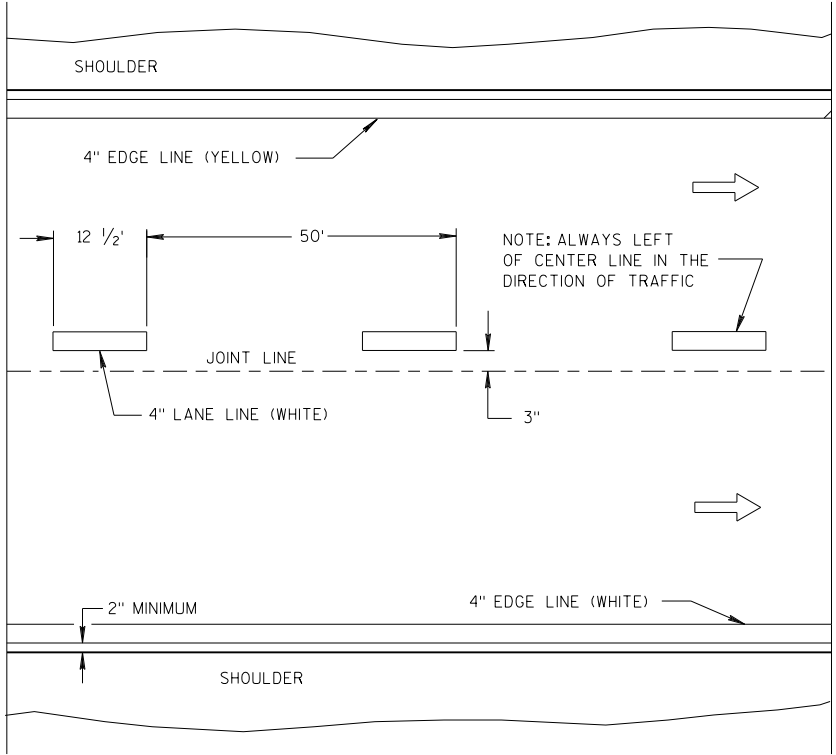
LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

|                                                                                                          |                                          |
|----------------------------------------------------------------------------------------------------------|------------------------------------------|
| TRAFFIC CONTROL. ADVANCE<br>WARNING SIGNS 40 M.P.H.<br>OR LESS TWO-WAY UNDIVIDED<br>ROAD OPEN TO TRAFFIC |                                          |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                                                       |                                          |
| APPROVED<br>7/2018<br>DATE                                                                               | /S/ Andrew Heidtke<br>WORK ZONE ENGI 123 |
| FHWA                                                                                                     |                                          |

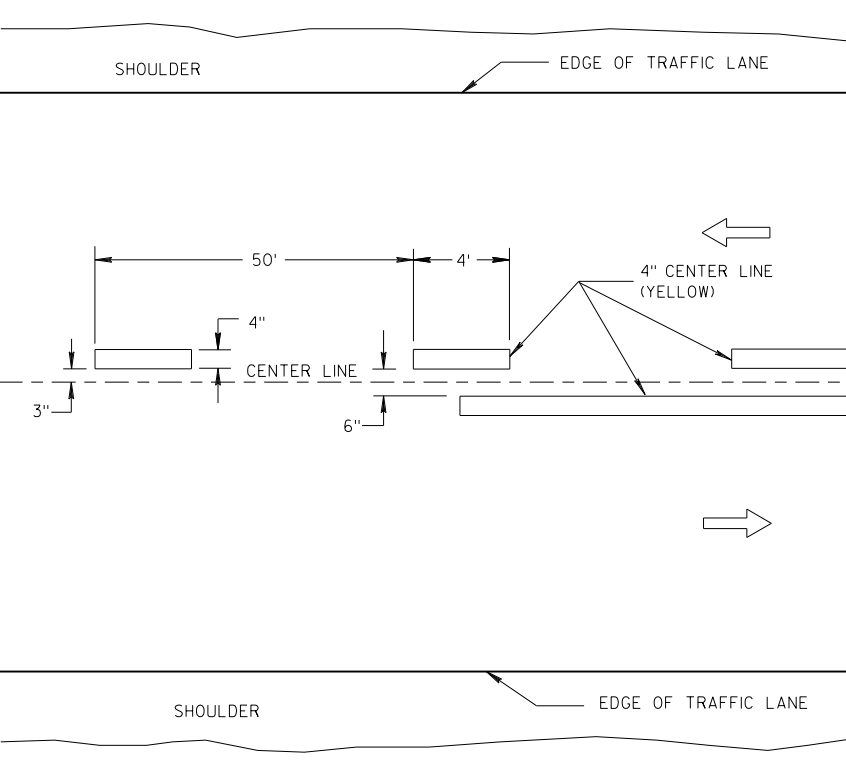


TWO WAY TRAFFIC

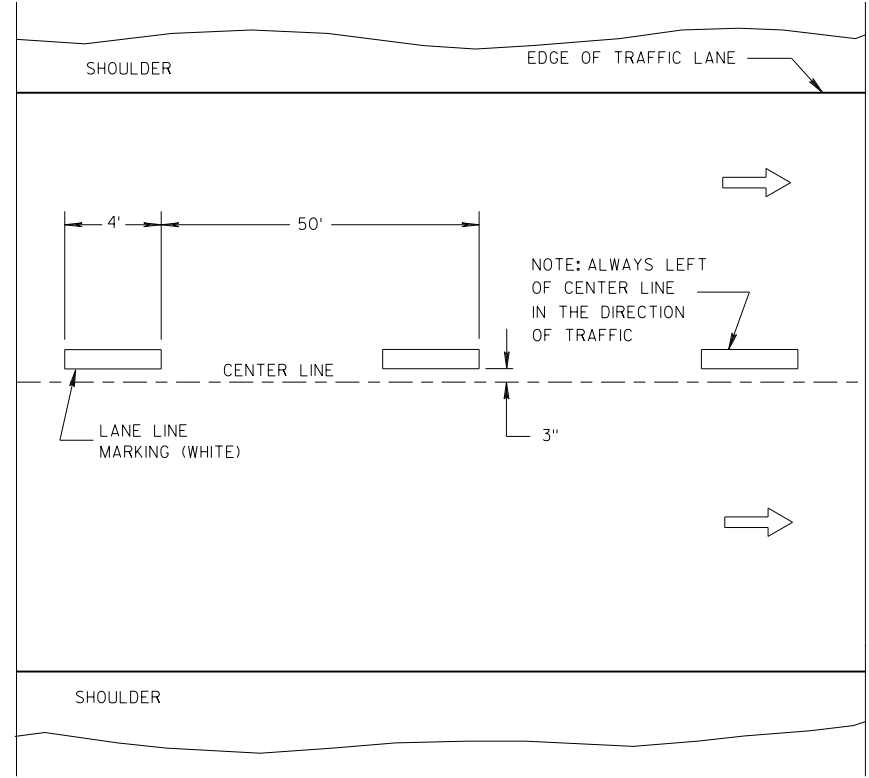


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

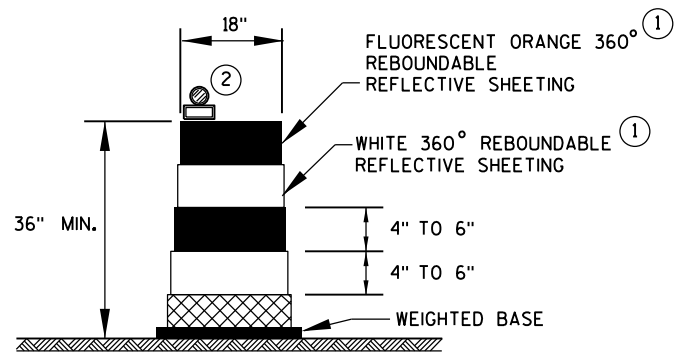
ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

LEGEND

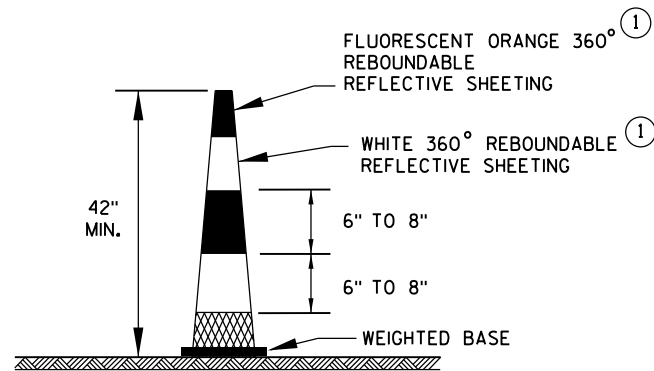
- "T" MARKING
- POST MOUNTED SIGN

| LONGITUDINAL MARKING (MAINLINE)                    |                           |  |  |
|----------------------------------------------------|---------------------------|--|--|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                           |  |  |
| APPROVED                                           |                           |  |  |
| 7/2018                                             | /S/ Matthew R. Rauch      |  |  |
| DATE                                               | STATE SIGNING AND MAR 124 |  |  |
| FHWA                                               | INEER                     |  |  |





**DRUM**

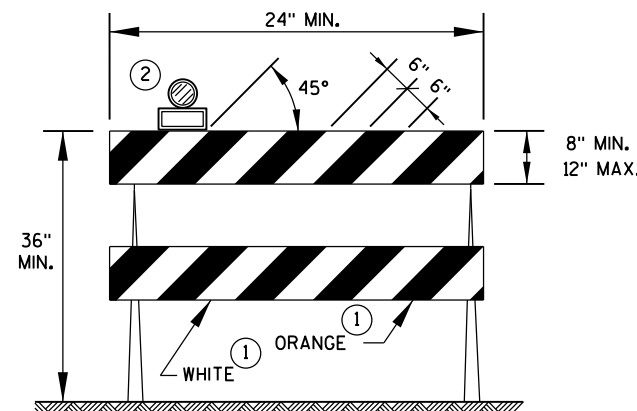


**42" CONE**

DO NOT USE IN TAPERS  
1/2 SPACING OF DRUMS

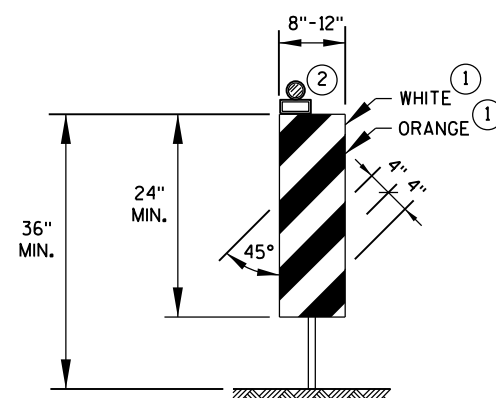
**GENERAL NOTES**

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



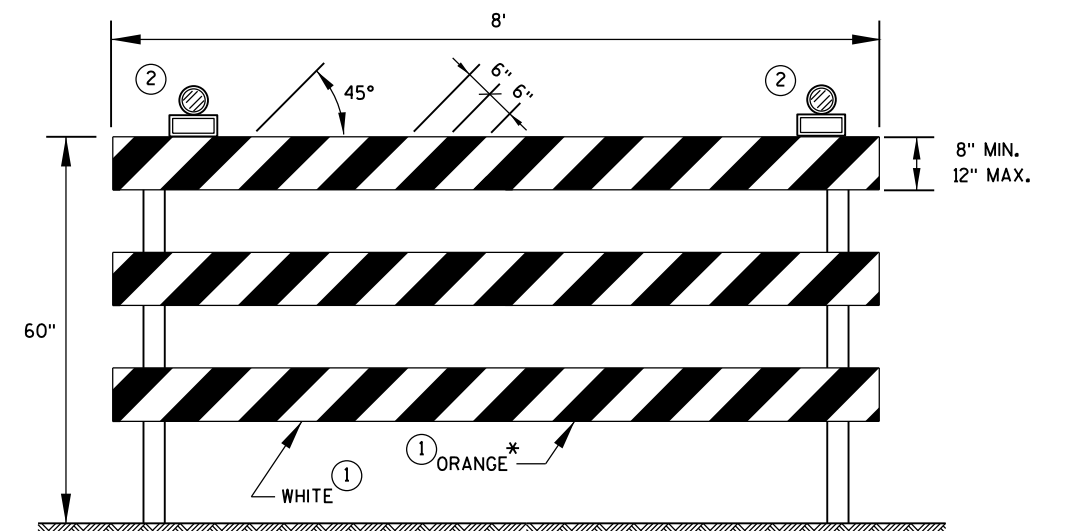
**TYPE 2 BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.  
ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE 3 BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.

| CHANNELIZING DEVICES<br>DRUMS, CONES, BARRICADES<br>AND VERTICAL PANELS |                                         |
|-------------------------------------------------------------------------|-----------------------------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                      |                                         |
| APPROVED<br>June 2017<br>DATE                                           | /S/ Andrew Heidtke<br>WORK ZONE ENG 125 |
| FHWA                                                                    |                                         |

LEGEND

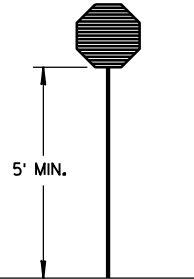
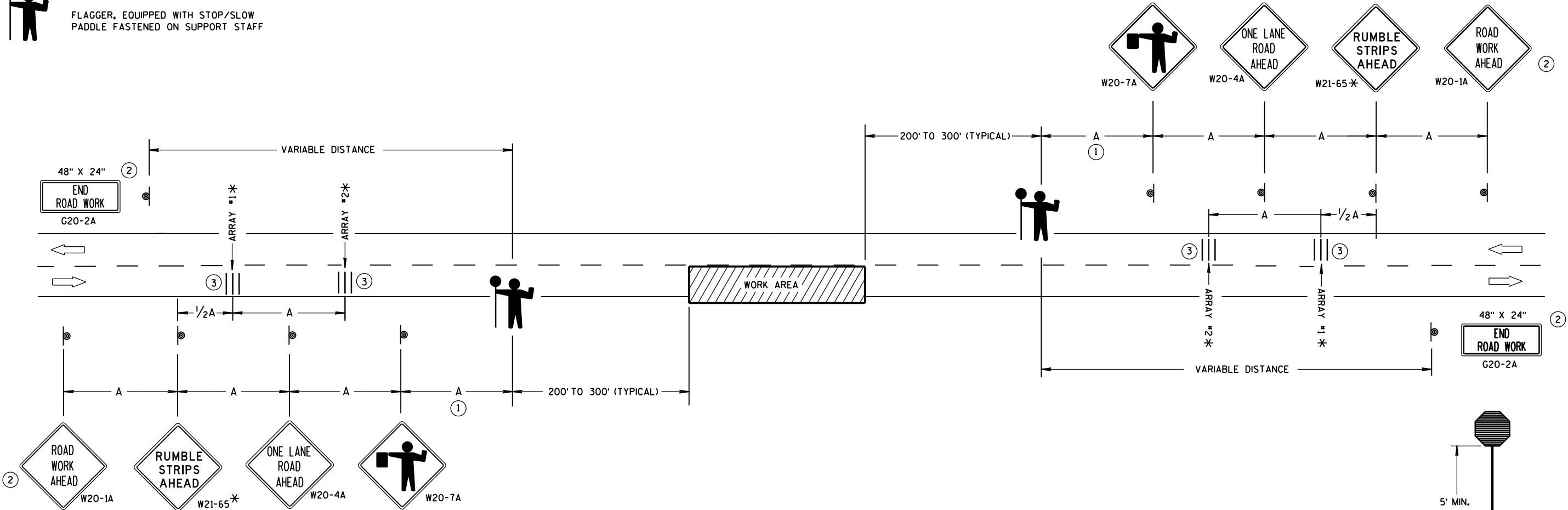
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

| SPEED LIMIT | SPACING A |
|-------------|-----------|
| 25-35 MPH   | 200'      |
| 35-40 MPH   | 350'      |
| 45-55 MPH   | 500'      |



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

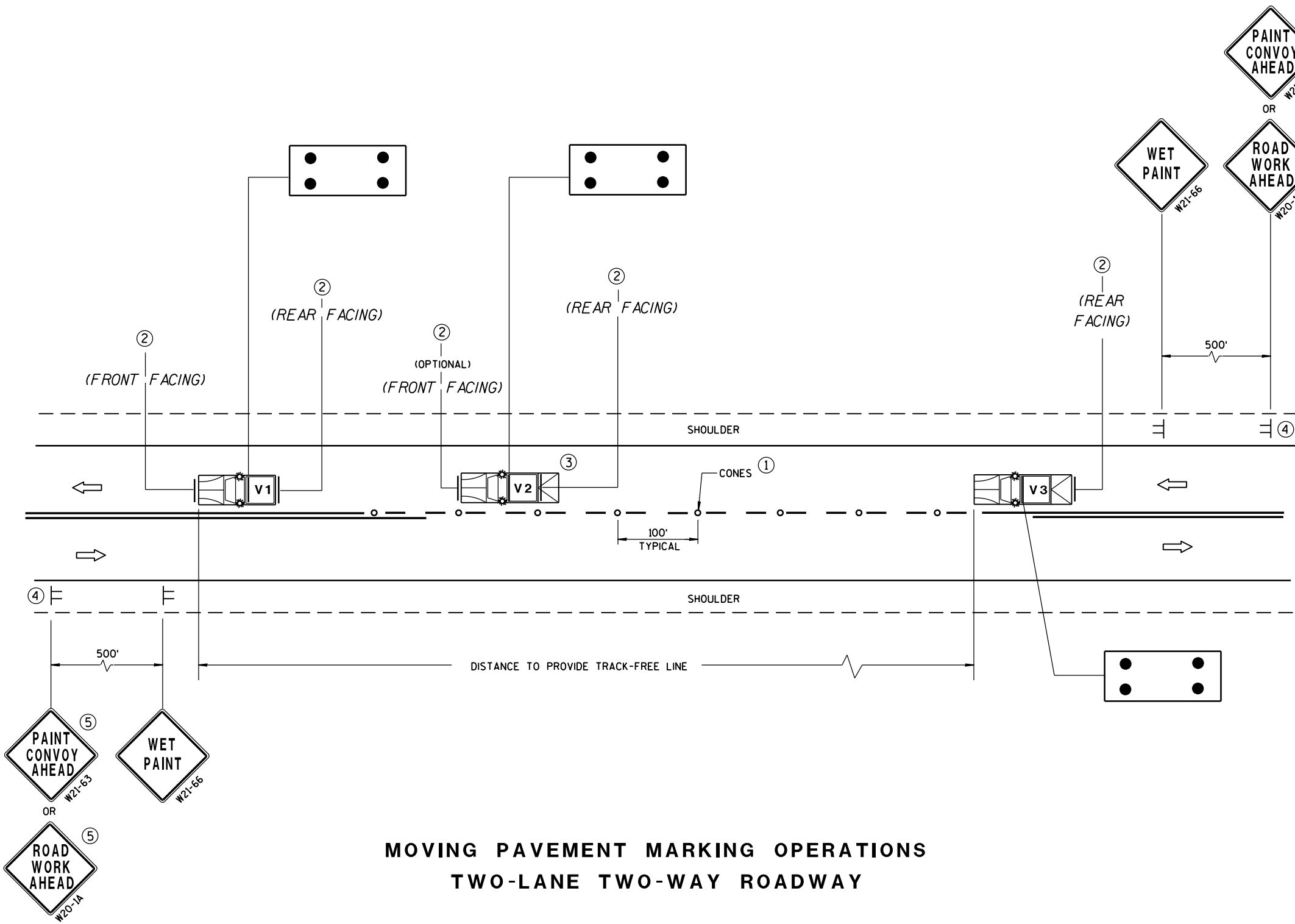
\* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Andrew Heldtke  
DATE WORK ZONE ENG 126  
FHWA



MOVING PAVEMENT MARKING OPERATIONS  
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

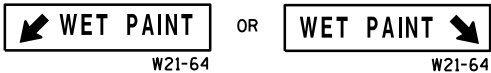
THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.



③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.

④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

V1 LEAD VEHICLE

V2 SHADOW VEHICLE

V3 TRAIL VEHICLE WITH TMA

TMA TRUCK-MOUNTED ATTENUATOR

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC

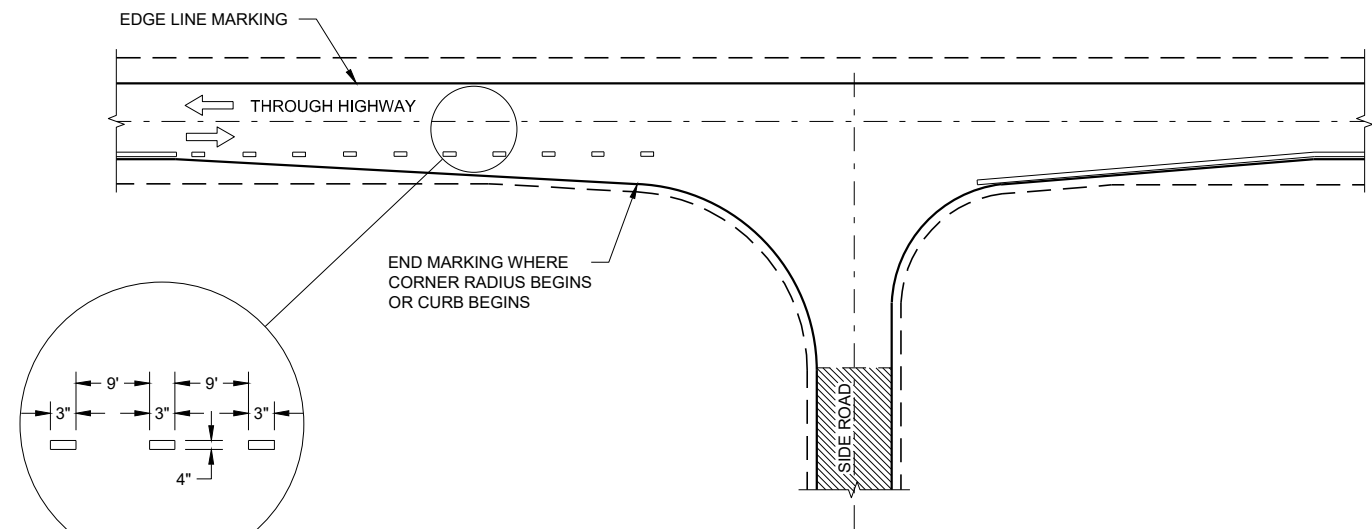
CONES

FLASHING ARROW PANEL (CAUTION)

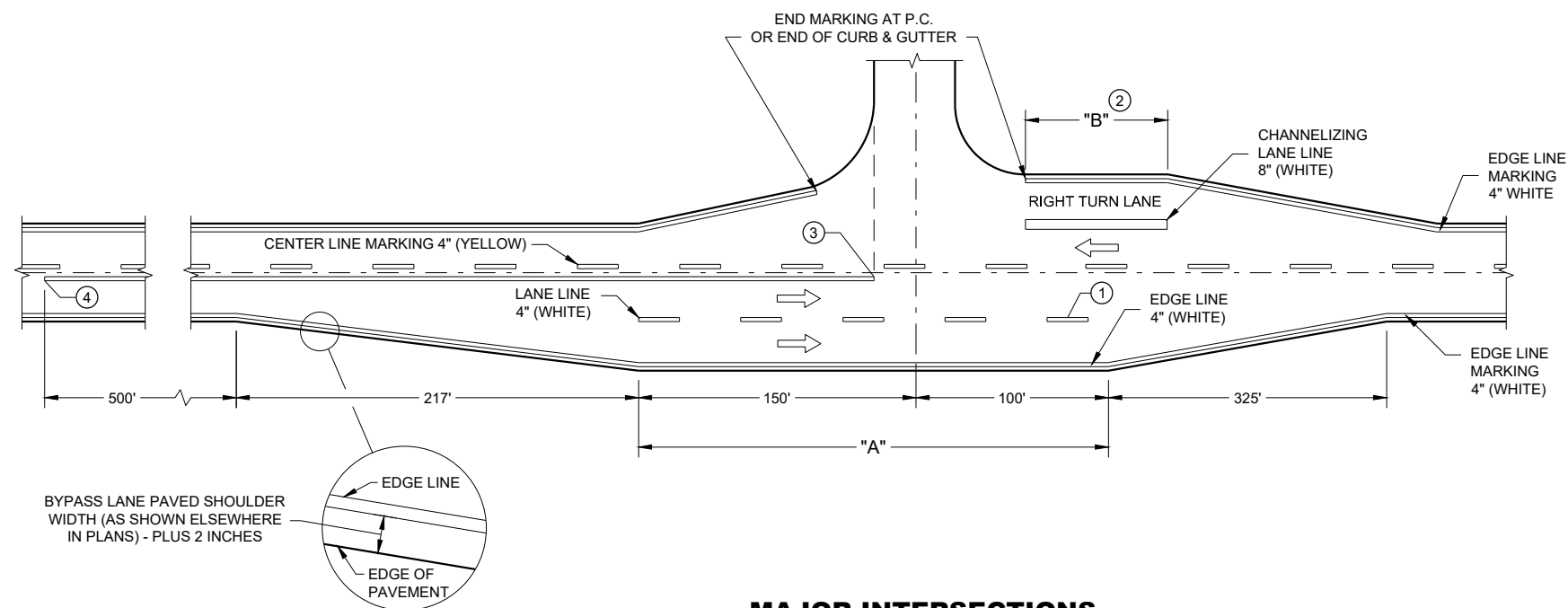
MOVING PAVEMENT MARKING  
OPERATION  
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept., 2017 /S/ Andrew Heidtke  
DATE WORK ZONE ENGR 127  
FHWA



**MINOR INTERSECTION**



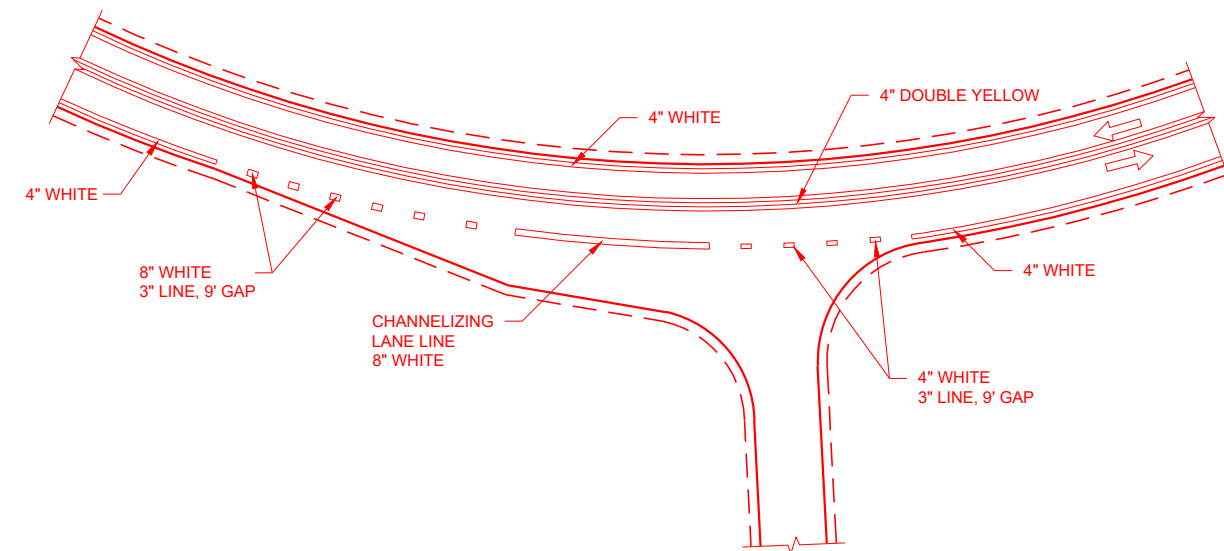
**MAJOR INTERSECTIONS**  
**(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)**

**GENERAL NOTES**

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER

ARROW SYMBOL ( ➡ ) SHOWS DIRECTION OF TRAVEL



**INTERSECTION ON OUTSIDE OF CURVE**

**PAVEMENT MARKING  
(INTERSECTIONS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 128

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

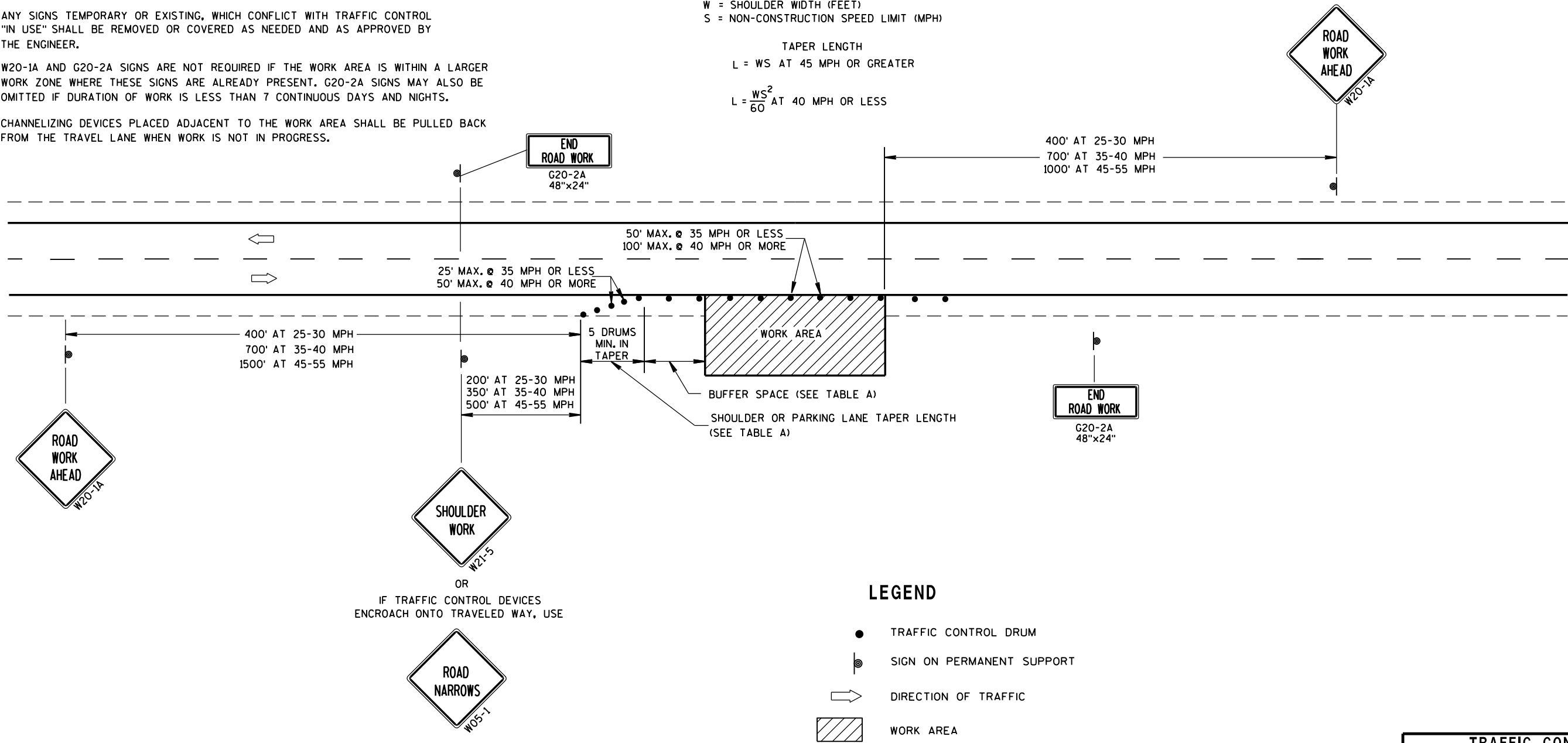
| SHOULDER TAPER LENGTH (FEET) |    |     |     |     | BUFFER SPACE (FEET) |
|------------------------------|----|-----|-----|-----|---------------------|
| S \ W                        | 4  | 6   | 8   | 10  |                     |
| 30                           | 20 | 30  | 40  | 50  | 200                 |
| 35                           | 30 | 45  | 55  | 70  | 250                 |
| 40                           | 40 | 55  | 75  | 90  | 305                 |
| 45                           | 60 | 90  | 120 | 150 | 360                 |
| 50                           | 70 | 100 | 135 | 170 | 425                 |
| 55                           | 75 | 110 | 150 | 185 | 495                 |

W = SHOULDER WIDTH (FEET)  
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH  
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$  AT 40 MPH OR LESS

SHOULDER TAPER LENGTH =  $\frac{1}{3}L$

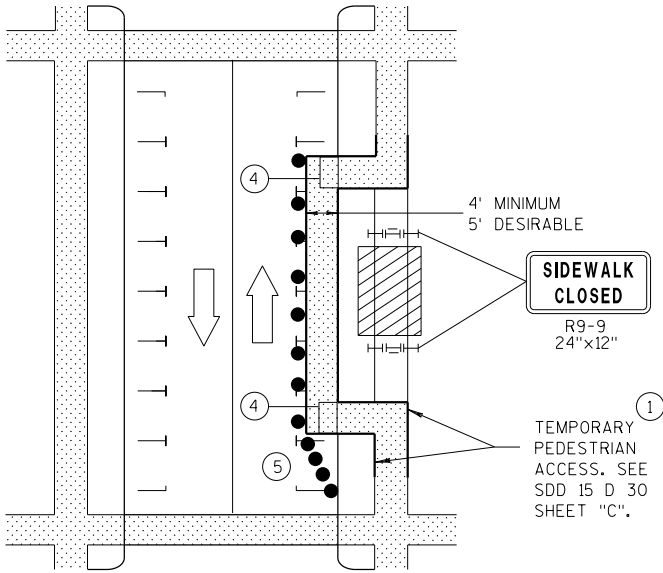


LEGEND

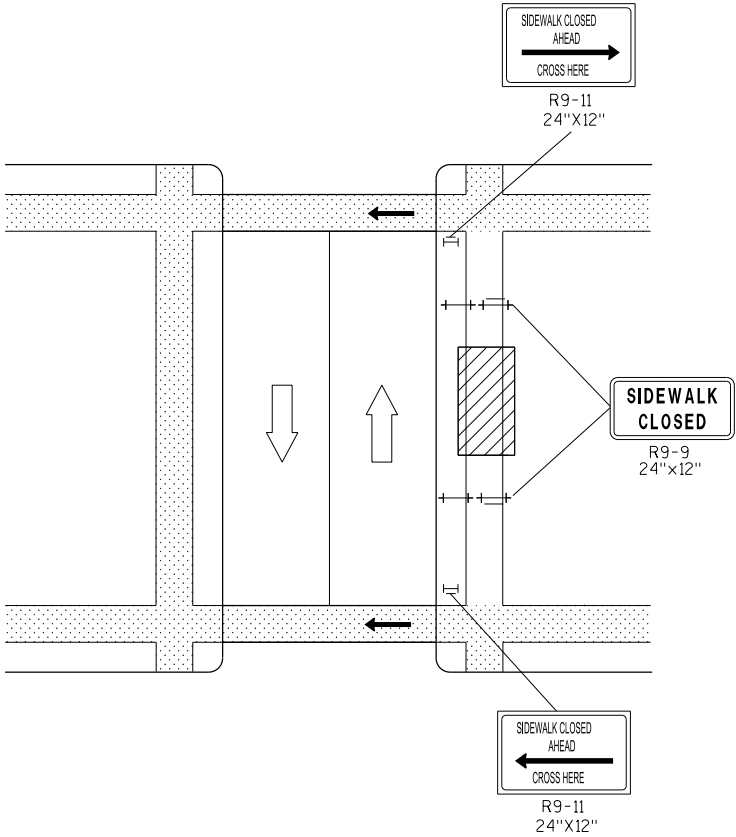
- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

|                                                                               |                                                                |
|-------------------------------------------------------------------------------|----------------------------------------------------------------|
| TRAFFIC CONTROL,<br>WORK ON SHOULDER OR<br>PARKING LANE,<br>UNDIVIDED ROADWAY |                                                                |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                            |                                                                |
| APPROVED<br>July 14, 2015<br>DATE                                             | /S/ Peter Amakobe Atepe<br>STATEWIDE WORK ZONE SAFETY ENGINEER |
| FHWA                                                                          |                                                                |

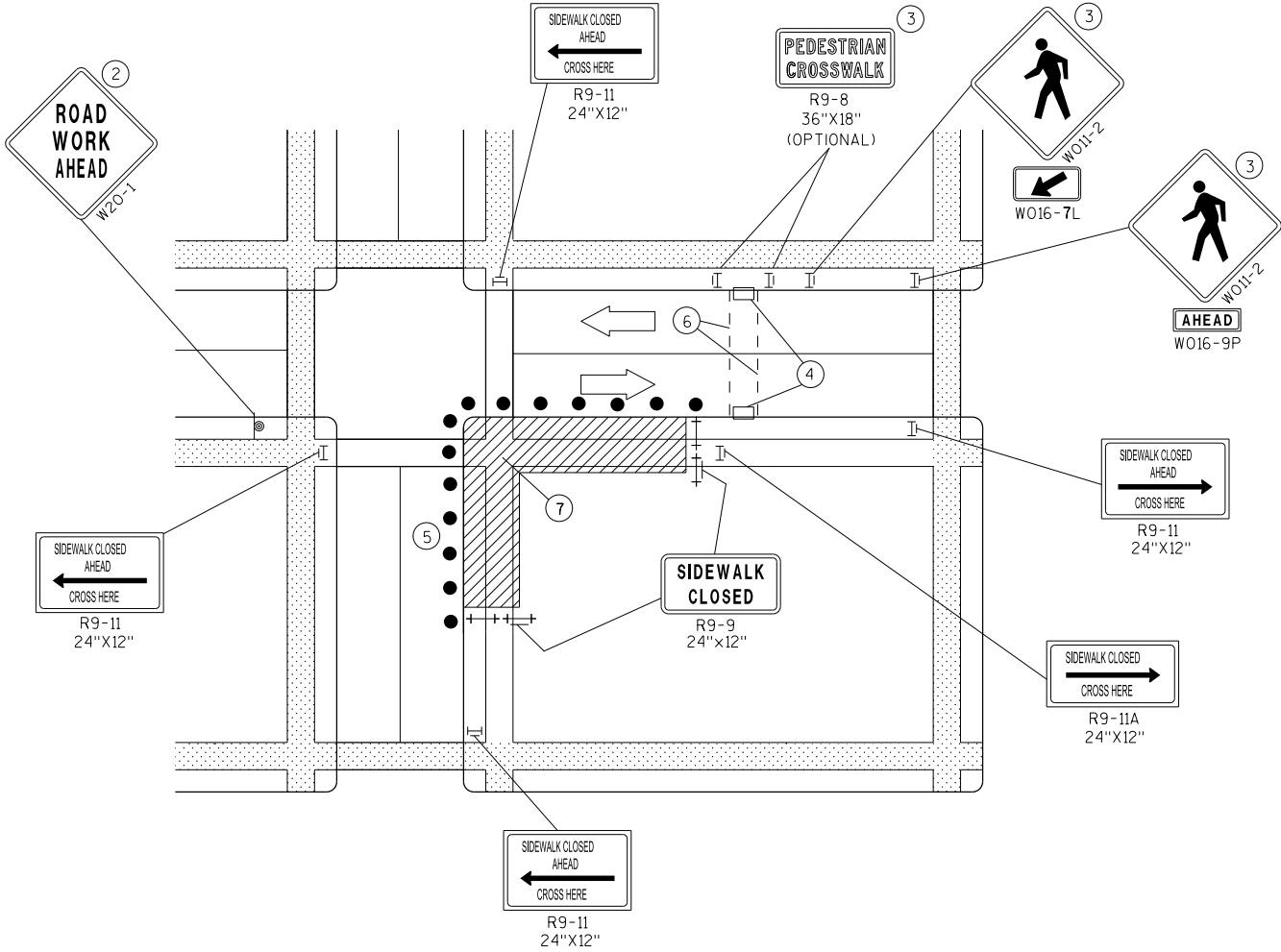
NOTE: MAY BE USED ON ROADWAY WITH POSTED SPEED OF LESS THAN 40 MPH.



