

EAU PROJECT ID: 8349-00-70 WITH: N/A COUNTY: BAYFIELD

NOVEMBER 2018

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

BENOIT - USH 2

SOUTH FISH CREEK BRIDGE B040019

CTH F

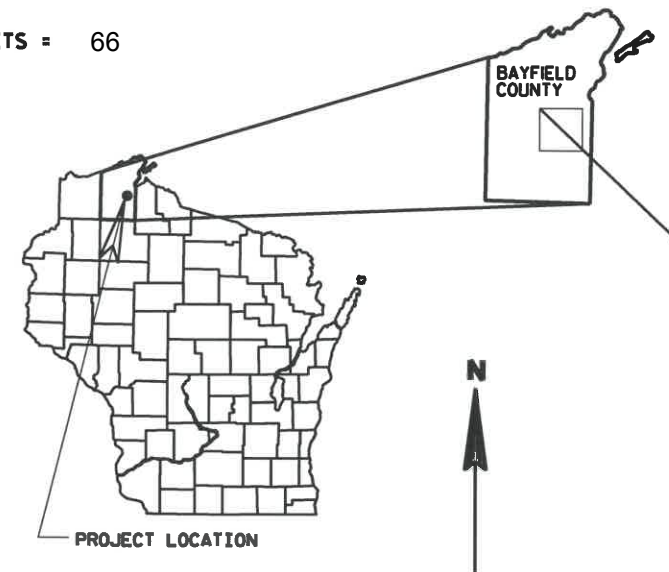
BAYFIELD COUNTY

STATE PROJECT NUMBER  
8349-00-70

| STATE PROJECT | FEDERAL PROJECT |          |
|---------------|-----------------|----------|
|               | PROJECT         | CONTRACT |
| 8349-00-70    |                 |          |
|               |                 |          |
|               |                 |          |
|               |                 |          |

| ORDER OF SHEETS          |  |
|--------------------------|--|
| Section No. 1            | Title  |
| Section No. 2            | Typical Sections and Details<br>(includes Erosion Control Plans) |
| Section No. 3            | Estimate of Quantities   |
| Section No. 3            | Miscellaneous Quantities   |
| <del>Section No. 4</del> | <del>Right of Way Plan</del>                                     |
| 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 = 66



DESIGN DESIGNATION

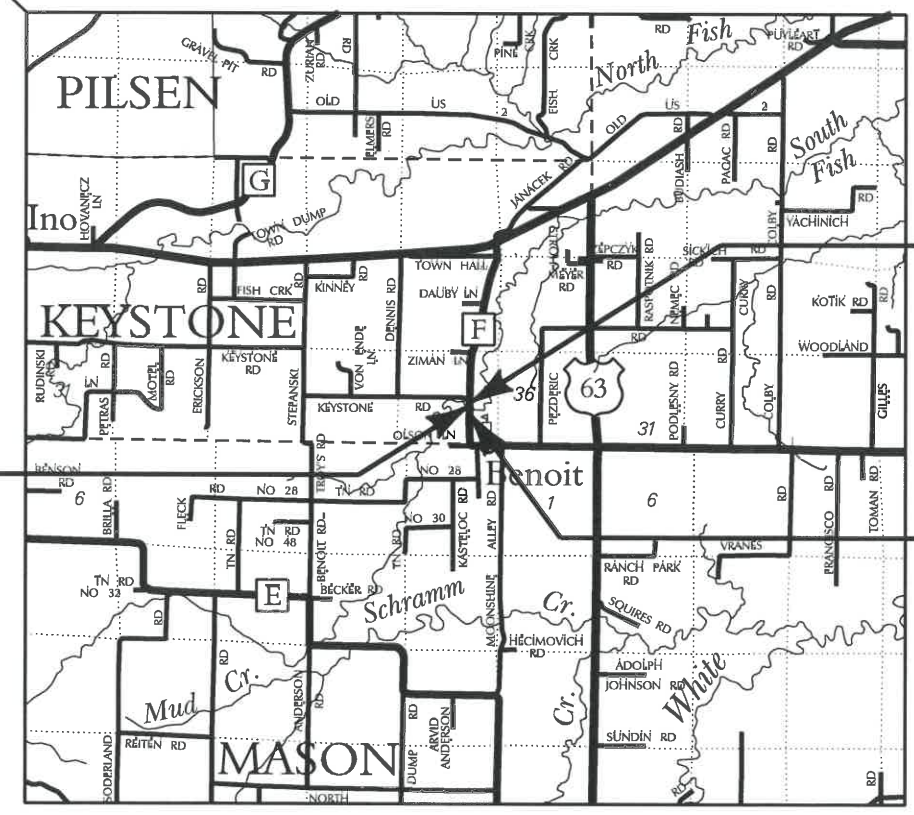
|                 |   |        |
|-----------------|---|--------|
| A.A.D.T. (2019) | = | 200    |
| A.A.D.T. (2039) | = | 270    |
| D.H.V.          | = | 20     |
| D.              | = | 50/50  |
| T.              | = | 5%     |
| DESIGN SPEED    | = | 35 MPH |
| ESALS           | = | 36,500 |

CONVENTIONAL SYMBOLS  
PLAN

|                                   |           |
|-----------------------------------|-----------|
| CORPORATE LIMITS                  | PL + 58.1 |
| 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<br>(Box or Pipe) |           |
| COMBUSTIBLE FLUIDS                | CAUTION   |
| HIGH VOLTAGE                      | CAUTION   |
| MARSH AREA                        |           |
| WOODED OR SHRUB AREA              |           |

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

STRUCTURE B-4-19



END PROJECT

STA. 11+50  
Y = 428563.82  
X = 768532.27

T-47-N  
T-46-N

BEGIN PROJECT

STA. 8+50  
Y = 428263.82  
X = 768530.95

LAYOUT  
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO  
THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS),  
BAYFIELD COUNTY.

ACCEPTED FOR  
County Bayfield  
3-29-18 Date  
Thomas P. Paepker Highway Commissioner

ORIGINAL PLANS PREPARED BY  
AYRES ASSOCIATES 3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

WISCONSIN  
DANIEL N. SYDOW  
E-38363  
WI  
PROFESSIONAL ENGINEER

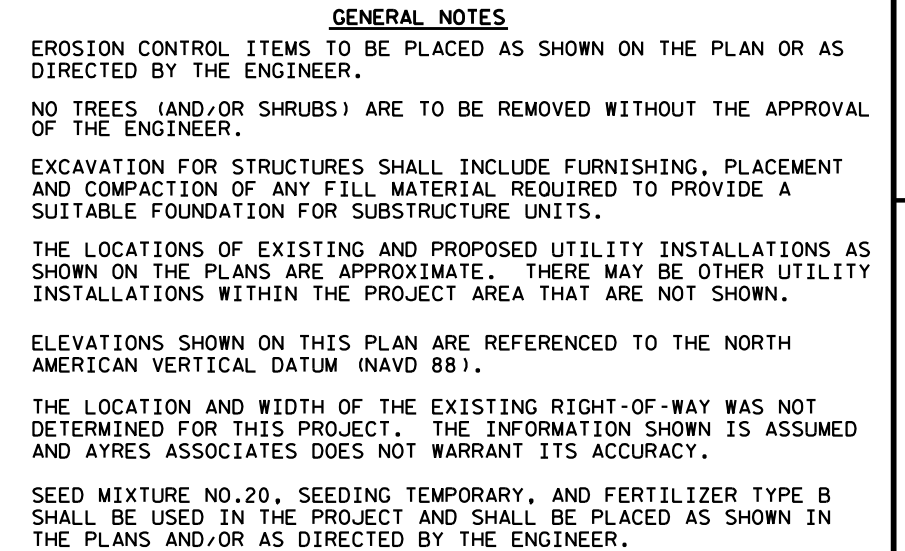
DATE 3/28/2018

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY  
Surveyor AYRES ASSOCIATES INC  
Designer AYRES ASSOCIATES INC  
Management Consultant KNIGHT EA INC.

APPROVED FOR THE DEPARTMENT  
DATE: 4/20/18 Ryan B. McKee  
Management Consultant Signature

E



ASPHALTIC SURFACE SHALL USE 12.5mm NOMINAL AGGREGATE SIZE.

WHEN THE QUANTITY OF BASE AGGREGATE IS MEASURED BY THE TON, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

NORVADO  
P.O. BOX 67  
CABLE, WI 54821  
ATTN: GUY FOLSOM  
715-798-7123  
gfolson@norvado.com

**DIGGERS  HOTLINE**

Dial **811** or (800)242-8511

[www.DiggersHotline.com](http://www.DiggersHotline.com)

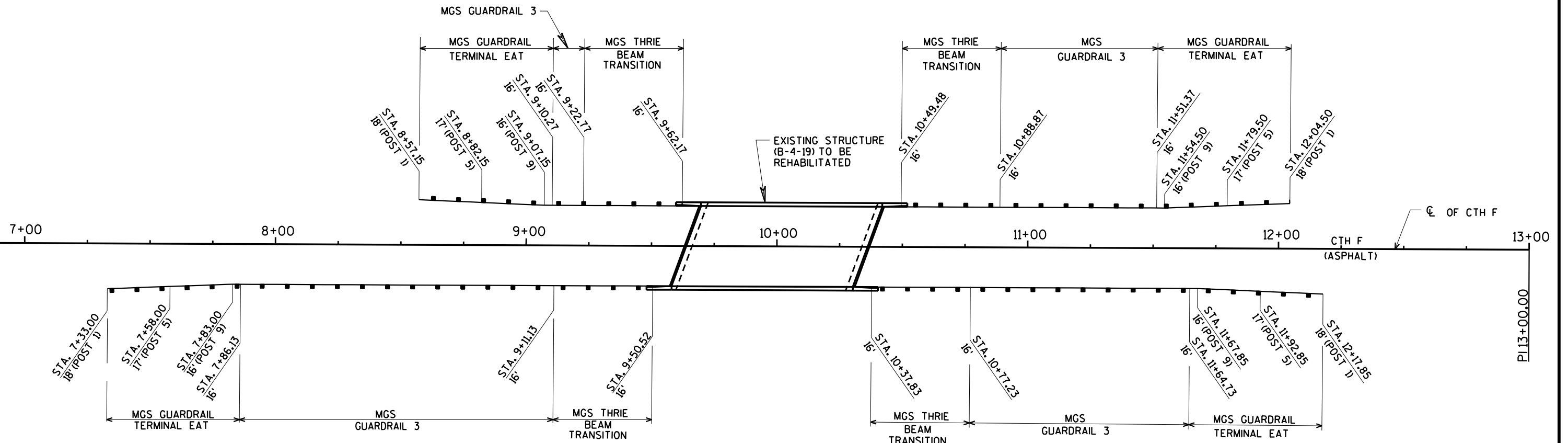


STA 7+33 - STA 12+17.85, RT  
STA 8+57.15 - STA 12+04.50, LT



▲ 4.0%  
STA 7+09 - STA 8+50  
STA 11+50 - STA 12+49.85



GUARDRAIL LAYOUT

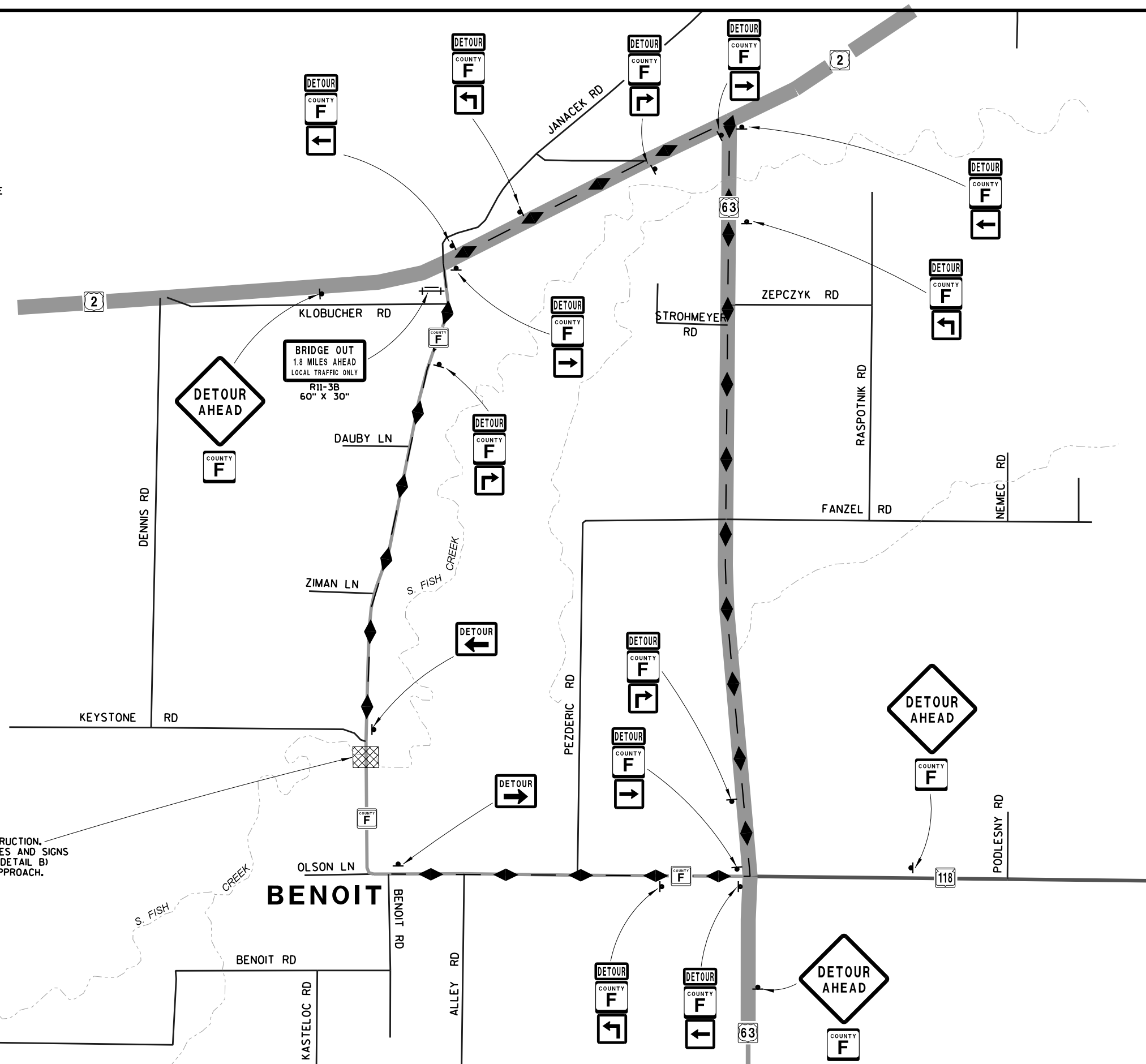
NOTES:  
UNLESS NOTED OTHERWISE, ALL SIGNS ARE 48"x48".

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES.

"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.



## LEGEND:

DETOUR ROUTE — ◆ —

COUNTY F  
M1-5A  
24" X 24"

DETOUR  
COUNTY F  
M4-8  
24" X 12"

DETOUR  
COUNTY F  
M4-9L  
30" X 24"

DETOUR  
COUNTY F  
M4-9R  
30" X 24"

DETOUR  
COUNTY F  
M05-1L  
21" X 21"

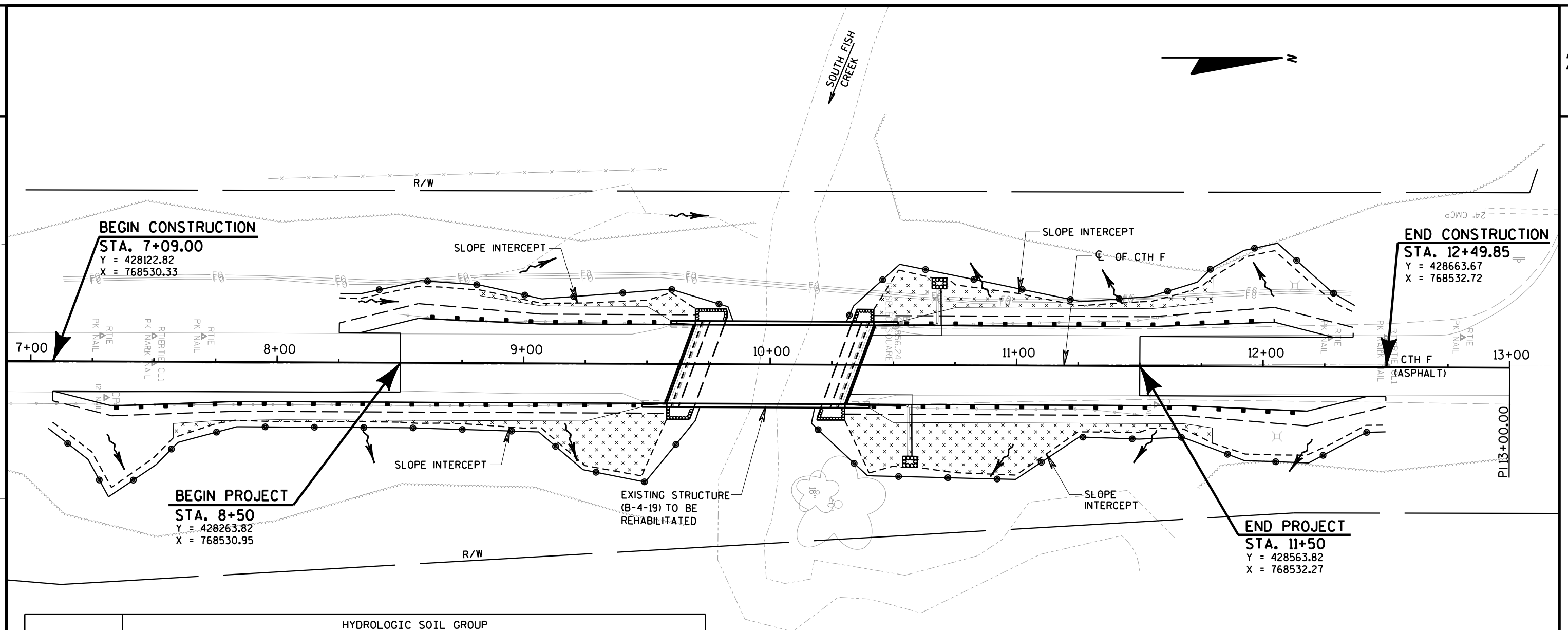
DETOUR  
COUNTY F  
M05-1R  
21" X 21"

DETOUR  
COUNTY F  
M06-1L  
21" X 21"

DETOUR  
COUNTY F  
M06-1R  
21" X 21"

BRIDGE OUT  
X.X MILES AHEAD  
LOCAL TRAFFIC ONLY  
R11-3B  
60" X 30"

DETOUR AHEAD  
W20-2



|                         | HYDROLOGIC SOIL GROUP |            |            |                       |            |            |                       |            |            |                       |            |            |
|-------------------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|
|                         | A                     |            |            | B                     |            |            | C                     |            |            | D                     |            |            |
|                         | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            |
| LAND USE:               | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   |
| ROW CROPS               | .08<br>.22            | .16<br>.30 | .22<br>.38 | .12<br>.26            | .20<br>.34 | .27<br>.44 | .15<br>.30            | .24<br>.37 | .33<br>.50 | .19<br>.34            | .28<br>.41 | .38<br>.56 |
| MEDIAN STRIP-TURF       | .19<br>.24            | .20<br>.26 | .24<br>.30 | .19<br>.25            | .22<br>.28 | .26<br>.33 | .20<br>.26            | .23<br>.30 | .30<br>.37 | .20<br>.27            | .25<br>.32 | .30<br>.40 |
| SIDE SLOPE-TURF         |                       |            | .25<br>.32 |                       |            | .27<br>.34 |                       |            | .28<br>.36 |                       |            | .30<br>.38 |
| PAVEMENT:               |                       |            |            |                       |            |            |                       |            |            |                       |            |            |
| ASPHALT                 | .70 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| CONCRETE                | .80 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| BRICK                   | .70 - .80             |            |            |                       |            |            |                       |            |            |                       |            |            |
| DRIVES, WALKS           | .75 - .85             |            |            |                       |            |            |                       |            |            |                       |            |            |
| ROOFS                   | .75 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| GRAVEL ROADS, SHOULDERS | .40 - .60             |            |            |                       |            |            |                       |            |            |                       |            |            |

TOTAL PROJECT AREA = 1.581 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.599 ACRES

PROJECT NO: 8349-00-70

HWY: CTH F

COUNTY: BAYFIELD

EROSION CONTROL

SCALE, FEET

0 20 40

SHEET

E

Estimate Of Quantities

| 8349-00-70 |            |  |      |            |            |
|------------|------------|--|------|------------|------------|
| Line       | Item       | Item Description   | Unit | Total      | Qty        |
| 0002       | 201.0105   | Clearing   | STA  | 1.000      | 1.000      |
| 0004       | 201.0205   | Grubbing   | STA  | 1.000      | 1.000      |
| 0006       | 203.0600.S | Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00 | LS   | 1.000      | 1.000      |
| 0008       | 205.0100   | Excavation Common  | CY   | 604.000    | 604.000    |
| 0010       | 206.1000   | Excavation for Structures Bridges (structure) 01. B-04-0019                  | LS   | 1.000      | 1.000      |
| 0012       | 210.1500   | Backfill Structure Type A  | TON  | 60.000     | 60.000     |
| 0014       | 213.0100   | Finishing Roadway (project) 01. 8349-00-70                                   | EACH | 1.000      | 1.000      |
| 0016       | 305.0110   | Base Aggregate Dense 3/4-Inch  | TON  | 100.000    | 100.000    |
| 0018       | 305.0120   | Base Aggregate Dense 1 1/4-Inch  | TON  | 1,125.000  | 1,125.000  |
| 0020       | 415.0120   | Concrete Pavement 12-Inch  | SY   | 24.000     | 24.000     |
| 0022       | 416.1010   | Concrete Surface Drains  | CY   | 2.000      | 2.000      |
| 0024       | 455.0605   | Tack Coat  | GAL  | 70.000     | 70.000     |
| 0026       | 465.0105   | Asphaltic Surface  | TON  | 226.000    | 226.000    |
| 0028       | 502.0100   | Concrete Masonry Bridges   | CY   | 112.000    | 112.000    |
| 0030       | 502.3200   | Protective Surface Treatment   | SY   | 270.000    | 270.000    |
| 0032       | 502.3210   | Pigmented Surface Sealer   | SY   | 91.000     | 91.000     |
| 0034       | 502.4204   | Adhesive Anchors No. 4 Bar   | EACH | 40.000     | 40.000     |
| 0036       | 502.4205   | Adhesive Anchors No. 5 Bar   | EACH | 120.000    | 120.000    |
| 0038       | 502.4206   | Adhesive Anchors No. 6 Bar   | EACH | 40.000     | 40.000     |
| 0040       | 505.0600   | Bar Steel Reinforcement HS Coated Structures                                 | LB   | 20,780.000 | 20,780.000 |
| 0042       | 506.4000   | Steel Diaphragms (structure) 01. B-04-0019                                   | EACH | 3.000      | 3.000      |
| 0044       | 509.1500   | Concrete Surface Repair  | SF   | 20.000     | 20.000     |
| 0046       | 516.0500   | Rubberized Membrane Waterproofing  | SY   | 22.000     | 22.000     |
| 0048       | 606.0200   | Riprap Medium  | CY   | 6.000      | 6.000      |
| 0050       | 606.0300   | Riprap Heavy   | CY   | 70.000     | 70.000     |
| 0052       | 614.0150   | Anchor Assemblies for Steel Plate Beam Guard                                 | EACH | 4.000      | 4.000      |
| 0054       | 614.2300   | MGS Guardrail 3  | LF   | 287.500    | 287.500    |
| 0056       | 614.2500   | MGS Thrie Beam Transition  | LF   | 157.600    | 157.600    |
| 0058       | 614.2610   | MGS Guardrail Terminal EAT   | EACH | 4.000      | 4.000      |
| 0060       | 618.0100   | Maintenance And Repair of Haul Roads (project) 01. 8349-00-70                | EACH | 1.000      | 1.000      |
| 0062       | 619.1000   | Mobilization   | EACH | 1.000      | 1.000      |
| 0064       | 624.0100   | Water  | MGAL | 34.400     | 34.400     |
| 0066       | 625.0500   | Salvaged Topsoil   | SY   | 1,045.000  | 1,045.000  |
| 0068       | 627.0200   | Mulching   | SY   | 880.000    | 880.000    |
| 0070       | 628.1504   | Silt Fence   | LF   | 1,225.000  | 1,225.000  |
| 0072       | 628.1520   | Silt Fence Maintenance   | LF   | 2,450.000  | 2,450.000  |
| 0074       | 628.1905   | Mobilizations Erosion Control  | EACH | 4.000      | 4.000      |



Estimate Of Quantities

8349-00-70

| Line | Item     | Item Description   | Unit | Total     | Qty       |
|------|----------|--|------|-----------|-----------|
| 0076 | 628.1910 | Mobilizations Emergency Erosion Control                            | EACH | 4.000     | 4.000     |
| 0078 | 628.2027 | Erosion Mat Class II Type C  | SY   | 705.000   | 705.000   |
| 0080 | 628.7504 | Temporary Ditch Checks   | LF   | 50.000    | 50.000    |
| 0082 | 629.0210 | Fertilizer Type B  | CWT  | 1.100     | 1.100     |
| 0084 | 630.0120 | Seeding Mixture No. 20   | LB   | 46.000    | 46.000    |
| 0086 | 630.0200 | Seeding Temporary  | LB   | 46.000    | 46.000    |
| 0088 | 634.0612 | Posts Wood 4x6-Inch X 12-FT  | EACH | 4.000     | 4.000     |
| 0090 | 637.2230 | Signs Type II Reflective F   | SF   | 12.000    | 12.000    |
| 0092 | 638.2602 | Removing Signs Type II   | EACH | 4.000     | 4.000     |
| 0094 | 638.3000 | Removing Small Sign Supports                                       | EACH | 4.000     | 4.000     |
| 0096 | 642.5001 | Field Office Type B  | EACH | 1.000     | 1.000     |
| 0098 | 643.0420 | Traffic Control Barricades Type III                                | DAY  | 1,020.000 | 1,020.000 |
| 0100 | 643.0705 | Traffic Control Warning Lights Type A                              | DAY  | 1,440.000 | 1,440.000 |
| 0102 | 643.0900 | Traffic Control Signs  | DAY  | 3,480.000 | 3,480.000 |
| 0104 | 643.5000 | Traffic Control  | EACH | 1.000     | 1.000     |
| 0106 | 645.0130 | Geotextile Type R  | SY   | 6.000     | 6.000     |
| 0108 | 646.1020 | Marking Line Epoxy 4-Inch  | LF   | 1,550.000 | 1,550.000 |
| 0110 | 650.4500 | Construction Staking Subgrade                                      | LF   | 230.000   | 230.000   |
| 0112 | 650.5000 | Construction Staking Base  | LF   | 230.000   | 230.000   |
| 0114 | 650.6500 | Construction Staking Structure Layout (structure) 01. B-04-0019    | LS   | 1.000     | 1.000     |
| 0116 | 650.9910 | Construction Staking Supplemental Control (project) 01. 8349-00-70 | LS   | 1.000     | 1.000     |
| 0118 | 650.9920 | Construction Staking Slope Stakes                                  | LF   | 230.000   | 230.000   |
| 0120 | 690.0150 | Sawing Asphalt   | LF   | 402.000   | 402.000   |
| 0122 | 715.0415 | Incentive Strength Concrete Pavement                               | DOL  | 500.000   | 500.000   |
| 0124 | 715.0502 | Incentive Strength Concrete Structures                             | DOL  | 672.000   | 672.000   |



CTH F EARTHWORK SUMMARY

| From/To Station | Location | Common Excavation**<br>(1)<br>(item # 205.0100) | Unexpanded<br>Fill | Expanded<br>Fill<br>(2) | Mass Ordinate +/-<br>(3) | Waste | Borrow<br><br>(item #208.0100) | Comment: |
|-----------------|----------|---|--------------------|-------------------------|--------------------------|-------|--------------------------------|----------|
|                 |          | Cut   |                    | Factor<br>1.30          |                          |       |                                |          |
| 8+50 - 11+50    | CTH F    | 604   | 89                 | 115                     | 489                      | 489   |                                |          |

- 1) Common Excavation is the Cut. Item number 205.0100.  
2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill \* Fill Factor  
3) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material on the project.  
4) All quantities shown in CY.  
\*\*PAY PLAN QUANTITY

FINISHING ROADWAY  
(ID 8349-00-70)

|             |      |
|-------------|------|
| 213.0100.01 |      |
| LOCATION    | EACH |
| CTH F       | 1    |
| TOTAL       | 1    |

PAVING AND BASE QUANTITIES

|               |    |       | 305.0110       | 305.0120         | 455.0605 | 465.0105          |
|---------------|----|-------|----------------|------------------|----------|-------------------|
|               |    |       | BASE AGGREGATE | BASE AGGREGATE   | TACK     | ASPHALTIC SURFACE |
|               |    |       | DENSE 3/4-INCH | DENSE 1 1/4-INCH | COAT     |                   |
| STA           | TO | STA   | TON            | TON              | GAL      | TON               |
| 7+09          | -- | 9+81  | 45             | 520              | 33       | 107               |
| 10+19         | -- | 12+50 | 50             | 550              | 34       | 108               |
| UNDISTRIBUTED |    |       | 5              | 55               | 3        | 11                |
| TOTALS        |    |       | 100            | 1,125            | 70       | 226               |

MAINTENANCE AND  
REPAIR OF HAUL ROADS  
(ID 8349-00-70)

|          |      |
|----------|------|
| 618.0100 |      |
| CATEGORY | EACH |
| 0030     | 1    |
| TOTAL    | 1    |

MOBILIZATION

|          |      |
|----------|------|
| 619.1000 |      |
| CATEGORY | EACH |
| 0010     | 0.3  |
| 0020     | 0.7  |
| TOTAL    | 1    |

FIELD OFFICE TYPE B

|          |      |
|----------|------|
| 642.5001 |      |
| CATEGORY | EACH |
| 0010     | 1    |
| TOTAL    | 1    |

WATER

|              |               |
|--------------|---------------|
| 624.0100     |               |
| PURPOSE      | WATER<br>MGAL |
| COMPACTION   | 18.4          |
| DUST CONTROL | 16.0          |
| TOTAL        | 34.4          |

CLEARING AND GRUBBING

|         |    |         |        | 201.0105 | 201.0205 |
|---------|----|---------|--------|----------|----------|
|         |    |         |        | CLEARING | GRUBBING |
| STATION | TO | STATION | OFFSET | STA      | STA      |
| 9+00    | -  | 10+00   | LT     | 1        | 1        |
| TOTALS  |    |         |        | 1        | 1        |

CONCRETE SURFACE DRAINS

|         |          | 415.0120 | 416.1010 | 606.0200 | 645.0130      |
|---------|----------|----------|----------|----------|---------------|
|         |          | CONCRETE | CONCRETE | RIPRAP   | GEOTEXTILE    |
|         |          | PAVEMENT | SURFACE  | MEDIUM   | FABRIC TYPE R |
|         |          | 12-INCH  | DRAINS   |          |               |
| STATION | LOCATION | SY       | CY       | CY       | SY            |
| 10+47   | RT       | 12       | 1        | 3        | 3             |
| 10+60   | LT       | 12       | 1        | 3        | 3             |
| TOTALS  |          | 24       | 2        | 6        | 6             |

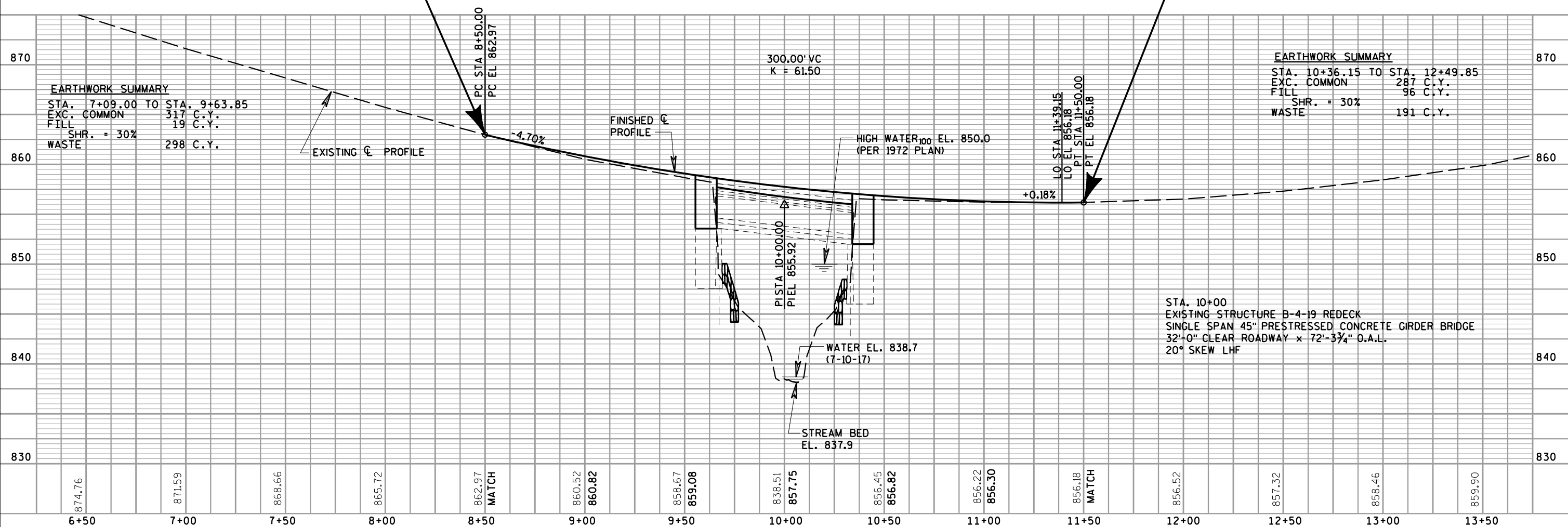
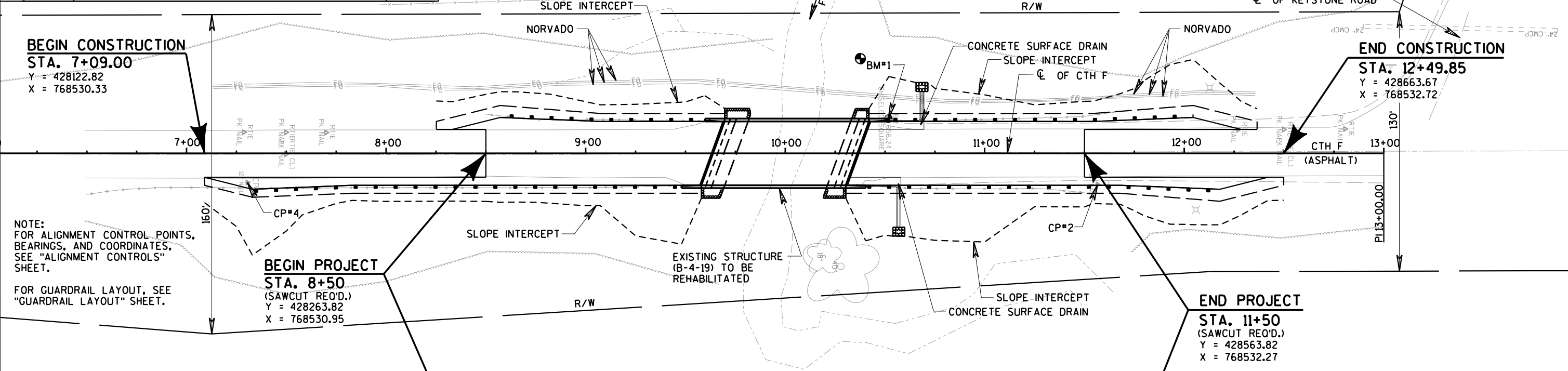
GUARDRAIL

|        |    |       |          | 614.2300    | 614.2500        | 614.2610      |
|--------|----|-------|----------|-------------|-----------------|---------------|
|        |    |       |          | MGS         | MGS THRIE       | MGS GUARDRAIL |
|        |    |       |          | GUARDRAIL 3 | BEAM TRANSITION | TERMINAL EAT  |
| STA    | TO | STA   | LOCATION | LF          | LF              | EACH          |
| 8+57   | -- | 9+62  | LT       | 12.5        | 39.4            | 1             |
| 7+33   | -- | 9+50  | RT       | 125.0       | 39.4            | 1             |
| 10+49  | -- | 12+04 | LT       | 62.5        | 39.4            | 1             |
| 10+37  | -- | 12+17 | RT       | 87.5        | 39.4            | 1             |
| TOTALS |    |       |          | 287.5       | 157.6           | 4             |