MID-BLOCK SIDEWALK CLOSURE  
IN PARKING LANE

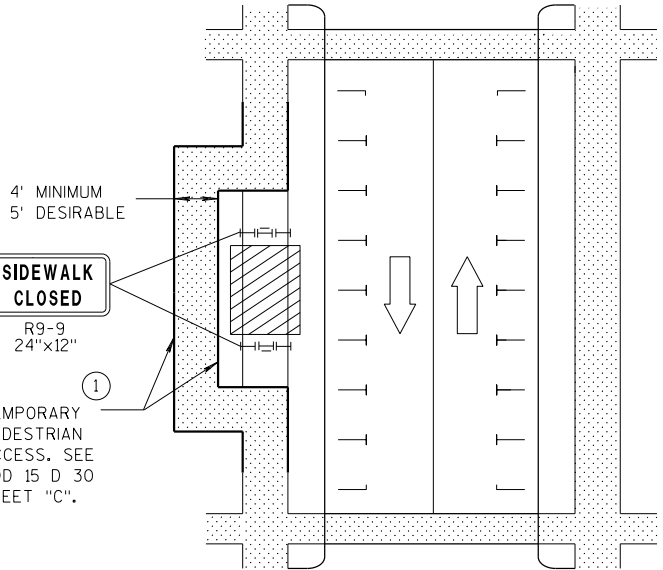


MID-BLOCK SIDEWALK CLOSURE



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALK

NOTE: LAYOUT SAME AS ABOVE.



SIDEWALK DIVERSION

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

FOR NIGHTTIME CLOSURE USE TYPE "A" FLASHING WARNING LIGHTS ON BARRICADES, SUPPORTING SIGNS AND CLOSING SIDEWALK. USE TYPE "C" STEADY BURN LIGHTS ON CHANNELIZING DEVICES SEPARATING THE WORK AREA FROM VEHICULAR TRAFFIC.

PEDESTRIAN TRAFFIC SIGNAL DISPLAY CONTROLLING CLOSED CROSSWALK SHALL BE COVERED OR DEACTIVATED.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

- IF SIDEWALK CLOSURE AFFECTS AN ACCESSIBLE AND DETECTABLE FACILITY, MAINTAIN ACCESSIBILITY AND DETECTABILITY ALONG THE ALTERNATE PEDESTRIAN ROUTE.
- "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.
- IF TEMPORARY PEDESTRIAN CROSSWALK IS NOT PROVIDED, OMIT R9-8 AND W011-2 SIGN ASSEMBLIES. IF PROVIDED INCLUDE ON BOTH SIDES OF THE CROSSWALK.
- TEMPORARY CURB RAMPS. SEE SDD 15 D 30 SHEET "B".
- DRUMS OR BARRICADES AT 25 FOOT SPACING. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.
- TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.
- LIMIT WORK TO ONE QUADRANT AT A TIME TO MINIMIZE PEDESTRIAN DISRUPTION.

LEGEND

|  |                                                                                                   |  |                      |
|--|---------------------------------------------------------------------------------------------------|--|----------------------|
|  | SIGN ON PERMANENT SUPPORT                                                                         |  | DIRECTION OF TRAFFIC |
|  | UNDER PEDESTRIAN TRAFFIC                                                                          |  | TRAFFIC CONTROL DRUM |
|  | WORK AREA                                                                                         |  |                      |
|  | PEDESTRIAN CHANNELIZATION DEVICE                                                                  |  |                      |
|  | TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)  |  |                      |
|  | TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING) |  |                      |

TRAFFIC CONTROL,  
PEDESTRIAN ACCOMMODATION

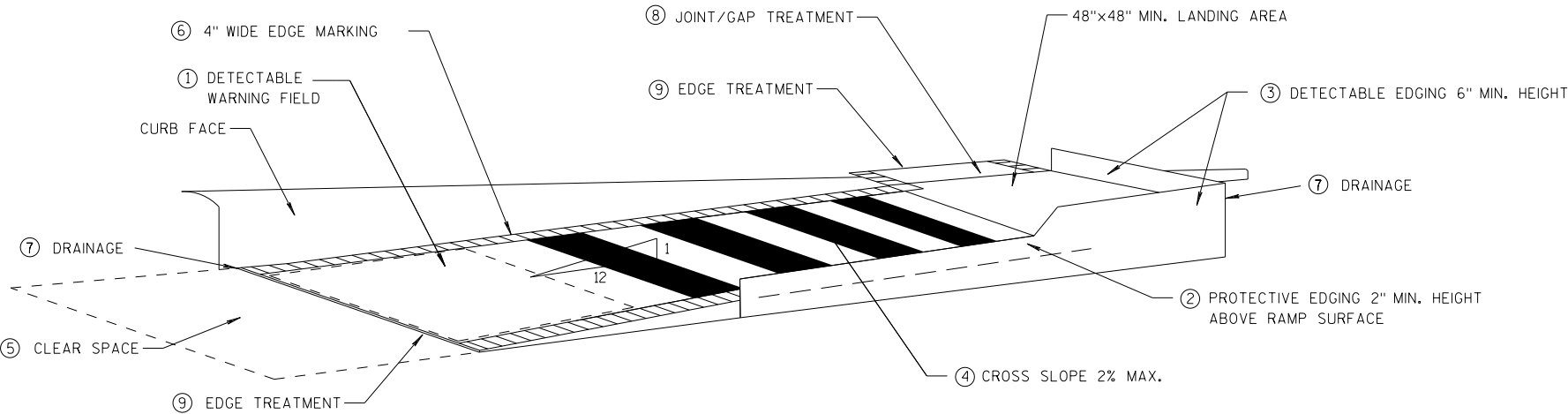
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

130

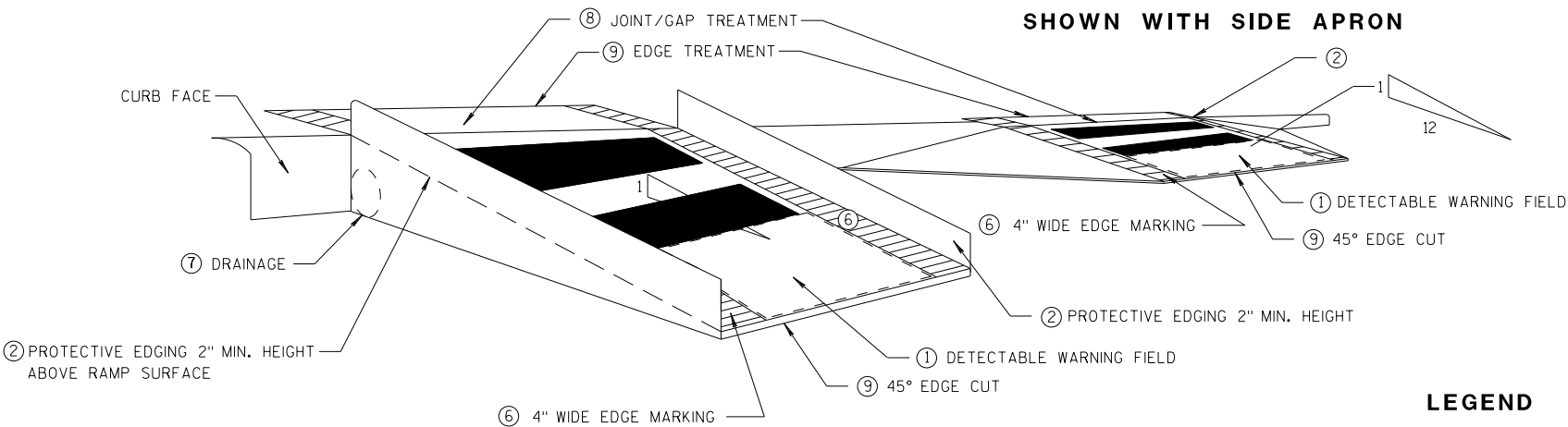


GENERAL NOTES

- NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.  
ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.
- 1 CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. INSTALL CONTRASTING DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS. REFER TO SDD 805 SHEET "E".
  - 2 PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
  - 3 DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
  - 4 CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.
  - 5 CLEAR SPACE OF 48"x48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
  - 6 THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.
  - 7 DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
  - 8 LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
  - 9 CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHALL BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".
  - 10 5' WIDE MIN. WITH PEDSETRIAN SAFETY FENCE, 10' WIDE MIN. WITHOUT PEDESTRIAN SAFETY FENCE.

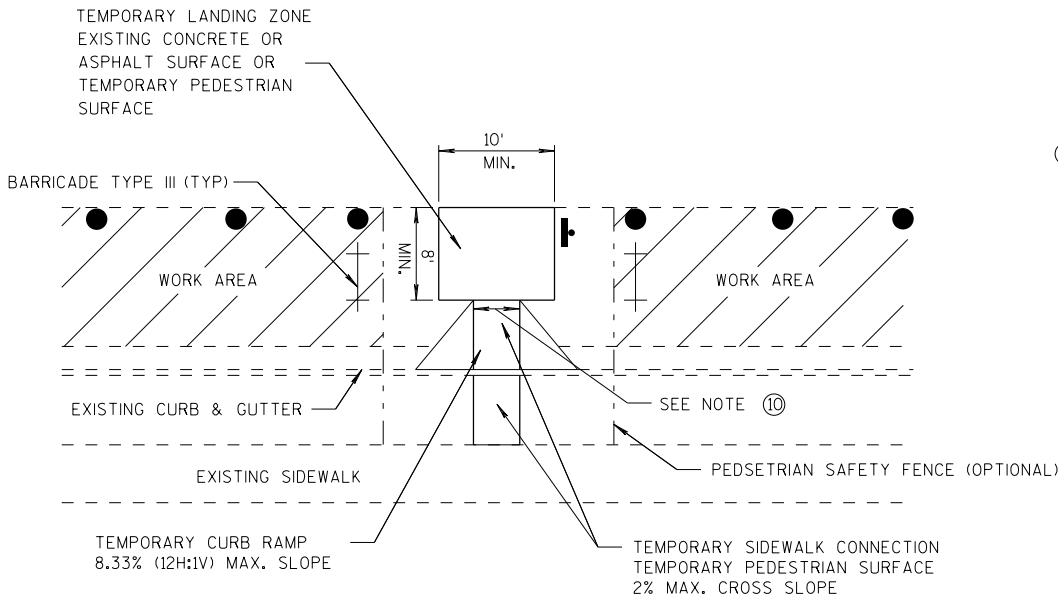


TEMPORARY CURB RAMP  
PARALLEL TO CURB



SHOWN WITH PROTECTIVE EDGE

TEMPORARY CURB RAMP  
PERPENDICULAR TO CURB



TEMPORARY BUS STOP PAD

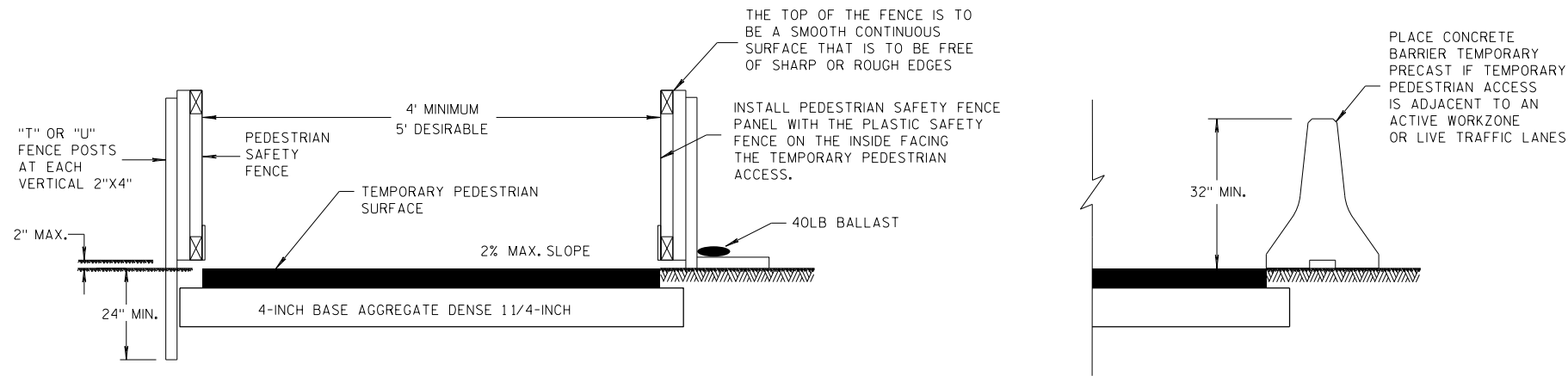
LEGEND

|  |                      |
|--|----------------------|
|  | WORK AREA            |
|  | TYPE III BARRICADE   |
|  | TRAFFIC CONTROL DRUM |

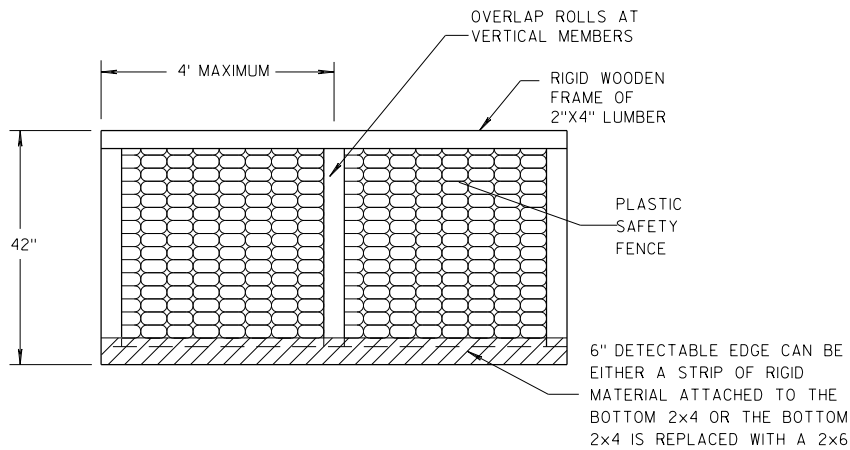
TRAFFIC CONTROL,  
TEMPORARY ADA COMPLIANT  
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

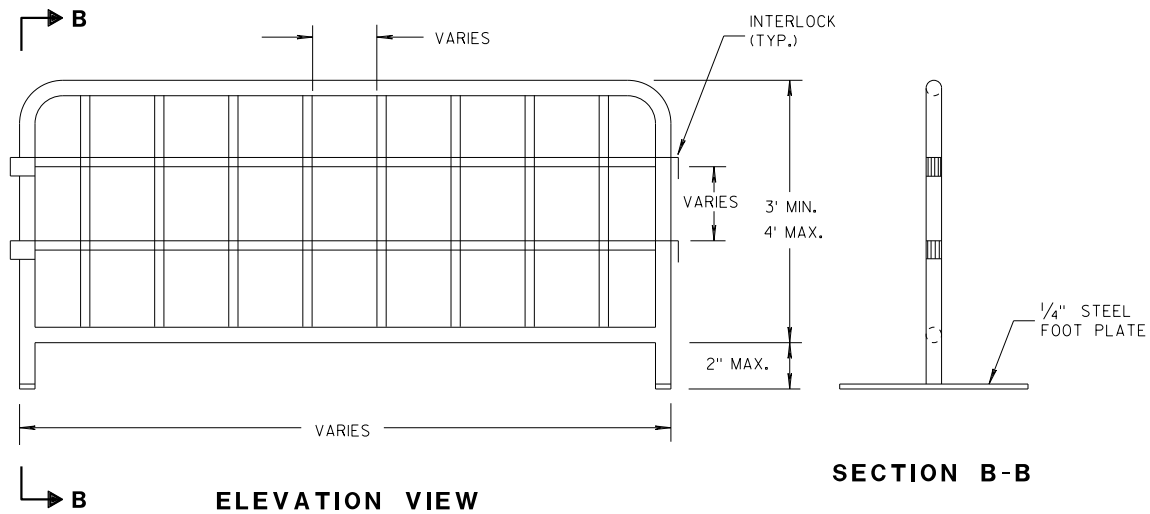
APPROVED  
DATE 7/2018 /S/ Andrew Heidtke  
WORK ZONE ENG 131  
FHWA



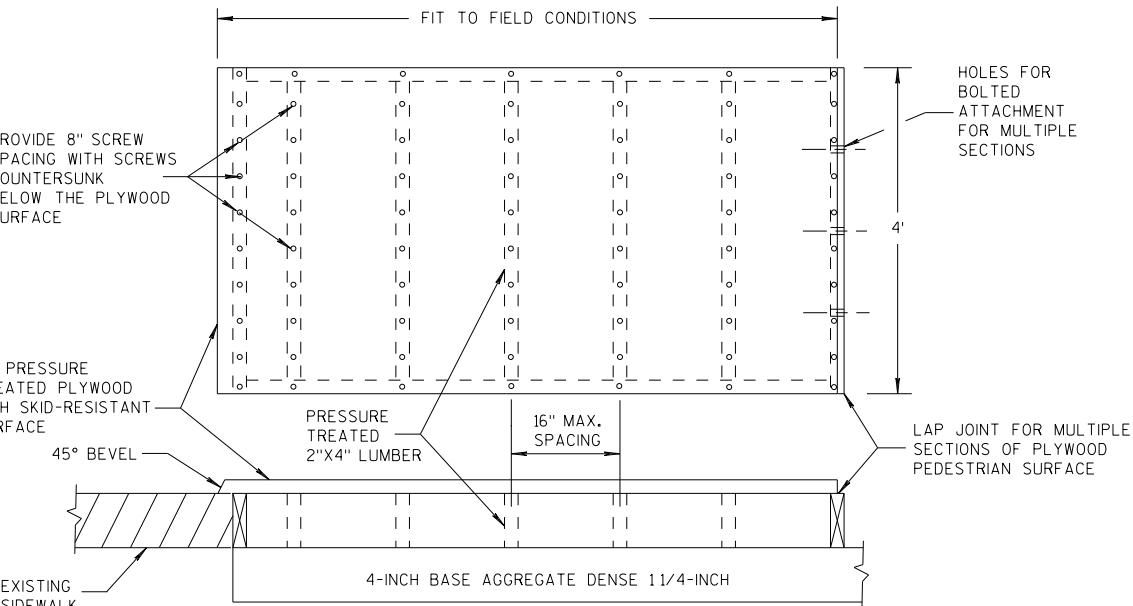
TEMPORARY PEDESTRIAN ACCESS



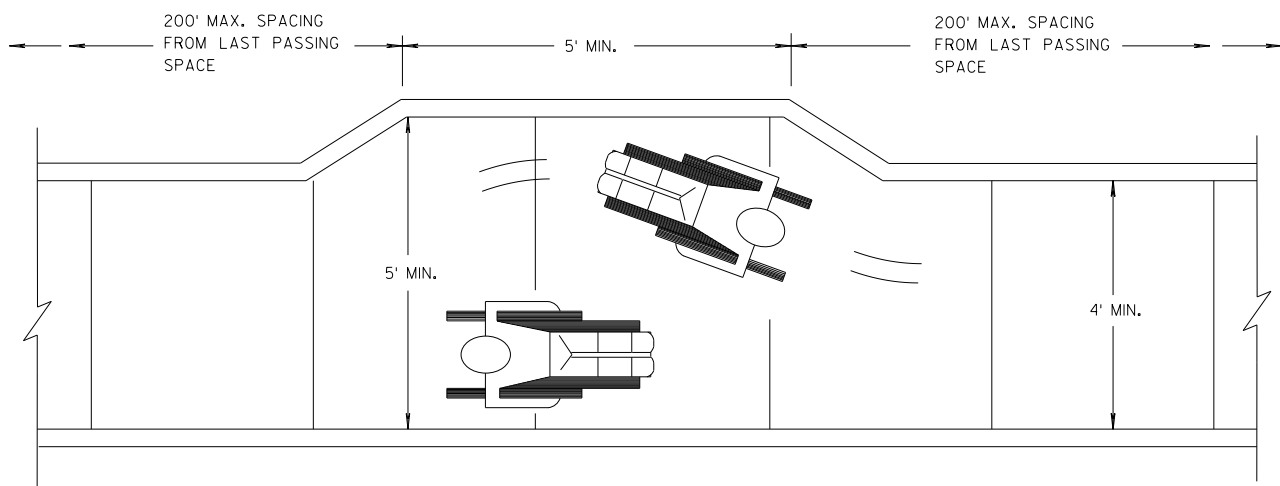
PEDESTRIAN SAFETY FENCE



TEMPORARY PEDESTRIAN STEEL BARRICADE



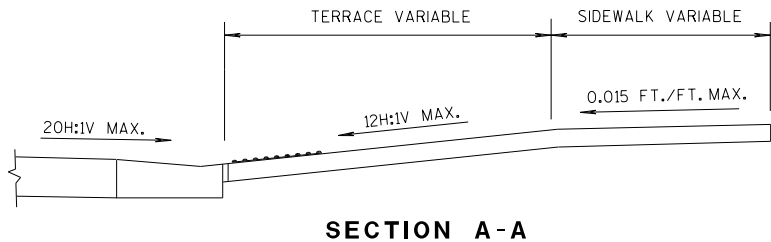
TEMPORARY PEDESTRIAN SURFACE PLYWOOD



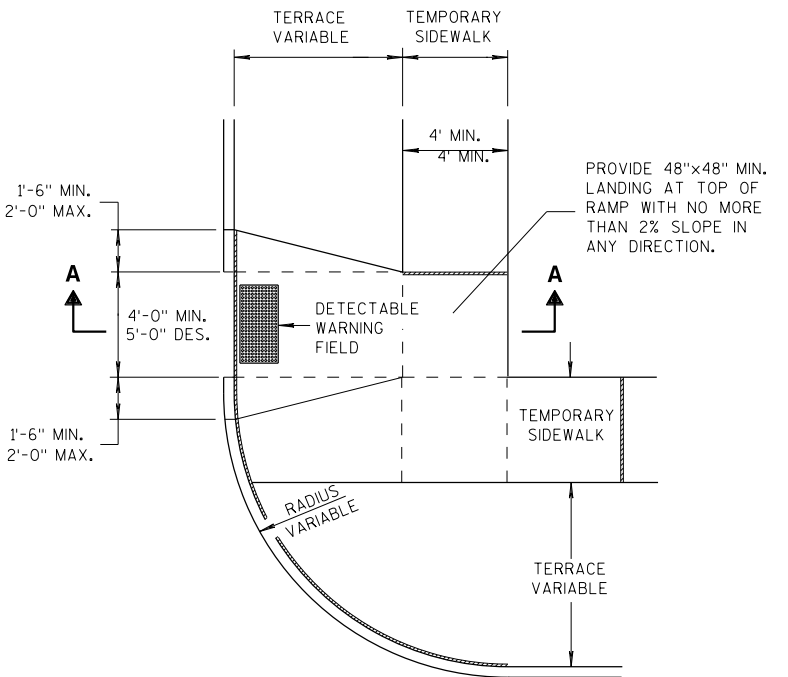
NARROW SIDEWALK PASSING DETAIL

GENERAL NOTES

- ① INTERCHANGEABLE WITH THE PEDESTRIAN SAFETY FENCE.



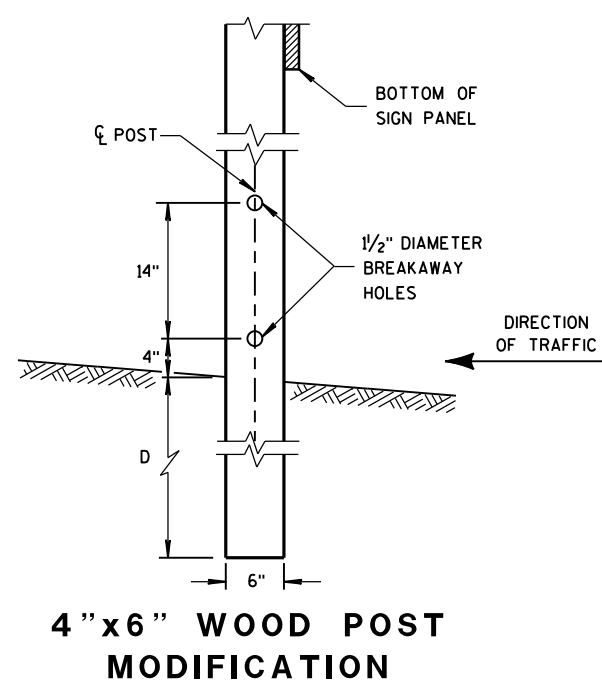
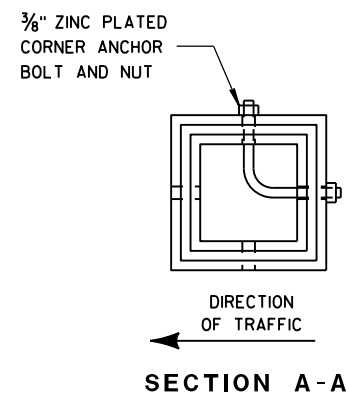
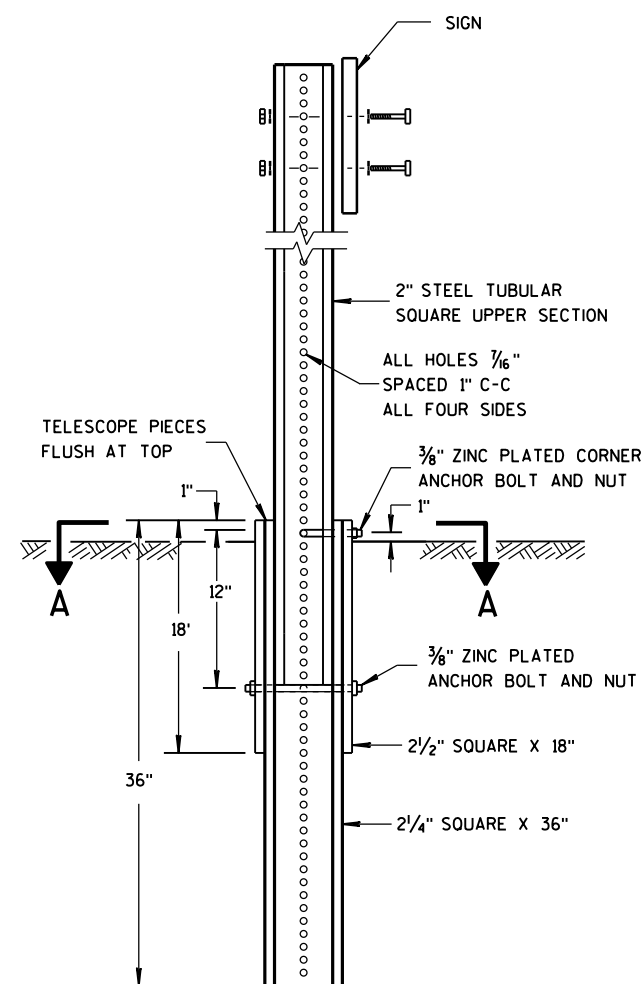
SECTION A-A



TEMPORARY TYPE 3 RAMP  
(OUTSIDE OF CROSSWALK AREA)

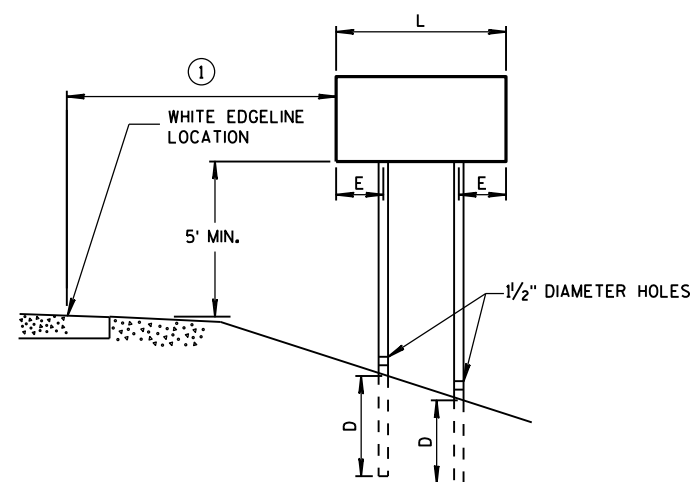
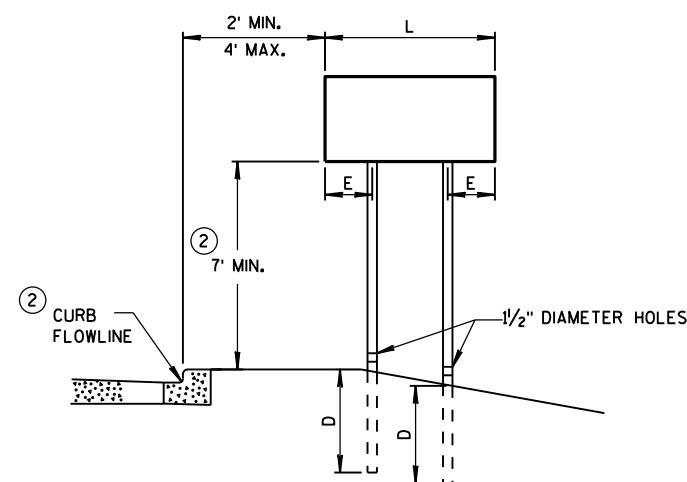
|                                                    |                                         |
|----------------------------------------------------|-----------------------------------------|
| TRAFFIC CONTROL,<br>PEDESTRIAN ACCOMMODATION       |                                         |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                         |
| APPROVED<br>7/2018<br>DATE                         | /S/ Andrew Heidtke<br>WORK ZONE ENG 132 |
| FHWA                                               |                                         |





- ## GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



| TUBULAR STEEL POSTS                            |                                              |
|------------------------------------------------|----------------------------------------------|
| AREA OF SIGN<br>INSTALLATION<br>(SQ. FT.)      | NUMBER OF<br>REQUIRED TUBULAR<br>STEEL POSTS |
| 9 OR LESS                                      | 1                                            |
| GREATER THAN 9<br>LESS THAN OR EQUAL<br>TO 18  | 2                                            |
| GREATER THAN 18<br>LESS THAN OR EQUAL<br>TO 27 | 3                                            |

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

# URBAN AREA RURAL AREA POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

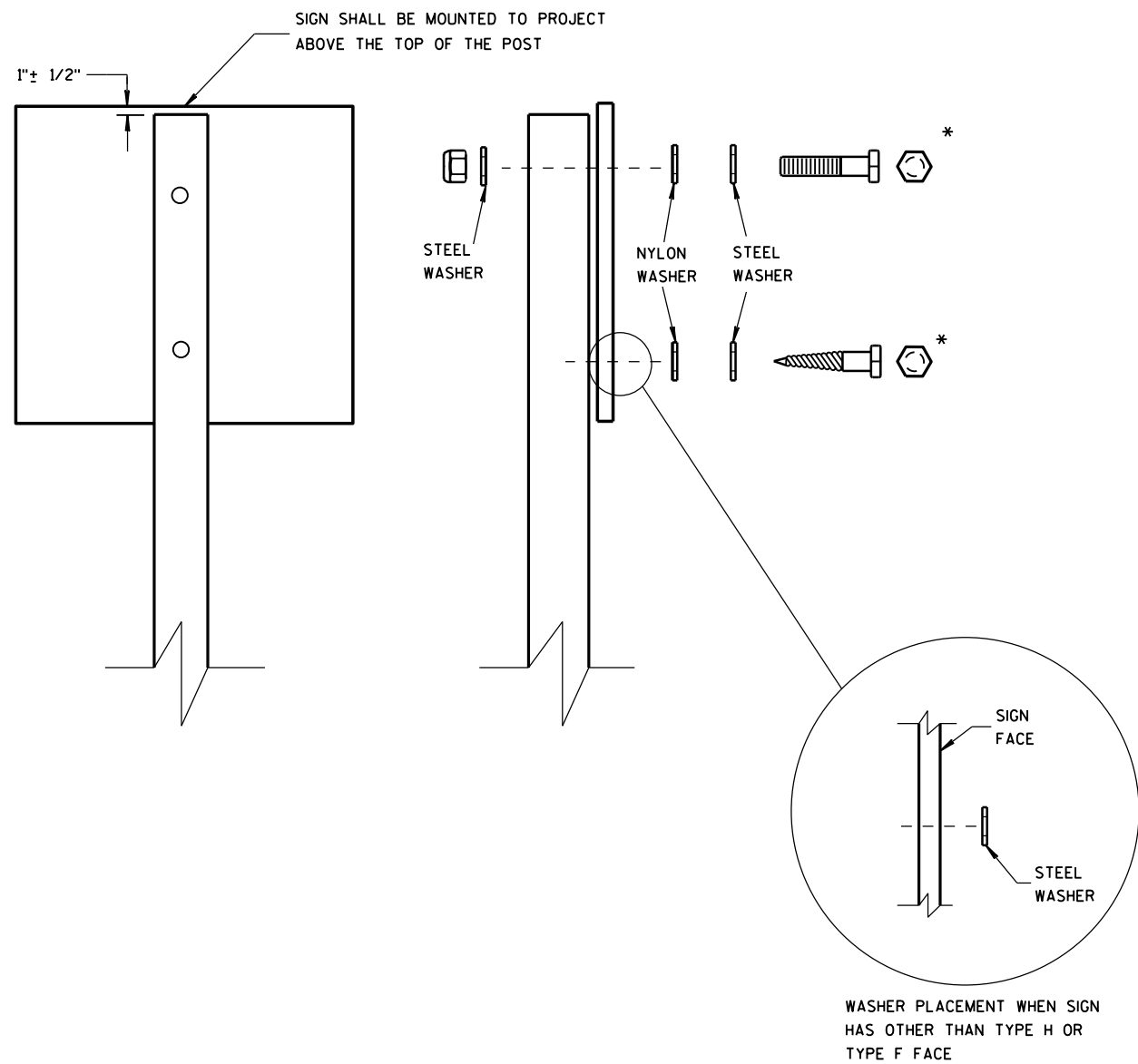
| WOOD POST<br>EMBEDMENT DEPTH              |            |
|-------------------------------------------|------------|
| AREA OF SIGN<br>INSTALLATION<br>(SQ. FT.) | D<br>(MIN) |
| 20 OR LESS                                | 4'         |
| GREATER THAN 20                           | 5'         |

| POST SPACING REQUIREMENTS               |     | NUMBER OF<br>WOOD POSTS<br>REQUIRED |
|-----------------------------------------|-----|-------------------------------------|
| L                                       | E   |                                     |
| 48" OR LESS AND<br>LESS THAN 20 SQ. FT. | -   | 1                                   |
| LESS THAN 60"                           | 12" | 2                                   |
| 60" TO 120"                             | L/5 | 2                                   |
| GREATER THAN 120"<br>LESS THAN 168"     | 12" | 3                                   |
| 168" AND GREATER                        | 12" | 4                                   |