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

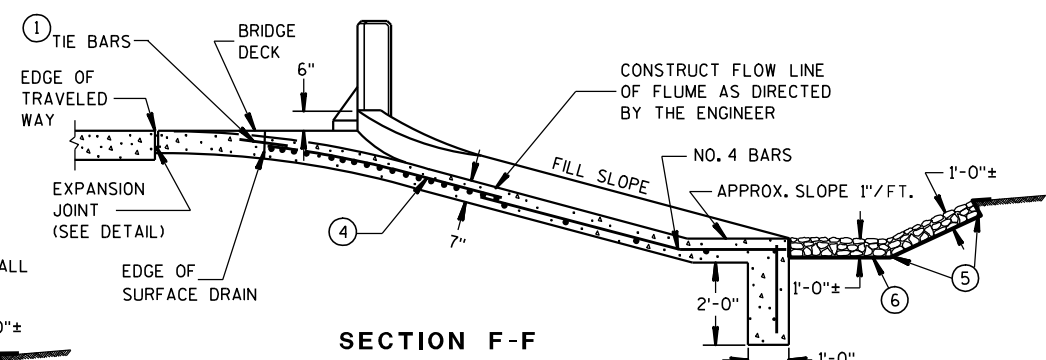
| EROSION CONTROL MOBILIZATION ITEMS                  |      |      |  |            |   |              | TEMPORARY DITCH CHECKS                                 |                  |   |                                   |   |                          |  | EROSION CONTROL ITEMS  |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
|---|------|------|--|------------|---|--------------|--|------------------|---|-----------------------------------|---|--------------------------|--|------------------------|--|---------------------------------------|----------------|--|--|------------------------------------|--|--|--|------------------------------------|--|
| 628.1905<br>MOBILIZATIONS<br>EROSION<br>CONTROL     |      |      | 628.1910<br>MOBILIZATIONS<br>EMERGENCY<br>EROSION<br>CONTROL |            | 628.7504<br>LOCATION<br>LF<br>UNDISTRIBUTED<br>50 |              |  |                  |   | 625.0500<br>SALVAGED**<br>TOPSOIL |   | 627.0200<br>MULCHING**   |  | 628.1504<br>SILT FENCE |  | 628.1520<br>SILT FENCE<br>MAINTENANCE |                | 628.2027<br>EROSION MAT<br>CLASS II TYPE C |  | 629.0210<br>FERTILIZER**<br>TYPE B |  | 630.0120<br>SEEDING**<br>MIXTURE<br>NO. 20 |  | 630.0200<br>SEEDING**<br>TEMPORARY |  |
| LOCATION  | EACH | EACH | TOTAL  |            | 50  |              | STA  | TO               | STA   | LOCATION                          | SY  | SY                       | LF   | LF                     | SY   | CWT                                   | LB             | LB   |  |                                    |  |  |  |                                    |  |
| ID 8349-00-70                                       | 4    | 4    |  |            |   |              | 8+50   | --               | 9+64  | RT                                | 240   | 215                      | 310  | 620                    | 170  | 0.2                                   | 10             | 10   |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | 8+50   | --               | 9+64  | LT                                | 70  | 115                      | 170  | 340                    | 60   | 0.1                                   | 5              | 5  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | 10+36  | --               | 11+50                                       | RT                                | 300   | 180                      | 265  | 530                    | 255  | 0.3                                   | 12             | 12   |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | 10+36  | --               | 11+50                                       | LT                                | 225   | 195                      | 235  | 470                    | 155  | 0.2                                   | 10             | 9  |  |                                    |  |  |  |                                    |  |
| TOTALS  | 4    | 4    |  |            |   |              | UNDISTRIBUTED  |                  |   |                                   | 210   | 175                      | 245  | 490                    | 65   | 0.2                                   | 9              | 9  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | TOTALS   |                  |   |                                   | 1,045   | 880                      | 1,225  | 2,450                  | 705  | 1.1                                   | 46             | 46   |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | ** PAY PLAN QUANTITY                                   |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| OBJECT MARKERS                                      |      |      |  |            |   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 634.0612<br>POSTS WOOD<br>4X6-INCH X 12-FT          |      |      | 637.2230<br>SIGNS TYPE II<br>REFLECTIVE F                    |            | 638.2602<br>REMOVING<br>SIGNS TYPE II             |              | 638.3000<br>REMOVING<br>SMALL SIGN<br>SUPPORTS         |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| STATION   | LOC  | EACH | SF   | EACH       | EACH  | SIGNAGE TYPE |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 9+50  | LT   | 1    | 3  | 1          | 1   | W5-52L       |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 9+50  | RT   | 1    | 3  | 1          | 1   | W5-52R       |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 10+50   | LT   | 1    | 3  | 1          | 1   | W5-52R       |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 10+50   | RT   | 1    | 3  | 1          | 1   | W5-52L       |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| TOTALS  |      | 4    | 12   | 4          | 4   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| MARKING LINE EPOXY 4-INCH                           |      |      |  |            |   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | TRAFFIC CONTROL ITEMS                                  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | 643.0420<br>BARRICADES<br>TYPE III                     |                  |   |                                   | 643.0705<br>WARNING LIGHTS<br>TYPE A                                      |                          | 643.0900<br>SIGNS  |                        | 643.5000<br>TRAFFIC<br>CONTROL                         |                                       |                |  |  |                                    |  |  |  |                                    |  |
| LOCATION  |      |      | DURATION   |            | NO.   |              | DAY  |                  | NO.   |                                   | DAY   |                          | NO.  |                        | DAY  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| PER SDD 15C2  |      |      | 60   |            | 16  |              | 960  |                  | 24  |                                   | 1,440   |                          | 13   |                        | 780  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| PER DETOUR PLAN                                     |      |      | 60   |            | 1   |              | 60   |                  | --  |                                   | --  |                          | 45   |                        | 2,700  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| CTH F   |      |      | --   |            | --  |              | --   |                  | --  |                                   | --  |                          | --   |                        | 1  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| TOTALS  |      |      |  |            |   |              |  |                  |   |                                   | 1,020   |                          | 1,440  |                        | 3,480  |                                       | 1              |  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | TRAFFIC CONTROL PLACEMENT SUBJECT TO ENGINEER APPROVAL |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | STAKING ITEMS  |                  |   |                                   |   |                          |  |                        |  |                                       | SAWING ASPHALT |  |  |                                    |  |  |  |                                    |  |
|   |      |      |  |            |   |              | 650.4500<br>CONSTRUCTION<br>STAKING<br>SUBGRADE        |                  | 650.5000<br>CONSTRUCTION<br>STAKING<br>BASE |                                   | 650.6500.01<br>CONSTRUCTION<br>STAKING<br>STRUCTURE LAYOUT<br>(B-04-0019) |                          | 650.9910.01<br>CONSTRUCTION STAKING<br>SUPPLEMENTAL CONTROL<br>(ID 8349-00-70) |                        | 650.9920<br>CONSTRUCTION<br>STAKING<br>SLOPE<br>STAKES |                                       | 690.0150       |  |  |                                    |  |  |  |                                    |  |
| STATION   |      |      | LOCATION   |            | LF  |              | LF   |                  | LS  |                                   | LS  |                          | LF   |                        | TOTAL  |                                       |                | 402  |  |                                    |  |  |  |                                    |  |
| 8+50  |      |      | LT & RT  |            | 190   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| 11+50   |      |      | LT & RT  |            | 212   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| TOTALS  |      |      |  |            |   |              | 230  |                  | 230   |                                   | 1   |                          | 1  |                        | 230  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED |      |      |  |            |   |              |  |                  |   |                                   |   |                          |  |                        |  |                                       |                |  |  |                                    |  |  |  |                                    |  |
| PROJECT NO: 8349-00-70                              |      |      |  | HWY: CTH F |   |              |  | COUNTY: BAYFIELD |   |                                   |   | MISCELLANEOUS QUANTITIES |  |                        |  | SHEET NO:                             |                |  |  | E                                  |  |  |  |                                    |  |

| BENCH MARKS |         |                                    |        |
|-------------|---------|------------------------------------|--------|
| NO.         | STA.    | DESCRIPTION                        | ELEV.  |
| 1           | 10+51.7 | CHIS. SO. NW BRIDGE WING, 17.4' LT | 856.24 |
| 2           | 16+00.2 | 7" NAIL IN PPOL, 60.7' RT          | 874.61 |

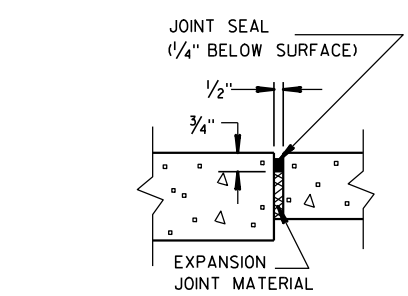


Standard Detail Drawing List

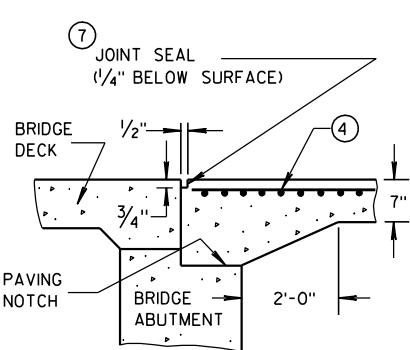
|           |   |
|-----------|---|
| 08D02-06  | CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES                  |
| 08E08-03  | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS   |
| 08E09-06  | SILT FENCE  |
| 12A03-10  | NAME PLATE (STRUCTURES)   |
| 13C01-19  | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES                    |
| 14B42-05A | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-05B | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-05C | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-05D | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B44-03A | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B44-03B | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B44-03C | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B45-04A | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-04B | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-04C | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-04D | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 15C02-06A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                        |
| 15C02-06B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                        |
| 15C02-06C | DETOUR SIGNING FOR MAINLINE CLOSURES                              |
| 15C06-09  | SIGNING & MARKING FOR TWO LANE BRIDGES                            |
| 15C11-07B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS |
| 15D38-02A | TEMPORARY TRAFFIC CONTROL SIGN MOUNTING                           |
| 15D38-02B | ATTACHMENT OF SIGNS TO POSTS                                      |



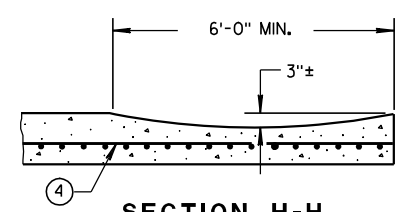
**SECTION A-A**



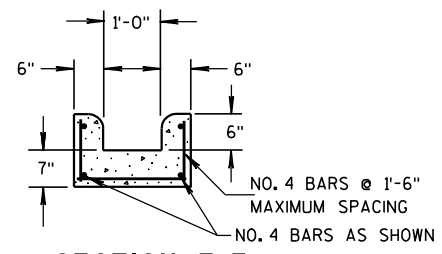
### EXPANSION JOINT DETAIL



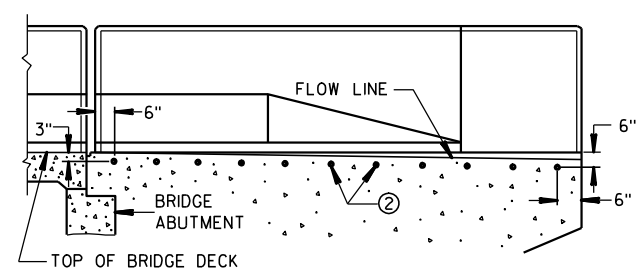
**SECTION D-D**



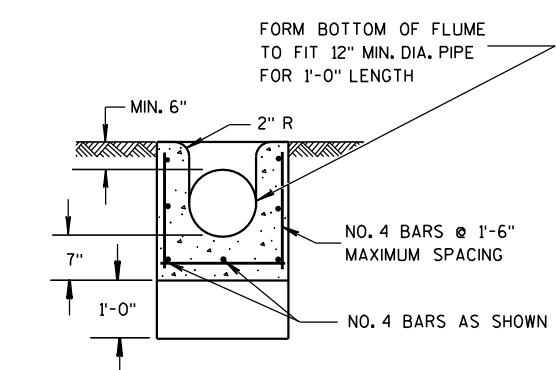
## SECTION H-H



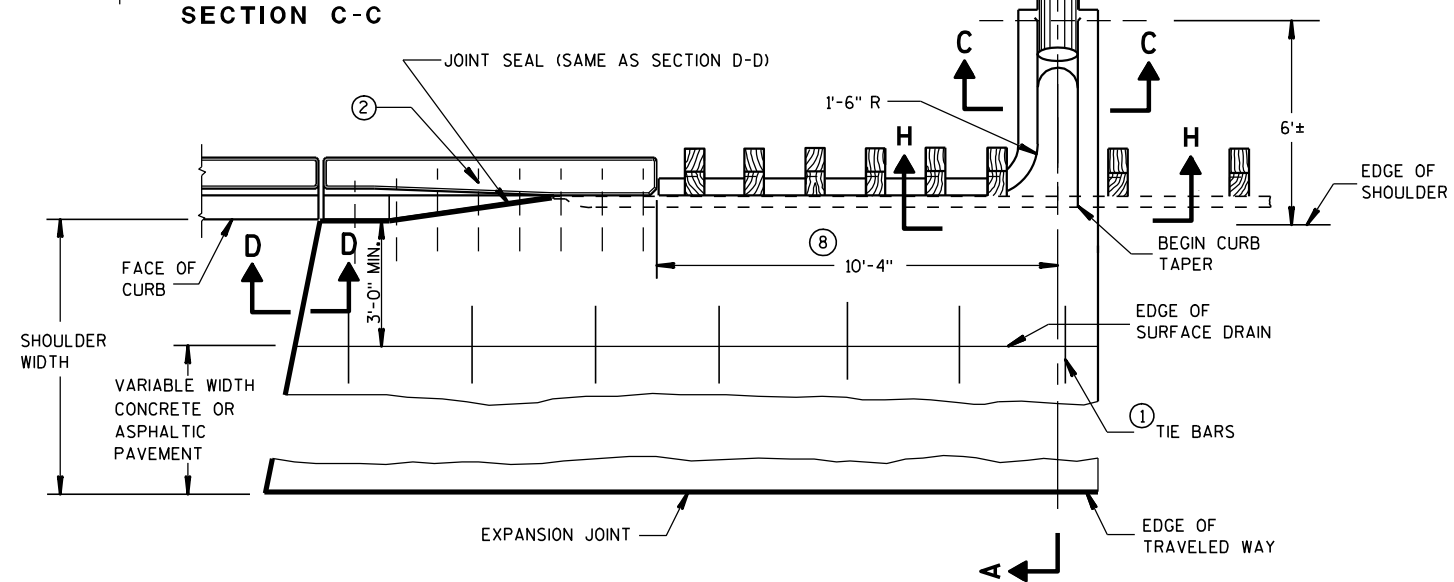
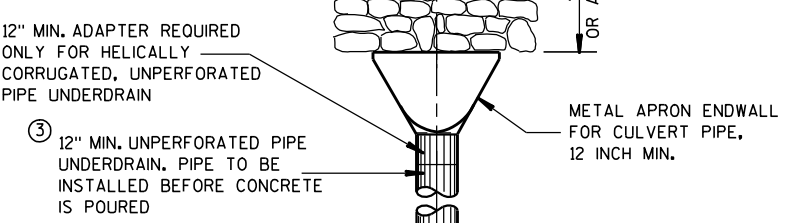
**SECTION E-E**



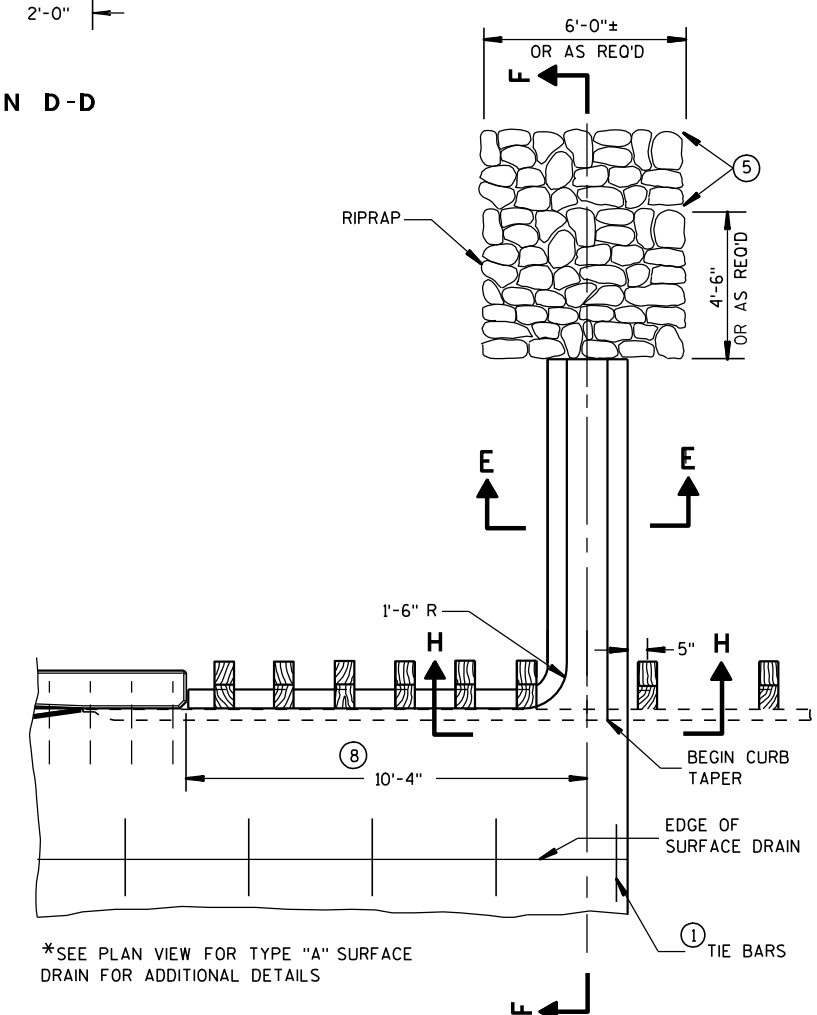
### LOCATION OF TIE BARS IN WINGWALL



**SECTION C-C**



PLAN VIEW  
SURFACE DRAIN WITH PIPE  
TYPE "A"



\* PARTIAL PLAN VIEW  
SURFACE DRAIN WITHOUT PIPE  
TYPE "B"

## 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.

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

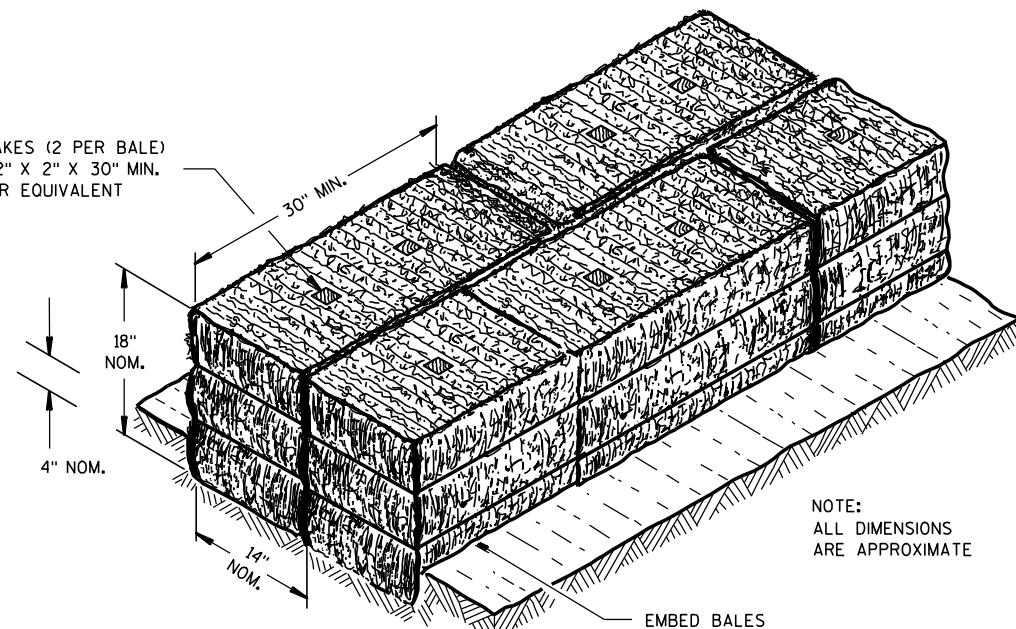
- ① NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.
- ④ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑤ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑥ GEOTEXTILE FABRIC, TYPE "R"
- ⑦ HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.
- ⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD, THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".

# CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

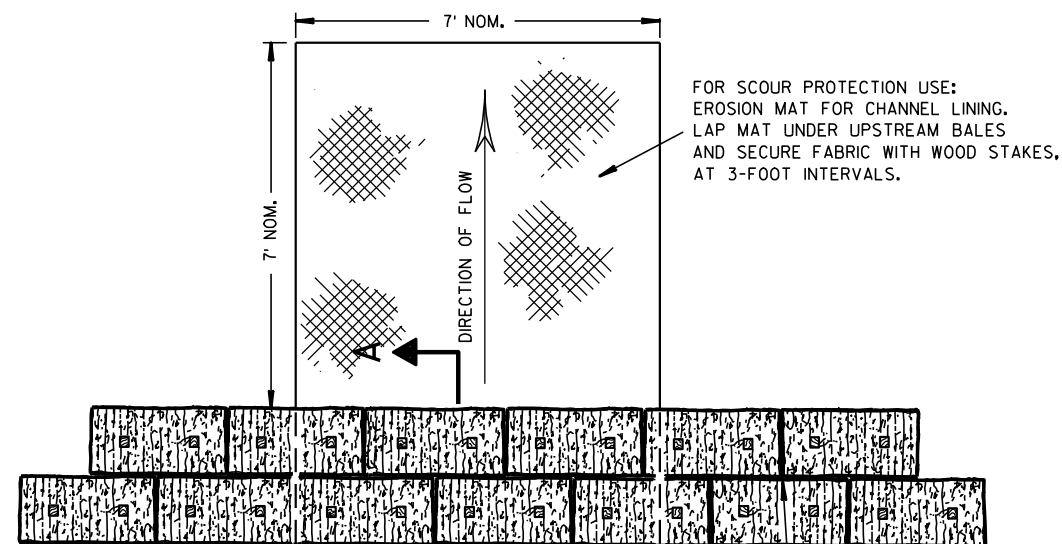
|               |                               |
|---------------|-------------------------------|
| APPROVED      |                               |
| <u>9/4/08</u> | <u>/S/ Jerry H. Zogg</u>      |
| DATE          | ROADWAY STANDARDS DEVELOPMENT |
| FHWA          | ENGINEER                      |

WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

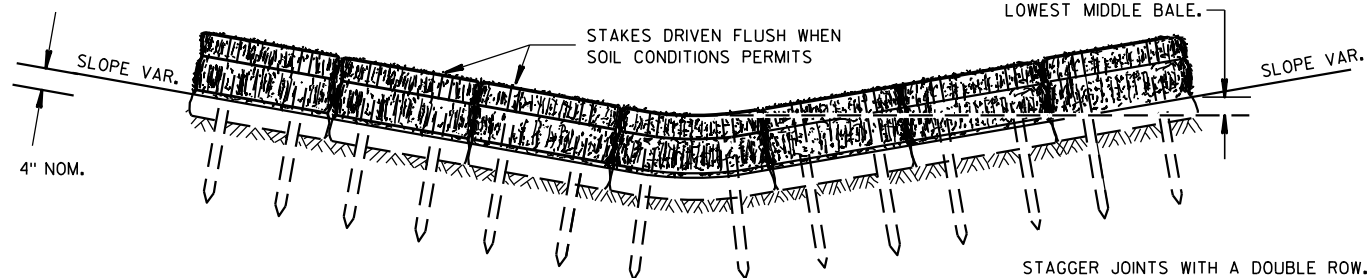
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL  
BE EQUAL TO OR GREATER THAN TOP OF  
LOWEST MIDDLE BALE.



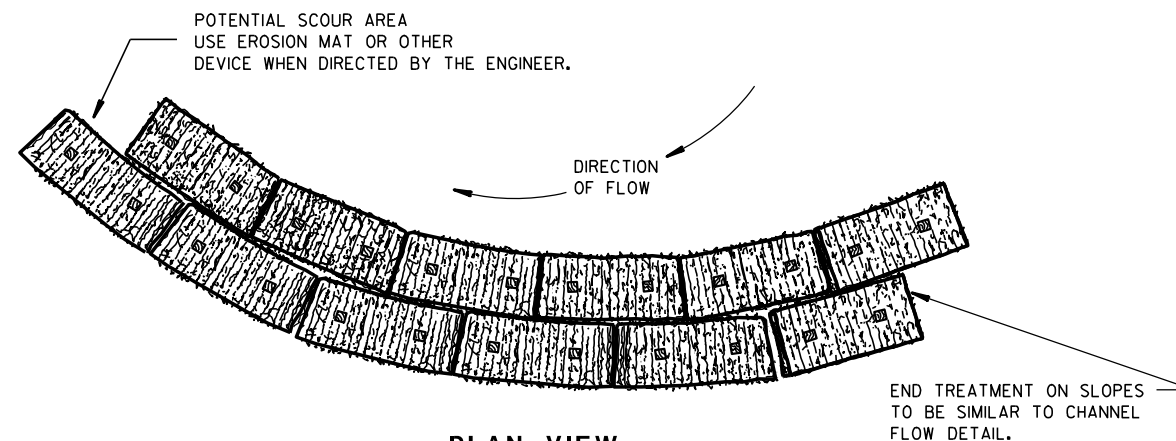
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

## GENERAL NOTES

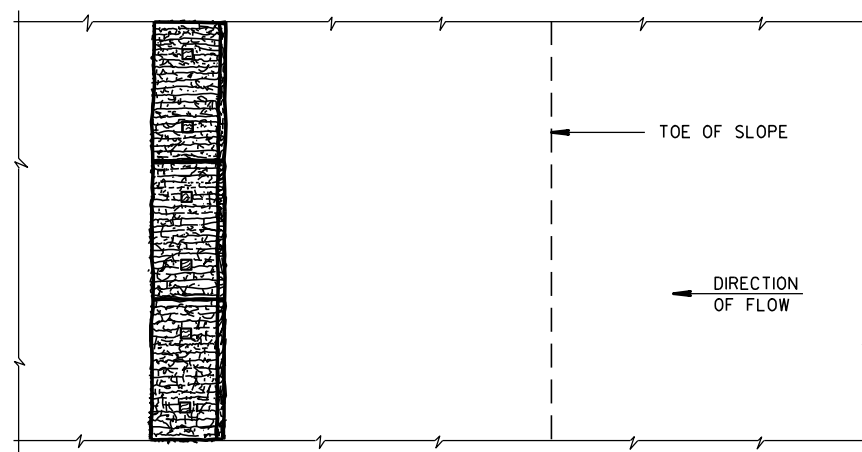
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

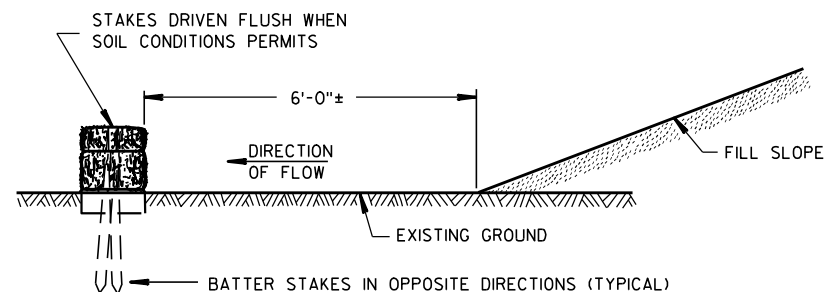


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

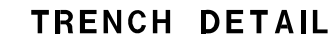
6/04/02  
DATE

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

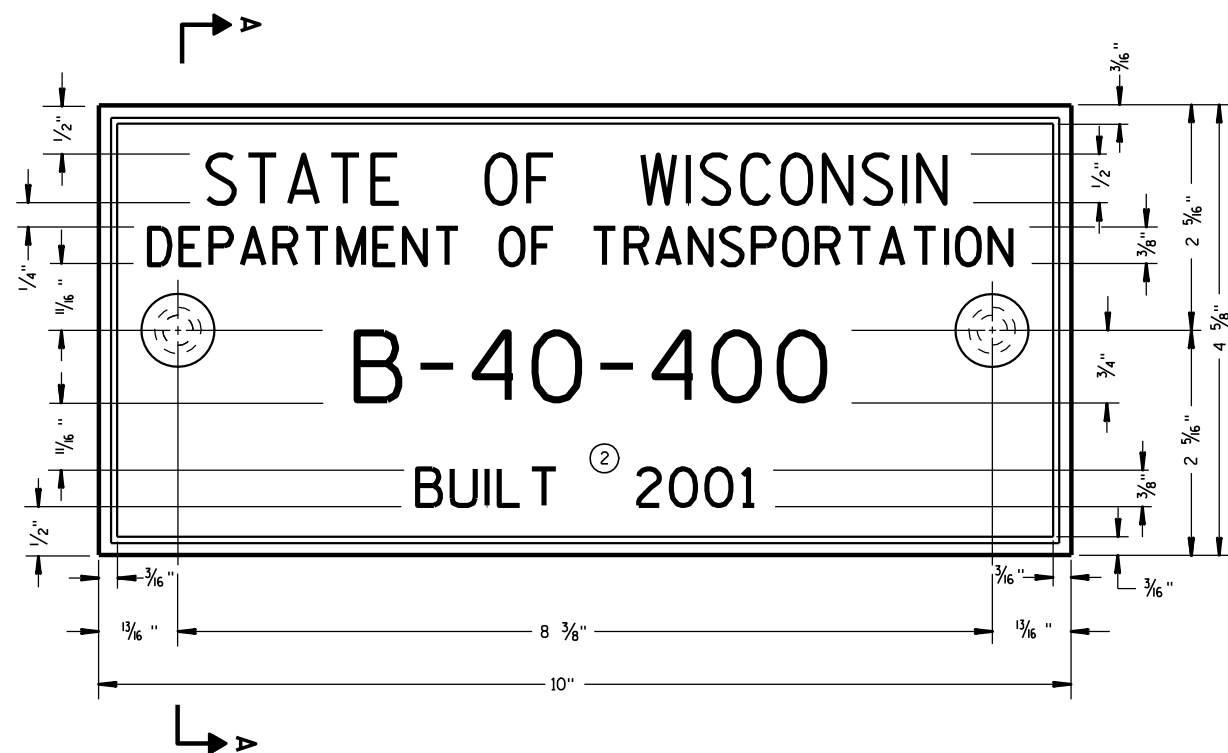


- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

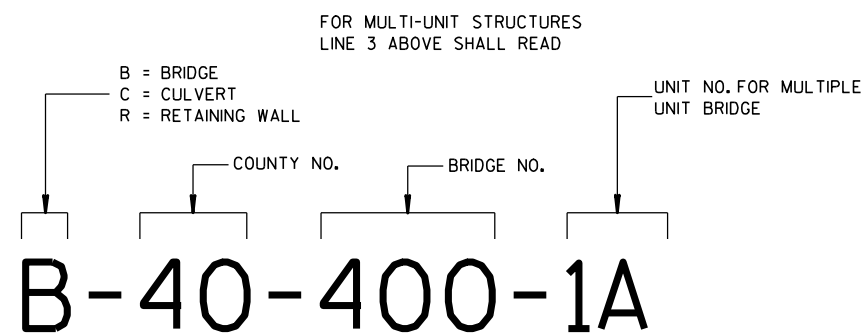


|                                     |   |
|-------------------------------------|---|
| <b>SILT FENCE</b>                   |   |
| <b>STATE OF WISCONSIN</b>           |   |
| <b>DEPARTMENT OF TRANSPORTATION</b> |   |
| <b>APPROVED</b>                     |   |
| <u>4-29-05</u>                      | <u>/S/ Beth Cannestra</u>                 |
| <b>DATE</b>                         | <b>CHIEF ROADWAY DEVELOPMENT ENGINEER</b> |
| <b>FHWA</b>                         |   |





**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)



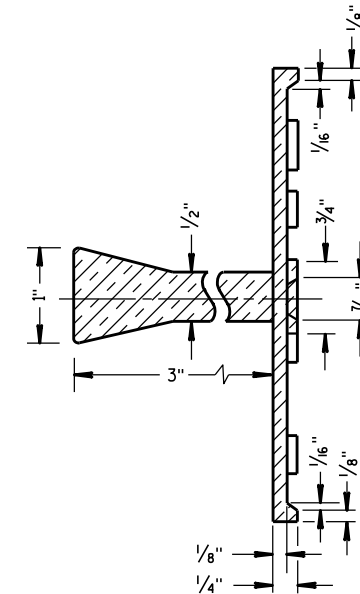
**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

## GENERAL NOTES

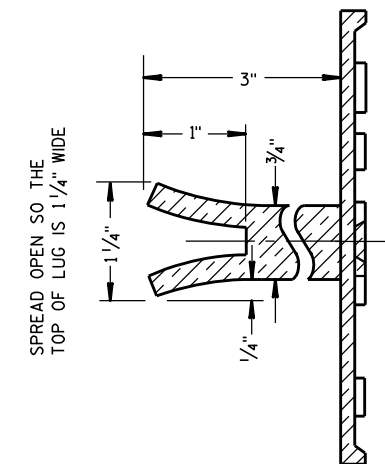
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

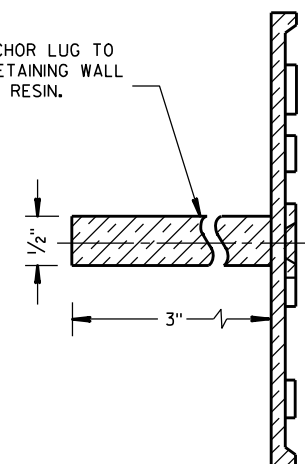


**SECTION A-A**



**ALTERNATE LUG**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE  
(STRUCTURES)**

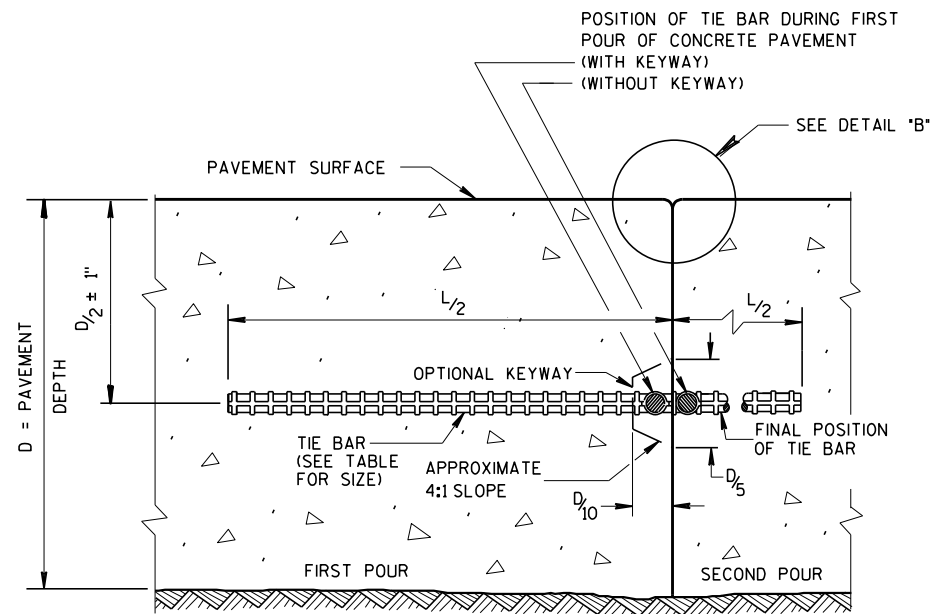
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