SEE NOTE (3)

## TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 133



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

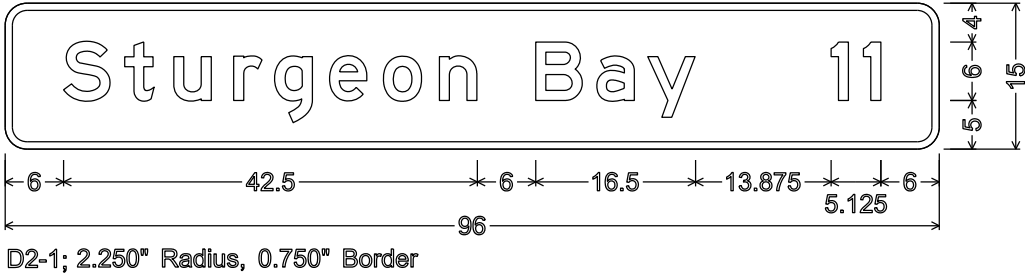
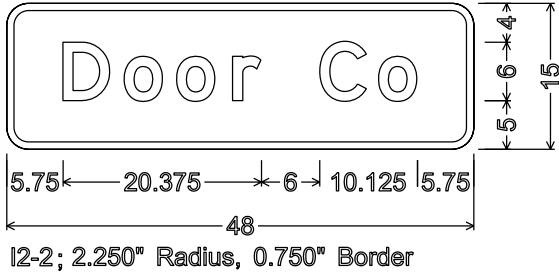
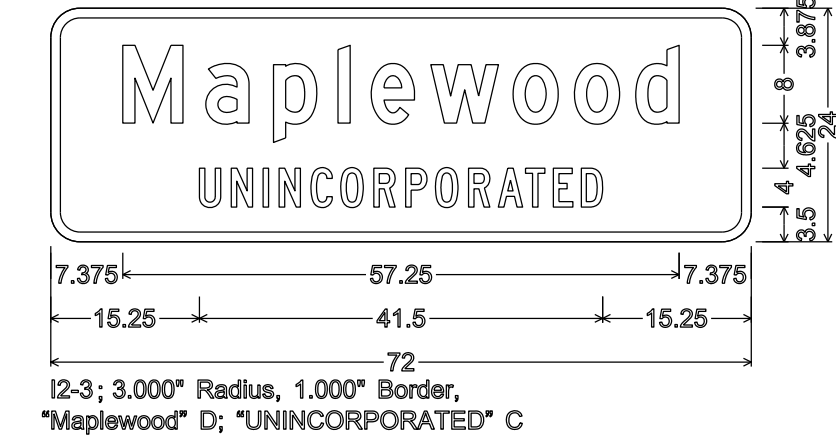
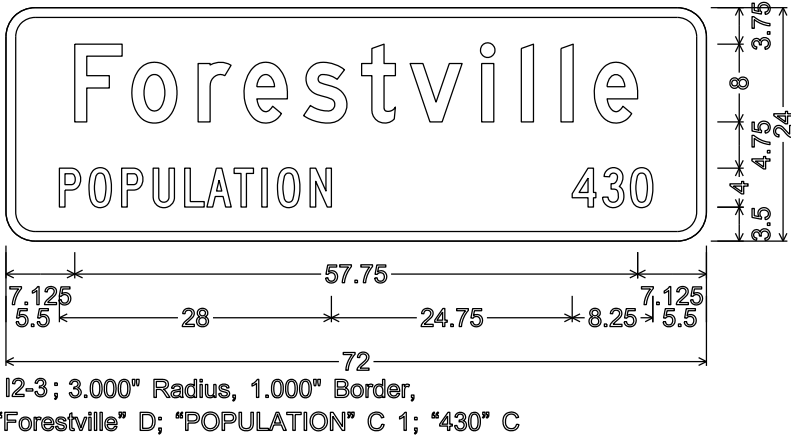
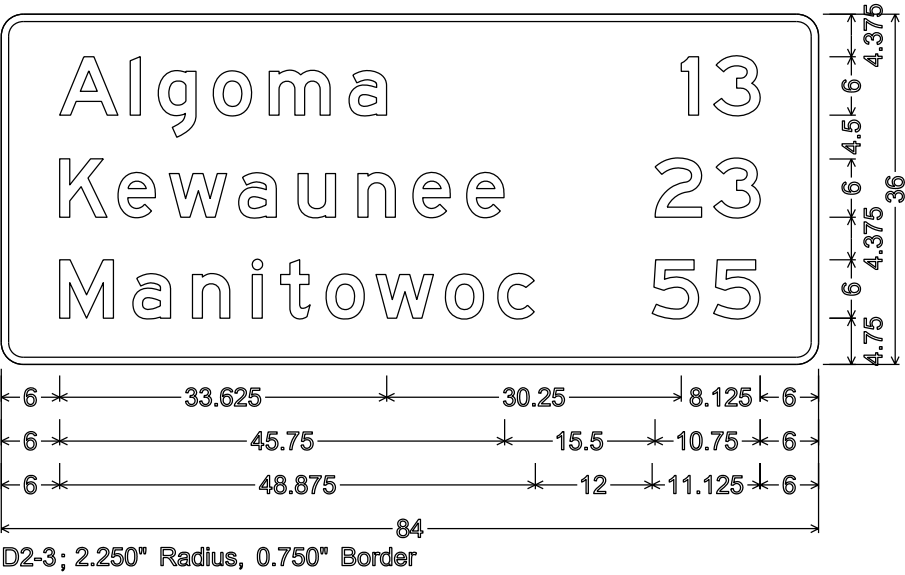
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
  - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
  - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- WASHERS (ALL POSTS) -
- 1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
  - 1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

\* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

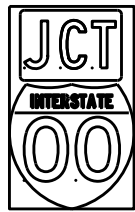
|                                                    |                                        |
|----------------------------------------------------|----------------------------------------|
| ATTACHMENT OF SIGNS<br>TO POSTS                    |                                        |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                        |
| APPROVED<br>June 2017<br>DATE                      | /S/ Andrew Heidtke<br>WORK ZONE EN 134 |
| FHWA                                               |                                        |



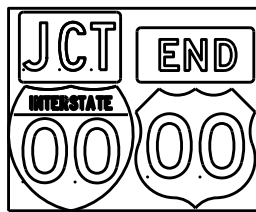
NOTES

- 1. All Signs Type II - Type H Reflective
- 2. Color:
  - Background - Green
  - Message - White
- 3. Message Series - E except as noted

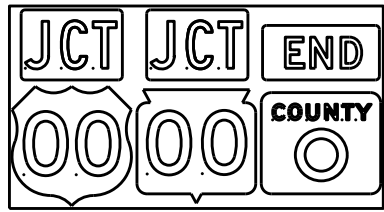
TYPICAL ASSEMBLIES



J1-1



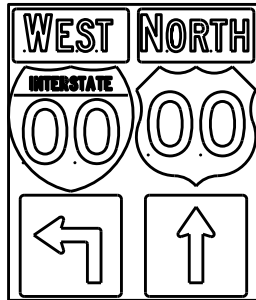
J1-2



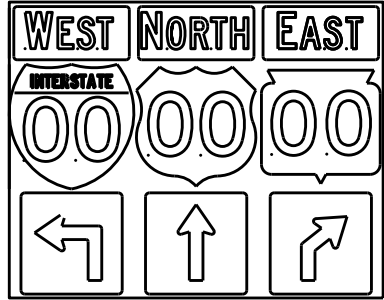
J1-3



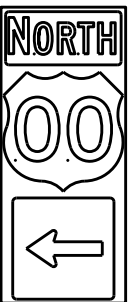
J2-1



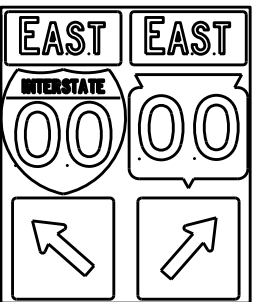
J2-2



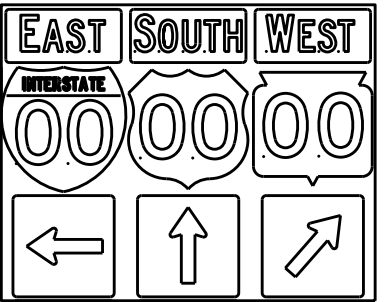
J2-3



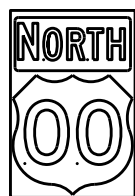
J3-1



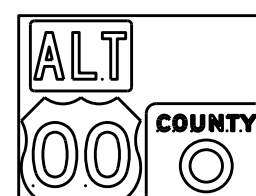
J3-2



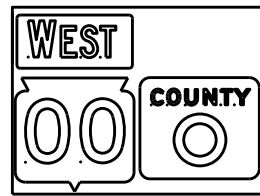
J3-3



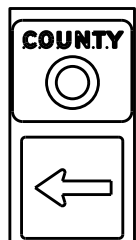
J4-1



J4-2



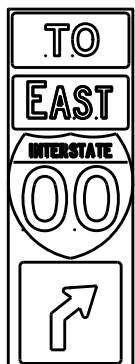
J4-2



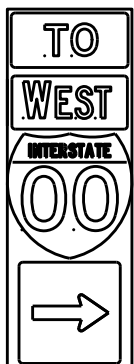
J13-1



J12-1



J32-1



J33-1



J23-1

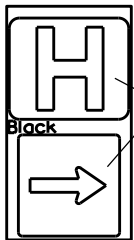


J22-1



JV

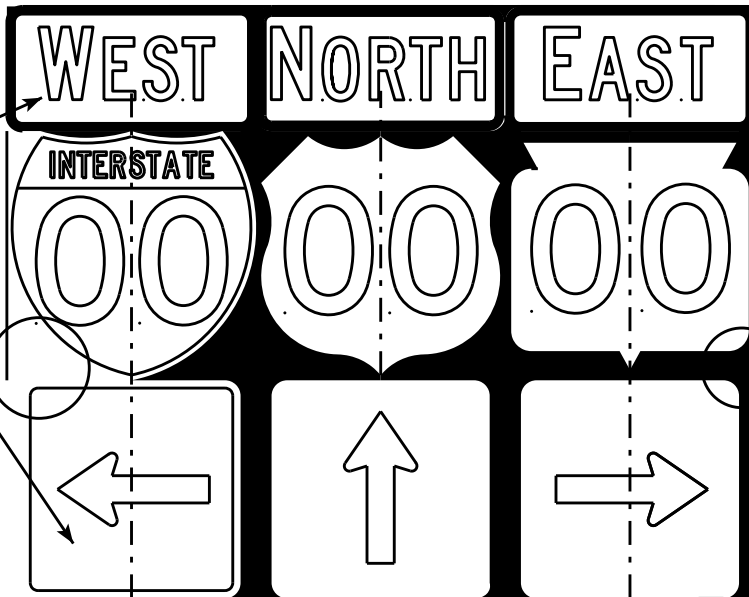
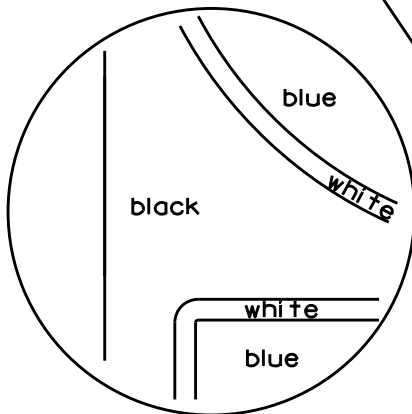
(Typical Vertical J-Assembly  
See Note 10 and 11)



JH-1

Blue Background

[blue background  
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS  
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

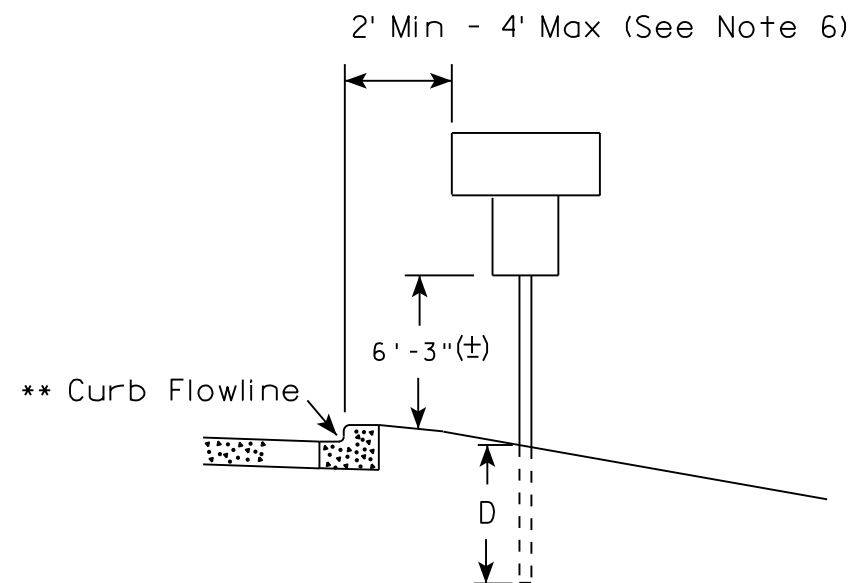
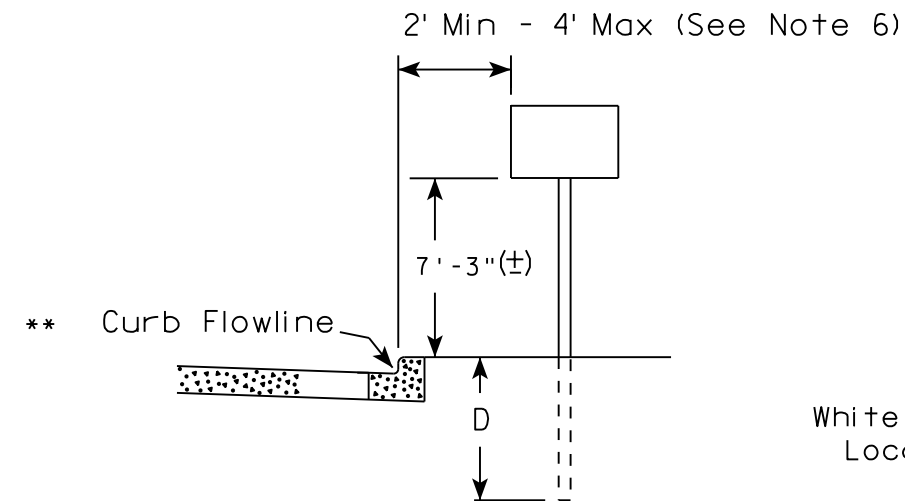
DATE 2/06/14 PL 136 A2-1S.8

SHEET NO: E

NOTES

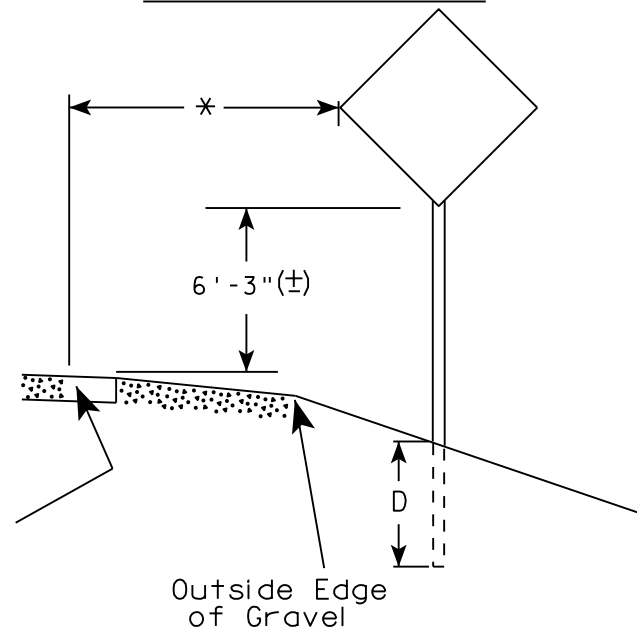
1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Black Non-reflective  
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

## URBAN AREA

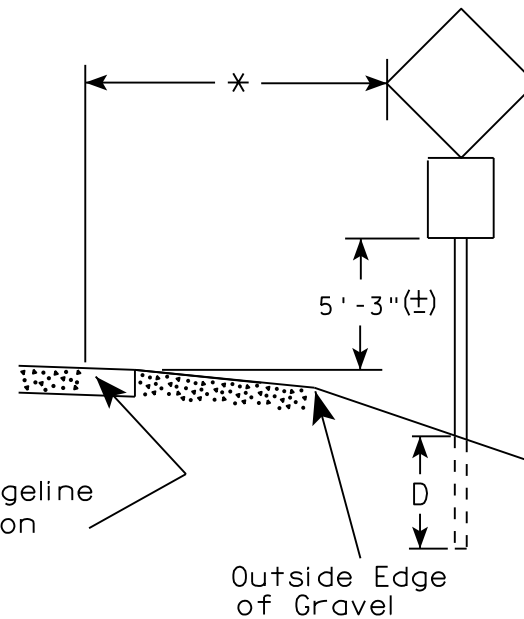


White Edgeline  
Location

## RURAL AREA (See Note 2)



White Edgeline  
Location



Outside Edge  
of Gravel

### POST EMBEDMENT DEPTH

| Area of Sign<br>Installation<br>( Sq. Ft. ) | D<br>( Min ) |
|---------------------------------------------|--------------|
| 20 or Less                                  | 4'           |
| Greater than 20                             | 5'           |

\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

### GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies are considered to be one sign for mounting height.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 8/21/17

PLATE NO. A4-3.21

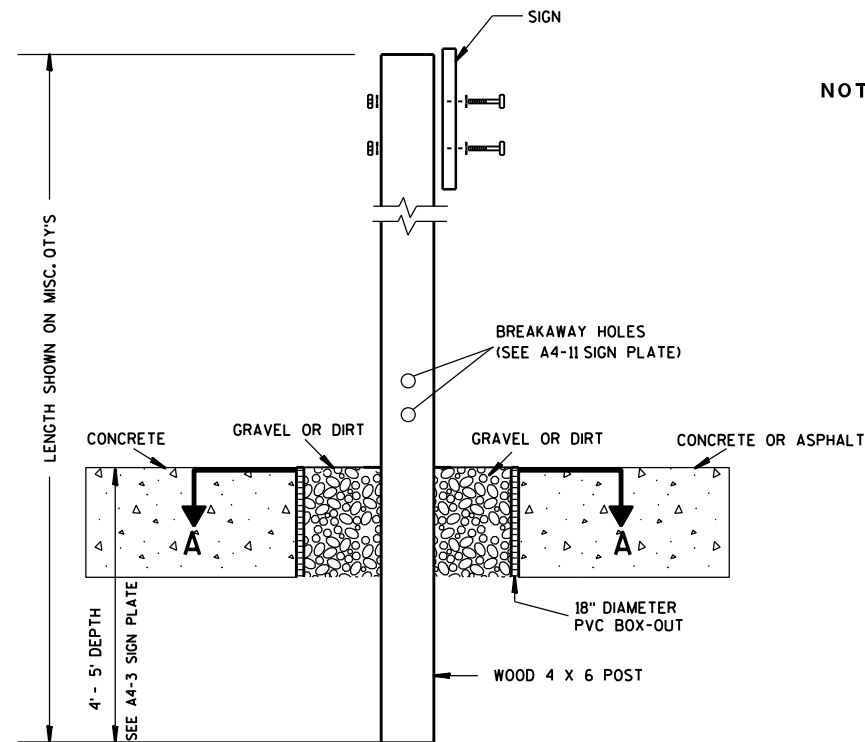
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 137

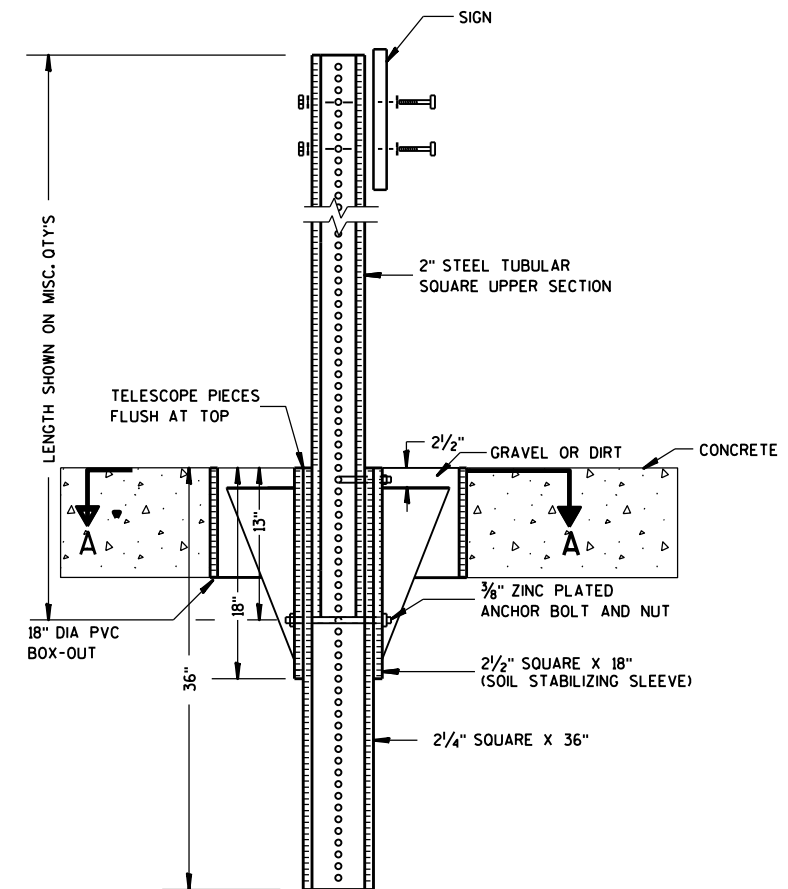
E



### ELEVATION VIEW

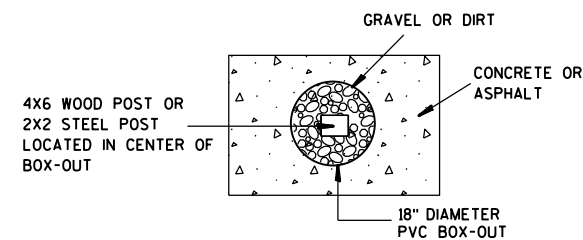
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



### ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



### PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/27/14 PLAT 138 A4-3B.1

PROJECT NO:

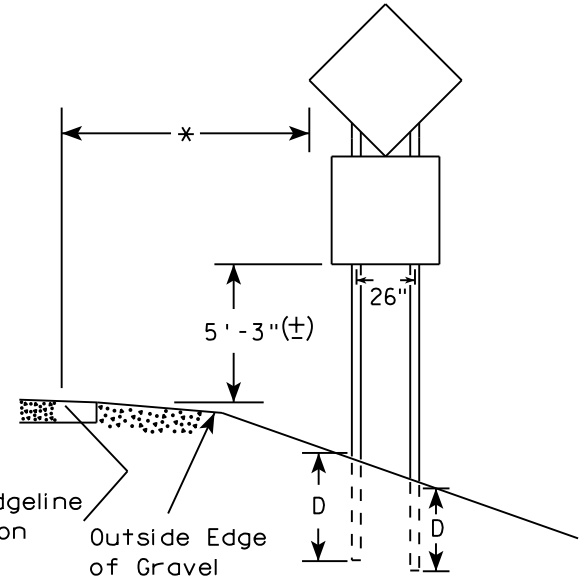
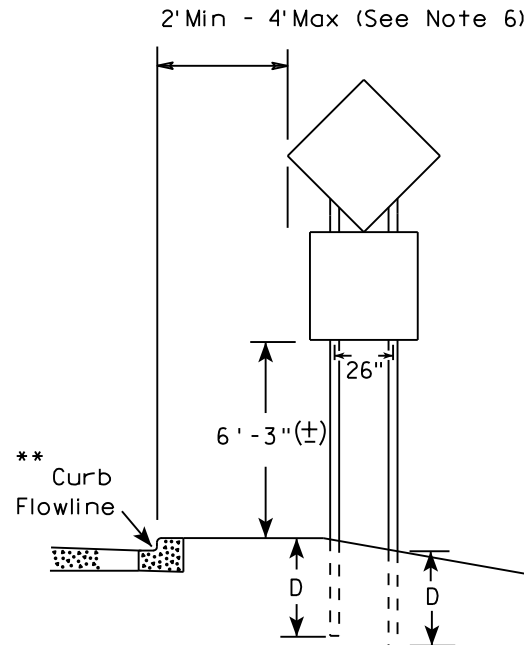
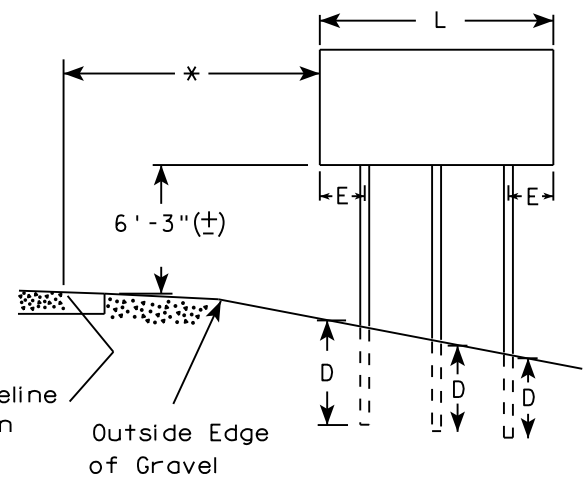
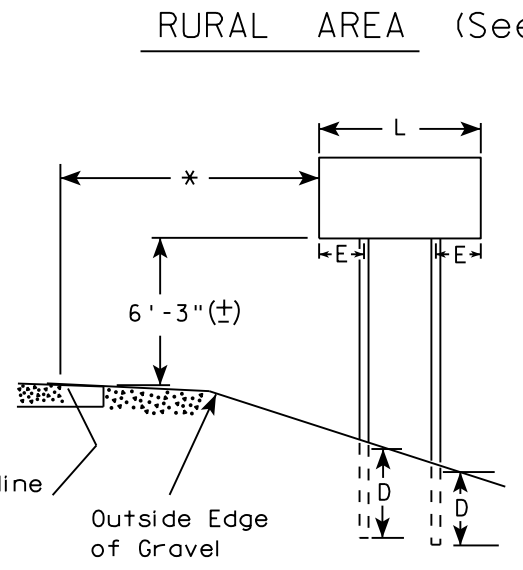
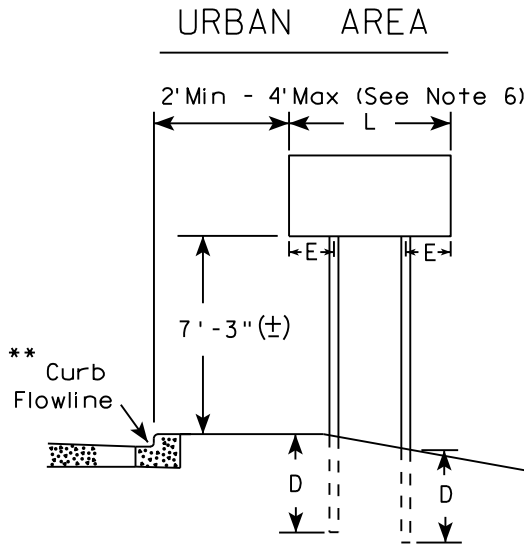
HWY:

COUNTY:

SHEET NO:

E





48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

\*\*\*

| SIGN SHAPE OTHER THAN DIAMOND<br>(TWO POSTS REQUIRED) |     |
|-------------------------------------------------------|-----|
| L                                                     | E   |
| Greater than 48"<br>Less than 60"                     | 12" |
| 60" to 108"                                           | L/5 |

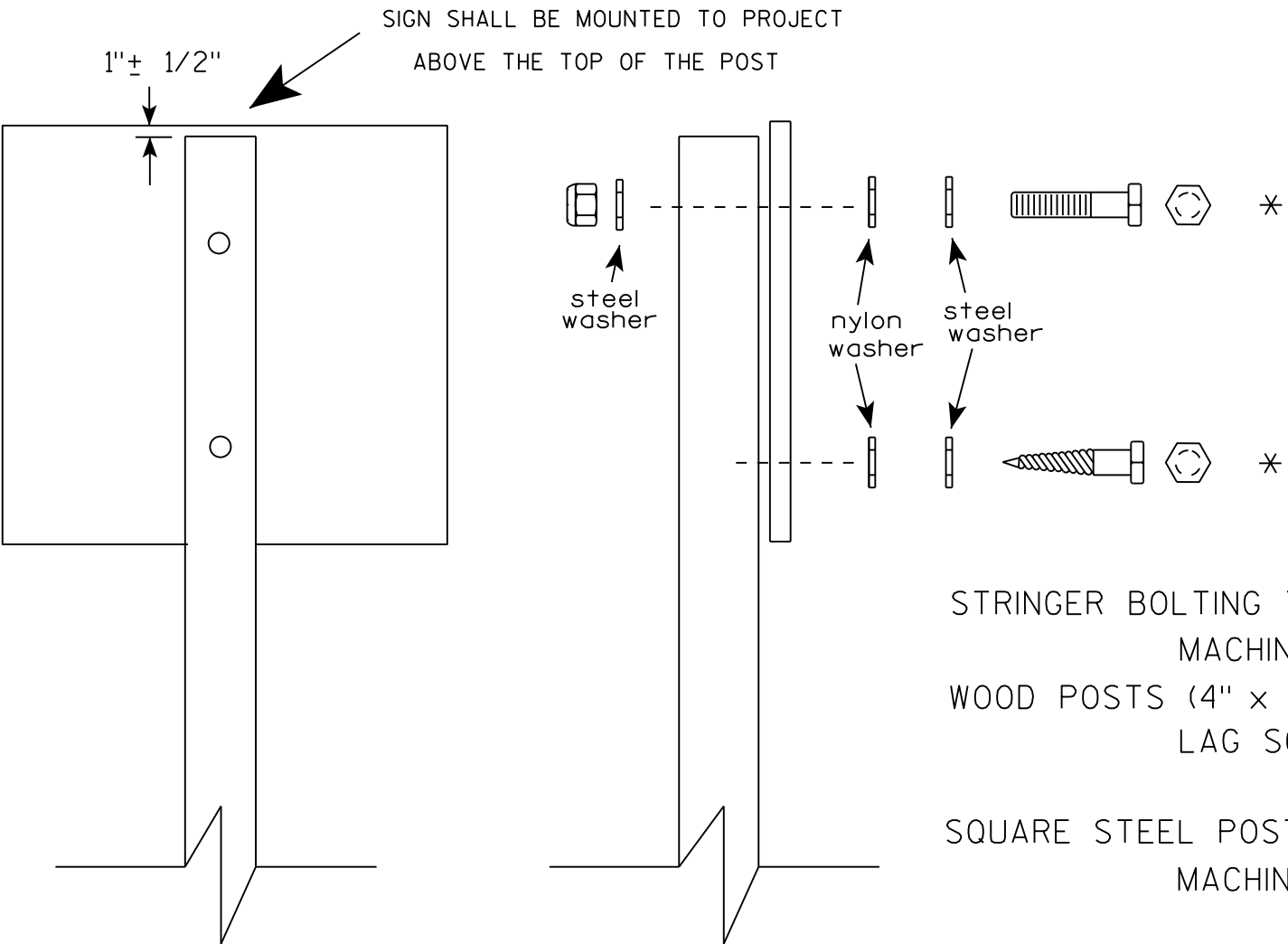
| SIGN SHAPE OTHER THAN DIAMOND<br>(THREE POSTS REQUIRED) |     |
|---------------------------------------------------------|-----|
| L                                                       | E   |
| Greater than 108"<br>to 144"                            | 12" |

| POST EMBEDMENT DEPTH                        |              |
|---------------------------------------------|--------------|
| Area of Sign<br>Installation<br>( Sq. Ft. ) | D<br>( Min ) |
| 20 or Less                                  | 4'           |
| Greater than 20                             | 5'           |

|                                                               |                                                       |
|---------------------------------------------------------------|-------------------------------------------------------|
| TYPICAL INSTALLATION<br>OF TYPE II SIGNS<br>ON MULTIPLE POSTS |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION                              |                                                       |
| APPROVED                                                      | <i>Matthew R. Rauch</i><br>for State Traffic Engineer |
| DATE 8/21/17                                                  | PLATE NO. A4-4.15                                     |

- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
  2. See tables below for required number of posts.
  3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
  4. The (±) tolerance for mounting height is 3 inches.
  5. J-Assemblies are considered to be one sign for mounting height.
  6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
  7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
  8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

- \* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- \*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- \*\*\* See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
  - 3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
  - 3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
  - 1-1/4" O.D. X 3/8" I.D. X .080 NYLON

\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| ATTACHMENT OF SIGNS<br>TO POSTS  |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>For State Traffic Engineer |
| DATE 8/11/16                     | PLATE NO. A4-8.8<br>140                               |



**2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH**

2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH

2 1/2" TELES PAR TUBE

4"

2 1/2"

10"

1 1/2"

12 1/2"

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELES PAR TUBE

LENGTH SHOWN ON MISC. Q'TYS

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2"

2 1/4" SQUARE X 36"

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES

3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Signpost Components:**
  - 2" STEEL TUBULAR SQUARE UPPER SECTION:** The main vertical support.
  - ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C:** Spacing of holes in the upper section.
  - ALL FOUR SIDES  $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT:** Anchoring the upper section into the ground.
  - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE):** A sleeve around the lower section.
  - 2 1/4" SQUARE X 36":** The main vertical support for the lower section.
  - 3/8" ZINC PLATED ANCHOR BOLT AND NUT:** Anchoring the lower section into the ground.
- Sign Components:**
  - SIGN:** The sign plate at the top.
  - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL:** Reference to the sign plate for material specifications.
- Dimensions and Assembly:**
  - TELESCOPE PIECES FLUSH AT TOP:** Indicated by a dimension line.
  - 36":** Total height of the signpost.
  - 18":** Height of the upper section.
  - 12":** Height of the lower section.
  - 1":** Distance from the ground to the top of the lower section.
  - LENGTH SHOWN ON MISC. QTY'S:** Dimension line on the left side.