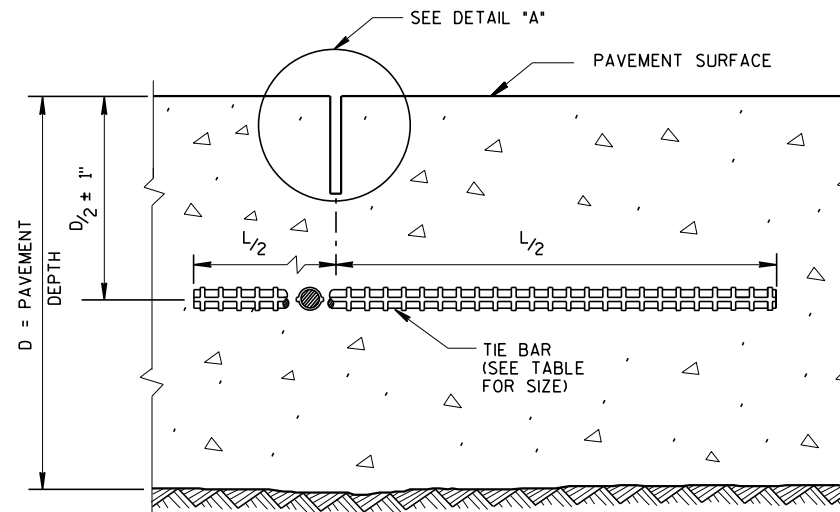
3/26/10  
DATE

FHWA

/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



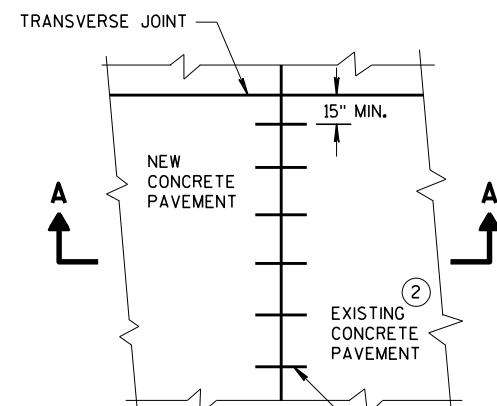
CONSTRUCTION JOINT



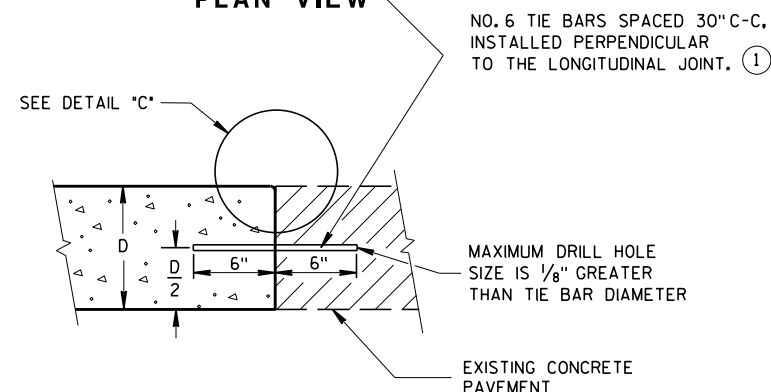
SAWED JOINT

GENERAL NOTES

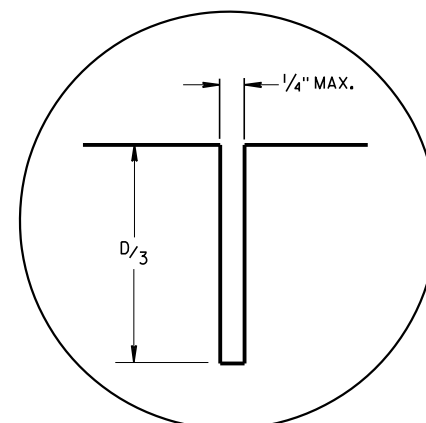
- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- 1 ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
  - 2 PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



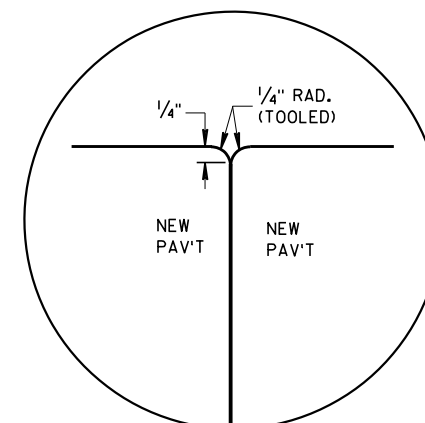
PLAN VIEW



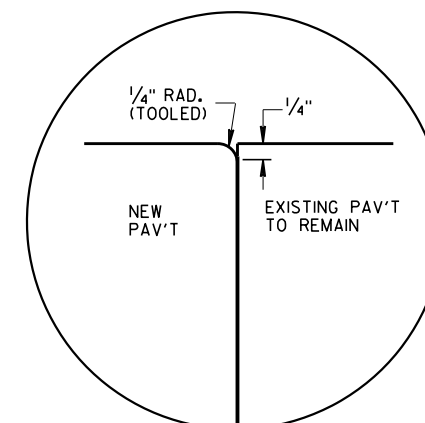
SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



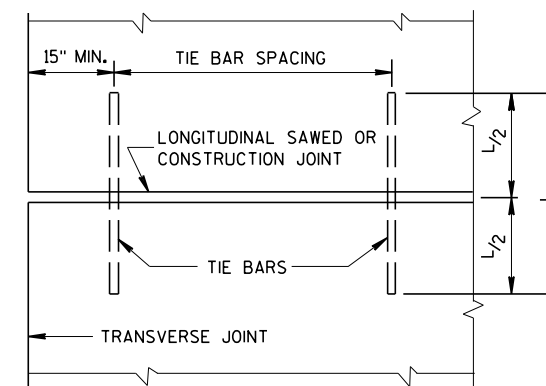
DETAIL "C"

TIE BAR TABLE

| PAVEMENT DEPTH (D)     | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|------------------------|--------------|--------------------|----------------------|
| $< 10 \frac{1}{2}"$    | NO. 4        | 30"                | 36"                  |
| $\geq 10 \frac{1}{2}"$ | NO. 5        | 36"                | 36"                  |
|                        | NO. 4 *      | 30"                | 24" **               |

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



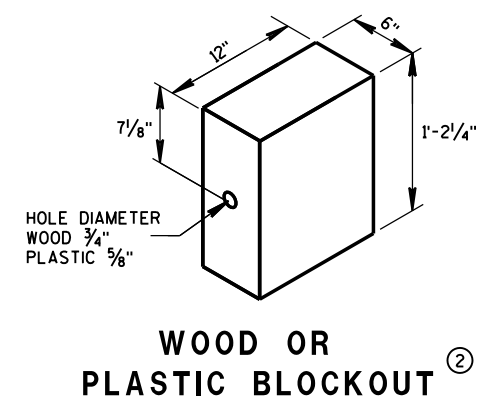
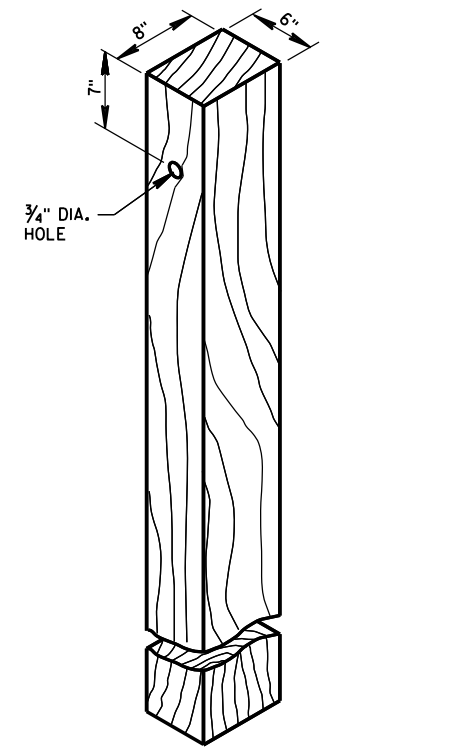
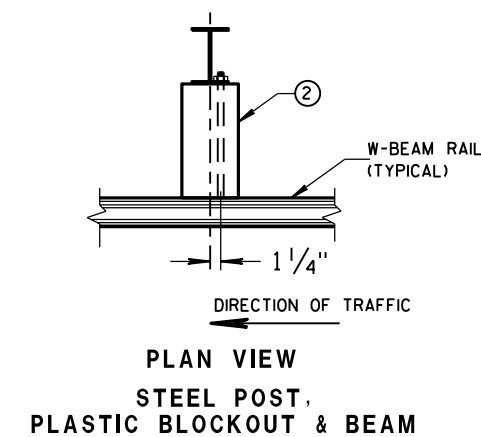
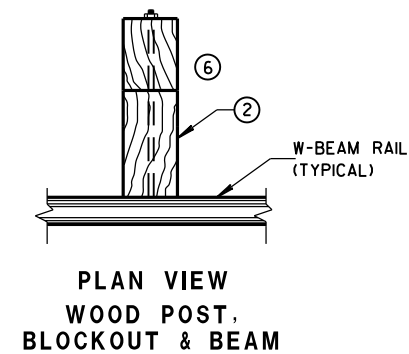
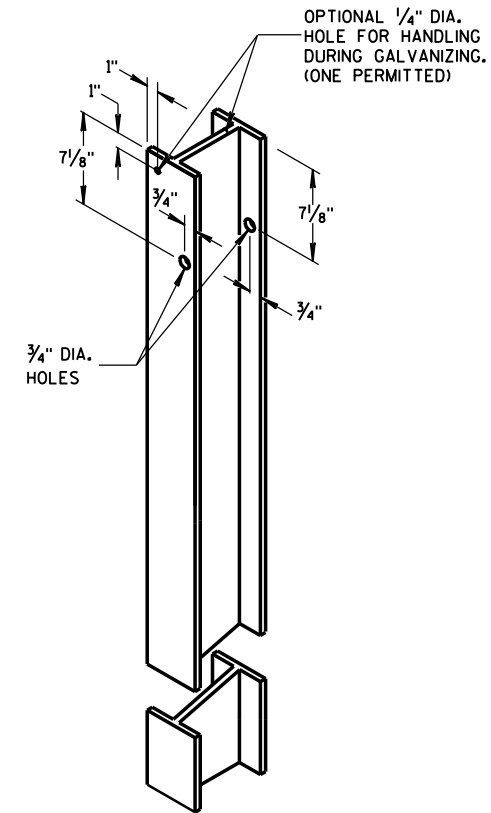
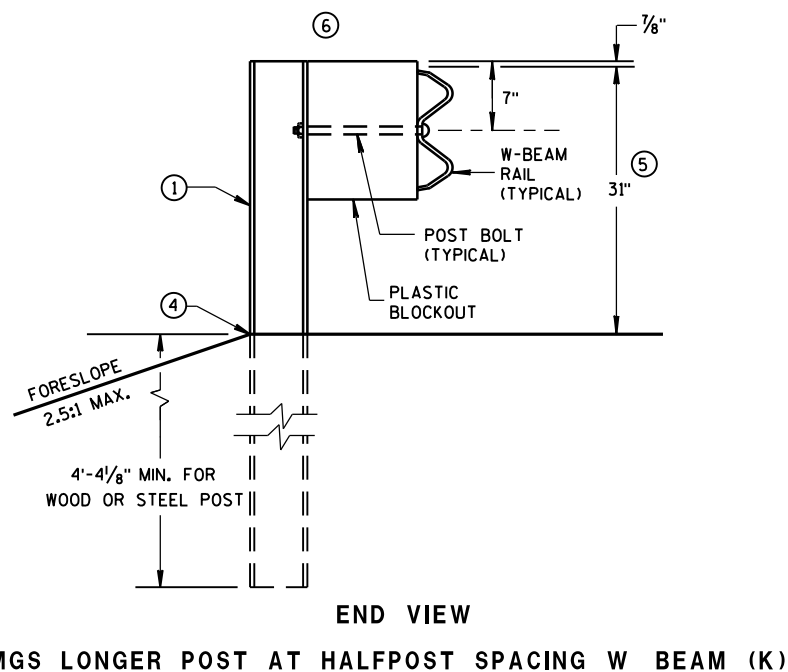
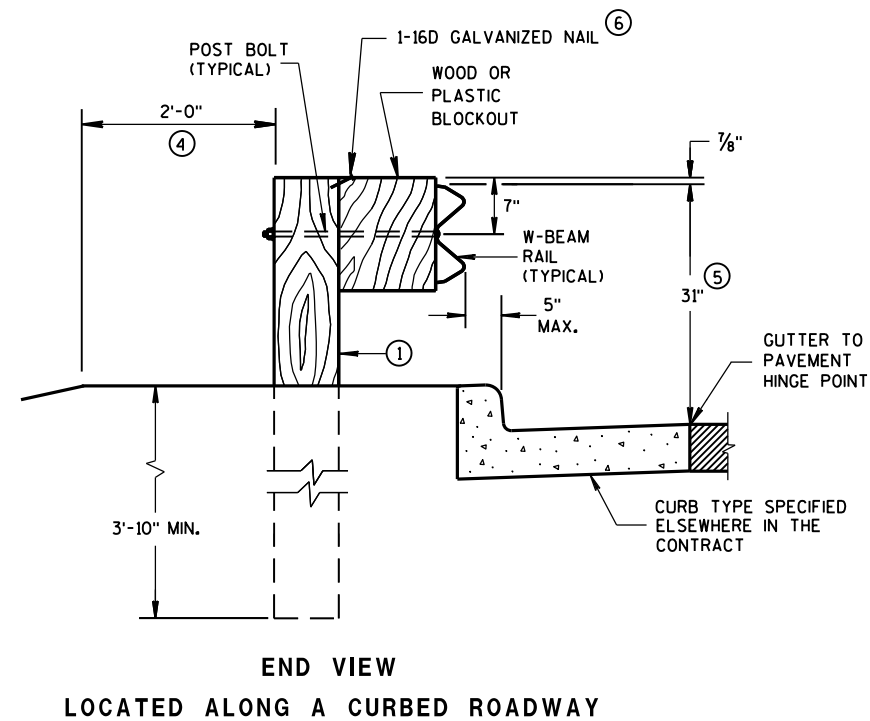
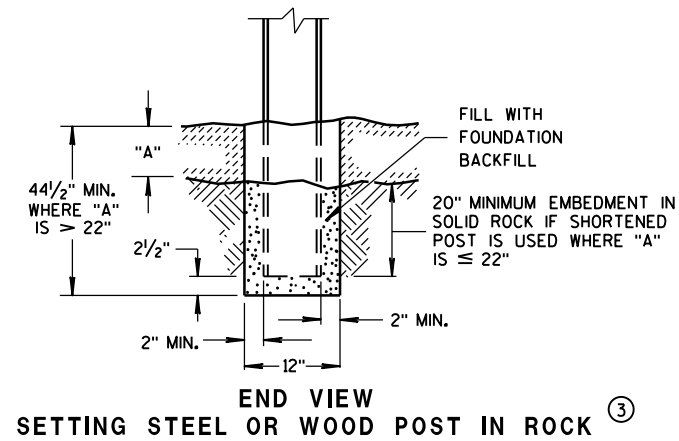
PLAN VIEW  
SHOWING LOCATION OF TIE BARS

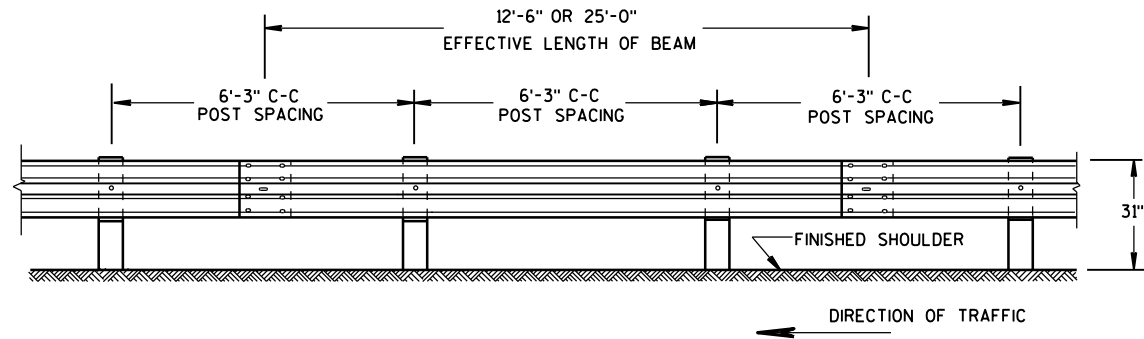
CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA

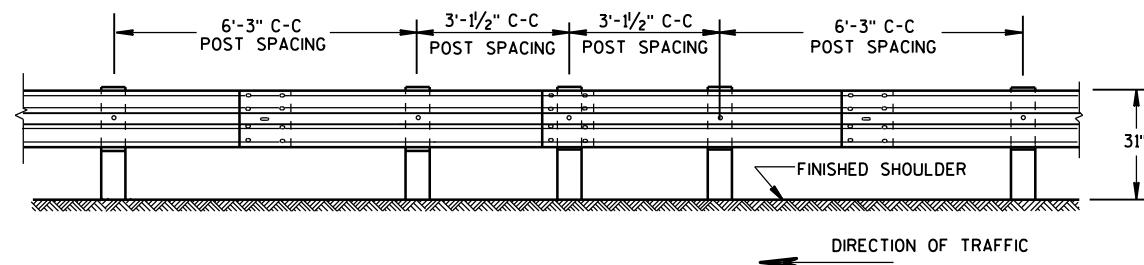
- ① WOOD OR STEEL POSTS (W6X9 OR W6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 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.





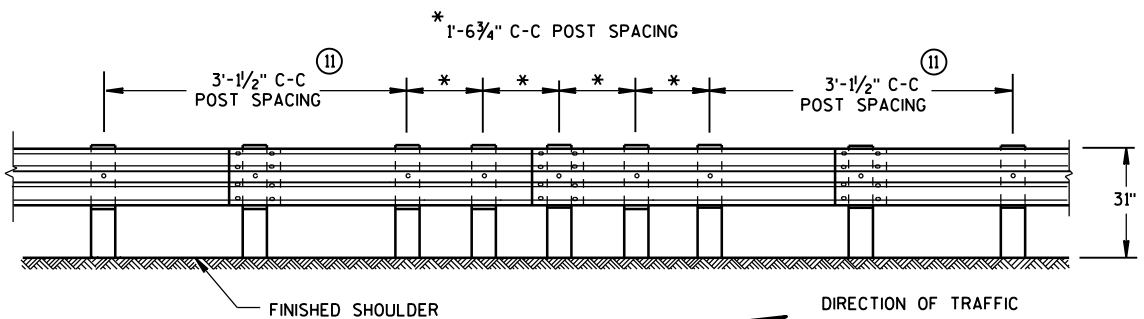
FRONT VIEW

## POST SPACING STANDARD INSTALLATION



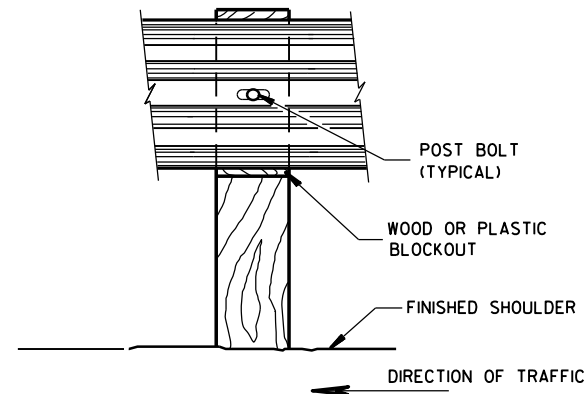
FRONT VIEW

## HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

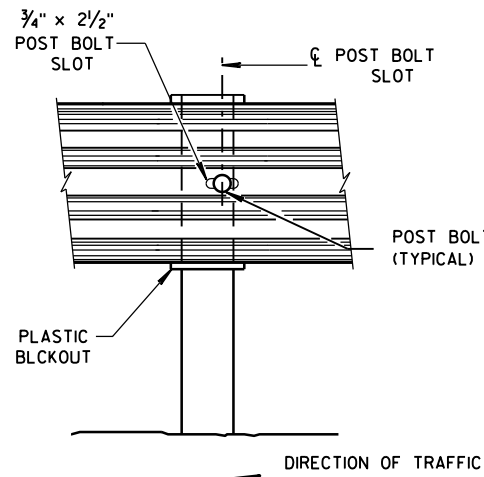


FRONT VIEW

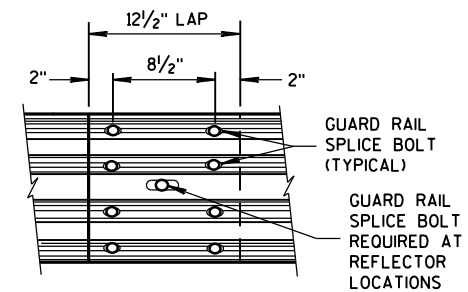
## QUARTER POST SPACING (QS)