3/8" ZINC PLATED CORNER  
ANCHOR BOLT AND NUT

DIRECTION  
OF TRAFFIC

SECTION A-A

| Area of Sign Installation (Sq. Ft.)      | Number of Required Posts |
|------------------------------------------|--------------------------|
| 9 or less                                | 1                        |
| Greater than 9 less than or equal to 18  | 2                        |
| Greater than 18 less than or equal to 27 | 3                        |

**Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).**

TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 141 14-9.9

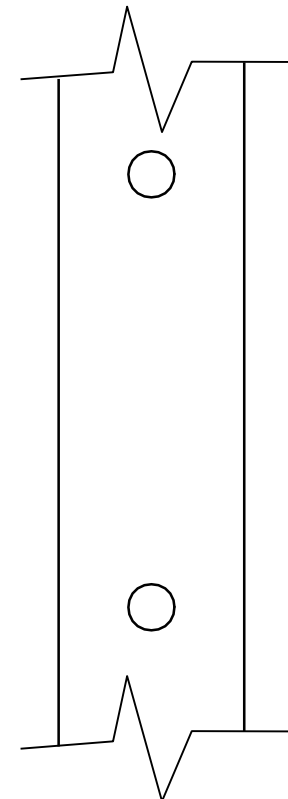
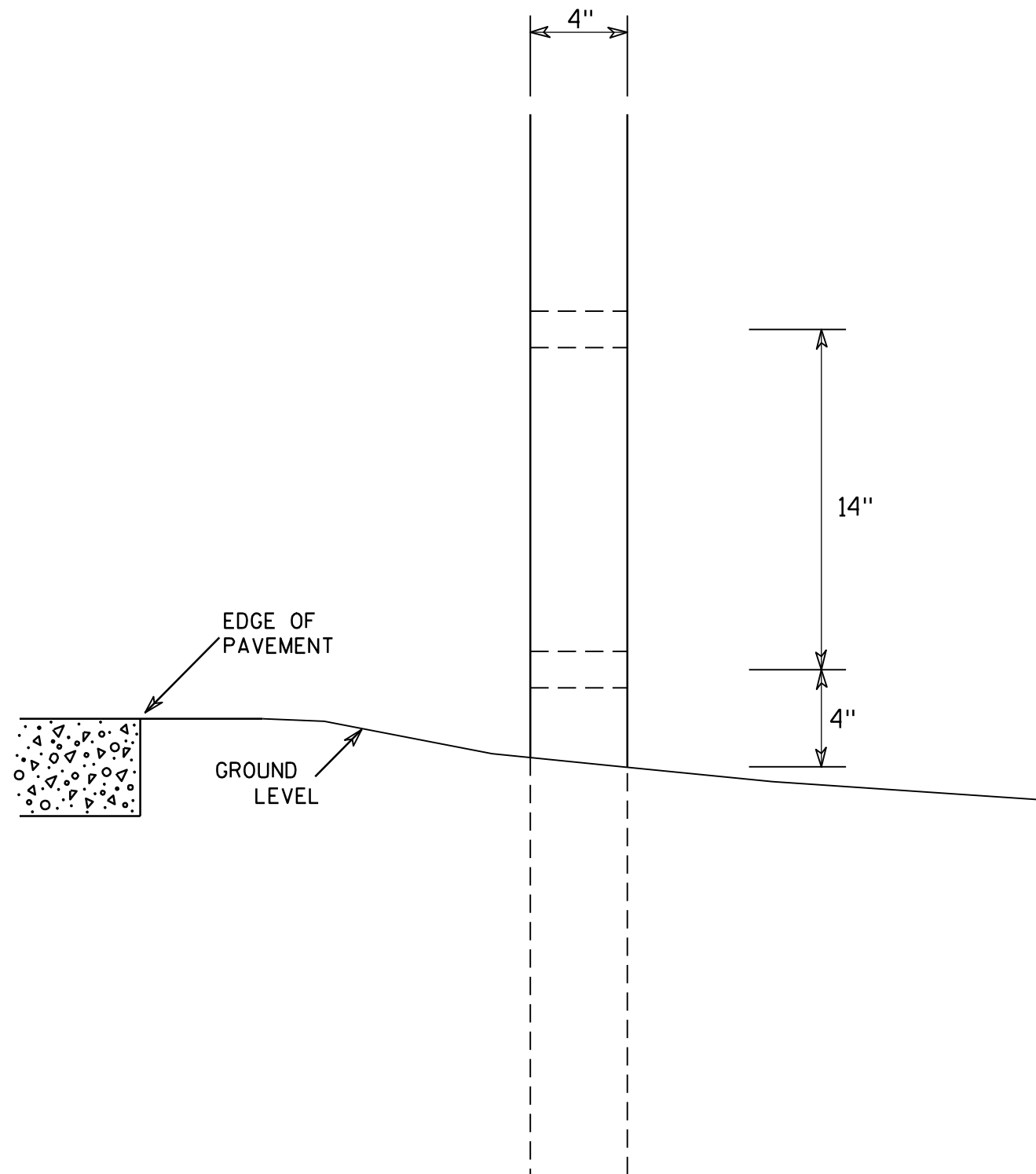
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

**T**



SIDE VIEW

# GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

## 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

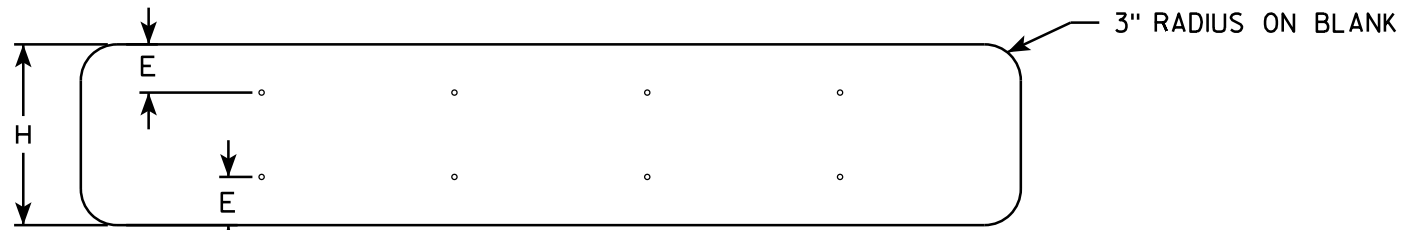
PROJECT NO:

HWY:

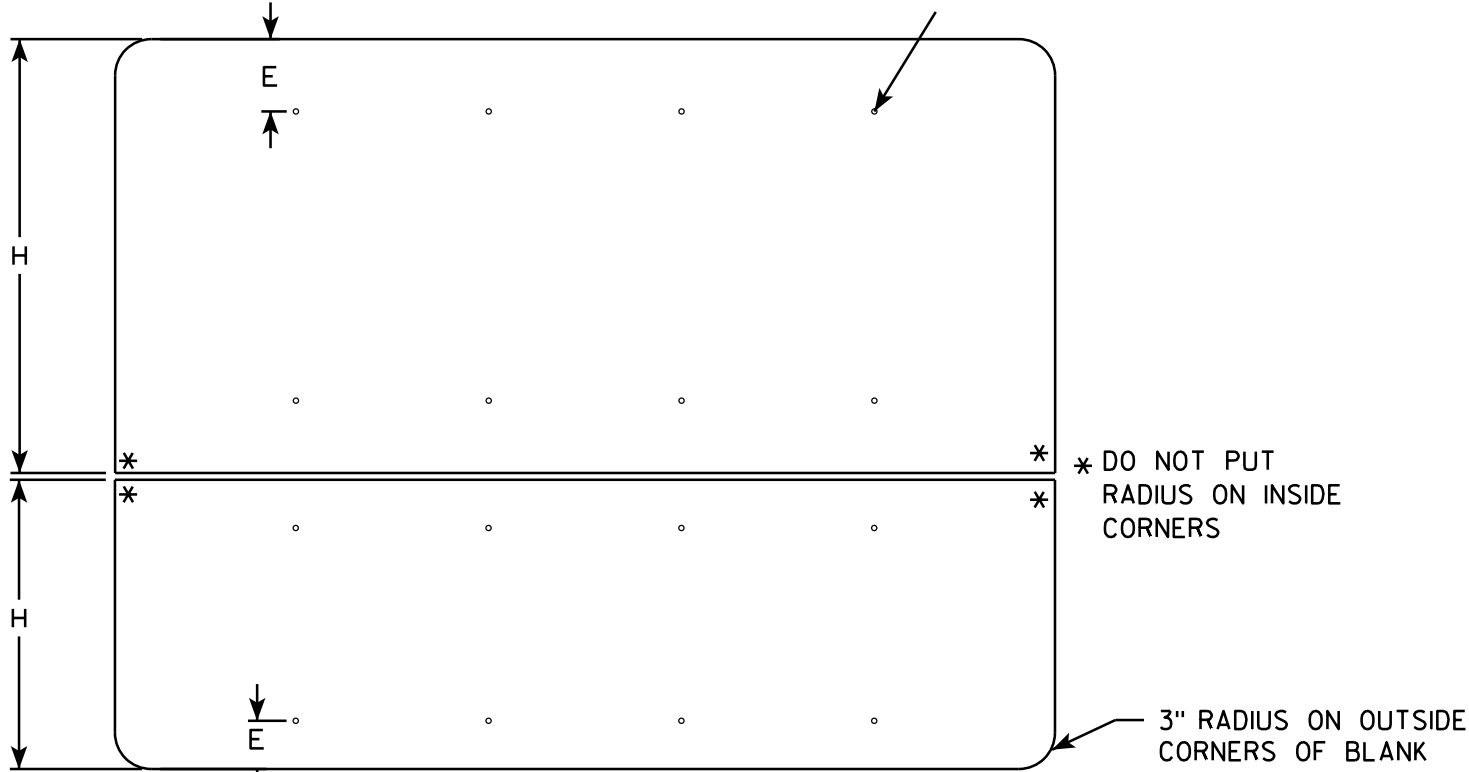
COUNTY:

SHEET NO: 142

E



SINGLE PIECE ALUMINUM SIGN 1/16" MOUNTING HOLES



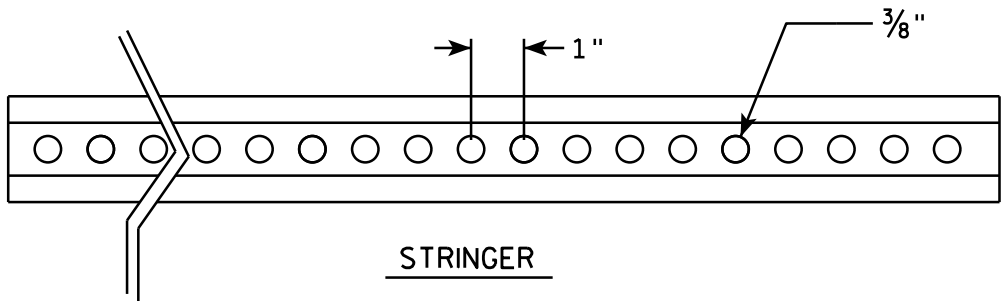
MULTI-PIECE ALUMINUM SIGN

\* DO NOT PUT RADIUS ON INSIDE CORNERS

## GENERAL NOTES

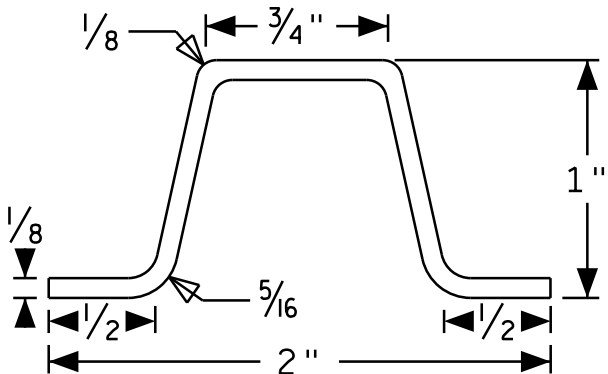
- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

| SIGN WIDTH | STRINGER WIDTH | POSTS | HOLE SPACING | MOUNTING HOLES |         |         |                   |
|------------|----------------|-------|--------------|----------------|---------|---------|-------------------|
| 78"        | 72"            | 2     | 16"          | 15"            | 31"     | 47"     | 63"               |
| 84"        | 72"            | 2     | 17"          | 16 1/2"        | 33 1/2" | 50 1/2" | 67 1/2"           |
| 90"        | 72"            | 2     | 18"          | 18"            | 36"     | 54"     | 72"               |
| 96"        | 90"            | 2     | 19"          | 19 1/2"        | 38 1/2" | 57 1/2" | 76 1/2"           |
| 102"       | 90"            | 2     | 20"          | 21"            | 41"     | 61"     | 81"               |
| 108"       | 90"            | 2     | 21"          | 22 1/2"        | 43 1/2" | 64 1/2" | 85 1/2"           |
| 114"       | 108"           | 3     | 15"          | 12"            | 27"     | 42"     | 57" 72" 87" 102"  |
| 120"       | 108"           | 3     | 16"          | 12"            | 28"     | 44"     | 60" 76" 92" 108"  |
| 126"       | 108"           | 3     | 17"          | 12"            | 29"     | 46"     | 63" 80" 97" 114"  |
| 132"       | 126"           | 3     | 18"          | 12"            | 30"     | 48"     | 66" 84" 102" 120" |
| 138"       | 126"           | 3     | 19"          | 12"            | 31"     | 50"     | 69" 88" 107" 126" |
| 144"       | 126"           | 3     | 20"          | 12"            | 32"     | 52"     | 72" 92" 112" 132" |

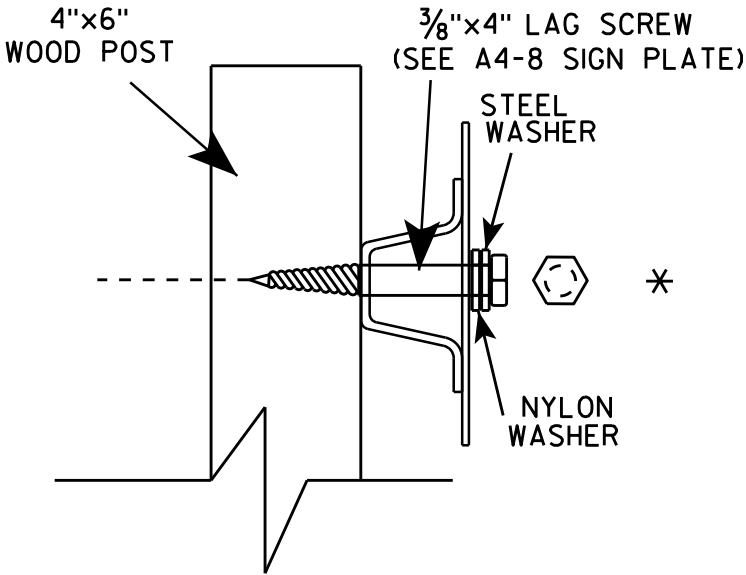


STRINGER

CROSS SECTION VIEW OF CHANNEL



POST MOUNTING



## SIGN STRINGER MOUNTING REQUIREMENTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/26/16 PLATE No A4-18.1

PROJECT NO:

HWY:

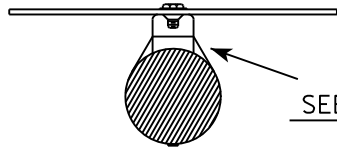
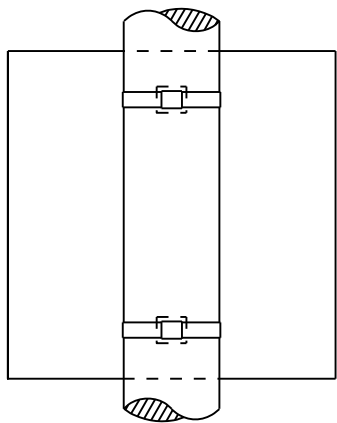
COUNTY:

SHEET NO:

E

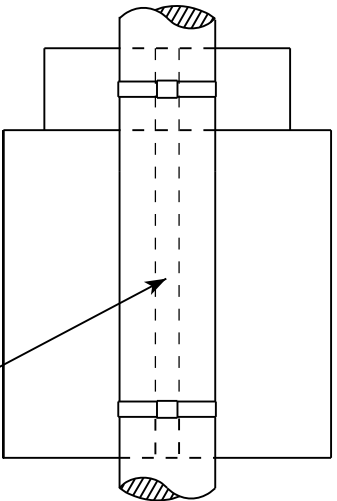
BANDING

SINGLE SIGN

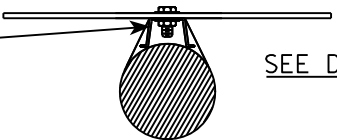


SEE DETAIL A

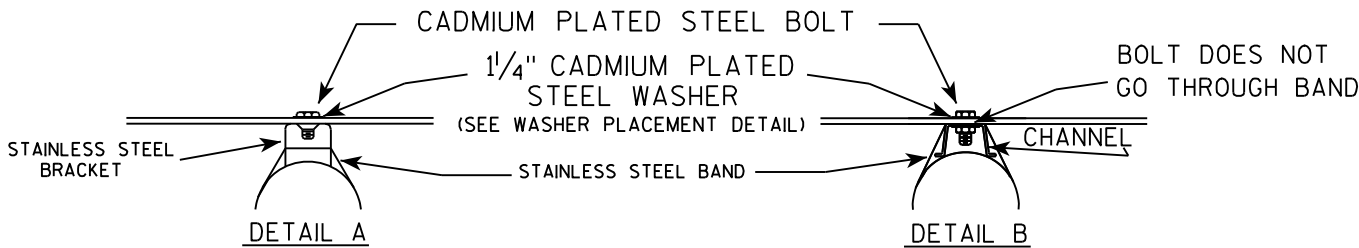
"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



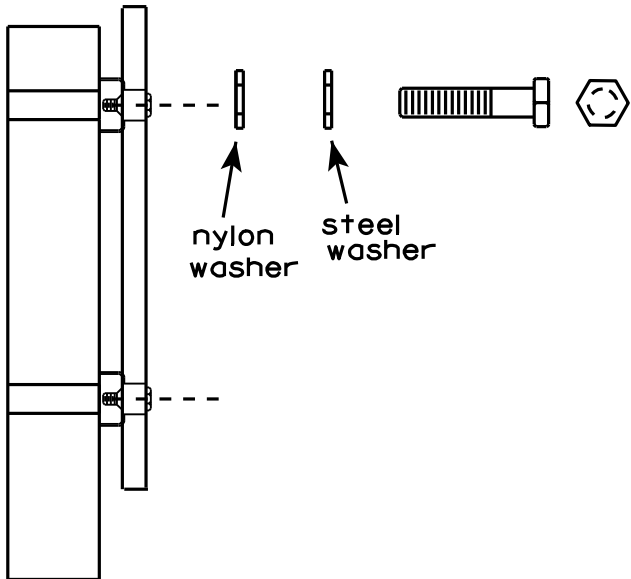
SEE DETAIL B



GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be  $\frac{3}{4}$ " in width and 0.025" thickness.

WASHER PLACEMENT



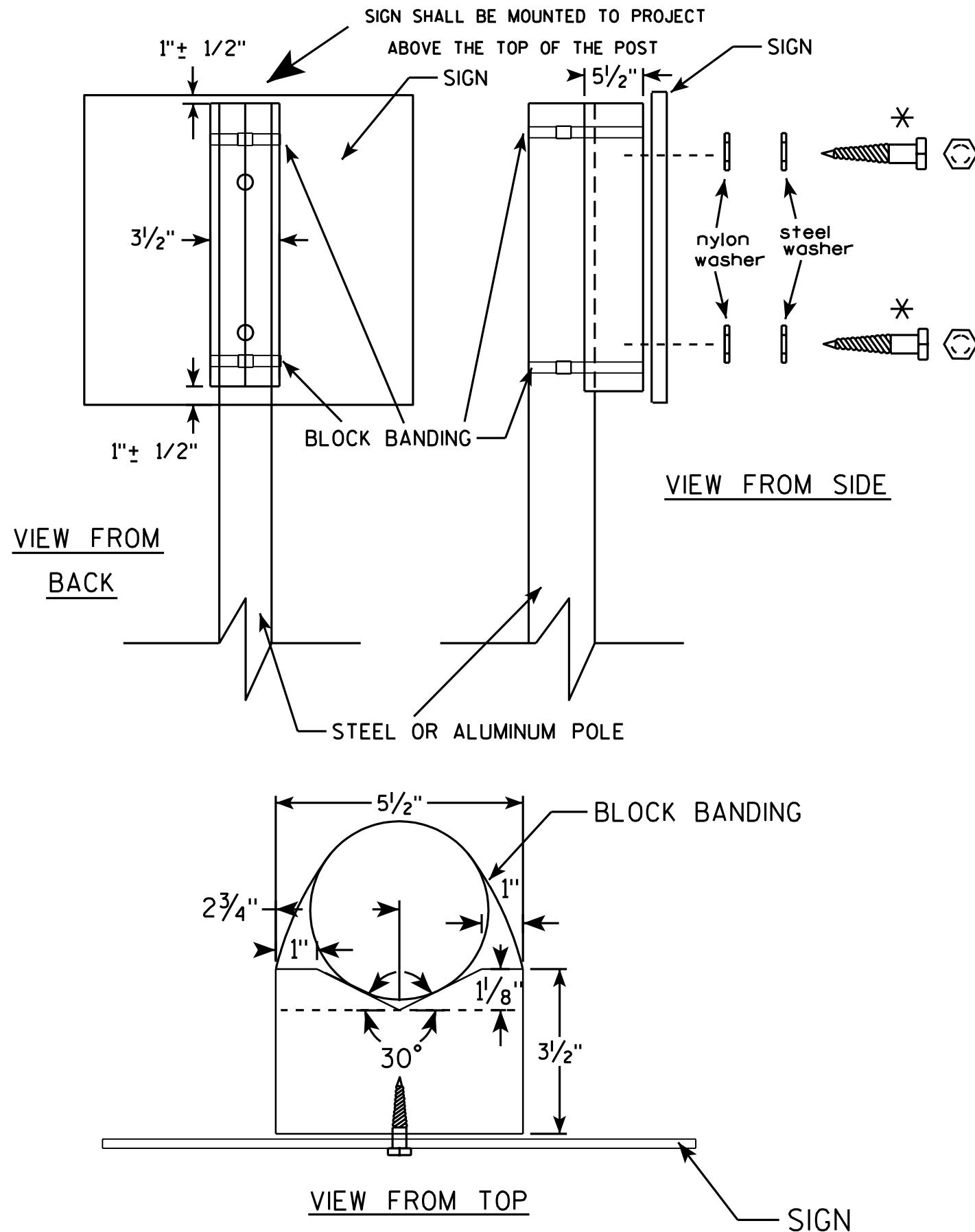
WASHERS (ALL POSTS) -  
1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL  
1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3



## GENERAL NOTES

1. WOOD 4"x6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
  - b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
  - c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

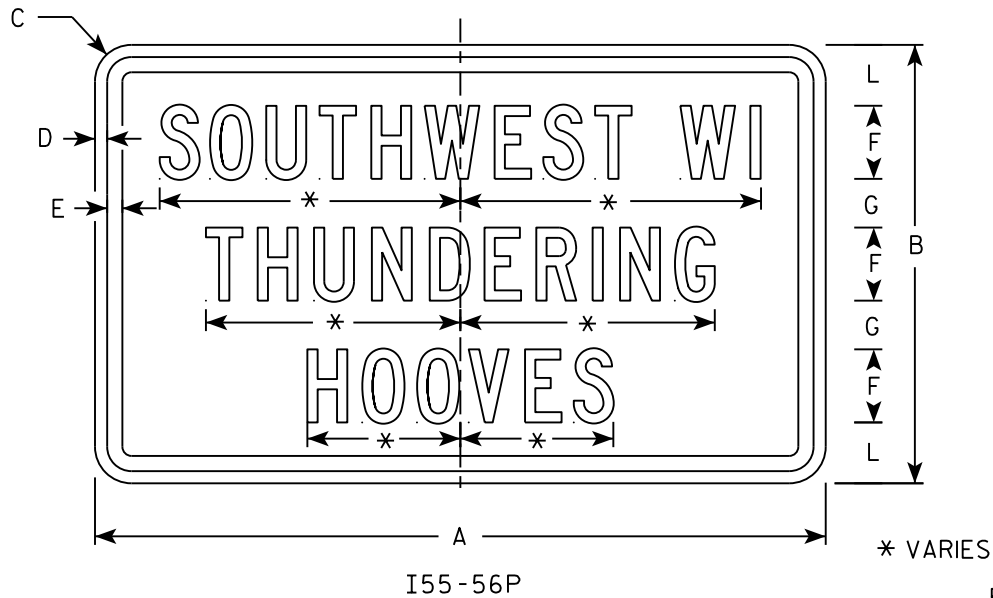
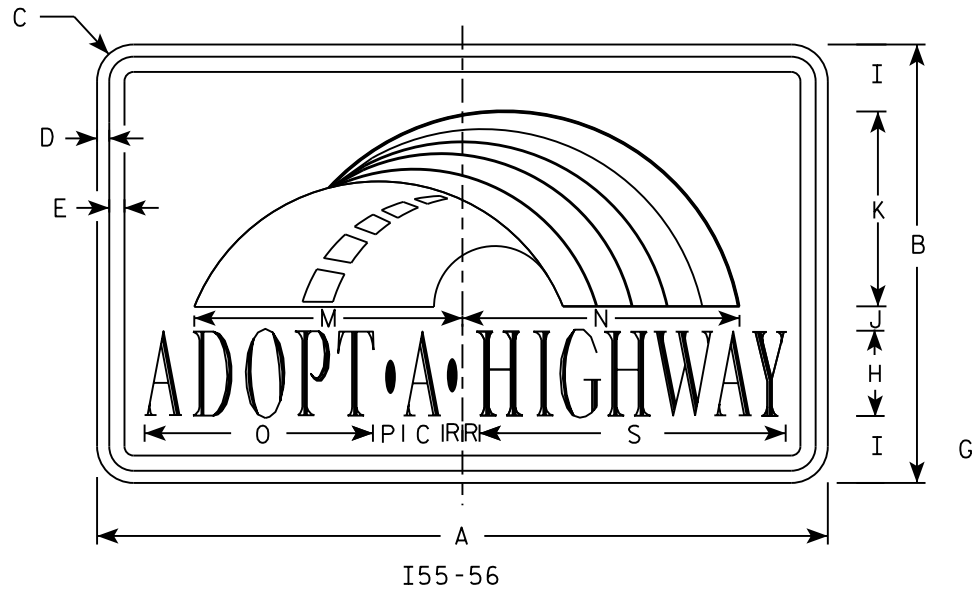
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/12/07 PLATE NO. A5-10.1

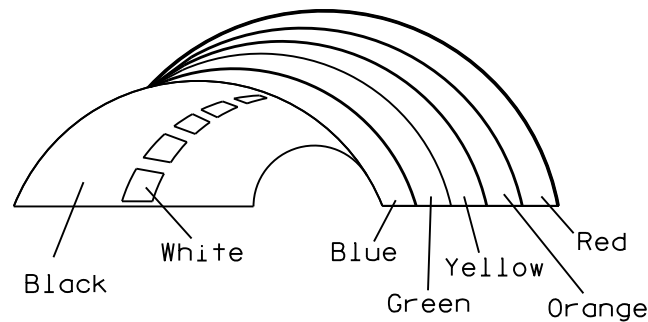
PROJECT NO:

SHEET NO: 145

E



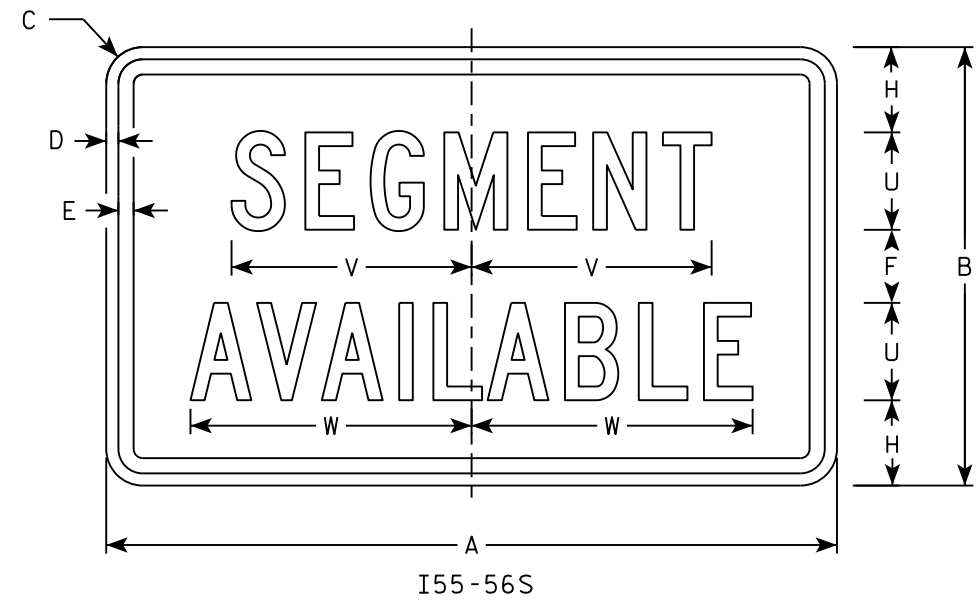
Background Colors of Symbol\*



\*1/4" Black Border between each color of rainbow and border of rainbow

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - (See Note 4)
3. Message Series - (See Note 5)
4. Border - Blue  
Adopt a Highway - Red  
All other Text - Blue
5. Adopt a Highway - Dutch 8011L  
All other Text - Series C
6. Contractor shall provide and install a new post bracket in accordance with the I55-56B sign detail.



| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|-------|-------|---|---|-------|--------|--------|-------|-------|---|-----|--------|-------|---|-------|--------|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |   |       |       |   |   |       |        |        |       |       |   |     |        |       |   |       |        |   |   |   |                 |
| 2    | 30 | 18 | 1 1/2 | 1/2 | 5/8 | 3 | 2 | 3 1/2 | 2 3/4 | 1 | 8 | 2 1/2 | 11 1/4 | 11 1/8 | 9 3/8 | 1 1/4 |   | 3/4 | 12 5/8 | 7 1/2 | 4 | 9 7/8 | 11 1/2 |   |   |   | 3.75            |
| 3    |    |    |       |     |     |   |   |       |       |   |   |       |        |        |       |       |   |     |        |       |   |       |        |   |   |   |                 |
| 4    |    |    |       |     |     |   |   |       |       |   |   |       |        |        |       |       |   |     |        |       |   |       |        |   |   |   |                 |
| 5    |    |    |       |     |     |   |   |       |       |   |   |       |        |        |       |       |   |     |        |       |   |       |        |   |   |   |                 |

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 146

E

STANDARD SIGN  
I55-56

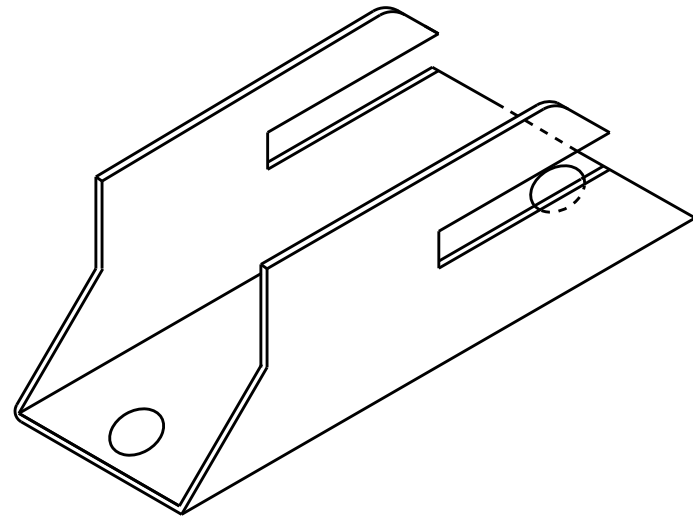
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

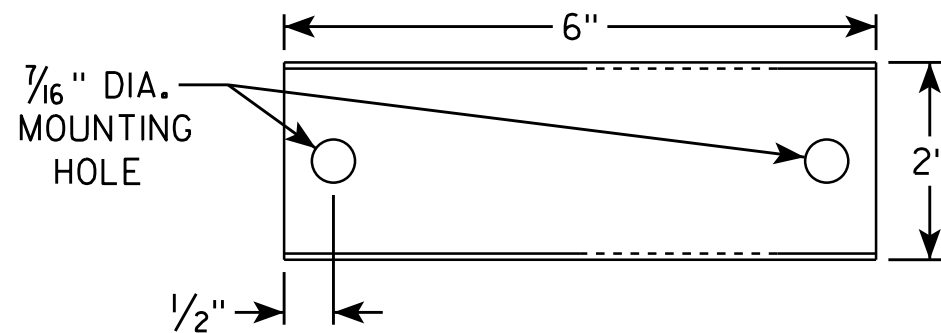
DATE 2/20/18 PLATE NO. I55-56.4



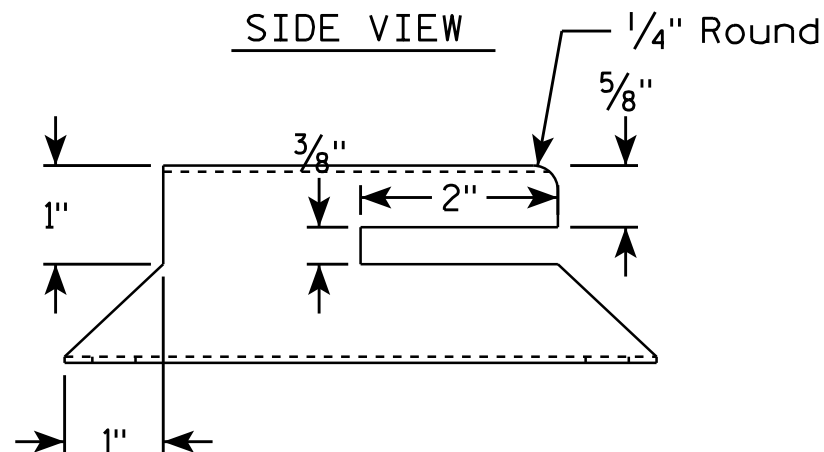
# ISOMETRIC VIEW



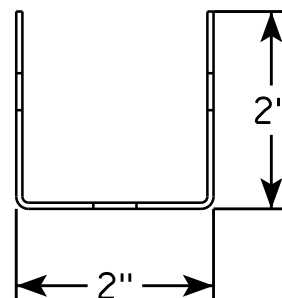
# TOP VIEW



# SIDE VIEW



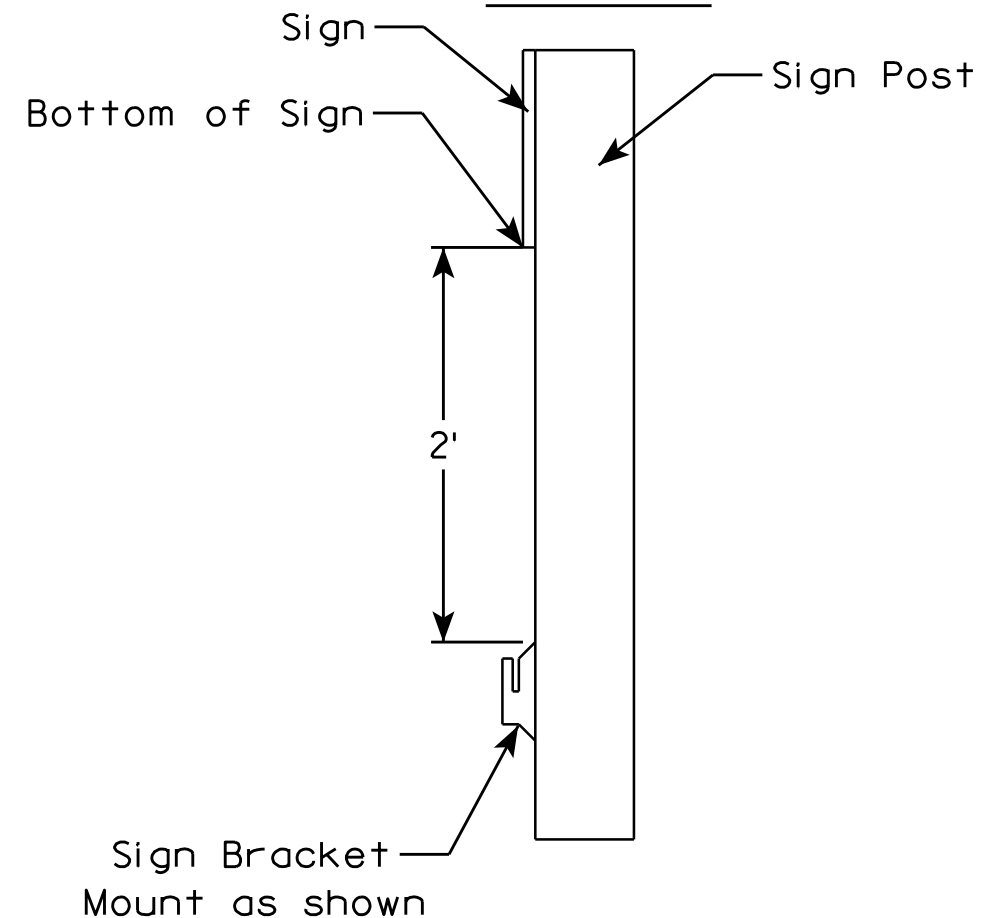
# END VIEW



# NOTES

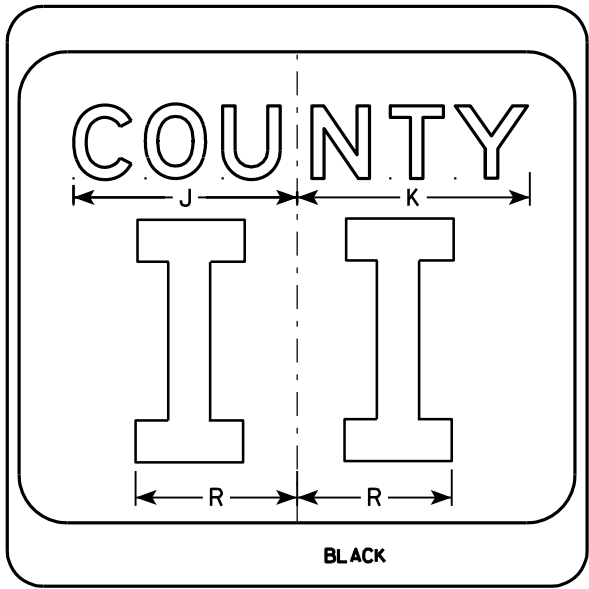
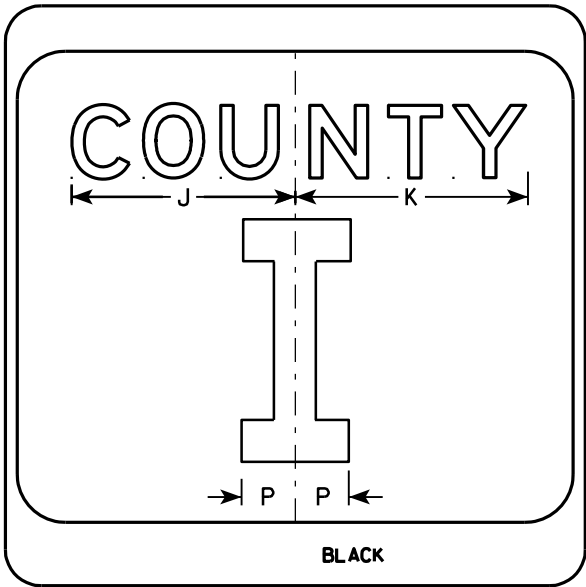
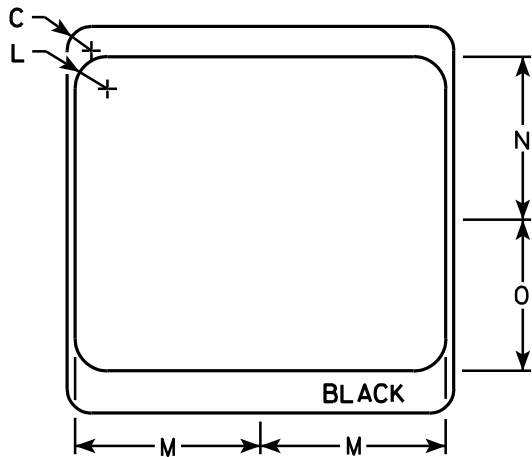
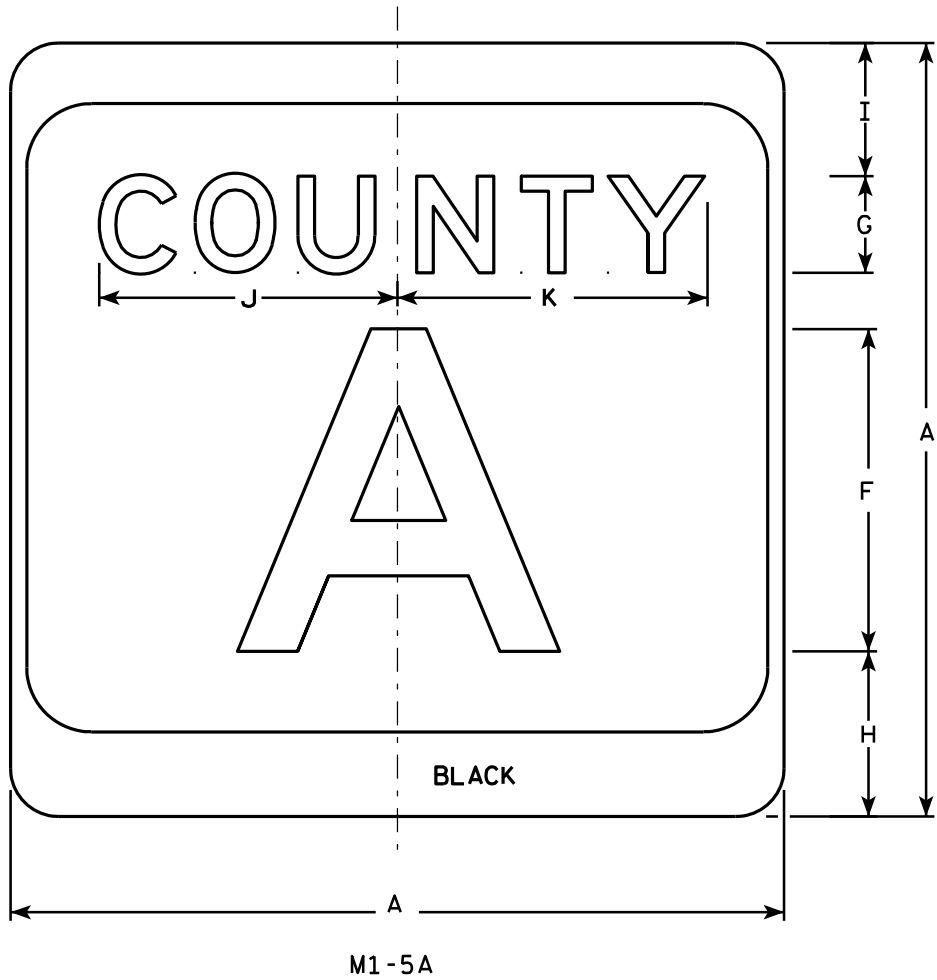
1. Must be capable of permanent attachment to a wood or steel channel sign post utilizing the fastening hardware specified on the A4-8 sign plate.
2. Shall be entirely primed and painted with two coats of a black powder coated enamel paint.
3. Shall be made with 12 gauge steel, and incorporate no welds, no hinged components, no threaded lock-type components, and no parts which are loose or can be separated from the main body.
4. Shall have rounded edges with at least 1/8" radii.
5. Shall not have unrounded and uncoated metal edges which can contact the back surface of the roll-up sign.
6. Top of bracket shall be mounted 2' below the bottom of the I55-56 sign.
7. Cost of bracket and fastening hardware shall be incidental to the I55-56 sign.

# SIDE VIEW



|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| ROLLUP SIGN BRACKET<br>I55-56B   |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>for State Traffic Engineer |
| DATE 4/26/16                     | PLA 147 5-56B.2                                       |

7



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White & Black - See Note 7  
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.  
Message Series D for 2 letters unless message is too big then Series C.  
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs  
Background - Type H Reflective  
Detour or temporary Signs  
Background - Reflective

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|---|---|----|---|-------|-------|--------|--------|---|--------|--------|-------|-------|---|-------|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |   |       |   |   |    |   |       |       |        |        |   |        |        |       |       |   |       |   |   |   |   |   |   |   |   |                 |
| 2    | 24 |   | 1 1/2 |   |   | 10 | 3 | 5 1/8 | 4 1/8 | 9 1/4  | 9 5/8  | 2 | 11 1/2 | 10 1/8 | 9 3/8 | 2 1/4 |   | 6 5/8 |   |   |   |   |   |   |   |   | 4.0             |
| 3    | 36 |   | 2 1/4 |   |   | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14    | 3 3/8 |   | 10    |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 36 |   | 2 1/4 |   |   | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14    | 3 3/8 |   | 10    |   |   |   |   |   |   |   |   | 9.0             |
| 5    | 36 |   | 2 1/4 |   |   | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14    | 3 3/8 |   | 10    |   |   |   |   |   |   |   |   | 9.0             |

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 148

E

CTH MARKER

M1-5A FOR ASSEMBLIES

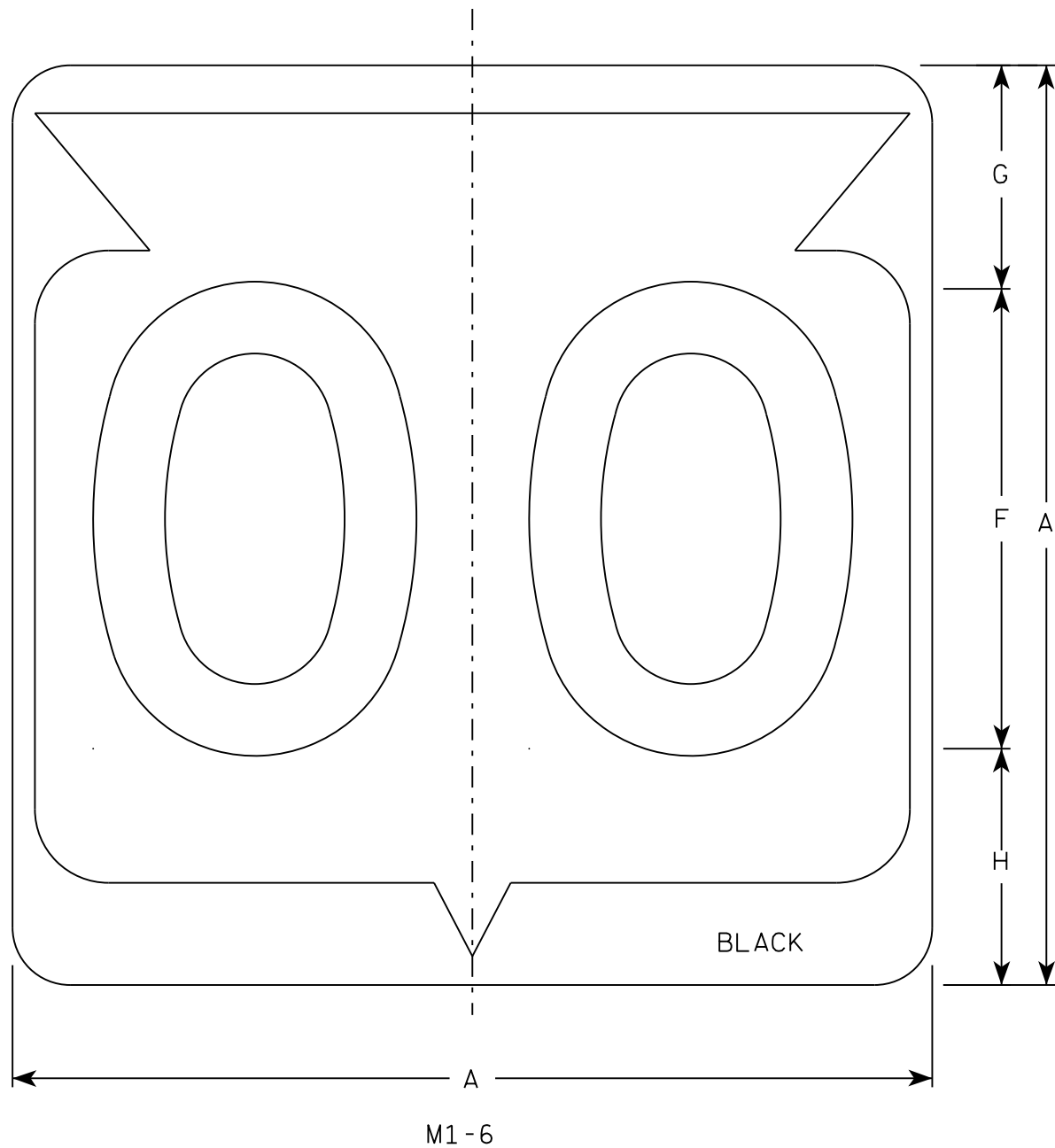
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

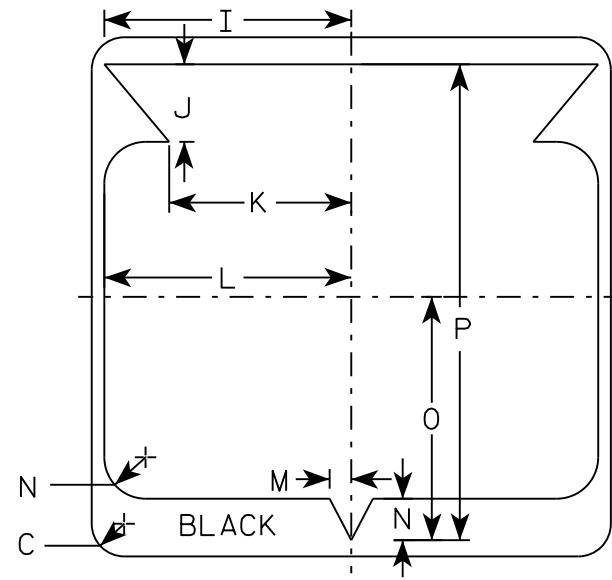


7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D except 3 number signs Series C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



7

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|---|---|----|-------|-------|--------|-------|--------|--------|-------|-------|--------|--------|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |   |       |   |   |    |       |       |        |       |        |        |       |       |        |        |   |   |   |   |   |   |   |   |   |   |                 |
| 2    | 24 |   | 1 1/2 |   |   | 12 | 5 1/2 | 6 1/2 | 10 1/4 | 2 1/2 | 8 7/8  | 11 1/2 | 1     | 1 7/8 | 11 1/4 | 21 7/8 |   |   |   |   |   |   |   |   |   |   | 4.0             |
| 3    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 5    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |

STATE ROUTE MARKER  
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-6.10



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
  - Background - Green
  - Message - White - Graphics - White
  - Circle Tour Message is Green
- 3. Message Series - Special
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

| SIZE | 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 | Area<br>sq. ft. | Area<br>m <sup>2</sup> |
|------|----|---|---|-------|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|------------------------|
| 1    |    |   |   |       |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |                        |
| 2    | 24 |   |   | 1 1/8 | 1/2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 4.0             | .36                    |
| 3    |    |   |   |       |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |                        |
| 4    | 36 |   |   | 1 5/8 | 3/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             | .81                    |
| 5    |    |   |   |       |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |                        |

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN

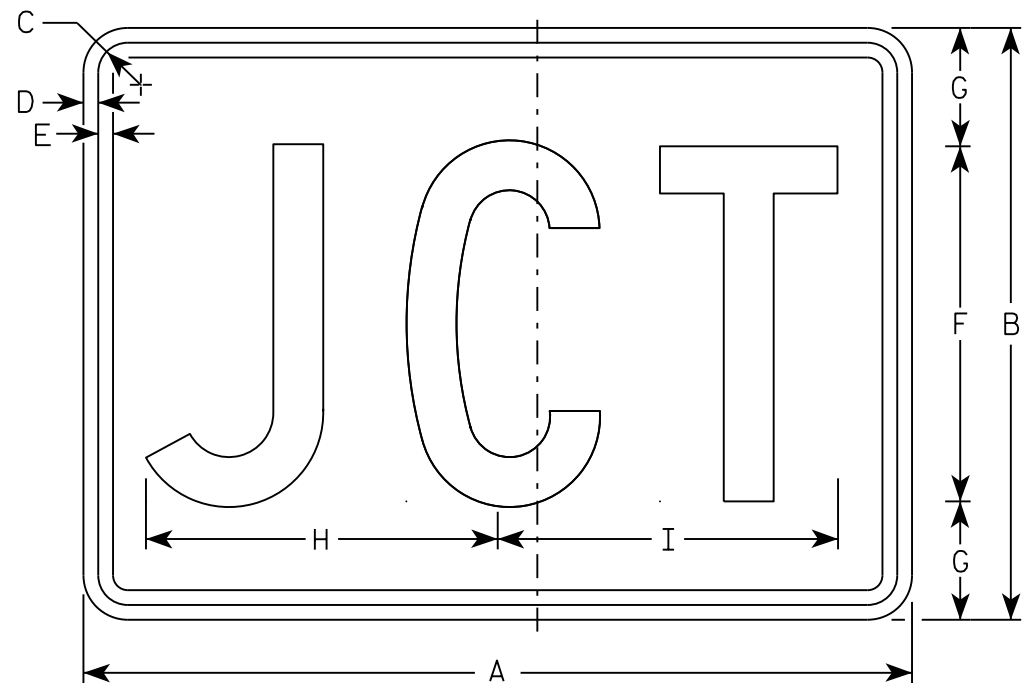
M1-93

WISCONSIN DEPT OF TRANSPORTATION

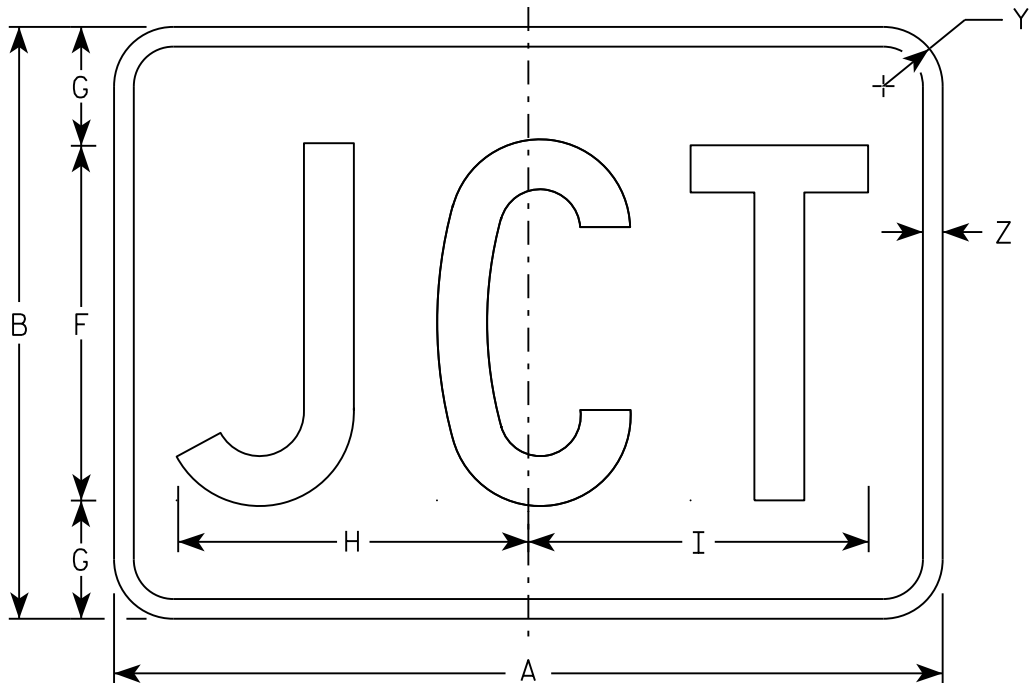
APPROVED *Matthew R. Rauch*  
State Traffic Engineer

DATE 11/5/15 for PLATE NO. M1-93.2

150



M2-1  
MM2-1  
MP2-1



MB2-1  
MK2-1  
MN2-1  
MR2-1

NOTES

- 1. Sign is Type II - Type H
- 2. Color:
  - Background - See note 5
  - Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. M2-1 Background - White  
    Message - Black  
    MB2-1 Background - Blue  
    Message - White  
    MK2-1 Background - Green  
    Message - White  
    MM2-1 Background - White  
    Message - Green  
    MN2-1 Background - Brown  
    Message - White  
    MP2-1 Background - White  
    Message - Blue  
    MR2-1 Background - Brown  
    Message - Yellow

| SIZE | 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   | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|----|---|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|-----|-----------------|
| 1    |    |    |       |     |     |    |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |     |                 |
| 2    | 21 | 15 | 1 1/8 | 3/8 | 3/8 | 9  | 3 | 8 7/8  | 8 5/8  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1 1/2 | 1/2 | 2.20            |
| 3    | 30 | 21 | 1 1/8 | 3/8 | 3/8 | 13 | 4 | 12 7/8 | 12 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1 1/2 | 1/2 | 4.40            |
| 4    | 30 | 21 | 1 1/8 | 3/8 | 3/8 | 13 | 4 | 12 7/8 | 12 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1 1/2 | 1/2 | 4.40            |
| 5    | 30 | 21 | 1 1/8 | 3/8 | 3/8 | 13 | 4 | 12 7/8 | 12 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1 1/2 | 1/2 | 4.40            |

STANDARD SIGN

M2 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

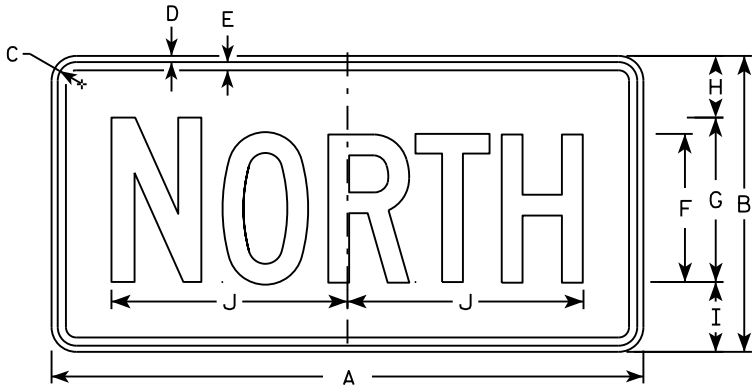
Matthew R. Rauch

For State Traffic Engineer

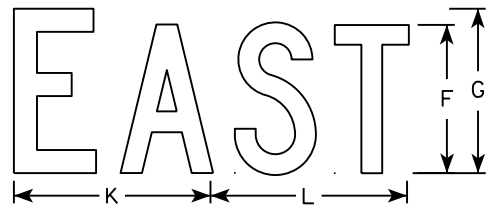
DATE 10/15/15

PLATE 151

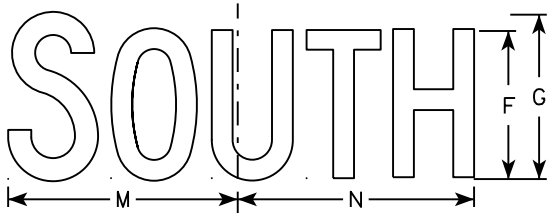
'2-1.12



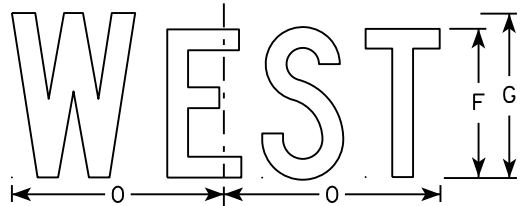
M3-1  
MM3-1  
MP3-1



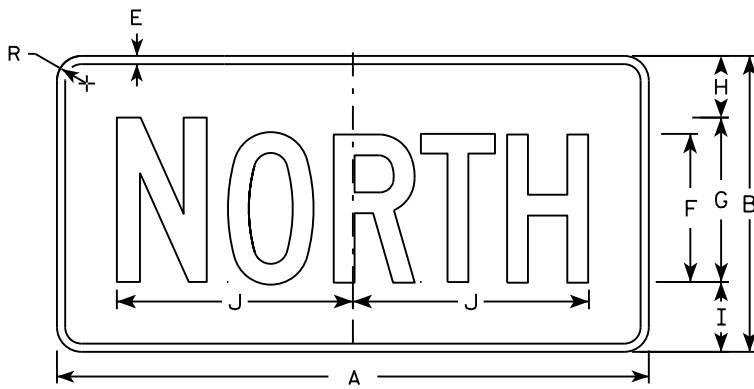
M3-2  
MM3-2  
MP3-2



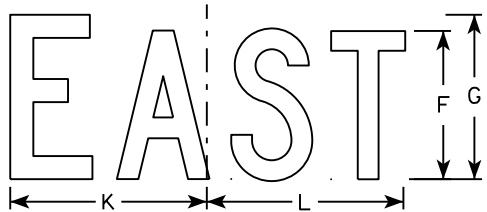
M3-3  
MM3-3  
MP3-3



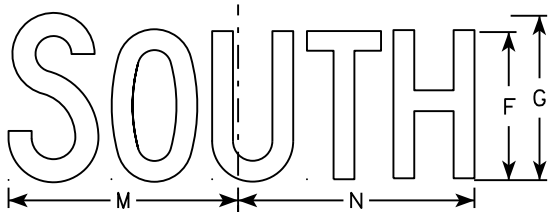
M3-4  
MM3-4  
MP3-4



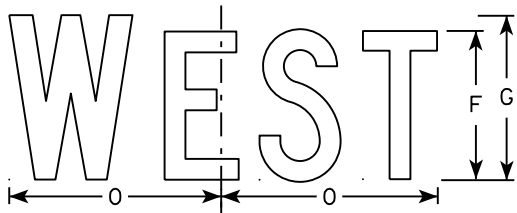
MB3-1  
MK3-1  
MN3-1



MB3-2  
MK3-2  
MN3-2



MB3-3  
MK3-3  
MN3-3



MB3-4  
MK3-4  
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:  
Background - See note 5  
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White  
Message - Black  
MB3-1 thru MB3-4 Background - Blue  
Message - White  
MK3-1 thru MK3-4 Background - Green  
Message - White  
MM3-1 thru MM3-4 Background - White  
Message - Green  
MN3-1 thru MN3-4 Background - Brown  
Message - White  
MP3-1 thru MP3-4 Background - White  
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

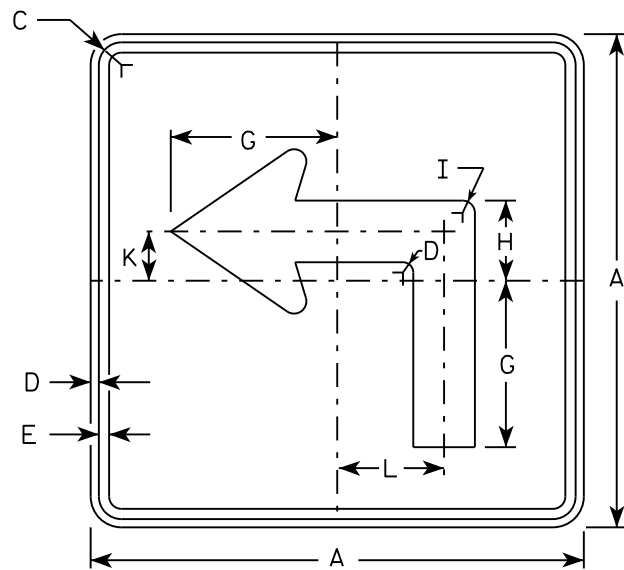
| SIZE | A  | B  | C     | D   | E   | F | G  | H     | I     | J      | K     | L      | M      | N      | O     | P | Q | R     | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|----|-------|-------|--------|-------|--------|--------|--------|-------|---|---|-------|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |    |       |       |        |       |        |        |        |       |   |   |       |   |   |   |   |   |   |   |   |                 |
| 2    | 24 | 12 | 1 1/8 | 3/8 | 3/8 | 6 | 7  | 2 1/4 | 2 3/4 | 10 1/4 | 7 7/8 | 8 3/8  | 10 1/4 | 9 3/4  | 8 3/4 |   |   | 1 1/2 |   |   |   |   |   |   |   |   | 2.00            |
| 3    | 36 | 18 | 1 1/8 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   | 1 1/2 |   |   |   |   |   |   |   |   | 4.5             |
| 4    | 36 | 18 | 1 1/8 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   | 1 1/2 |   |   |   |   |   |   |   |   | 4.5             |
| 5    | 36 | 18 | 1 1/8 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   | 1 1/2 |   |   |   |   |   |   |   |   | 4.5             |

STANDARD SIGNS  
M3-1 thru M3-4  
SERIES

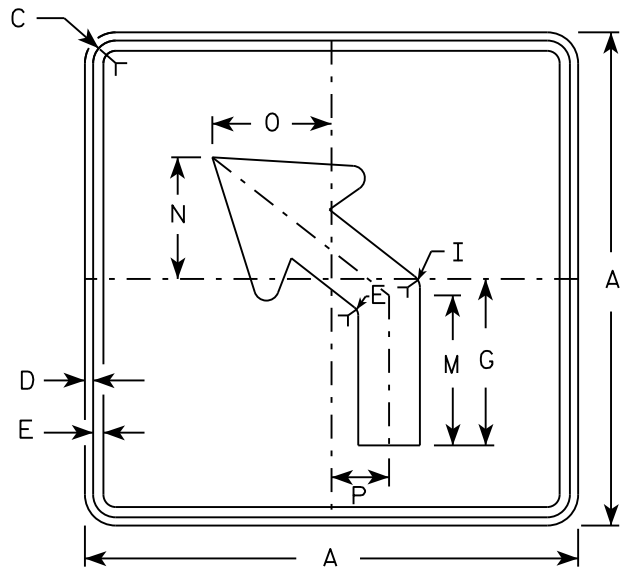
WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

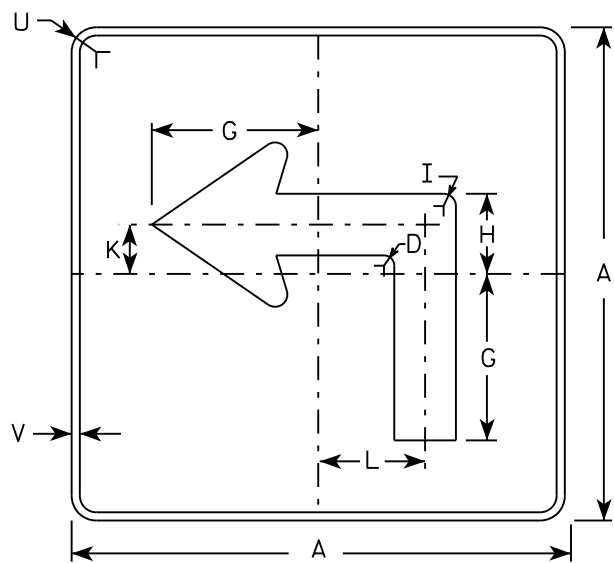
DATE 10/15/15 PLATE NO. 152 M3-1.14



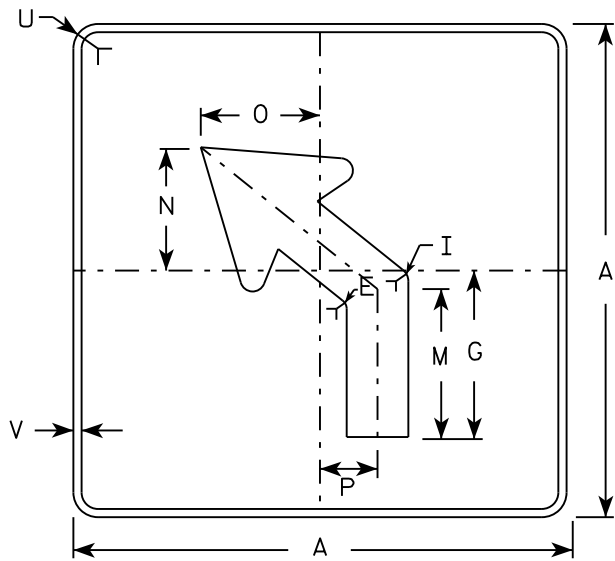
M5-1L  
MM5-1L  
M05-1L  
MP5-1L



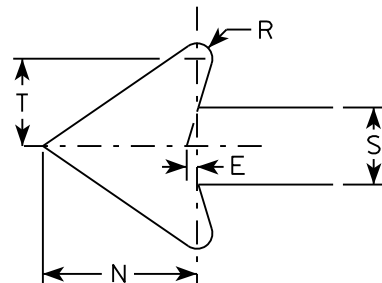
M5-2L  
MM5-2L  
M05-2L  
MP5-2L



MB5-1L  
MK5-1L  
MN5-1L  
MR5-1L



MB5-2L  
MK5-2L  
MN5-2L  
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:  
Background - See note 4  
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- |                 |                                         |
|-----------------|-----------------------------------------|
| M5-1 and M5-2   | Background - White                      |
|                 | Message - Black                         |
| MB5-1 and MB5-2 | Background - Blue                       |
|                 | Message - White                         |
| MK5-1 and MK5-2 | Background - Green                      |
|                 | Message - White                         |
| MM5-1 and MM5-2 | Background - White                      |
|                 | Message - Green                         |
| MN5-1 and MN5-2 | Background - Brown                      |
|                 | Message - White                         |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
|                 | Message - Black                         |
| MP5-1 and MP5-2 | Background - White - Type H Reflective  |
|                 | Message - Blue                          |
| MR5-1 and MR5-2 | Background - Brown                      |
|                 | Message - Yellow                        |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|--------|-------|-----|---|-------|-------|-------|-------|-------|-------|---|-----|-------|-------|-------|-----|---|---|---|---|-----------------|
| 1    |    |   |       |     |     |   |        |       |     |   |       |       |       |       |       |       |   |     |       |       |       |     |   |   |   |   |                 |
| 2    | 21 |   | 1 1/8 | 3/8 | 3/8 |   | 7      | 3 3/8 | 5/8 |   | 2 1/8 | 4 1/2 | 6 3/8 | 5 1/4 | 5     | 2 1/2 |   | 1/2 | 2 5/8 | 3     | 1 1/2 | 1/2 |   |   |   |   | 3.06            |
| 3    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 1/8 | 4 7/8 | 7/8 |   | 3     | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 |   | 3/4 | 3 3/4 | 4 1/4 | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 4    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 1/8 | 4 7/8 | 7/8 |   | 3     | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 |   | 3/4 | 3 3/4 | 4 1/4 | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 5    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 1/8 | 4 7/8 | 7/8 |   | 3     | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 |   | 3/4 | 3 3/4 | 4 1/4 | 1 7/8 | 1/2 |   |   |   |   | 6.25            |

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

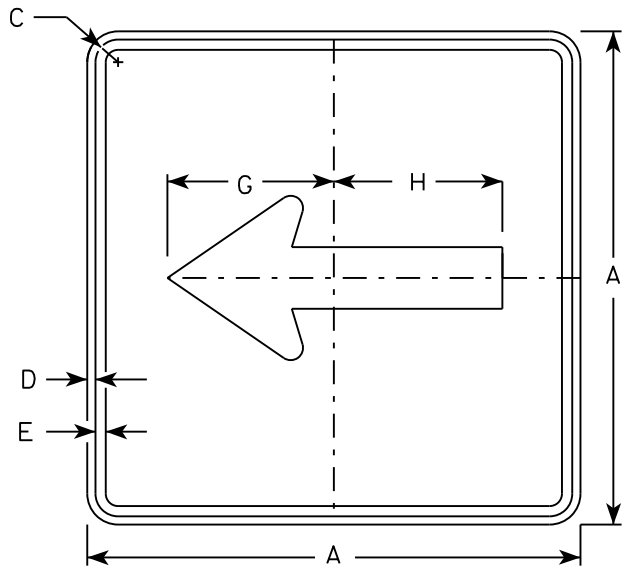
E

STANDARD SIGN  
M5-1 & M5-2

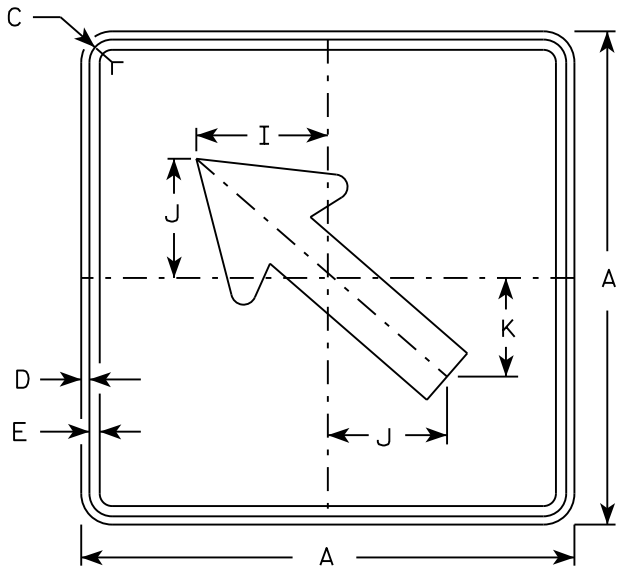
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

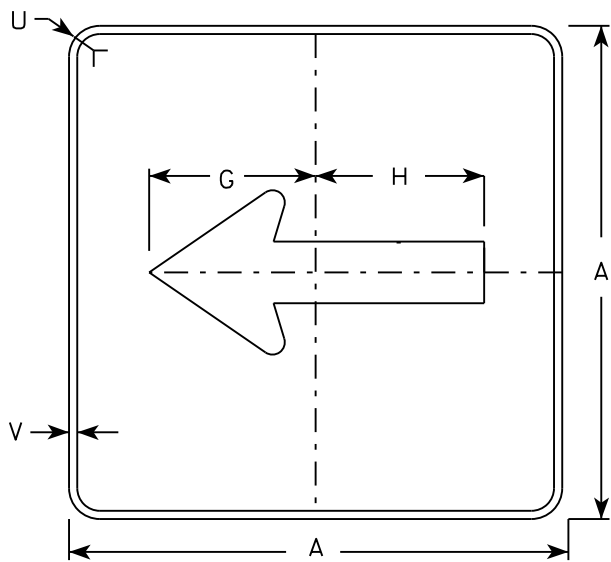
DATE 10/15/15 PLATF 153 M5-1.13



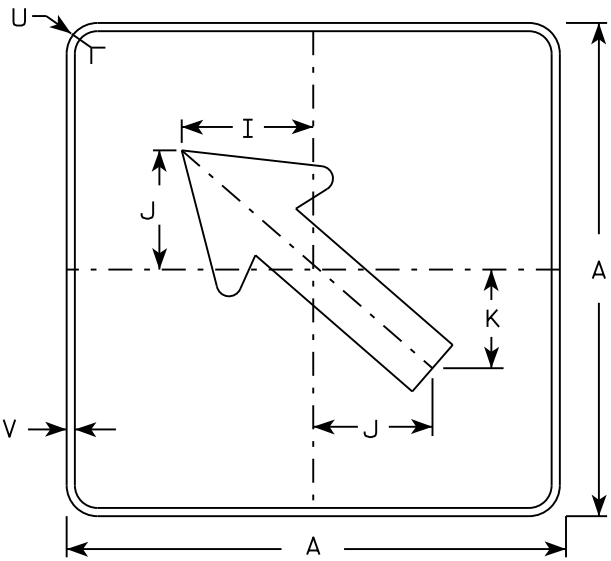
M6 - 1  
MM6 - 1  
M06 - 1  
MP6 - 1



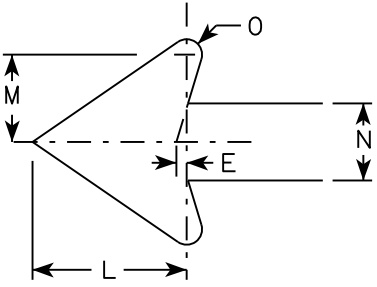
M6 - 2  
MM6 - 2  
M06 - 2  
MP6 - 2



MB6 - 1  
MK6 - 1  
MN6 - 1  
MR6 - 1



MB6 - 2  
MK6 - 2  
MN6 - 2  
MR6 - 2



NOTES

- 1. Signs are Type II - Type H except as Shown
- 2. Color:
  - Background - See note 4
  - Message - See note 4
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. M6-1 and M6-2 Background - White  
Message - Black  
MB6-1 and MB6-2 Background - Blue  
Message - White  
MK6-1 and MK6-2 Background - Green  
Message - White  
MM6-1 and MM6-2 Background - White  
Message - Green  
MN6-1 and MN6-2 Background - Brown  
Message - White  
M06-1 and M06-2 Background - Orange - Type F Reflective  
Message - Black  
MP6-1 and MP6-2 Background - White  
Message - Blue  
MR6-1 and MR6-2 Background - Brown  
Message - Yellow