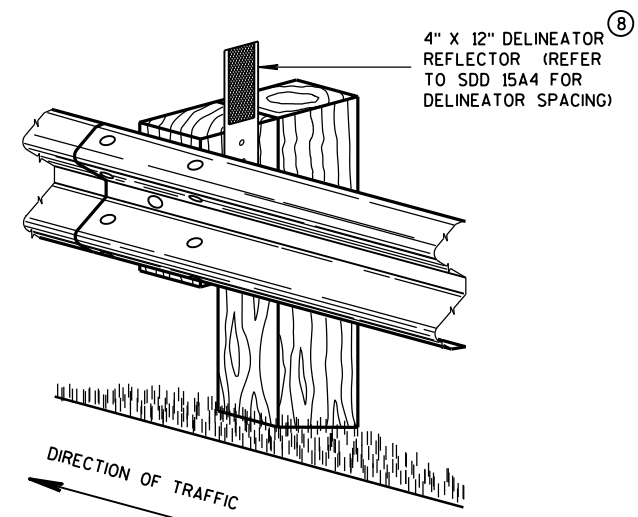
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



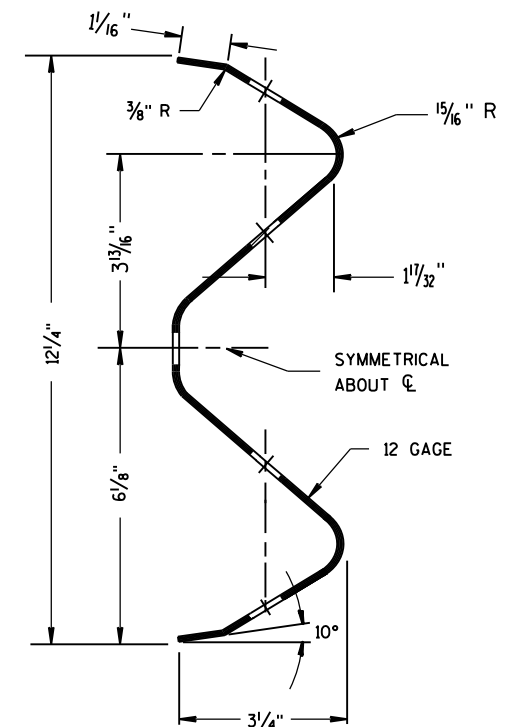
FRONT VIEW  
MID-SPAN BEAM SPLICE



## ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

## GENERAL NOTES

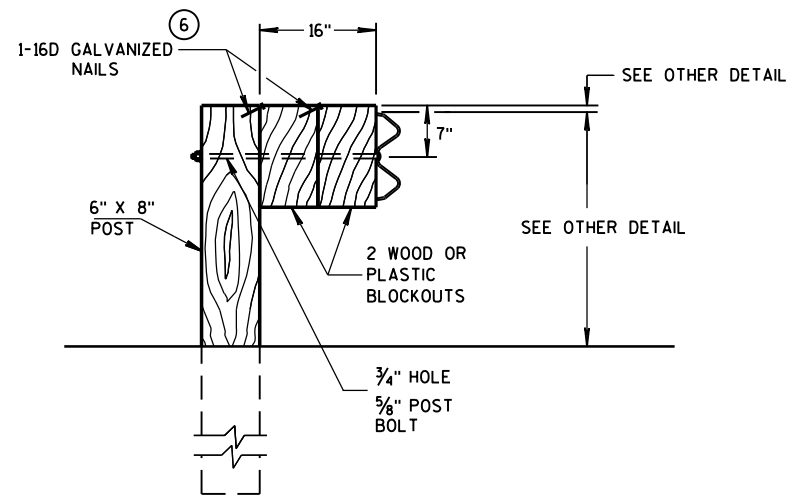
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
  - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

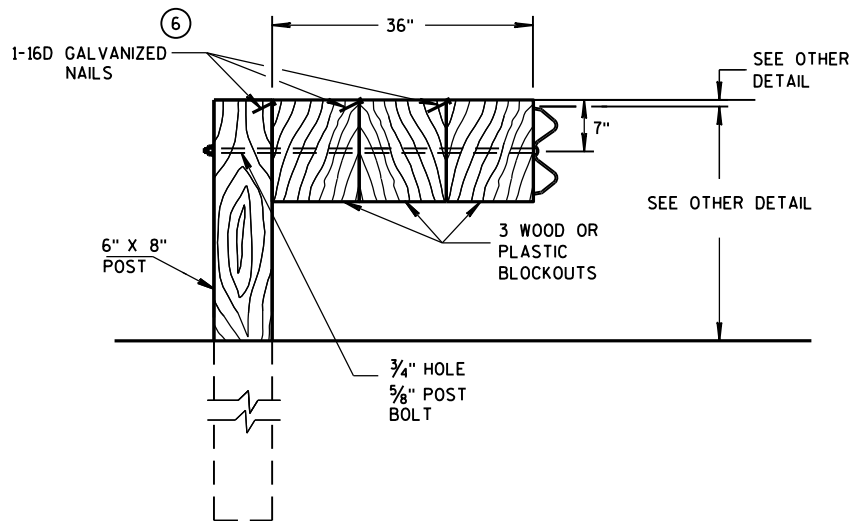
MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



### DETAIL FOR 16" BLOCKOUT DEPTH

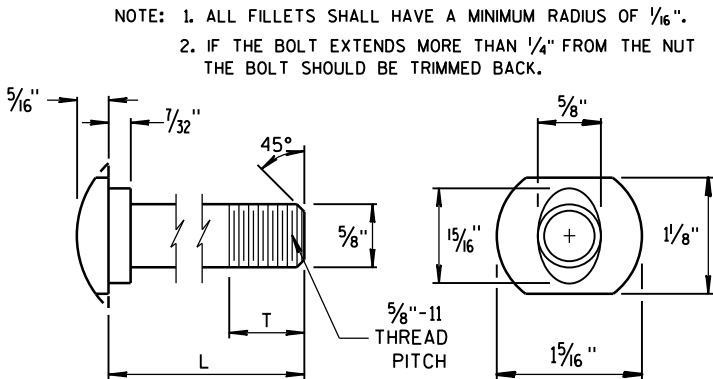
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



### DETAIL FOR 36" BLOCKOUT DEPTH

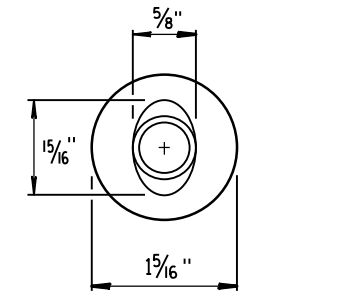
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

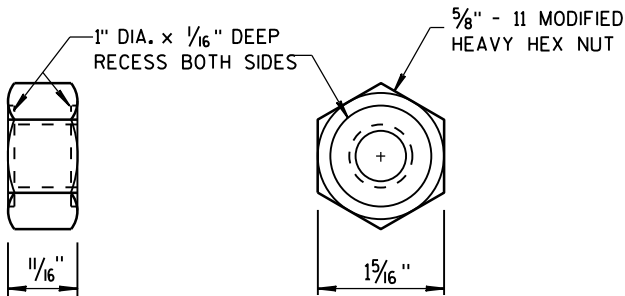


POST BOLT TABLE

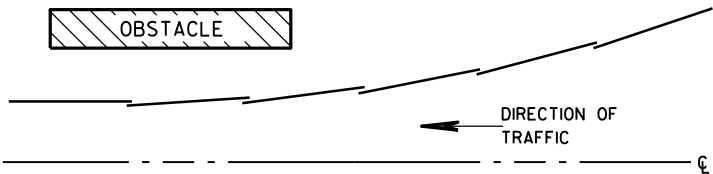
| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |



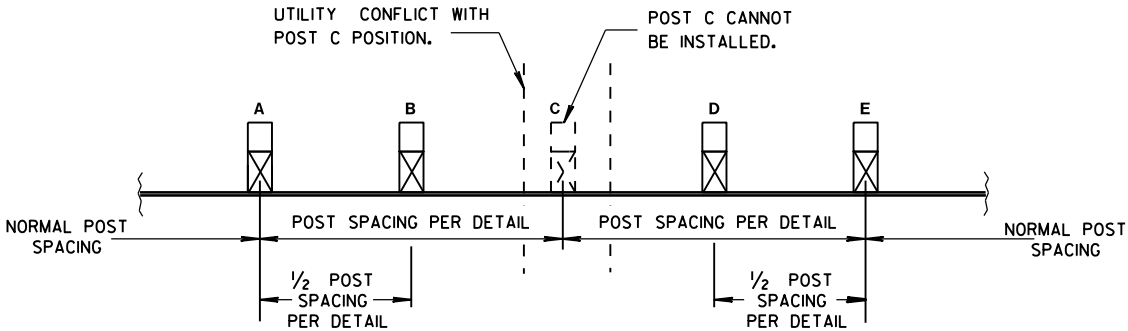
ALTERNATE BOLT HEAD



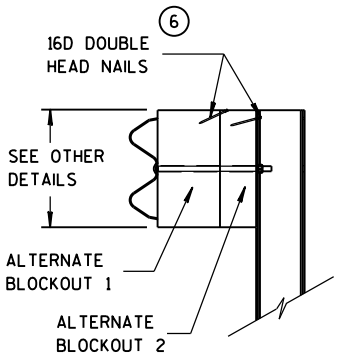
POST BOLT, SPLICE BOLT AND RECESS NUT



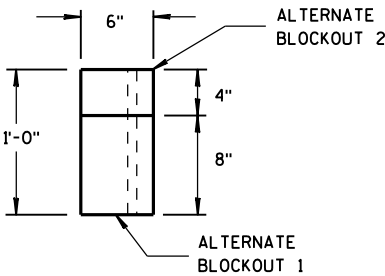
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW

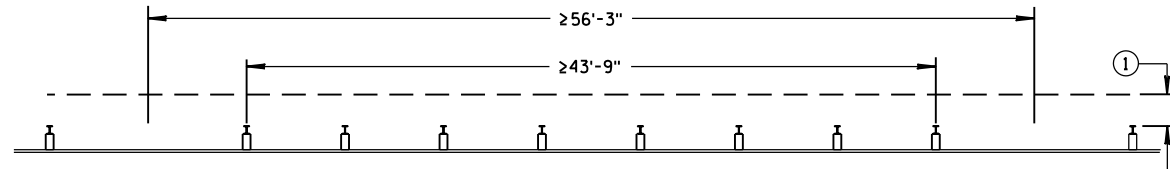


TOP VIEW

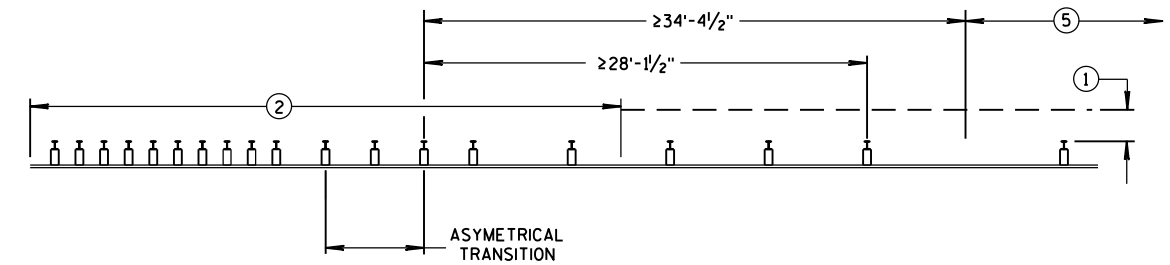
ALTERNATE WOOD  
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

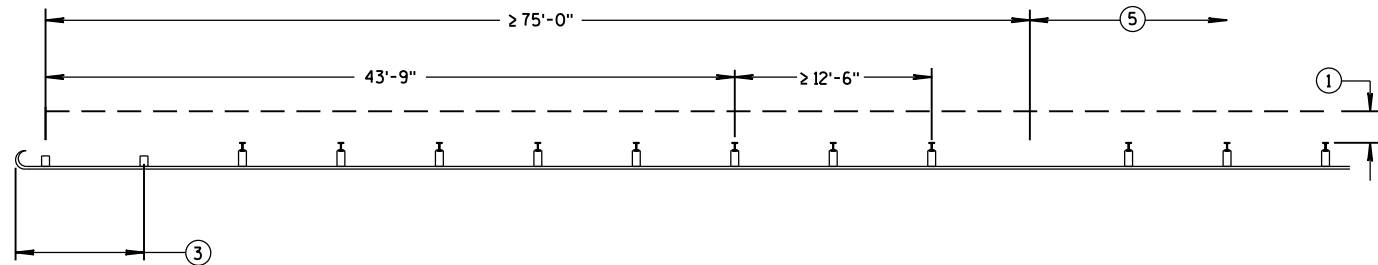
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



MISSING POST IN NORMAL BEAM GUARD RUN

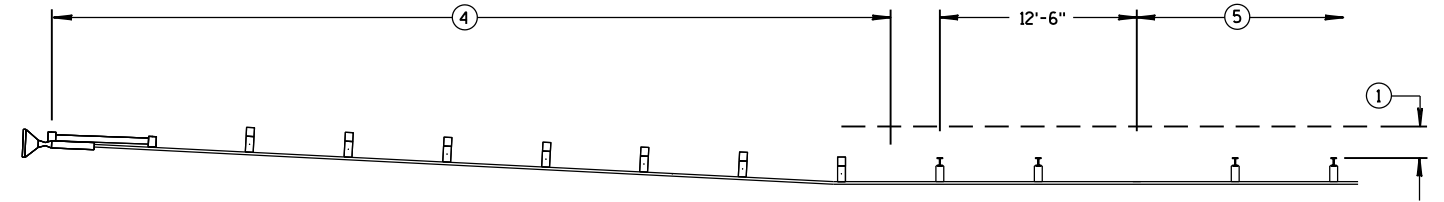


MISSING POST NEAR APPROACH THRIE BEAM TRANSITION

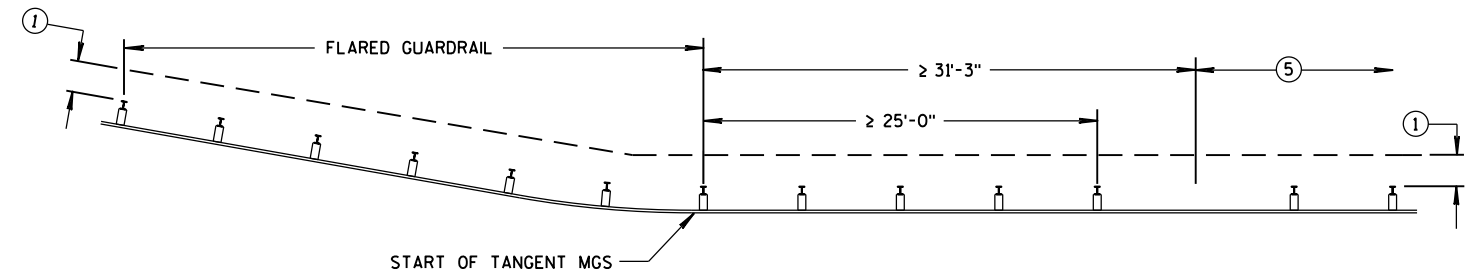


MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL

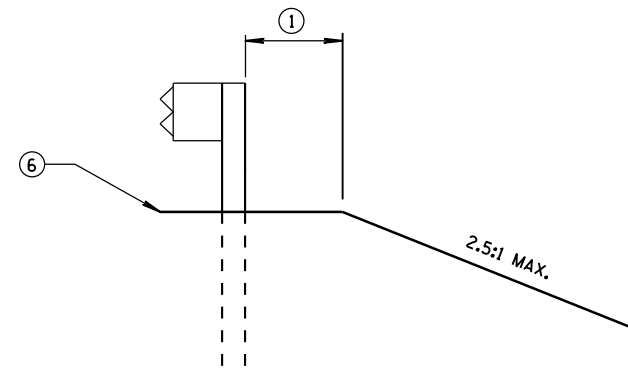
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER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



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017  
DATE  
/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