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|--------|--------|-------|-------|-------|-------|-------|-------|-----|---|---|---|---|---|-------|-----|---|---|---|---|-----------------|
| 1    |    |   |       |     |     |   |        |        |       |       |       |       |       |       |     |   |   |   |   |   |       |     |   |   |   |   |                 |
| 2    | 21 |   | 1 1/8 | 3/8 | 3/8 |   | 7 1/2  | 7 1/8  | 5 5/8 | 5     | 4 1/4 | 5 1/4 | 3     | 2 5/8 | 1/2 |   |   |   |   |   | 1 1/2 | 1/2 |   |   |   |   | 3.06            |
| 3    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 10 1/4 | 8     | 7 1/4 | 6     | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 4    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 10 1/4 | 8     | 7 1/4 | 6     | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 5    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 10 1/4 | 8     | 7 1/4 | 6     | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

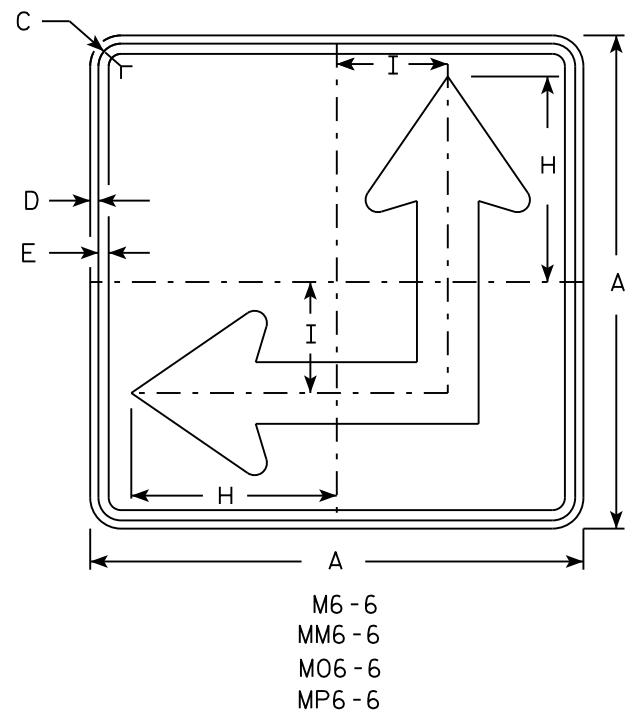
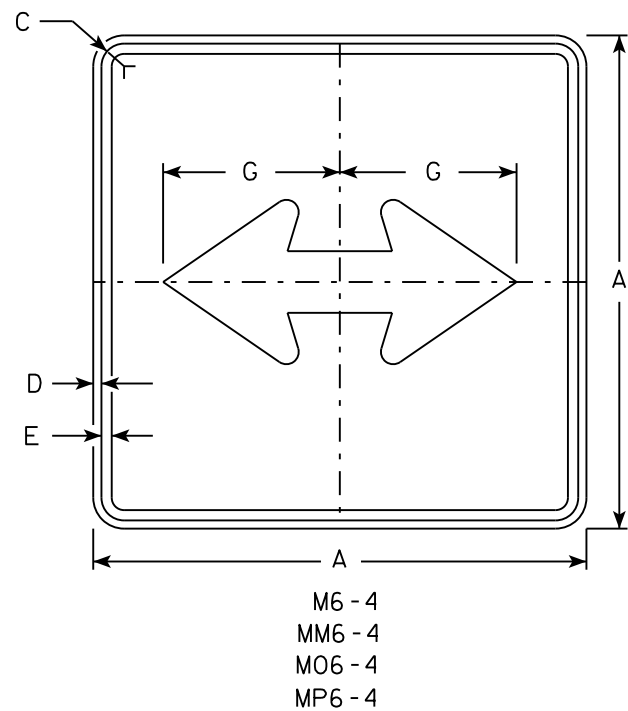
STANDARD SIGN  
M6 - 1 & M6 - 2  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

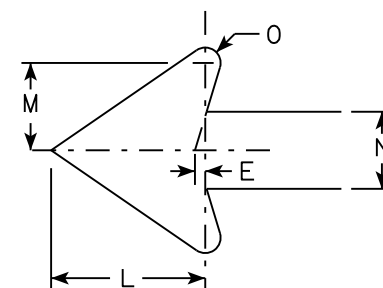
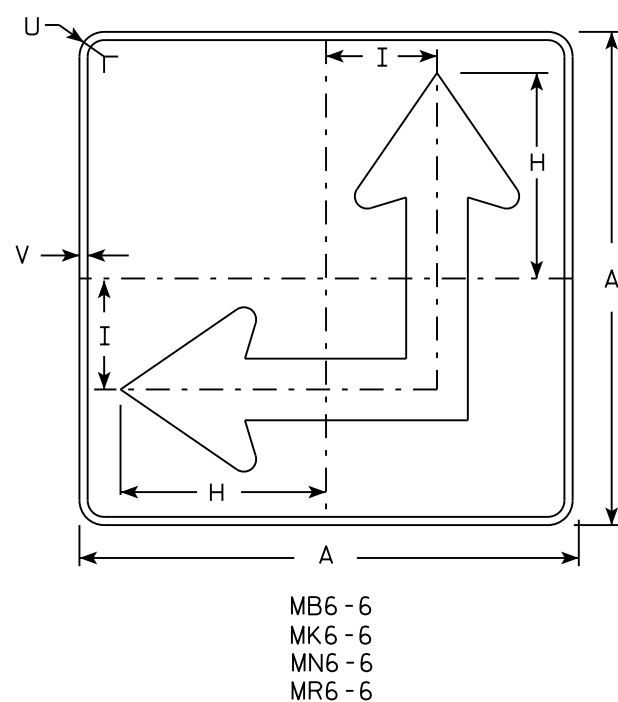
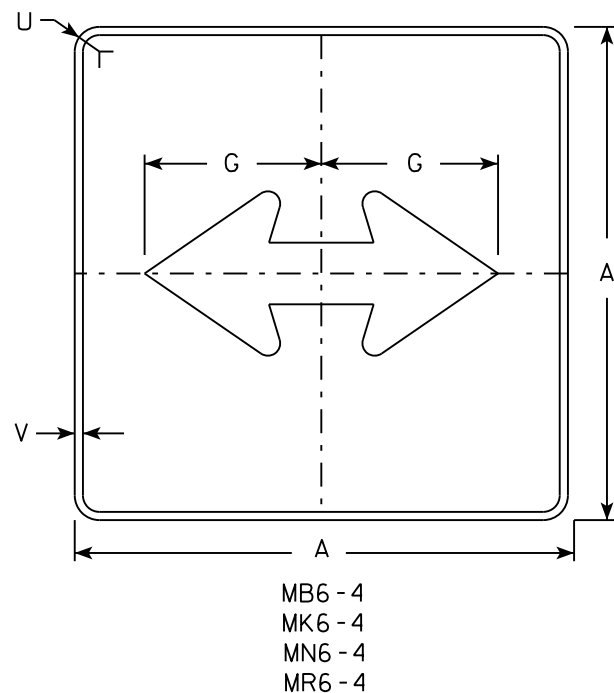
DATE 10/15/15 PLAT 154 M6-1.15





NOTES

- Signs are Type II - Type H except as Shown
- Color:  
Background - See Note 4  
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White  
Message - Black  
MB6-4 and MB6-6 Background - Blue  
Message - White  
MK6-4 and MK6-6 Background - Green  
Message - White  
MM6-4 and MM6-6 Background - White  
Message - Green  
MN6-4 and MN6-6 Background - Brown  
Message - White  
MO6-4 and MO6-6 Background - Orange - Type F Reflective  
Message - Black  
MP6-4 and MP6-6 Background - White  
Message - Blue  
MR6-4 and MR6-6 Background - Brown  
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|--------|--------|-------|---|---|-------|-------|-------|-----|---|---|---|---|---|-------|-----|---|---|---|---|-----------------|
| 1    |    |   |       |     |     |   |        |        |       |   |   |       |       |       |     |   |   |   |   |   |       |     |   |   |   |   |                 |
| 2    | 21 |   | 1 1/8 | 3/8 | 3/8 |   | 7 1/2  | 8 3/4  | 4 1/4 |   |   | 5 1/4 | 3     | 2 5/8 | 1/2 |   |   |   |   |   | 1 1/2 | 1/2 |   |   |   |   | 3.06            |
| 3    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 12 1/2 | 6 3/4 |   |   | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 4    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 12 1/2 | 6 3/4 |   |   | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |
| 5    | 30 |   | 1 3/8 | 1/2 | 5/8 |   | 10 3/4 | 12 1/2 | 6 3/4 |   |   | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 |   |   |   |   |   | 1 7/8 | 1/2 |   |   |   |   | 6.25            |

|             |      |         |          |           |   |
|-------------|------|---------|----------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | PLAT NO: | SHEET NO: | E |
|-------------|------|---------|----------|-----------|---|

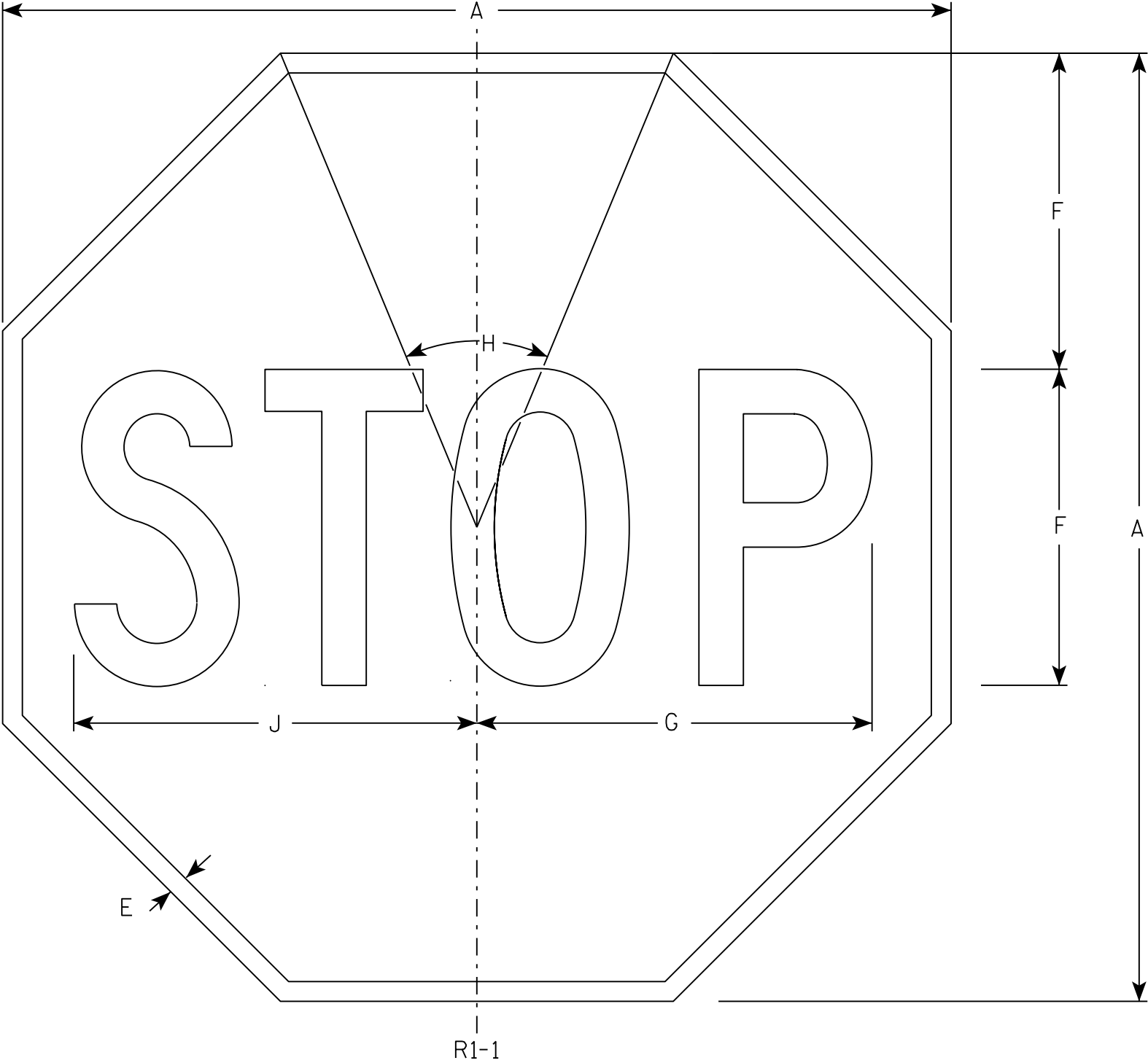
STANDARD SIGN  
M6 - 4 & M6 - 6  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15      PLAT 155      M6-4.10

7



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:  
Background - Red  
Message - White
- 3. Message Series - C

7

R1-1

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|---|---|-----|----|--------|-----|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 30 |   |   |   | 5/8 | 10 | 12 1/2 | 45° |   | 12 3/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.18            |
| 2S   | 30 |   |   |   | 5/8 | 10 | 12 1/2 | 45° |   | 12 3/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.18            |
| 2M   | 36 |   |   |   | 3/4 | 12 | 15     | 45° |   | 15 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.46            |
| 3    | 36 |   |   |   | 3/4 | 12 | 15     | 45° |   | 15 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.46            |
| 4    | 48 |   |   |   | 1   | 16 | 20     | 45° |   | 20 1/2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13.25           |
| 5    | 48 |   |   |   | 1   | 16 | 20     | 45° |   | 20 1/2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13.25           |
| 6    | 18 |   |   |   | 3/8 | 6  | 7 3/4  | 45° |   | 7 3/4  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1.86            |
| 7    | 12 |   |   |   | 1/4 | 4  | 5      | 45° |   | 5 1/8  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 0.78            |

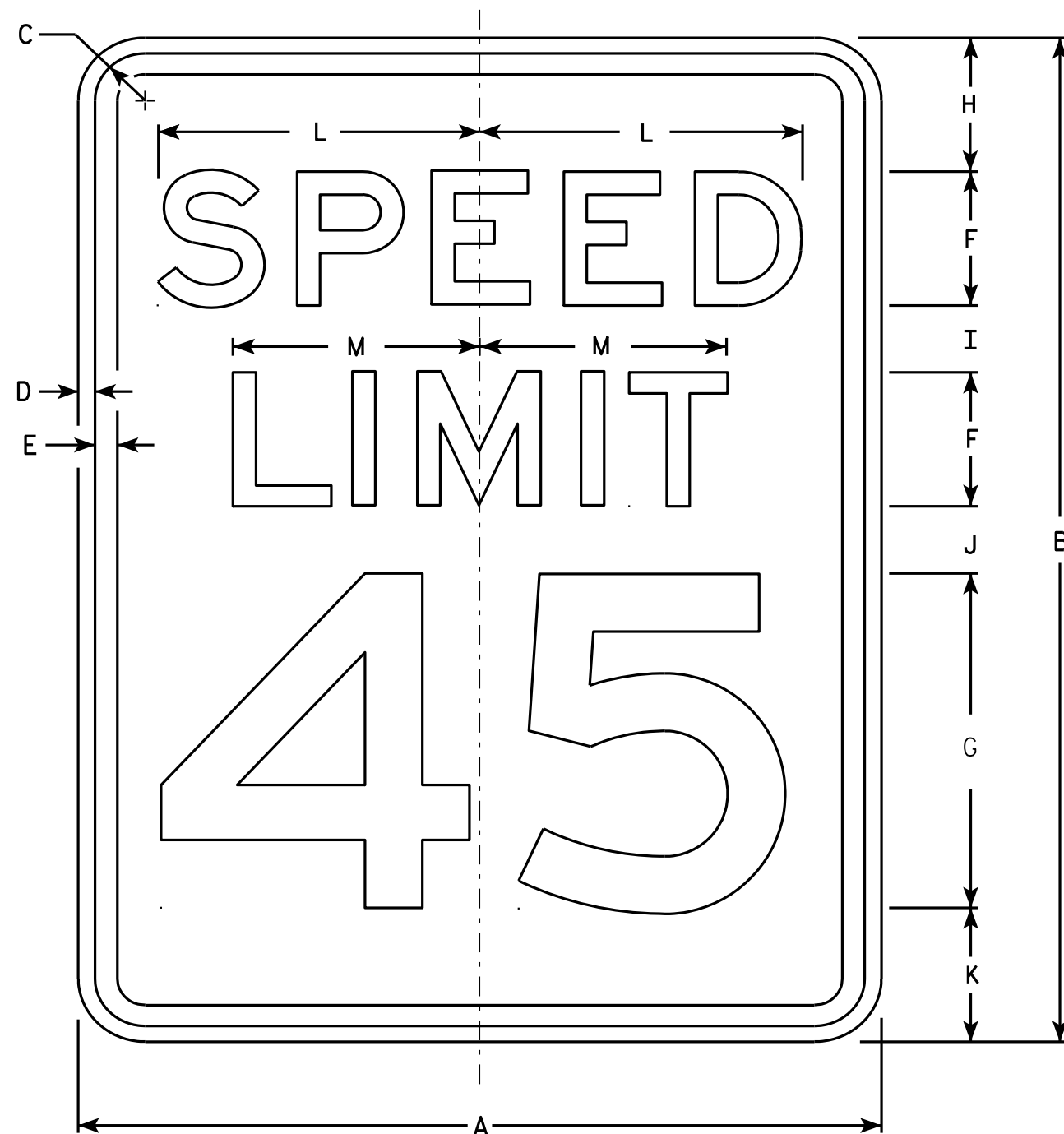
STANDARD SIGN  
R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13





R2-1

### NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|----|---|-------|-------|-------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 18 | 24 | 1 1/8 | 3/8 | 1/2 | 3 | 8  | 3 | 2     | 2     | 3     | 7 1/4  | 5 1/2  |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2S   | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 4 | 10 | 3 | 2 1/4 | 3 3/8 | 3 3/8 | 9 5/8  | 7 3/8  |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.0             |
| 2M   | 30 | 36 | 1 3/8 | 1/2 | 5/8 | 5 | 12 | 5 | 2 1/2 | 2 1/2 | 4     | 12     | 9 1/4  |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.5             |
| 3    | 36 | 48 | 1 3/8 | 1/2 | 5/8 | 6 | 14 | 6 | 5     | 5     | 6     | 14 3/8 | 11     |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 4    | 36 | 48 | 1 3/8 | 1/2 | 5/8 | 6 | 14 | 6 | 5     | 5     | 6     | 14 3/8 | 11     |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |
| 5    | 48 | 60 | 2 1/4 | 3/4 | 1   | 8 | 20 | 6 | 4 1/2 | 6 3/4 | 6 3/4 | 19 1/4 | 14 5/8 |   |   |   |   |   |   |   |   |   |   |   |   |   | 20.0            |

### STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

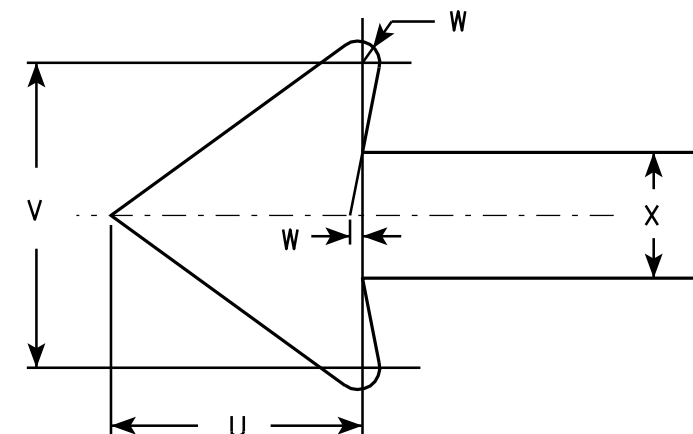
PROJECT NO: HWY: COUNTY: SHEET NO: 157 E



R7-1

### NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Red
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 3 and 4 are series C, line 2 is series B.
6. R7-1D (double arrow)  
R7-1L (left arrow)  
R7-1R (right arrow)



| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|---|---|-----------------|
| 1    | 12 | 18 | 1 1/8 | 3/8 | 3/8 | 3 | 1 7/8 | 2     | 7/8   | 5/8   | 1 1/2 | 2 1/2 | 2     | 2     | 4 7/8 | 4 7/8 | 2 1/4 | 2 1/8 | 2 1/2 | 3 7/8 | 1 1/2 | 1 3/4 | 1/8 | 3/4   |   |   | 1.5             |
| 2S   | 18 | 24 | 1 1/8 | 3/8 | 1/2 | 4 | 2 1/2 | 2 1/2 | 1 1/4 | 1     | 2     | 3 1/4 | 2 3/4 | 2 5/8 | 7 1/8 | 7     | 2 3/4 | 2 5/8 | 3 1/8 | 5 7/8 | 2 1/4 | 2 5/8 | 1/4 | 1 1/8 |   |   | 3.0             |
| 2M   | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 5 | 3     | 3     | 2     | 1 1/4 | 2 1/2 | 4     | 3 1/4 | 3 3/8 | 9 1/4 | 9 1/4 | 3 1/4 | 3 1/4 | 3 3/4 | 7 3/4 | 3     | 3 1/2 | 1/4 | 1 1/2 |   |   | 5.0             |
| 3    | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 5 | 3     | 3     | 2     | 1 1/4 | 2 1/2 | 4     | 3 1/4 | 3 3/8 | 9 1/4 | 9 1/4 | 3 1/4 | 3 1/4 | 3 3/4 | 7 3/4 | 3     | 3 1/2 | 1/4 | 1 1/2 |   |   | 5.0             |
| 4    |    |    |       |     |     |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |     |       |   |   |                 |
| 5    |    |    |       |     |     |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |     |       |   |   |                 |

### STANDARD SIGN R7-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R7-1.9

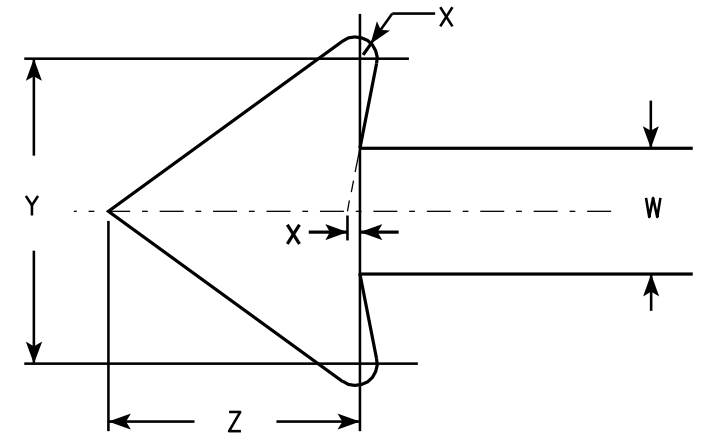
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: 158 **E**



R7-53

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Red
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 3 and 4 are series C, line 2 is series B.
6. R7-53D (double arrow)  
R7-53L (left arrow)  
R7-53R (right arrow)



ARROW DETAIL

| SIZE | 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     | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-----|-------|-------|-----------------|
| 1    | 12 | 18 | 1 1/8 | 3/8 | 3/8 | 3 | 1 7/8 | 2     | 7/8   | 5/8   | 1 1/2 | 2 1/2 | 2     | 2     | 4 7/8 | 4 7/8 | 2 5/8 | 1 3/4 | 1/4 | 4 1/2 | 2 3/8 | 3 7/8 | 3/4   | 1/8 | 1 3/4 | 1 1/2 | 1.5             |
| 2S   | 18 | 24 | 1 1/8 | 3/8 | 1/2 | 4 | 2 1/2 | 2 1/2 | 1 1/4 | 1     | 2     | 3 1/4 | 2 3/4 | 2 5/8 | 7 1/8 | 7     | 3 3/8 | 1 1/2 | 5/8 | 5 3/8 | 3     | 5 7/8 | 1 1/8 | 1/4 | 2 5/8 | 2 1/4 | 3.0             |
| 2M   | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 5 | 3     | 3     | 2     | 1 1/4 | 2 1/2 | 4     | 3 1/4 | 3 3/8 | 9 1/4 | 9 1/4 | 4     | 2     | 5/8 | 6 5/8 | 3 5/8 | 7 3/4 | 1 1/2 | 1/4 | 3 1/2 | 3     | 5.0             |
| 3    | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 5 | 3     | 3     | 2     | 1 1/4 | 2 1/2 | 4     | 3 1/4 | 3 3/8 | 9 1/4 | 9 1/4 | 4     | 2     | 5/8 | 6 5/8 | 3 5/8 | 7 3/4 | 1 1/2 | 1/4 | 3 1/2 | 3     | 5.0             |
| 4    |    |    |       |     |     |   |       |       |       |       |       |       |       |       |       |       |       |       |     |       |       |       |       |     |       |       |                 |
| 5    |    |    |       |     |     |   |       |       |       |       |       |       |       |       |       |       |       |       |     |       |       |       |       |     |       |       |                 |

STANDARD SIGN  
R7-53

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

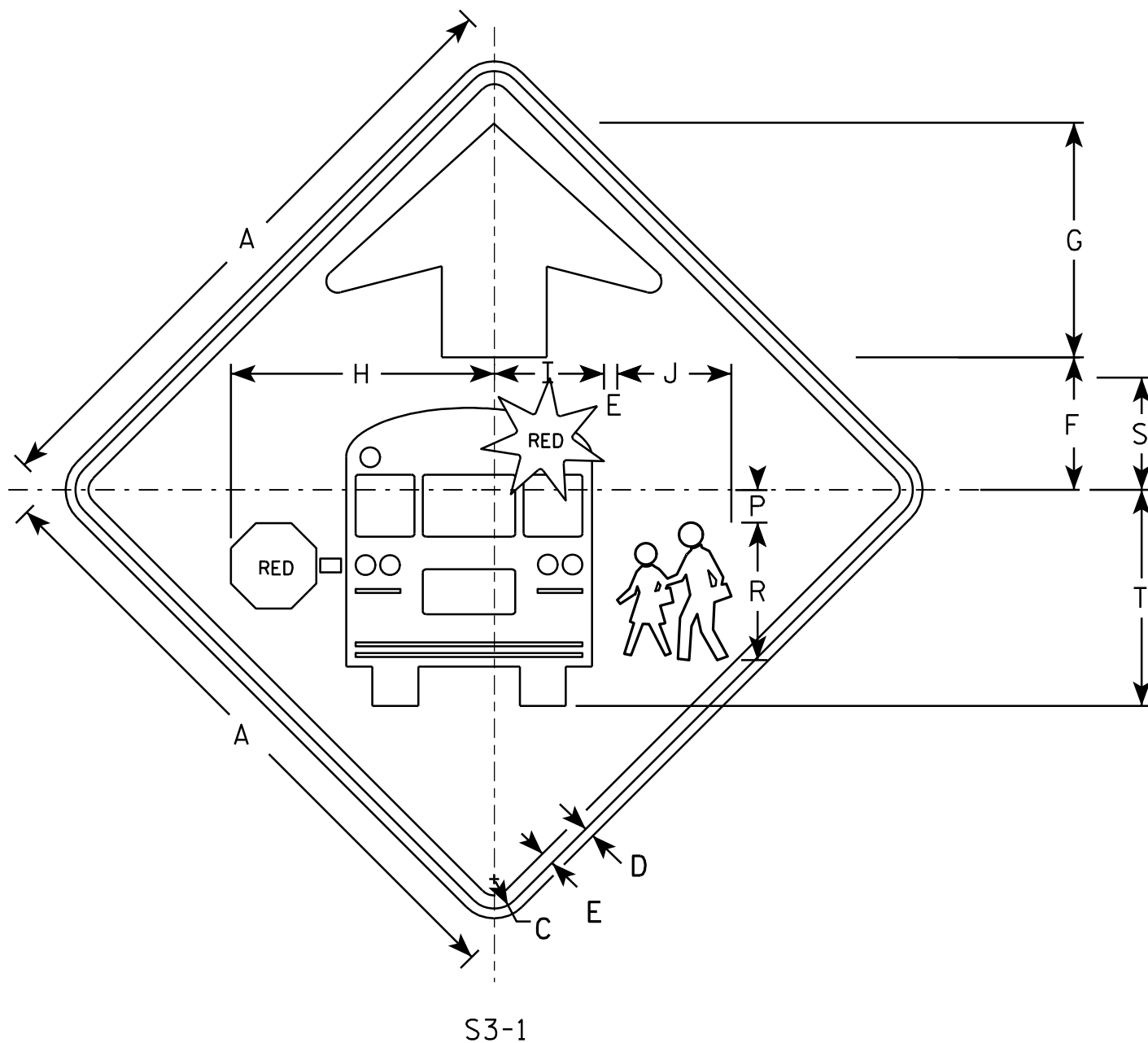
DATE 3/31/2011 PLATE NO. R7-53.6

PROJECT NO:

HWY:

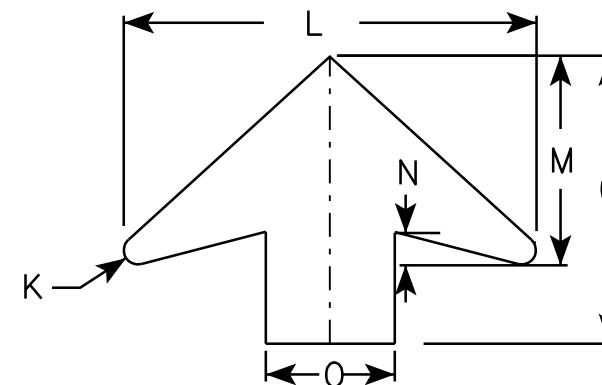
COUNTY:

SHEET NO: 159

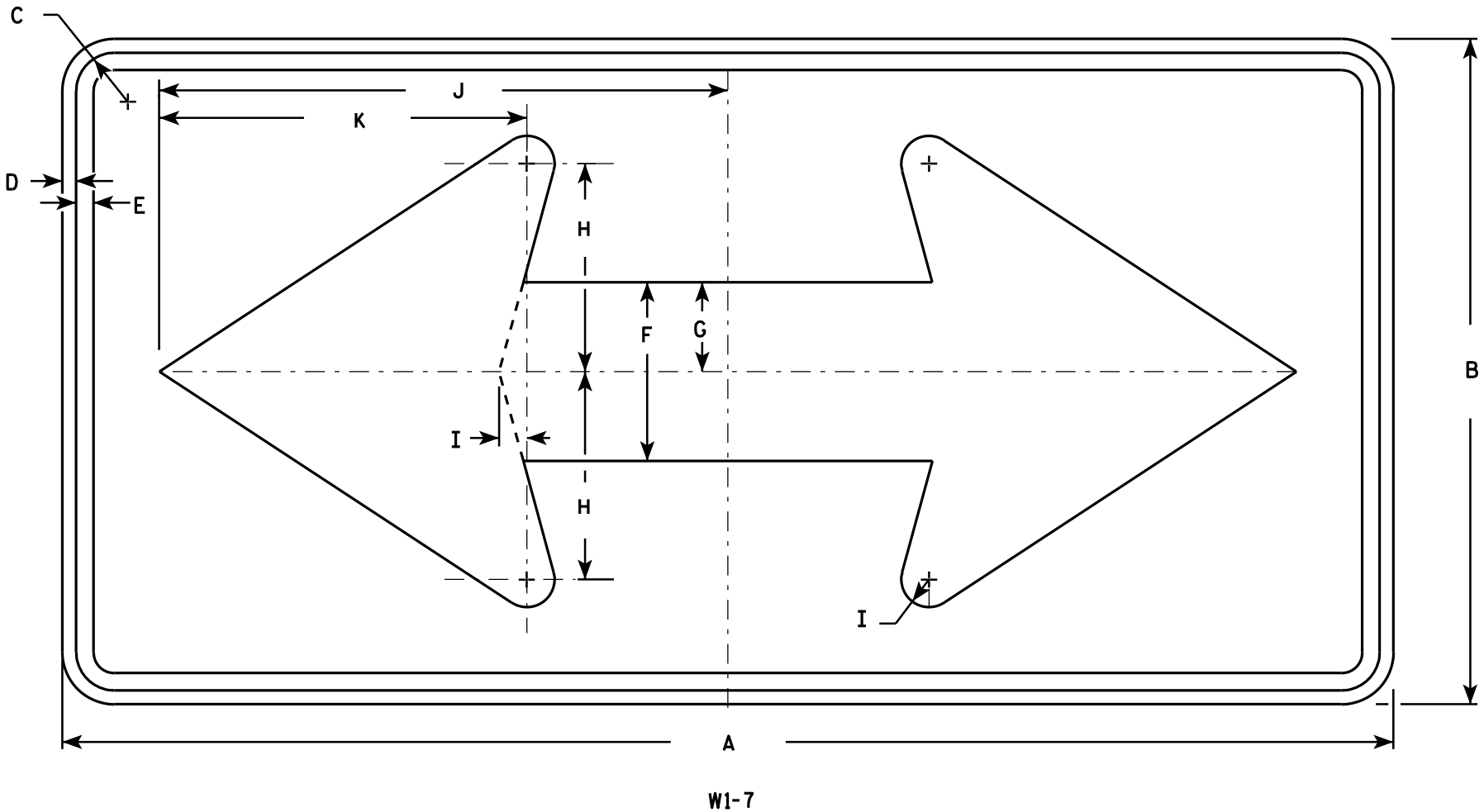


## NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
  - Background - YELLOW-GREEN
  - Message - BLACK except as noted
  - Circles except PEDS- RED BACKGROUND
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

[illegible]

|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| STANDARD SIGN                    |                                                       |
| S3-1                             |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <u>Matthew R. Rauch</u><br>for State Traffic Engineer |
| DATE <u>6/8/10</u>               | PLATE NO. <u>S3-1.6</u>                               |



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:  
Background - Yellow  
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|-------|-------|-------|-------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 36 | 18 | 1 1/8 | 3/8 | 1/2 | 5     | 2 1/2 | 5 3/4 | 3/4   | 15 5/8 | 10 1/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 4.5             |
| 2S   | 48 | 24 | 1 3/8 | 1/2 | 5/8 | 6 1/2 | 3 1/4 | 7 1/2 | 1     | 20 1/2 | 13 1/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 2M   | 48 | 24 | 1 3/8 | 1/2 | 5/8 | 6 1/2 | 3 1/4 | 7 1/2 | 1     | 20 1/2 | 13 1/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 3    | 60 | 30 | 1 3/8 | 1/2 | 5/8 | 8     | 4     | 9 1/4 | 1 1/4 | 25 3/8 | 16 1/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.5            |
| 4    | 60 | 30 | 1 3/8 | 1/2 | 5/8 | 8     | 4     | 9 1/4 | 1 1/4 | 25 3/8 | 16 1/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.5            |
| 5    | 96 | 48 | 2 1/4 | 3/4 | 1   | 13    | 6 1/2 | 15    | 2     | 41     | 26 1/2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 32.0            |

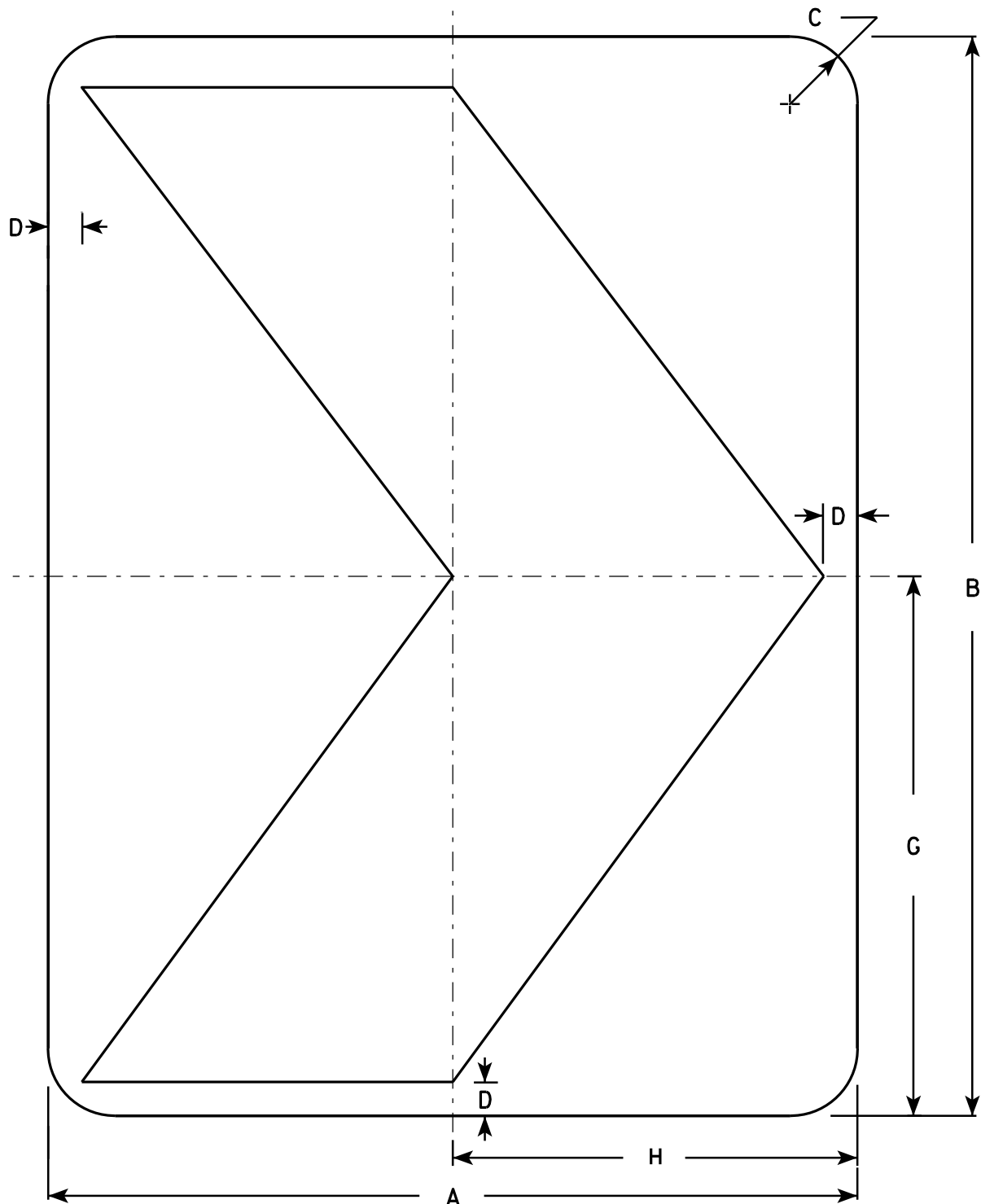
STANDARD SIGN

W1 - 7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-7.7



### NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

W1-8

| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-------|---|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 12 | 18 | 1 1/2 | 1/2   |   |   | 9  | 6  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1.5             |
| 2S   | 18 | 24 | 1 1/2 | 3/4   |   |   | 12 | 9  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2M   | 18 | 24 | 1 1/2 | 3/4   |   |   | 12 | 9  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 3    | 24 | 30 | 1 1/2 | 1     |   |   | 15 | 12 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.0             |
| 4    | 30 | 36 | 1 7/8 | 1 1/4 |   |   | 18 | 15 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.5             |
| 5    | 36 | 48 | 2 1/4 | 1 1/2 |   |   | 24 | 18 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |

### STANDARD SIGN

W1-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

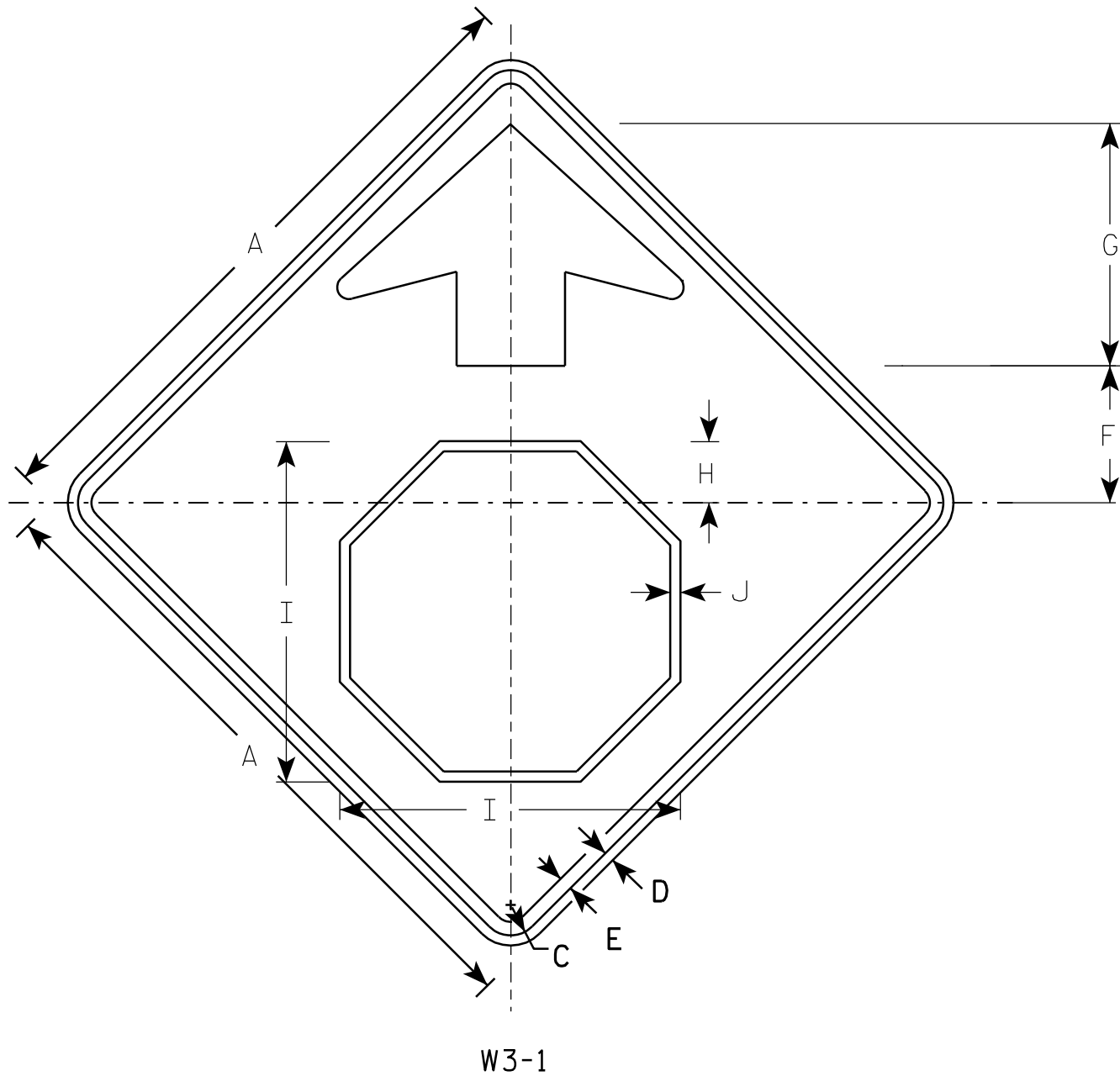
DATE 6/7/10 PLATE NO. W1-8.6

PROJECT NO:

SHEET NO: 162

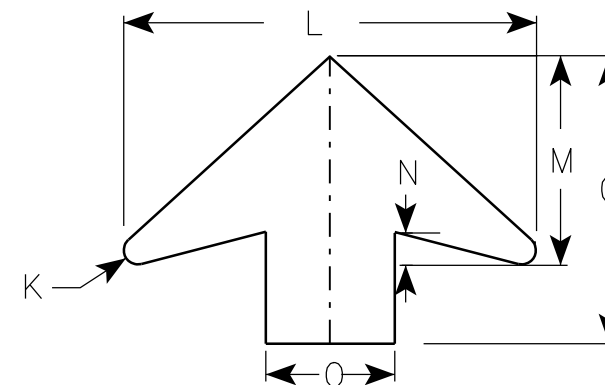
E





### NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - YELLOW  
Arrow & Border - BLACK  
Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

| SIZE | 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 | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|-------|--------|-------|--------|-----|-----|--------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 30 |   | 1 3/8 | 1/2 | 5/8 | 6 1/4 | 11 1/4 | 2 7/8 | 15 3/4 | 1/2 | 1/2 | 16     | 8     | 1 1/4 | 5 |   |   |   |   |   |   |   |   |   |   |   | 6.25            |
| 2S   | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 2M   | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 3    | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 48 |   | 2 1/4 | 3/4 | 1   | 10    | 17 7/8 | 4 1/2 | 25 1/8 | 3/4 | 7/8 | 25 5/8 | 13    | 2     | 8 |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 5    | 48 |   | 2 1/4 | 3/4 | 1   | 10    | 17 7/8 | 4 1/2 | 25 1/8 | 3/4 | 7/8 | 25 5/8 | 13    | 2     | 8 |   |   |   |   |   |   |   |   |   |   |   | 16.0            |

PROJECT NO:

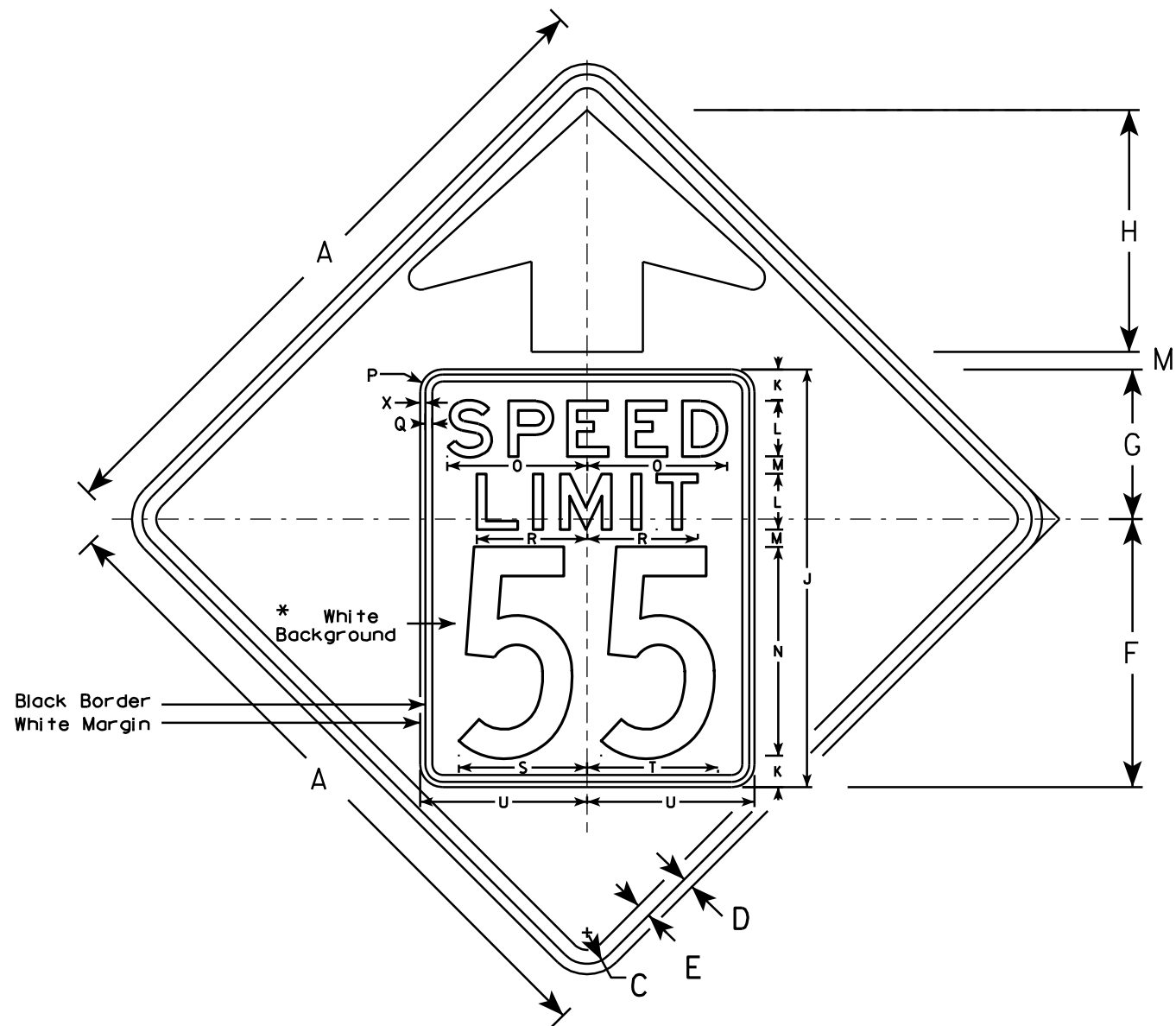
STANDARD SIGN  
W3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/7/10 PLATE NO. W3-1.12

SHEET NO: 163

E

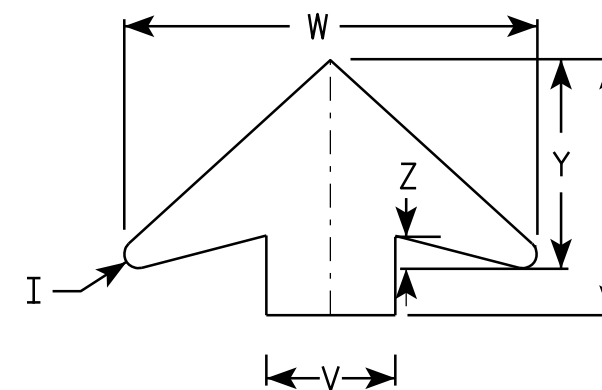


W3-5

### NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color: \*  
Background - YELLOW\*  
Message - BLACK
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

\*Speed Limit Sign shall have a White Background



ARROW DETAIL

| SIZE | 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     | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|--------|--------|--------|-----|----|-------|---|-------|----|-------|-------|-----|-------|-------|-------|----|---|--------|-----|-------|-------|-----------------|
| 1    |    |   |       |     |     |        |        |        |     |    |       |   |       |    |       |       |     |       |       |       |    |   |        |     |       |       |                 |
| 2S   | 36 |   | 1 5⁄8 | 5⁄8 | 3⁄4 | 14 1⁄2 | 9 1⁄2  | 11 1⁄2 | 5⁄8 | 24 | 2     | 3 | 1     | 12 | 7 1⁄8 | 1 1⁄2 | 3⁄8 | 5 3⁄4 | 7 1⁄4 | 7 1⁄8 | 9  | 6 | 19 1⁄4 | 3⁄8 | 9 3⁄4 | 1 5⁄8 | 9.0             |
| 2M   | 36 |   | 1 5⁄8 | 5⁄8 | 3⁄4 | 14 1⁄2 | 9 1⁄2  | 11 1⁄2 | 5⁄8 | 24 | 2     | 3 | 1     | 12 | 7 1⁄8 | 1 1⁄2 | 3⁄8 | 5 3⁄4 | 7 1⁄4 | 7 1⁄8 | 9  | 6 | 19 1⁄4 | 3⁄8 | 9 3⁄4 | 1 5⁄8 | 9.0             |
| 3    | 36 |   | 1 5⁄8 | 5⁄8 | 3⁄4 | 14 1⁄2 | 9 1⁄2  | 11 1⁄2 | 5⁄8 | 24 | 2     | 3 | 1     | 12 | 7 1⁄8 | 1 1⁄2 | 3⁄8 | 5 3⁄4 | 7 1⁄4 | 7 1⁄8 | 9  | 6 | 19 1⁄4 | 3⁄8 | 9 3⁄4 | 1 5⁄8 | 9.0             |
| 4    | 48 |   | 2 1⁄4 | 3⁄4 | 1   | 19 1⁄4 | 10 3⁄4 | 17 3⁄8 | 7⁄8 | 30 | 2 1⁄4 | 4 | 1 1⁄4 | 15 | 10    | 1 5⁄8 | 1⁄2 | 8     | 9 1⁄4 | 9 3⁄8 | 12 | 8 | 25 5⁄8 | 3⁄8 | 13    | 2     | 16.0            |
| 5    | 48 |   | 2 1⁄4 | 3⁄4 | 1   | 19 1⁄4 | 10 3⁄4 | 17 3⁄8 | 7⁄8 | 30 | 2 1⁄4 | 4 | 1 1⁄4 | 15 | 10    | 1 5⁄8 | 1⁄2 | 8     | 9 1⁄4 | 9 3⁄8 | 12 | 8 | 25 5⁄8 | 3⁄8 | 13    | 2     | 16.0            |

### STANDARD SIGN

W3-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12

PLATE NO. W3-5.5

PROJECT NO:

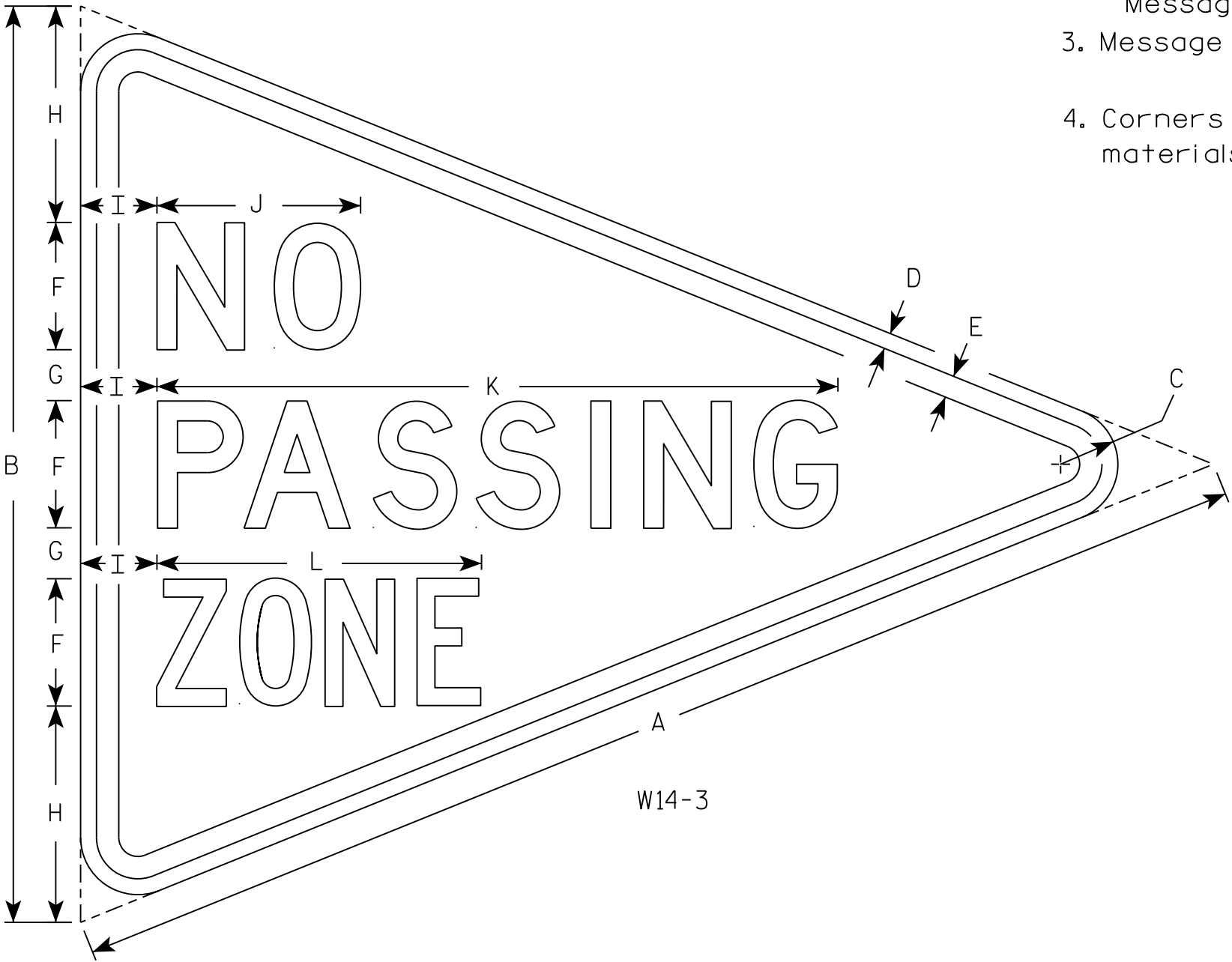
SHEET NO: 164

E



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Yellow  
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.  
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



| SIZE | 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 | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|-------|---|---|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 | 36 | 2 1/4 | 5/8 | 7/8 | 5 | 2 | 8 1/2 | 3 | 8 | 26 3/4 | 12 3/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.56            |
| 2M   |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 3    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 4    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 5    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

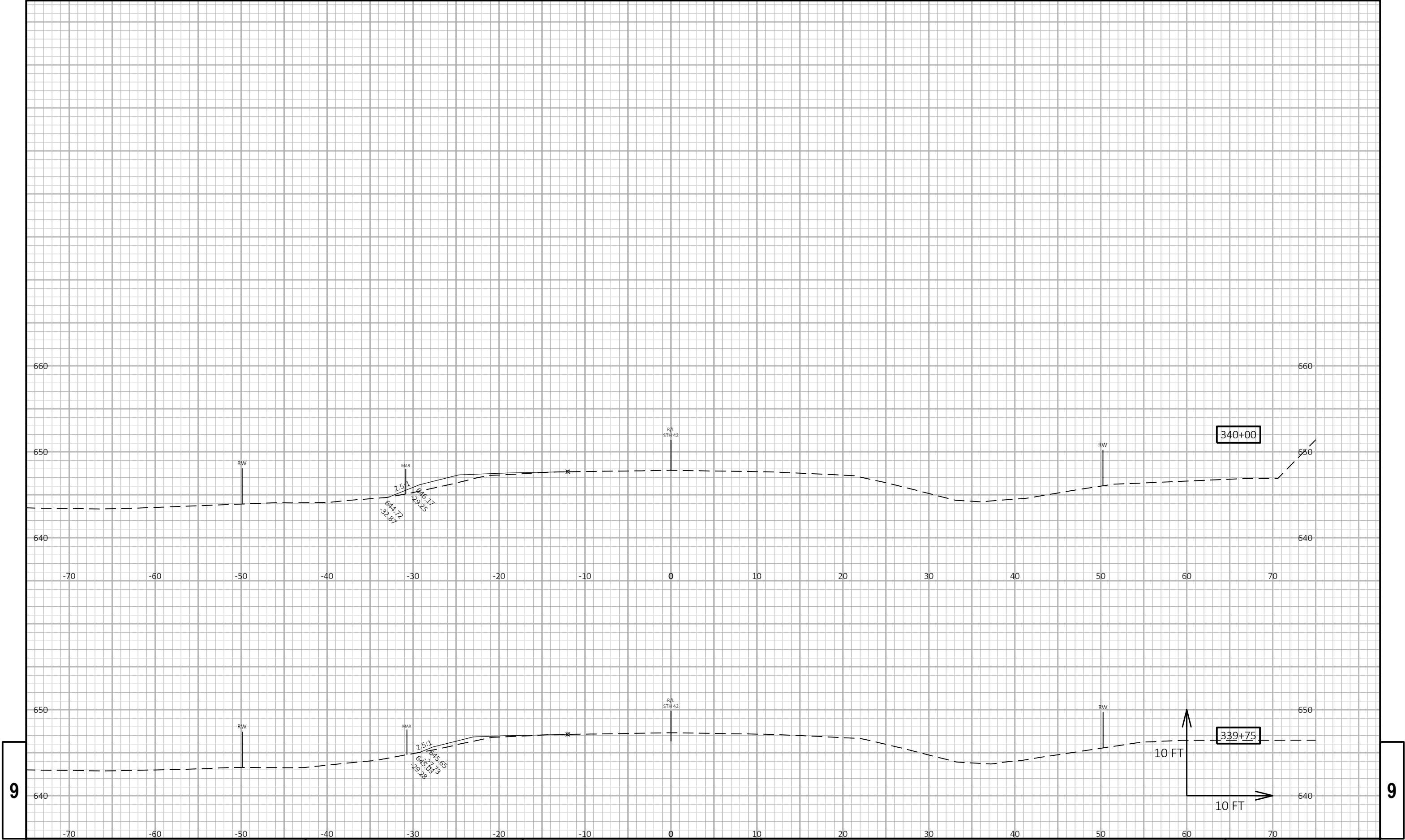
STANDARD SIGN  
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10

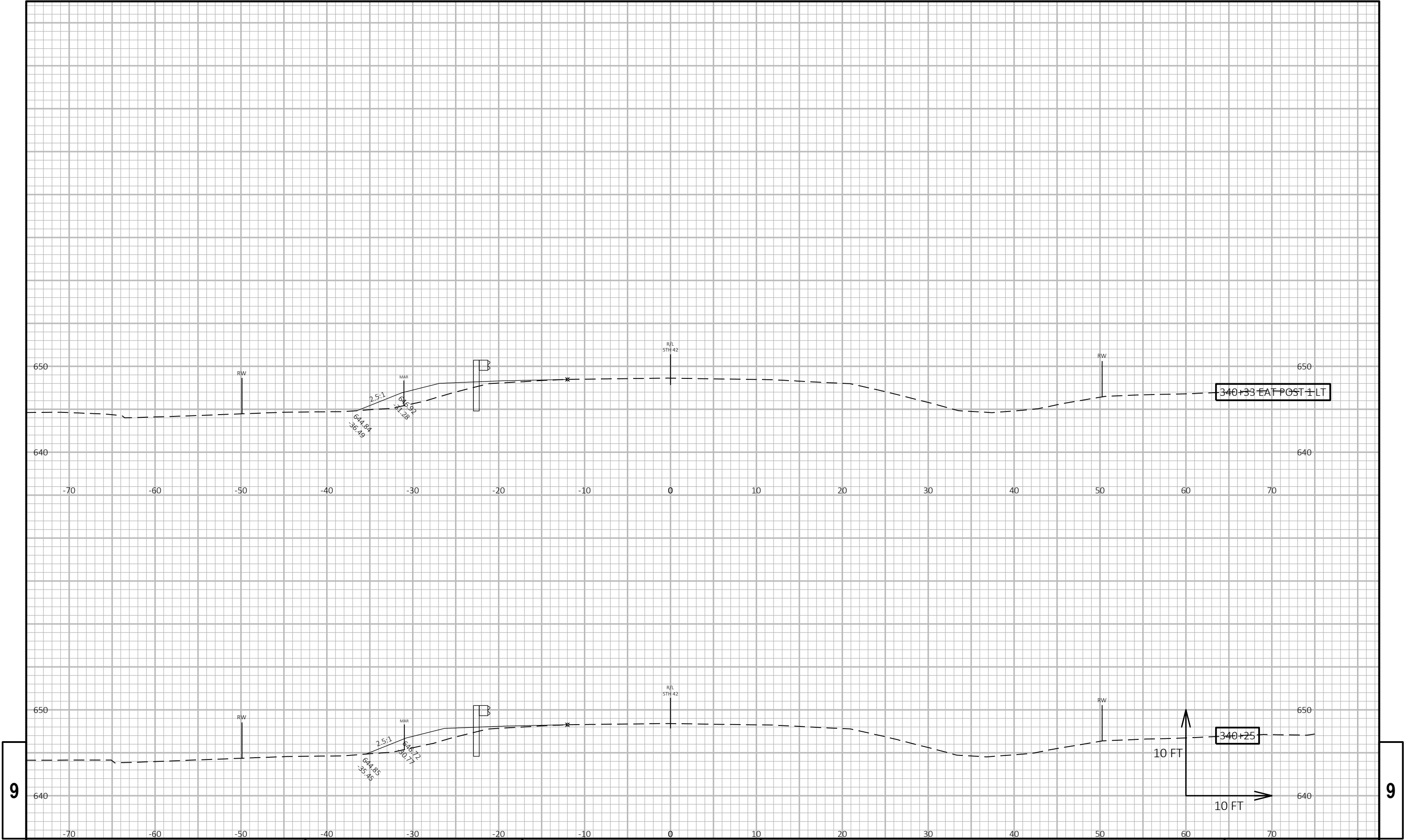




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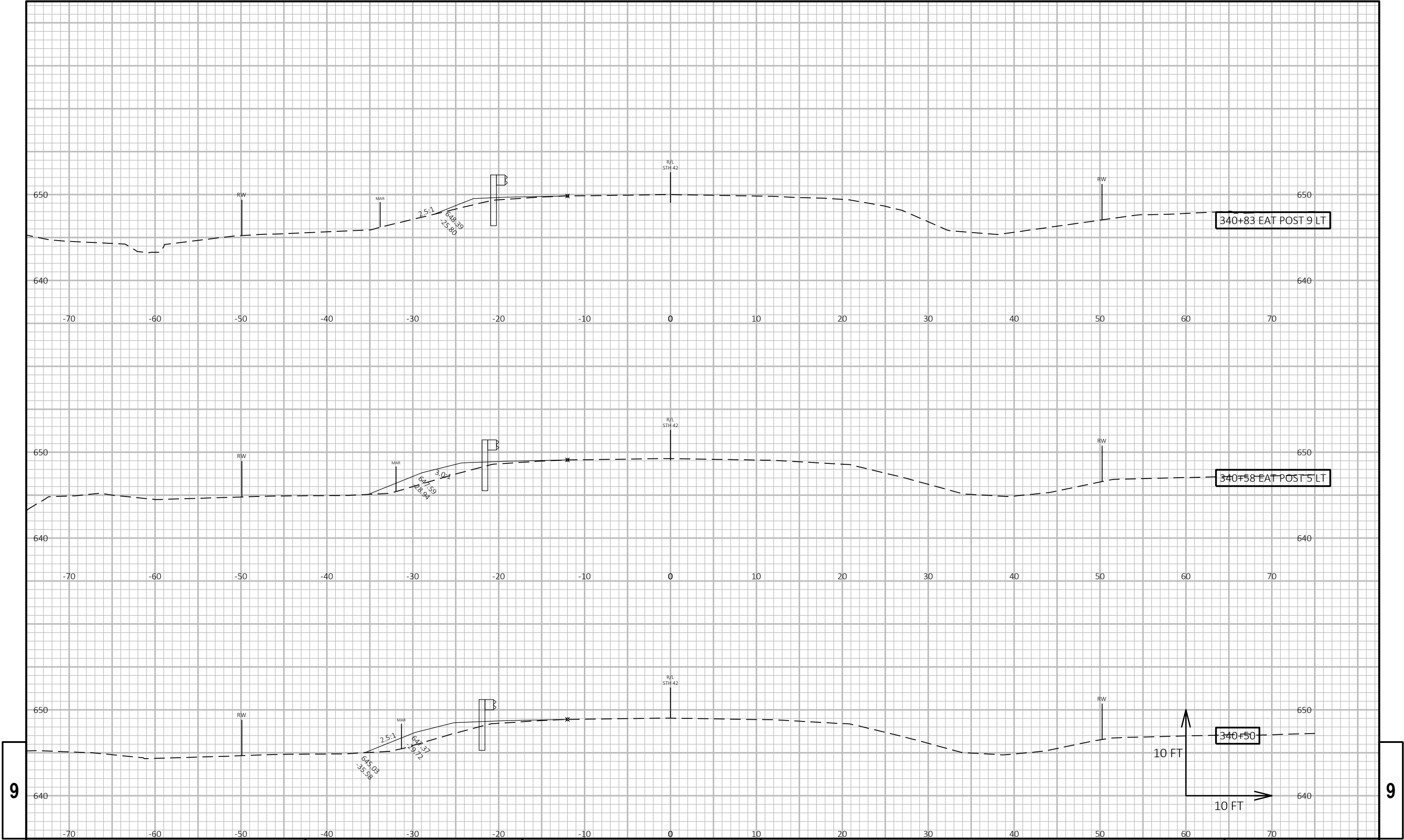
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|                        |             |              |                         |           |   |
|------------------------|-------------|--------------|-------------------------|-----------|---|
| PROJECT NO: 4430-10-71 | HWY: STH 42 | COUNTY: DOOR | CROSS SECTIONS - STH 42 | SHEET 167 | E |
|------------------------|-------------|--------------|-------------------------|-----------|---|



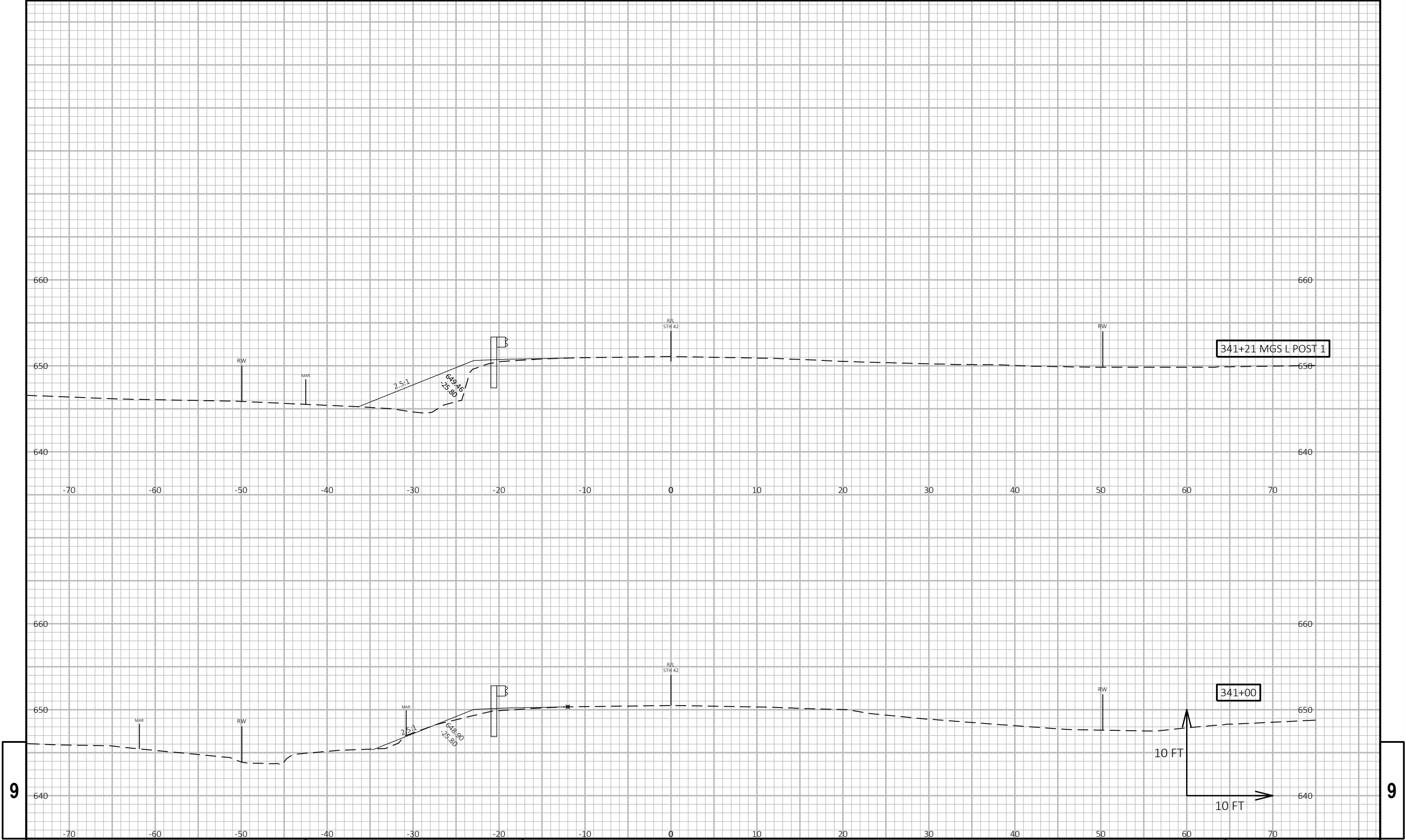
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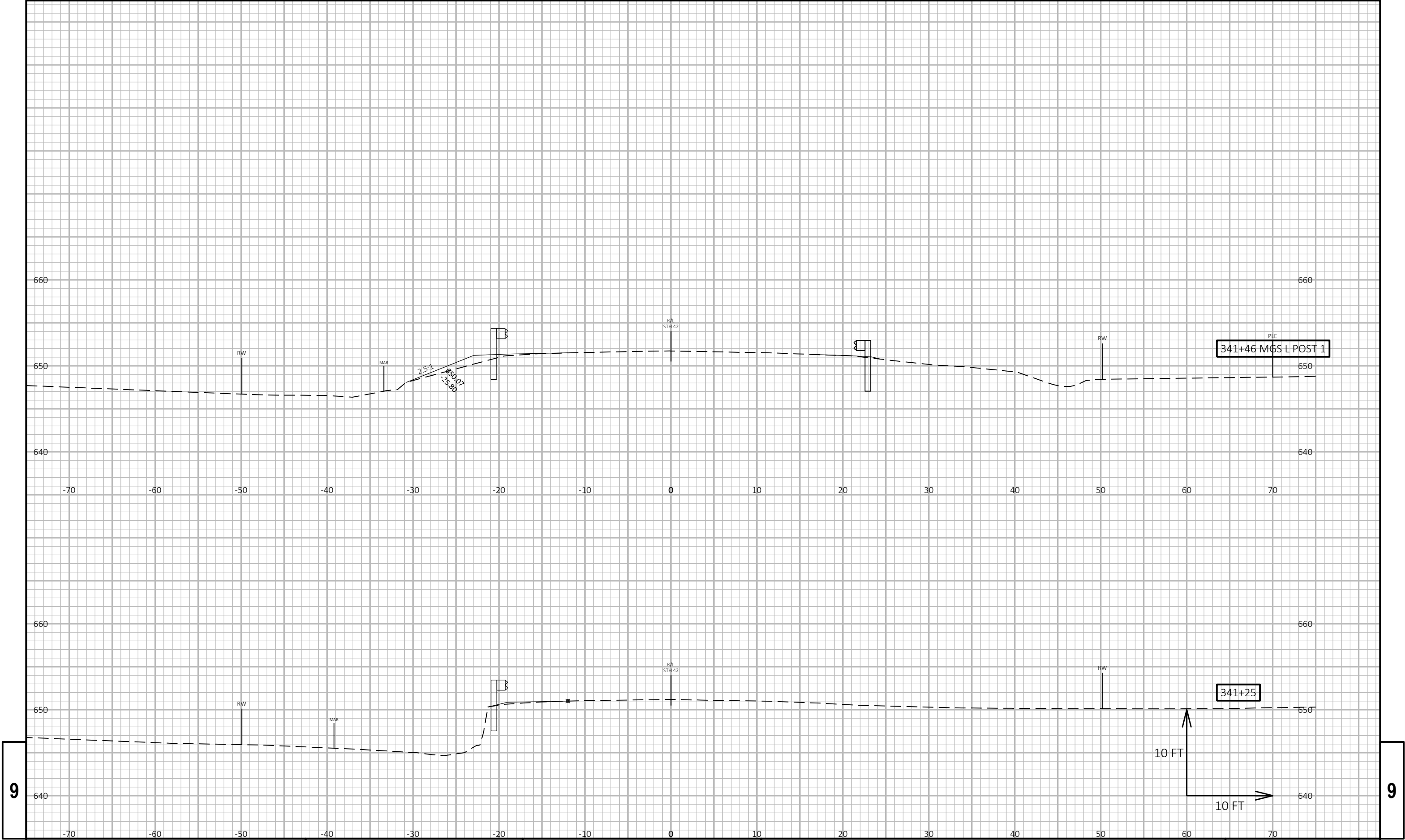