## 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 MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

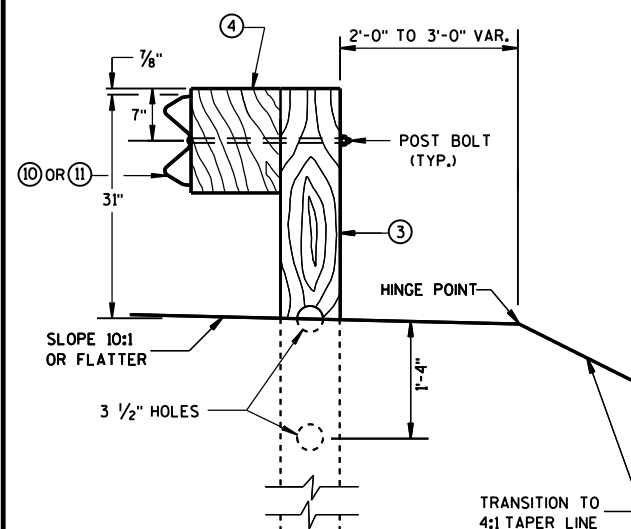
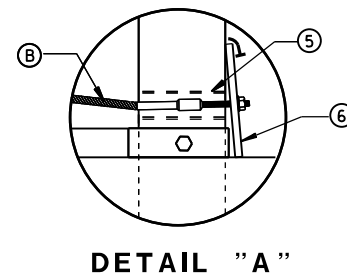
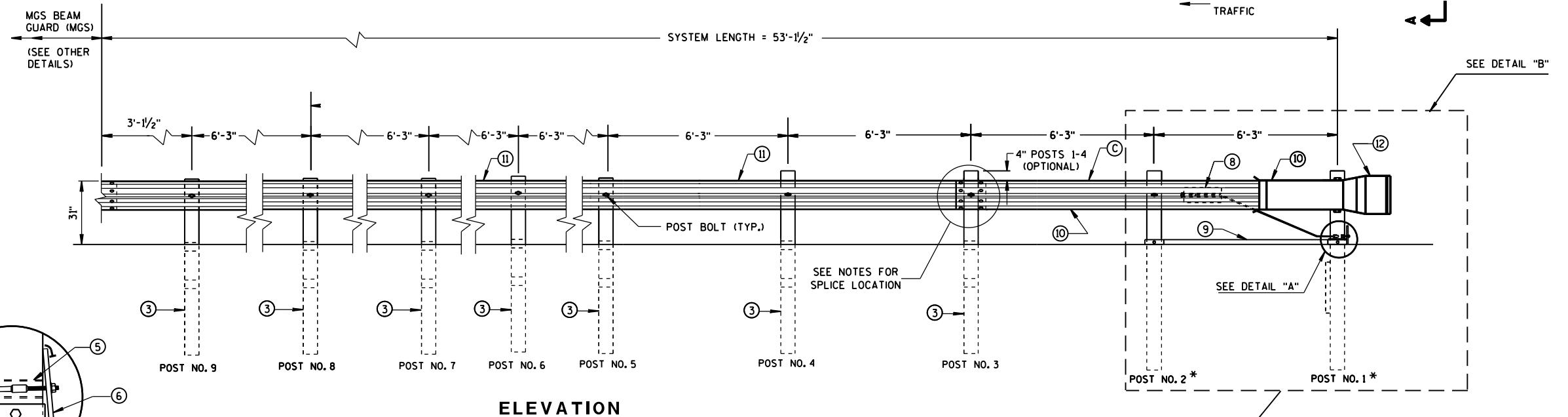
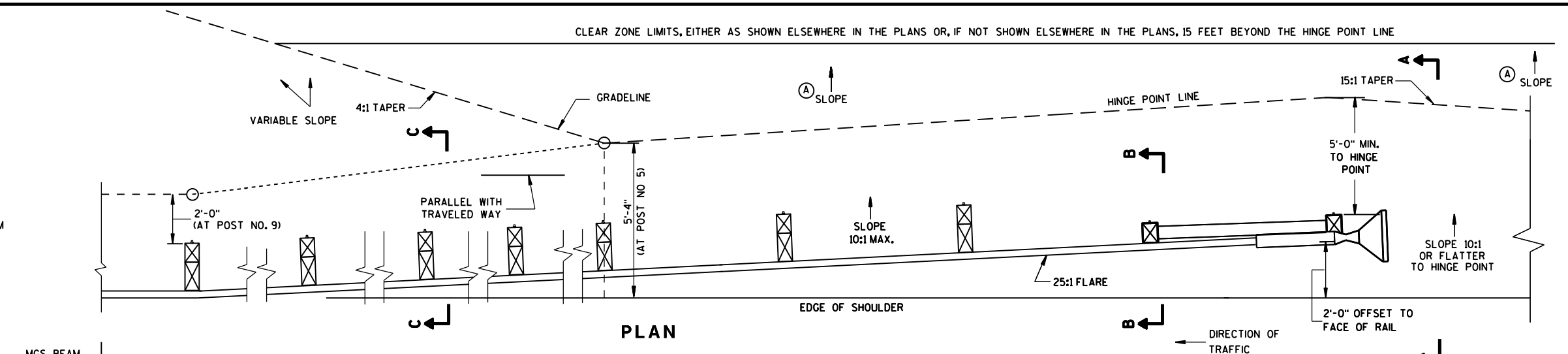
SEE SDD 14B42 FOR MORE INFORMATION.

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

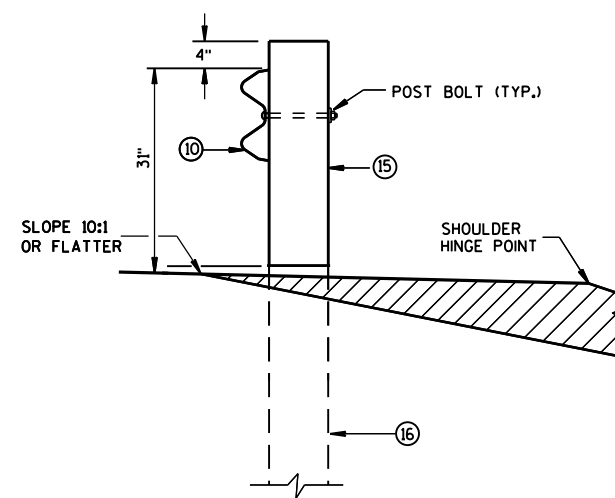
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

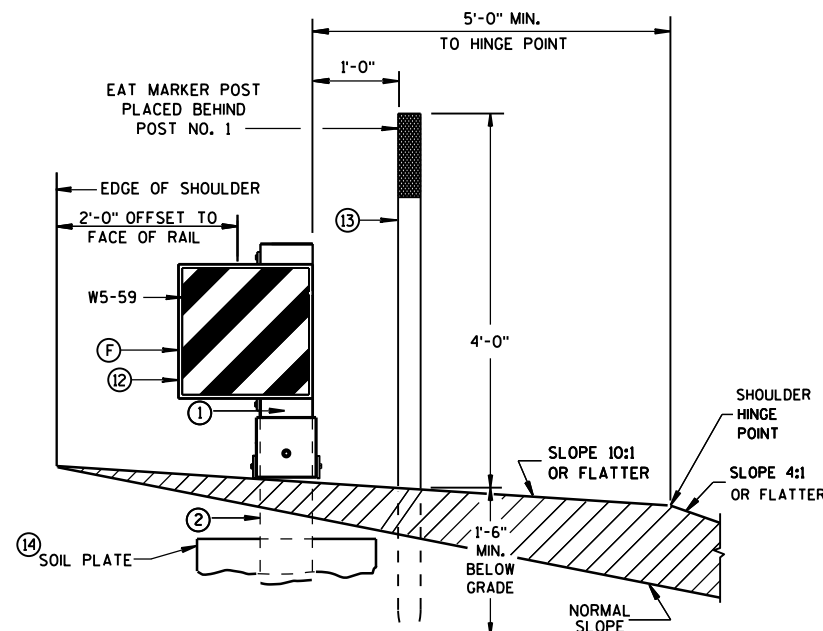
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



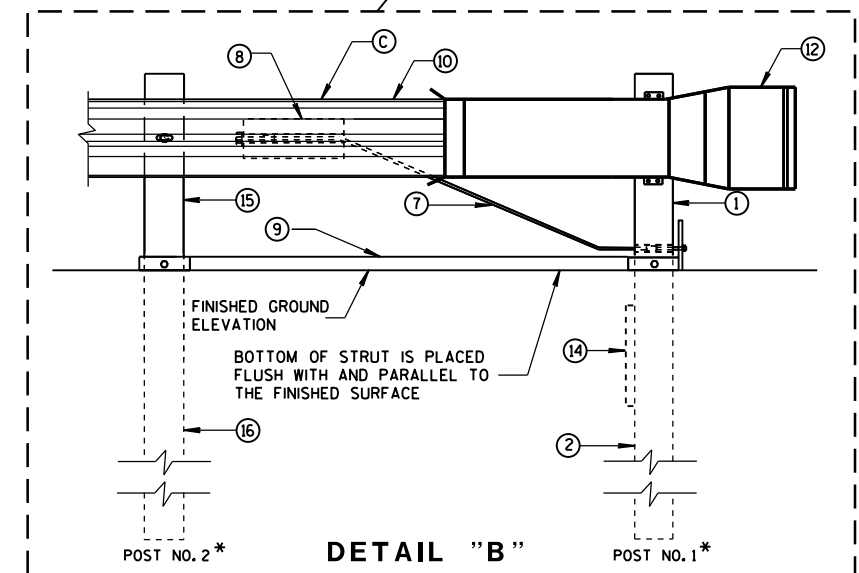
SECTION C-C  
TYPICAL AT POST NOS. 3-9



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



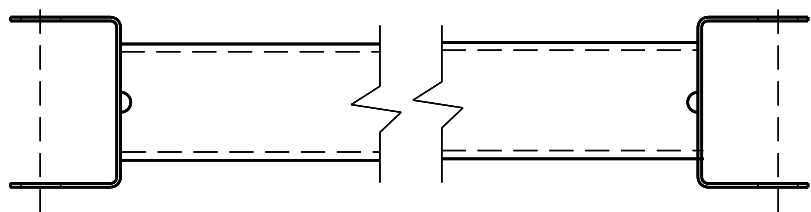
SECTION A-A  
TYPICAL AT POST NO. 1\*



MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

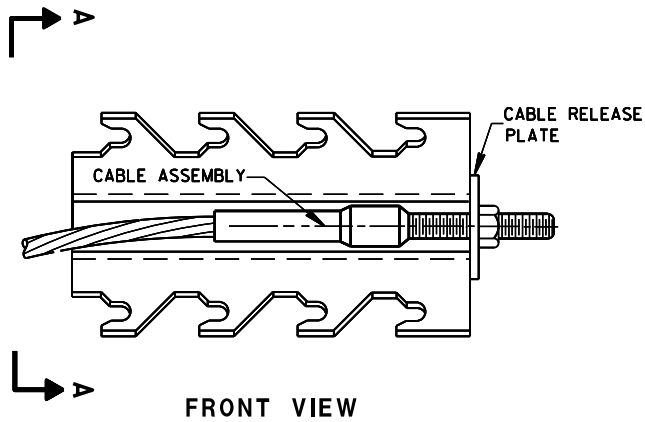
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





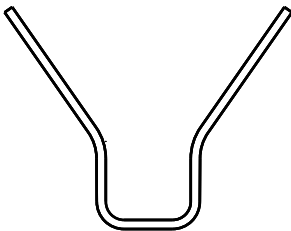
GENERIC GROUND STRUT

9 H



GENERIC ANCHOR CABLE BOX

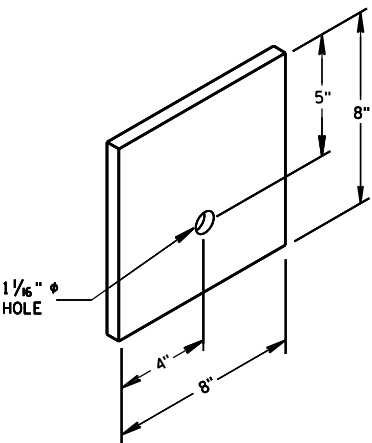
8 H



SECTION A-A

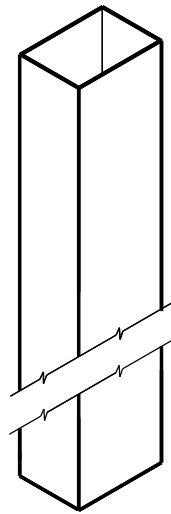
BILL OF MATERIALS

| PART NO.   | DESCRIPTION  |
|--|--|
| MATERIALS PROVIDED BY MGS EAT MANUFACTURER. 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. SECTIONS VARY IN LENGTH. |
| ⑫  | IMPACT HEAD  |
| ⑬  | EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)                      |
| ⑭  | SOIL PLATE   |
| ⑮  | UPPER POST NO. 2   |
| ⑯  | LOWER POST NO. 2   |

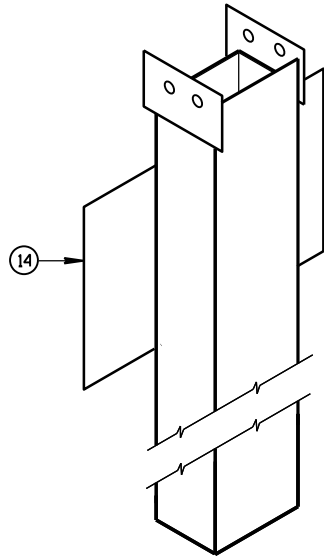


BEARING PLATE

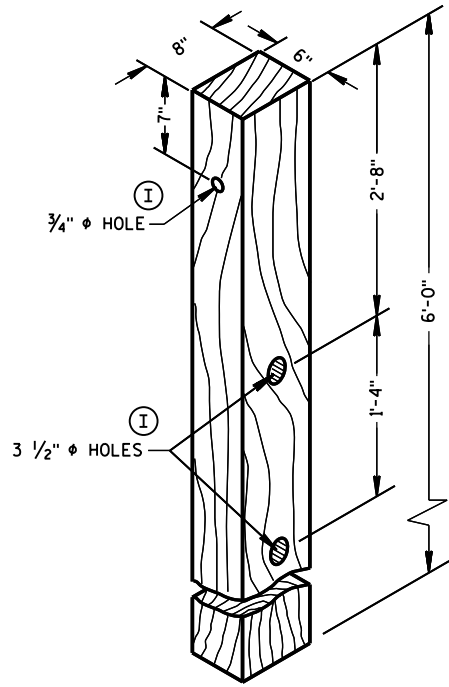
6



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

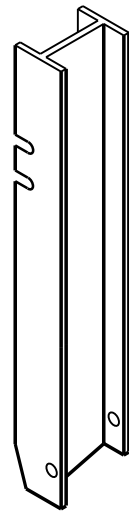


LOWER POST NO. 1<sup>(2)</sup>

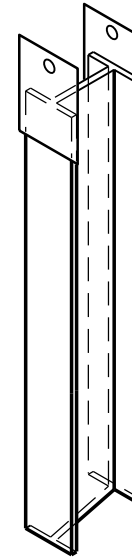


POSTS NUMBER 3-9

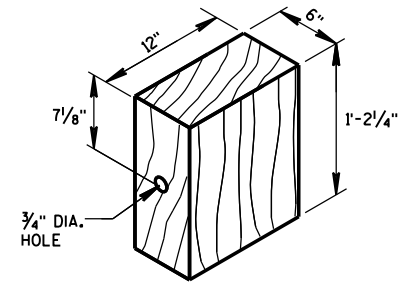
WOOD CRT POST<sup>(3)</sup>



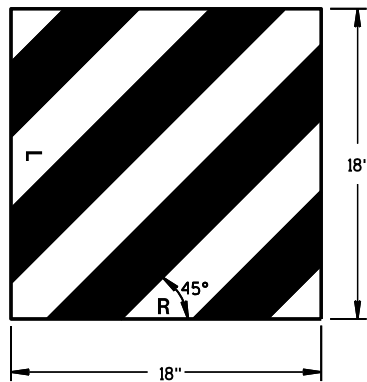
UPPER POST NO. 2<sup>(15)</sup>



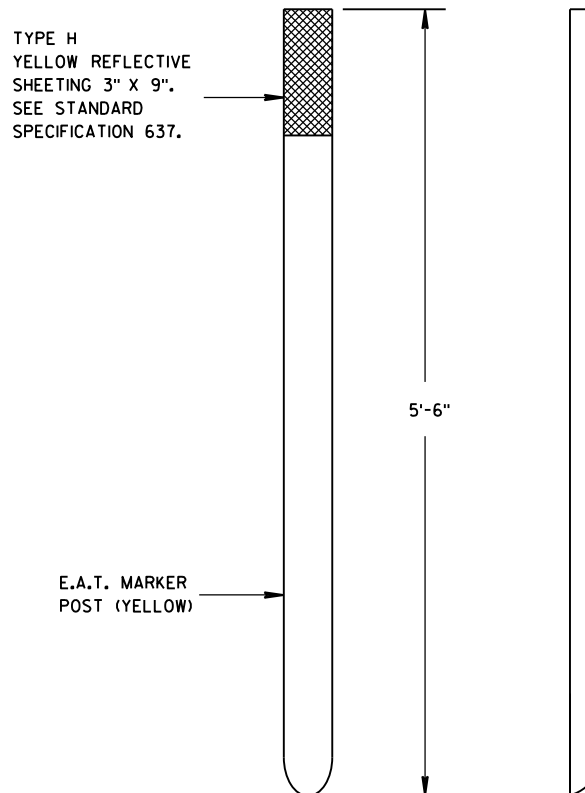
LOWER POST NO. 2<sup>(16)</sup>



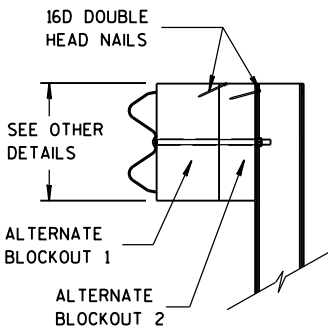
WOOD BLOCKOUT<sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



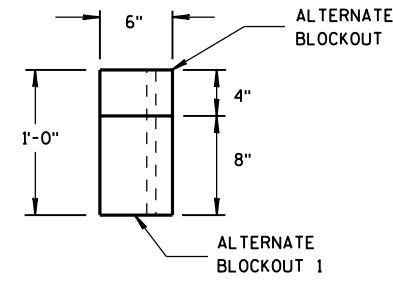
REFLECTIVE SHEETING DETAIL<sup>(H)</sup>



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



SIDE VIEW



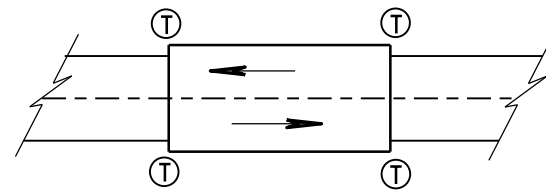
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

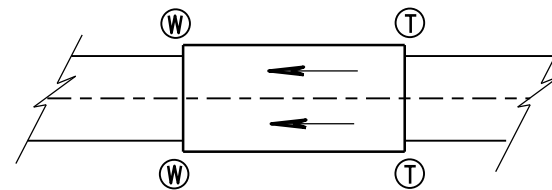
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

## GENERAL NOTES

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

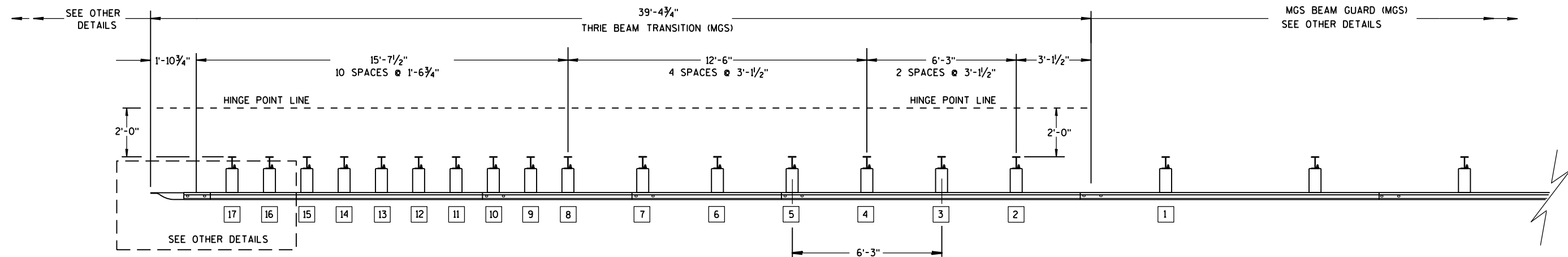
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