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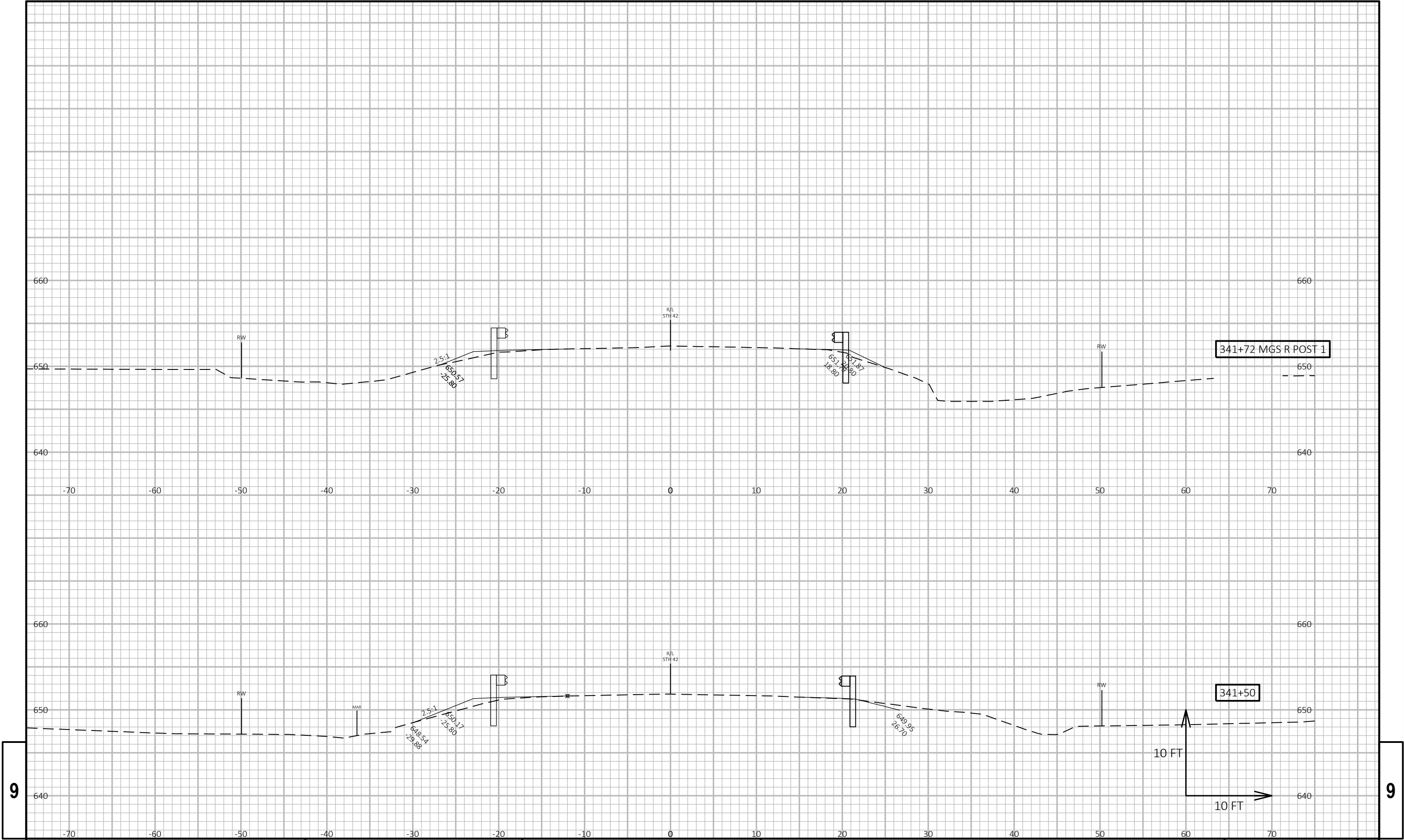






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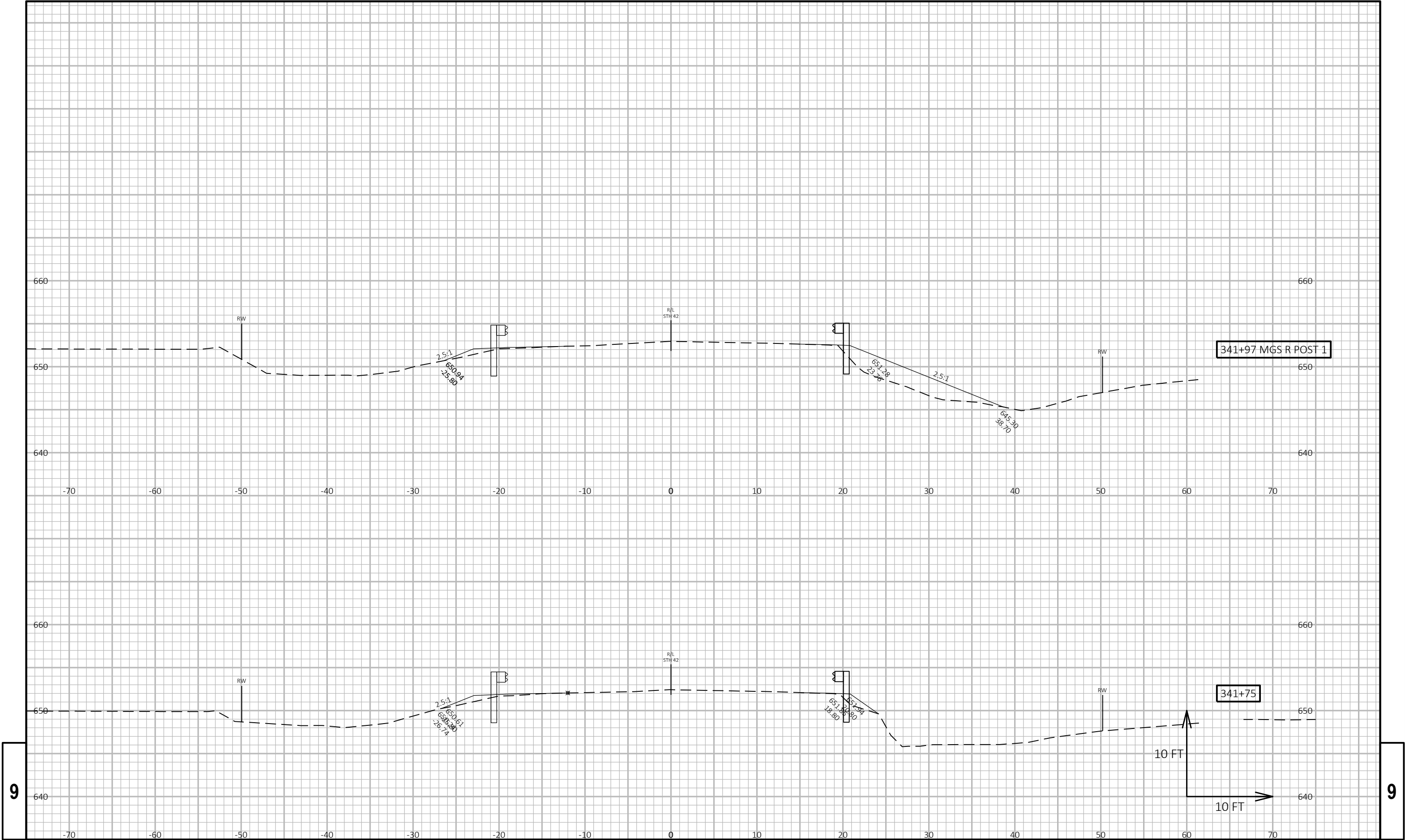
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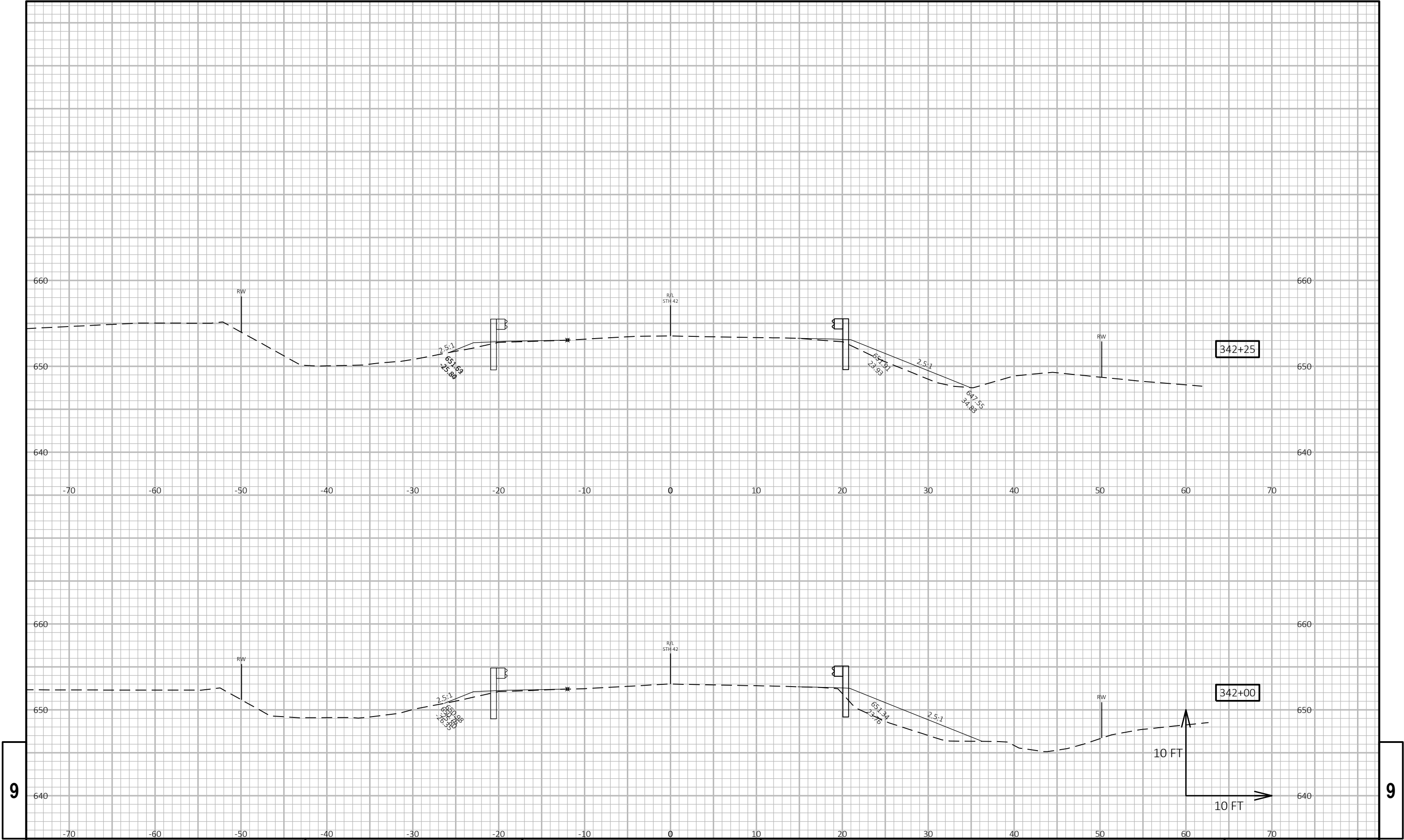


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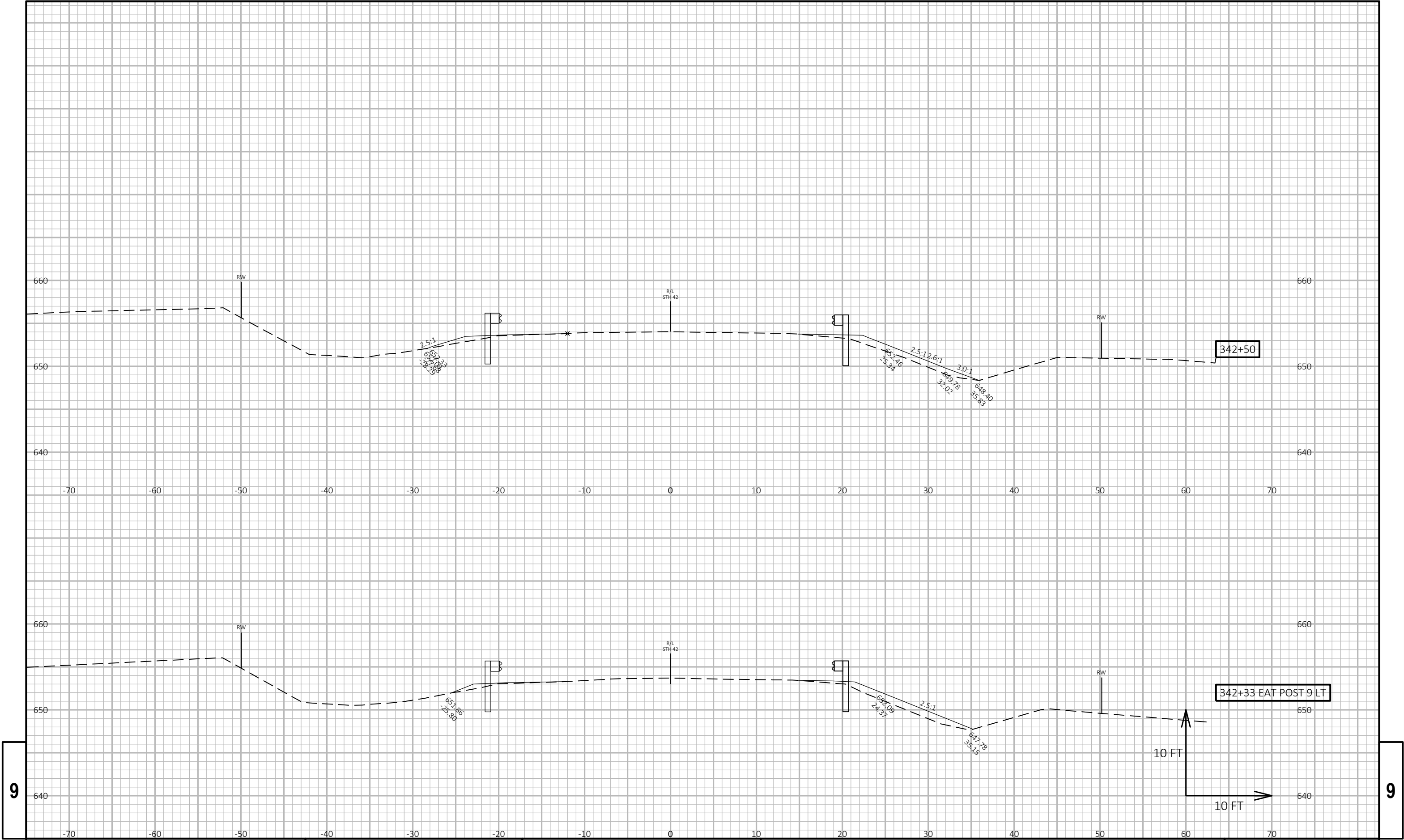






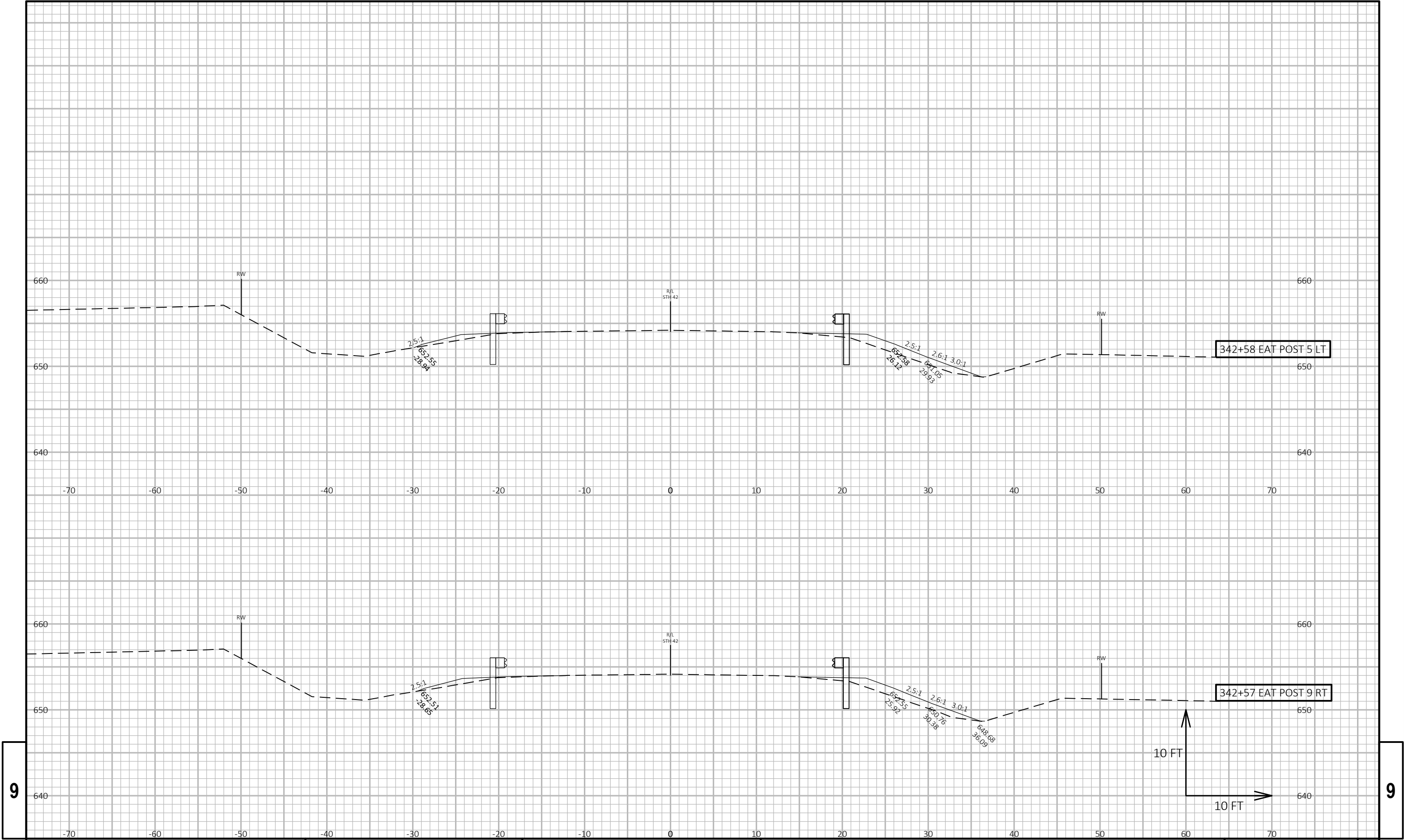
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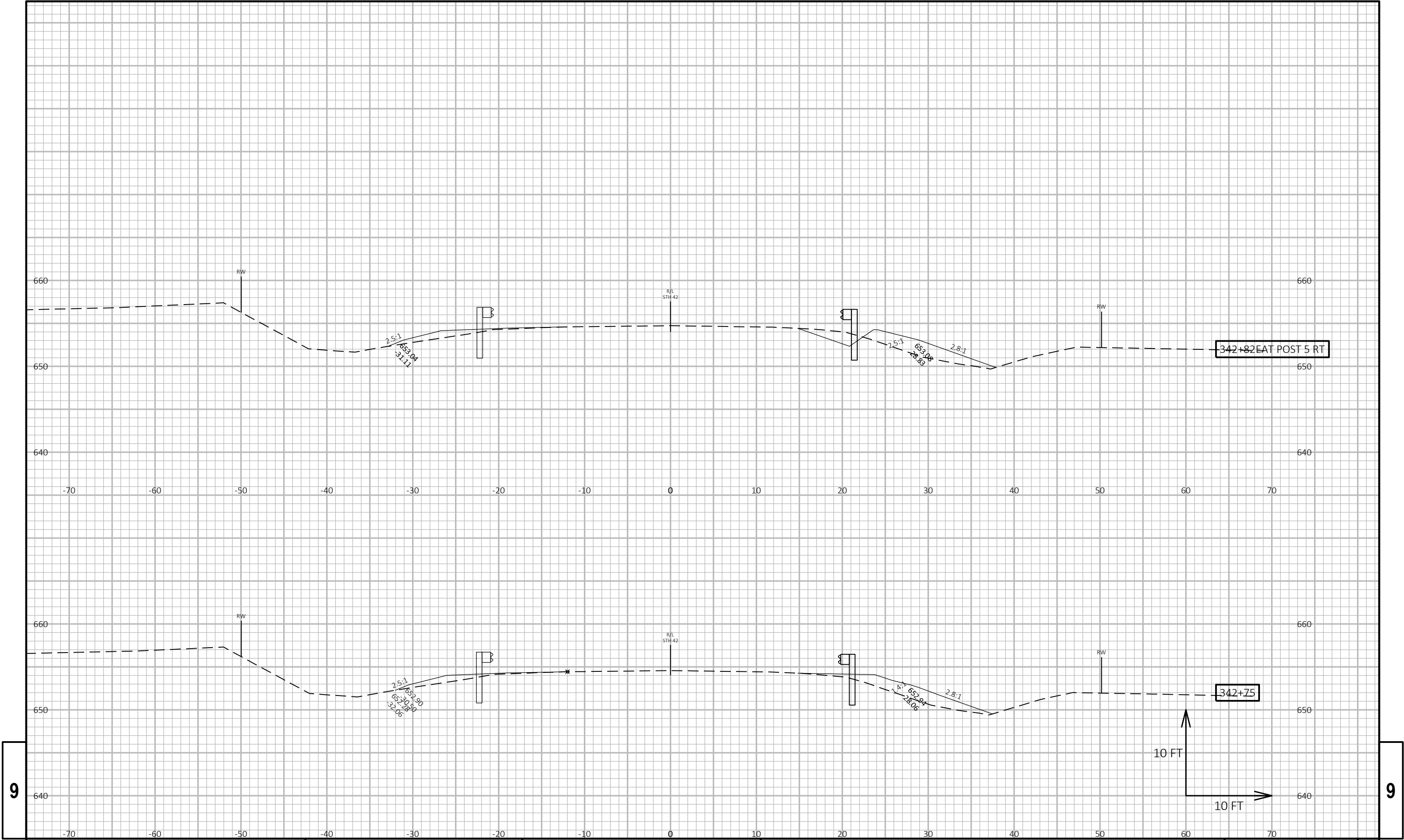
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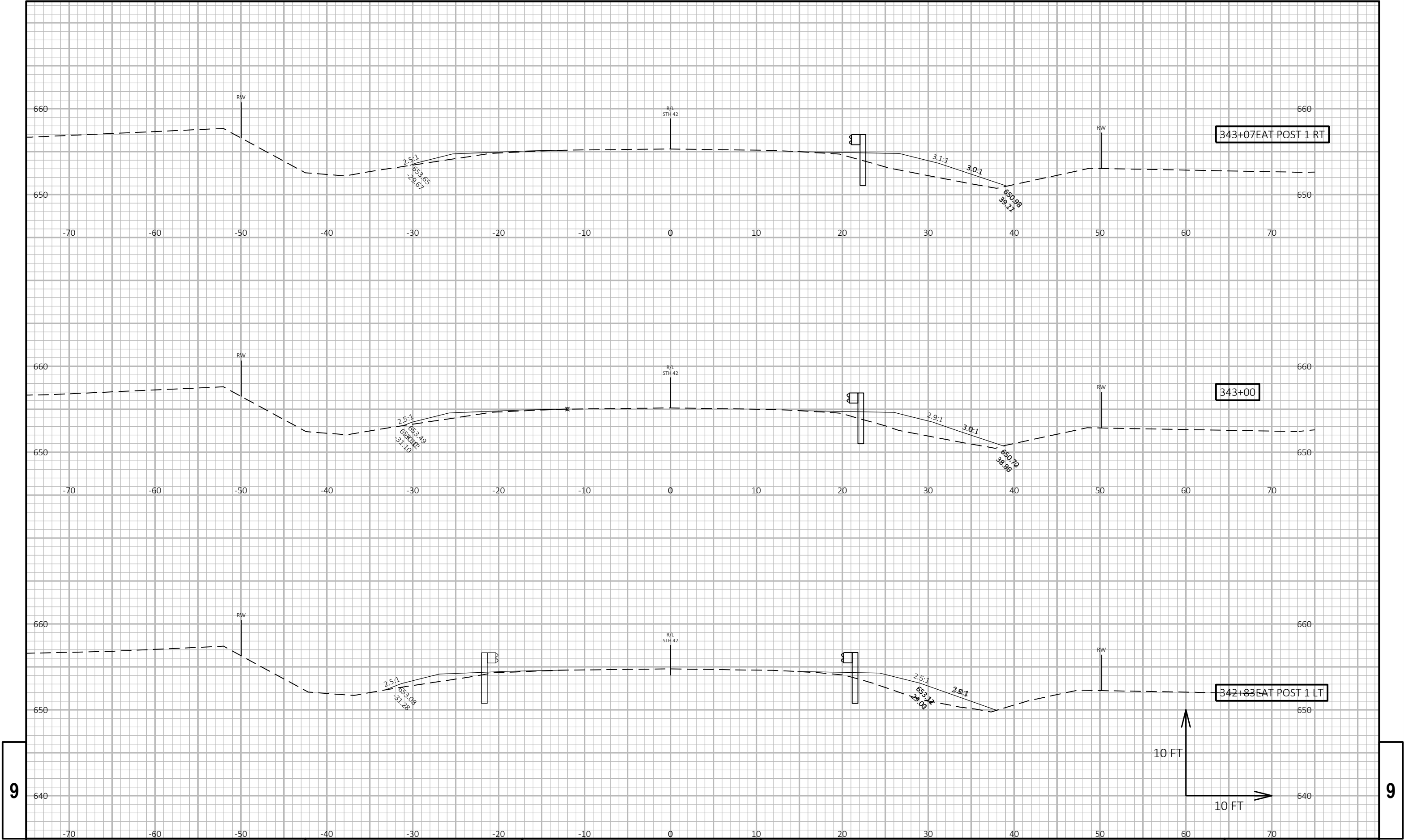
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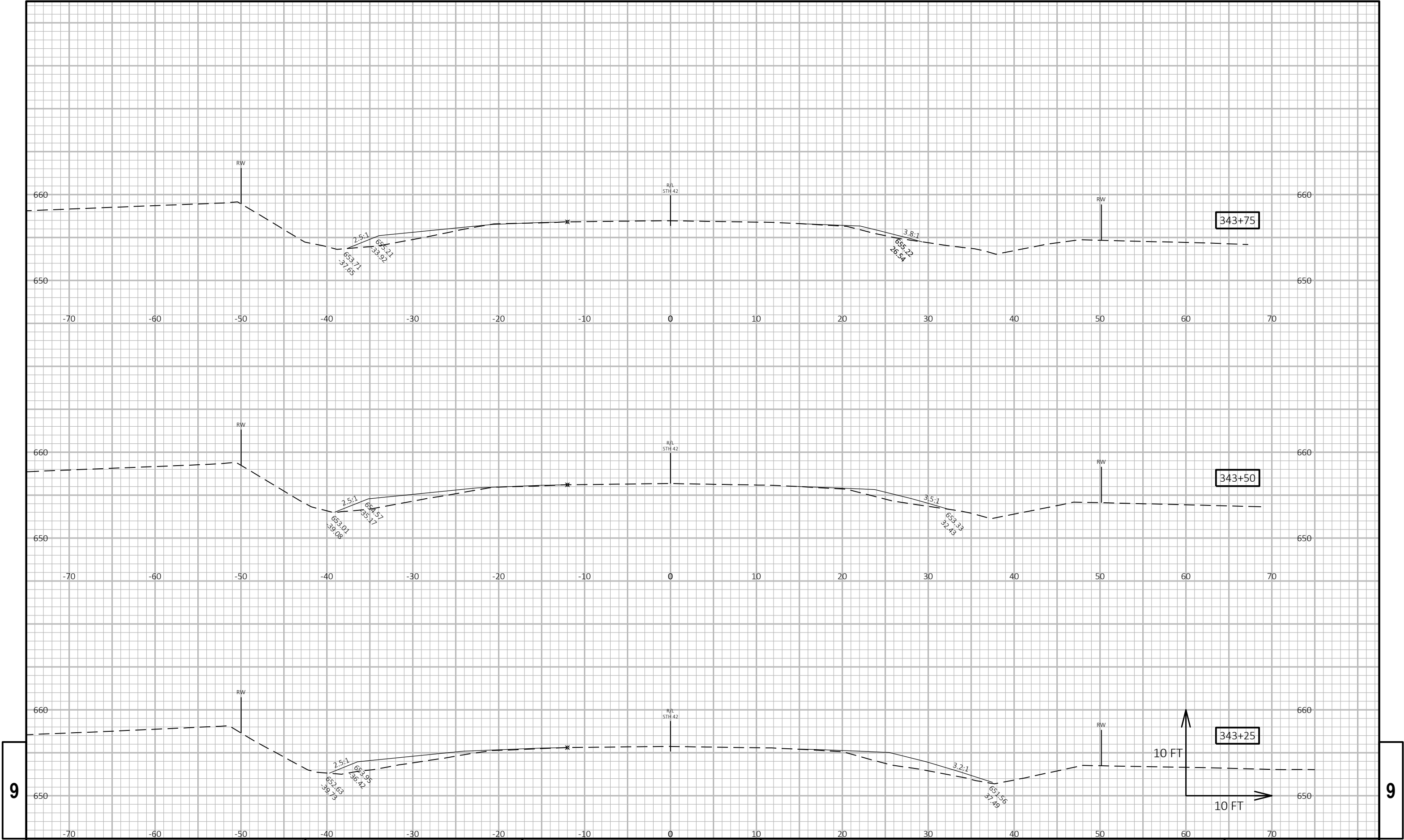
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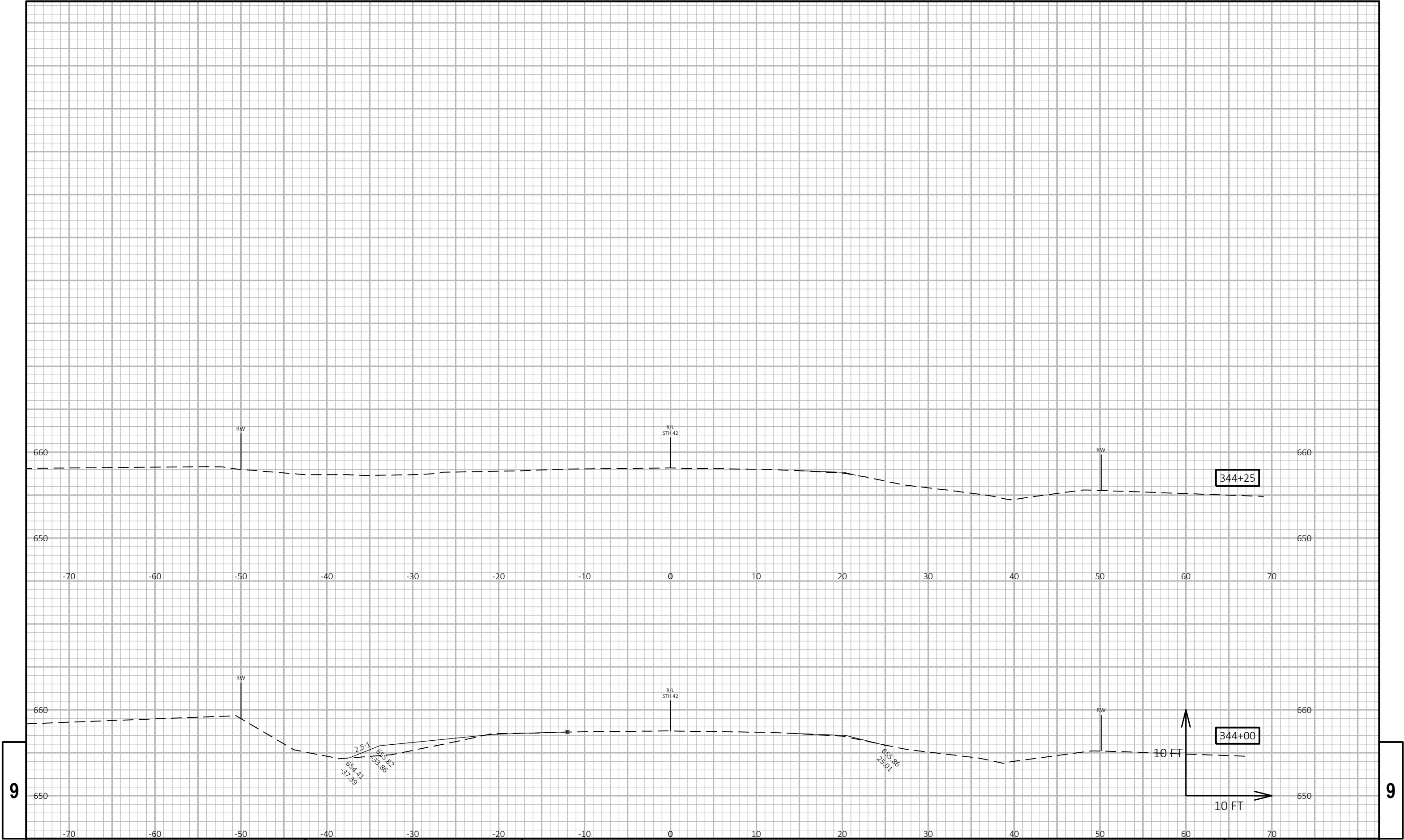
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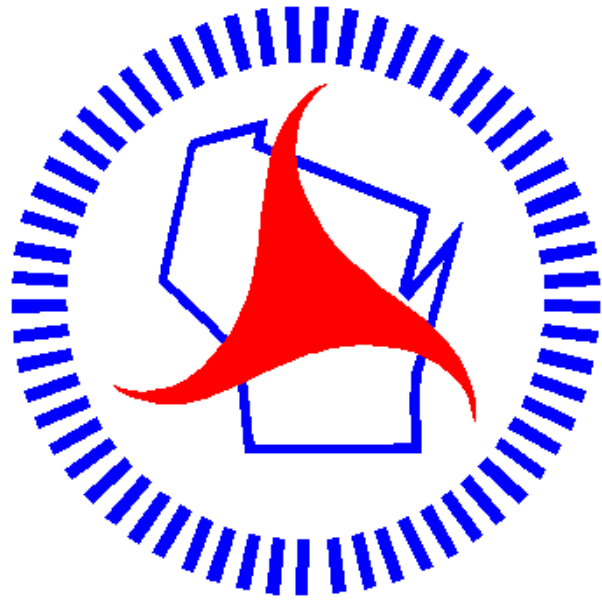


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## Notes



## ***Wisconsin Department of Transportation***

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>