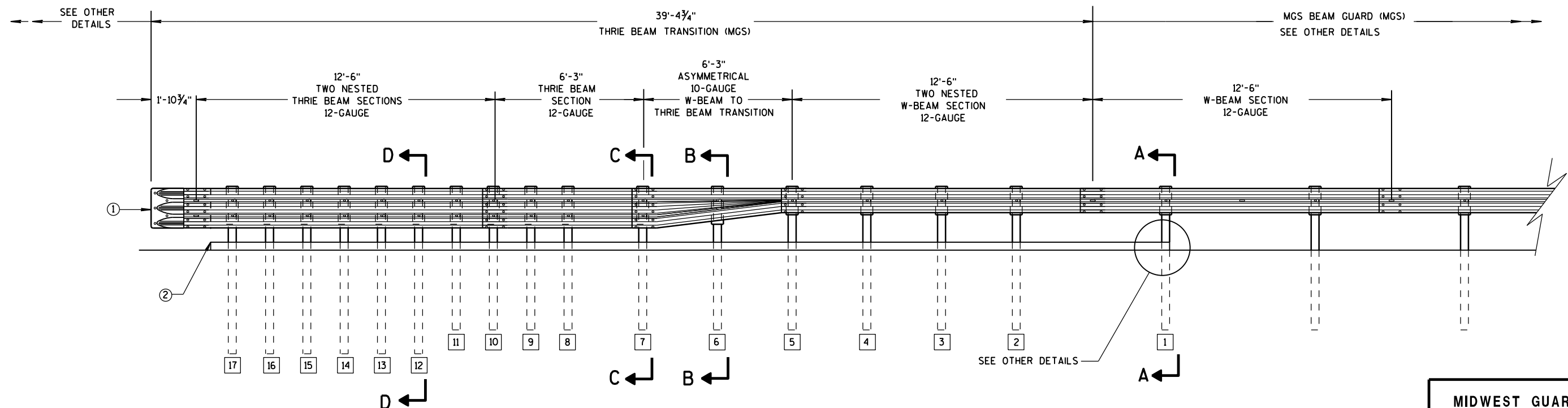
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

## TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



PLAN VIEW



ELEVATION VIEW

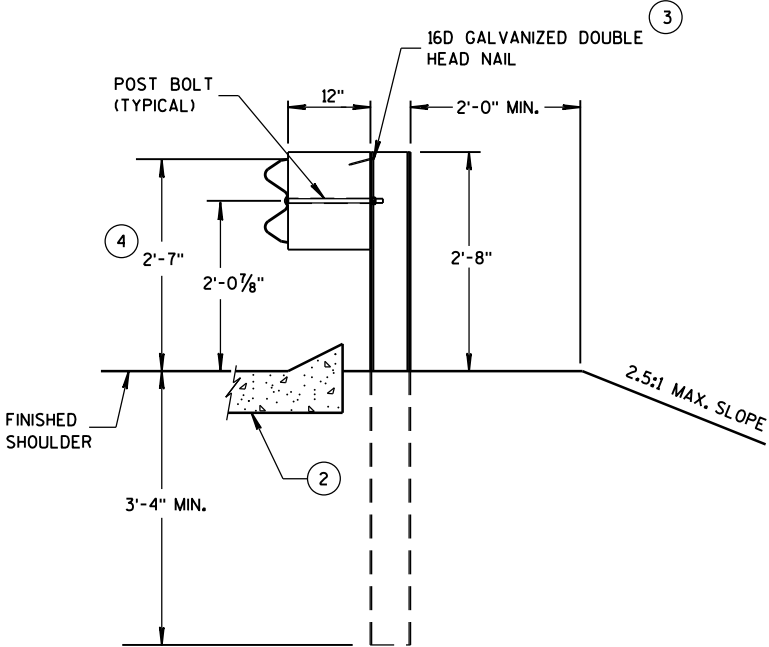
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

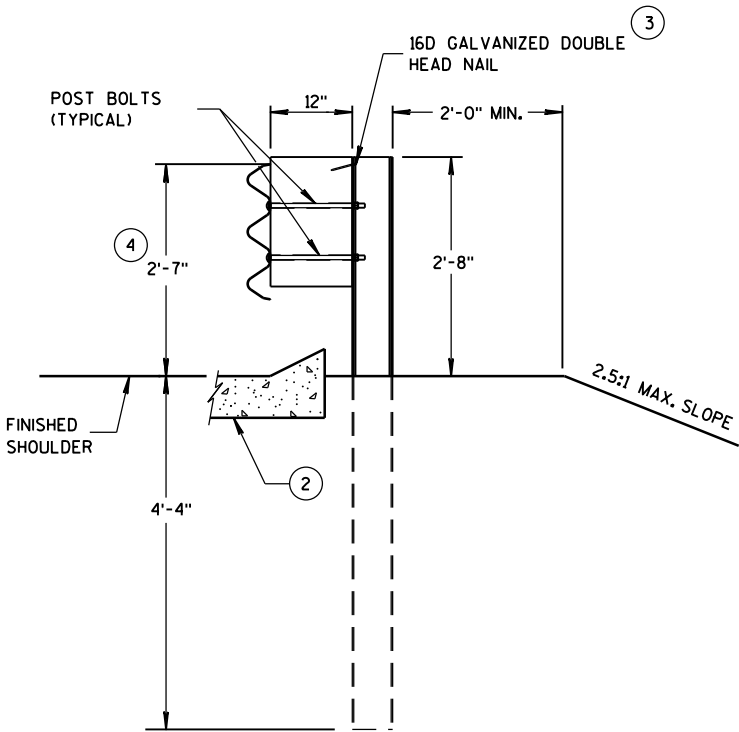
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

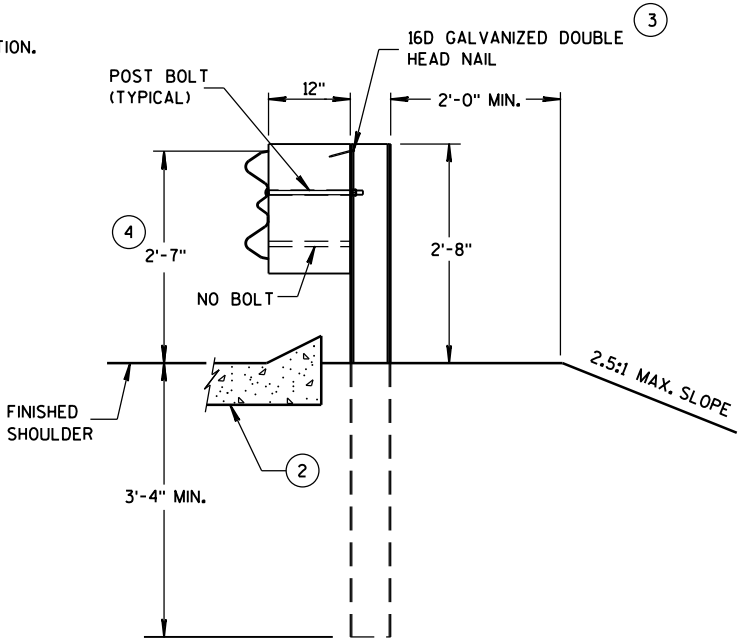
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm 1"$ .



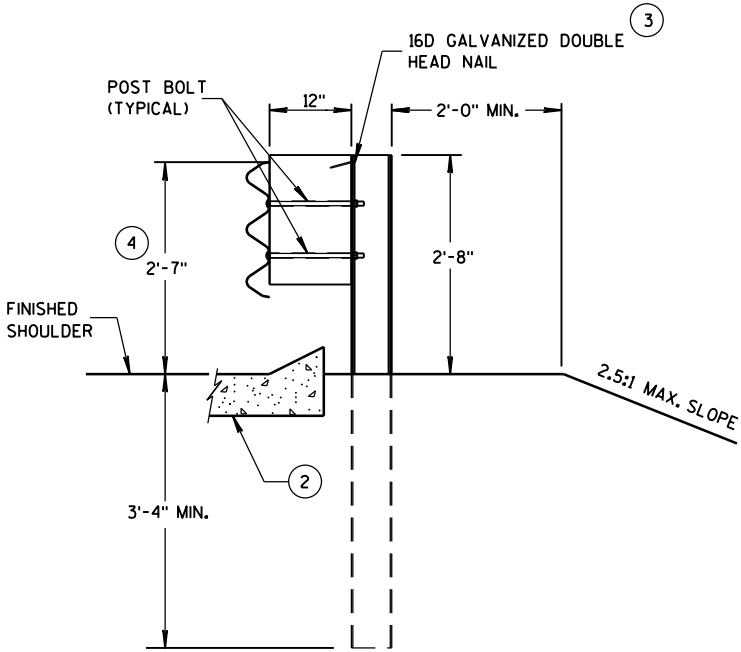
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

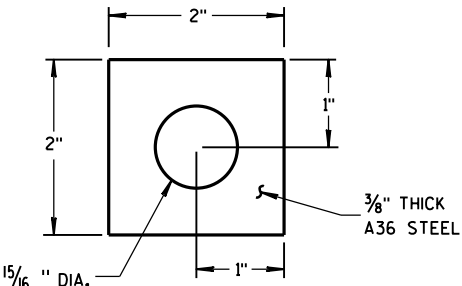
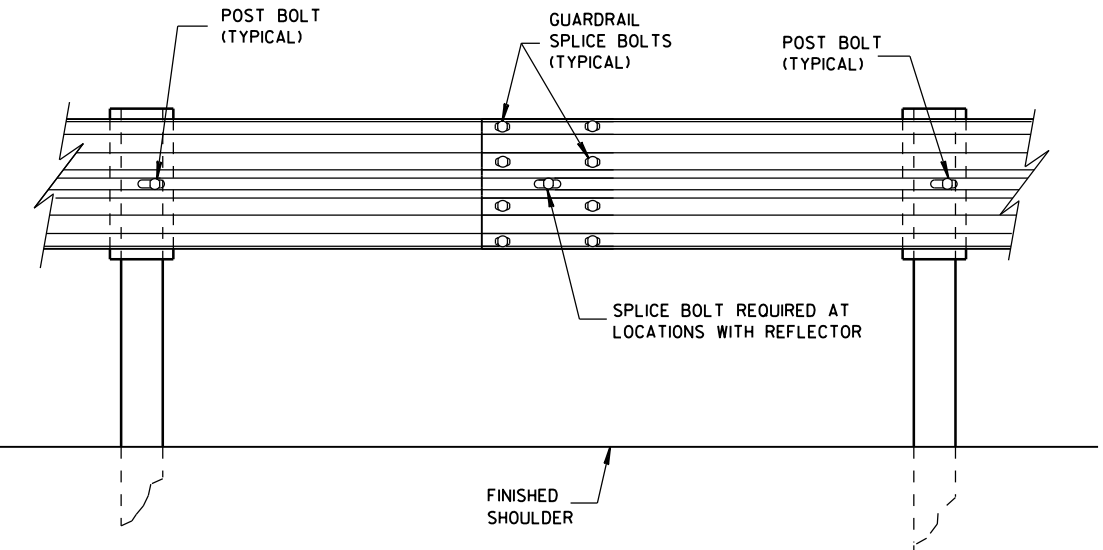
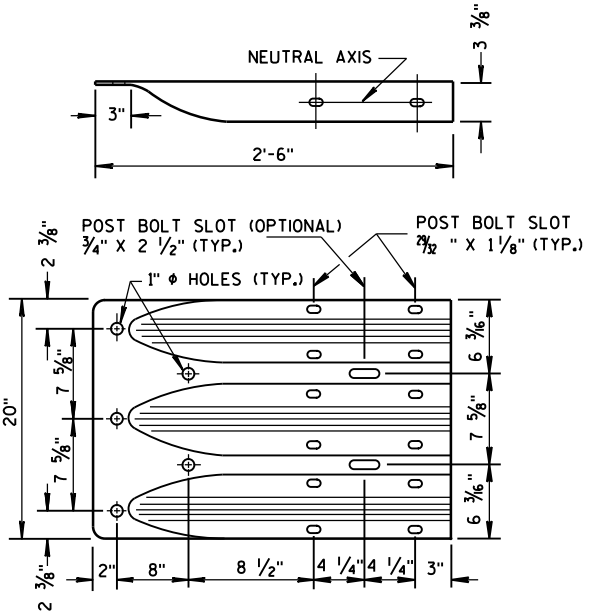


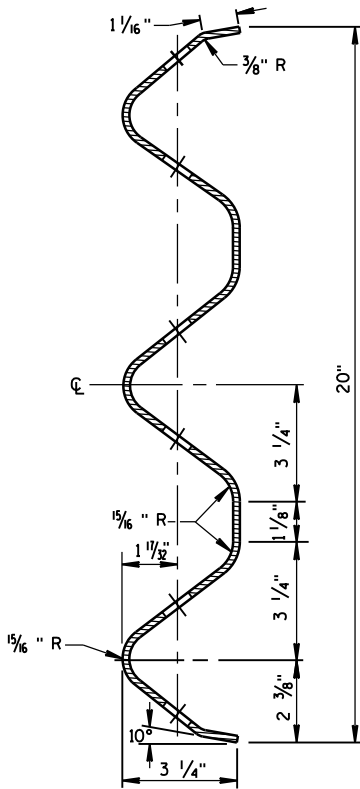
PLATE WASHER DETAIL



SPlice DETAIL



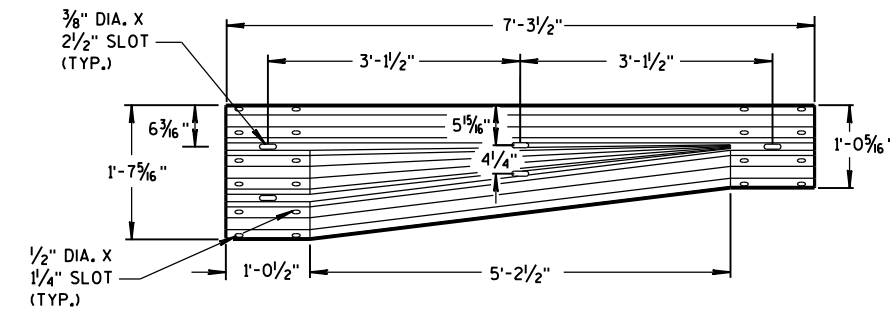
THRIE BEAM  
TERMINAL CONNECTOR



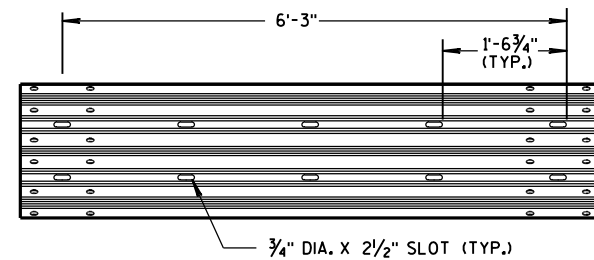
SECTION THRU THRIE  
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

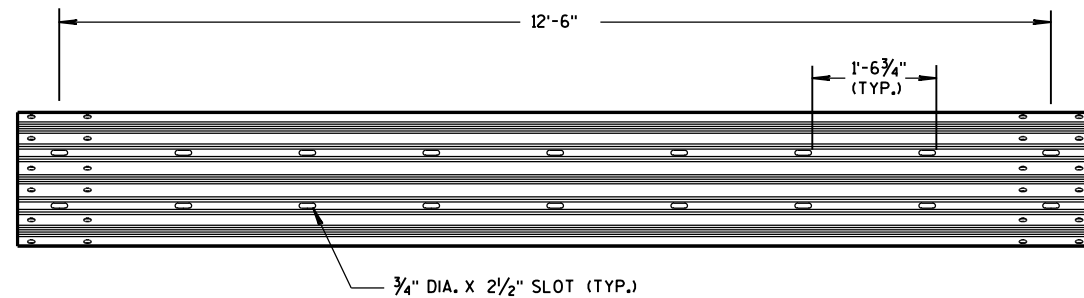
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



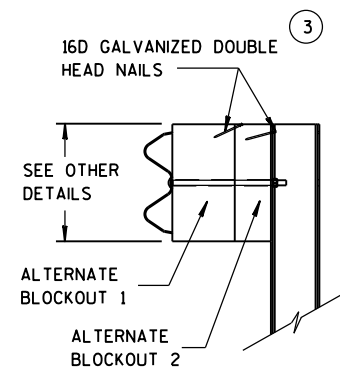
W-BEAM TO THRIE BEAM TRANSITION SECTION



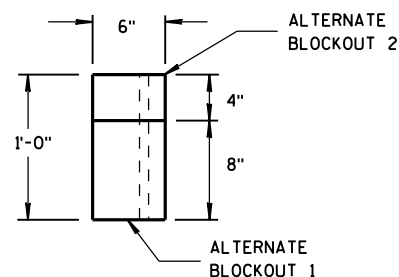
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

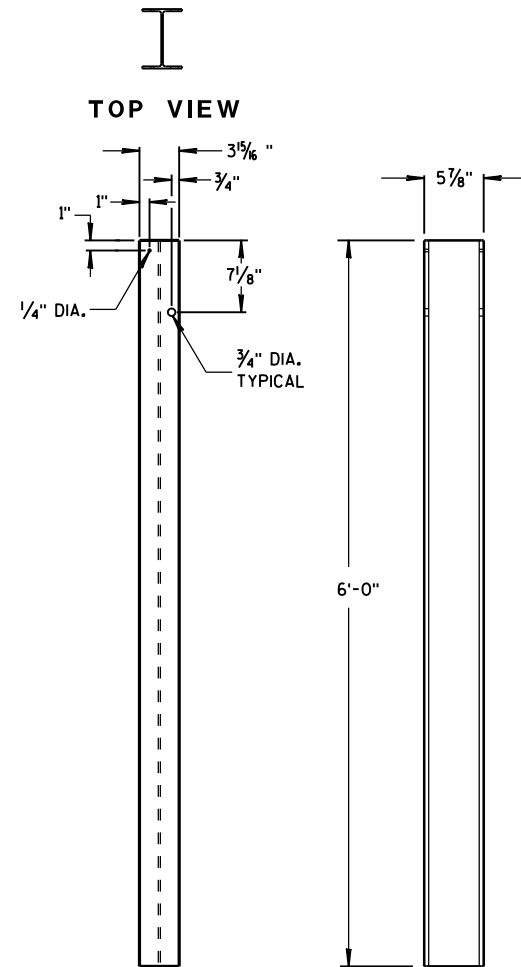


SIDE VIEW



TOP VIEW

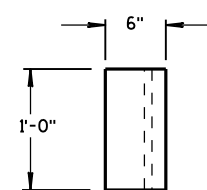
ALTERNATE WOOD BLOCKOUT DETAIL



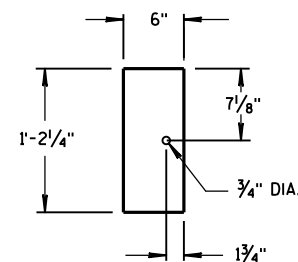
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

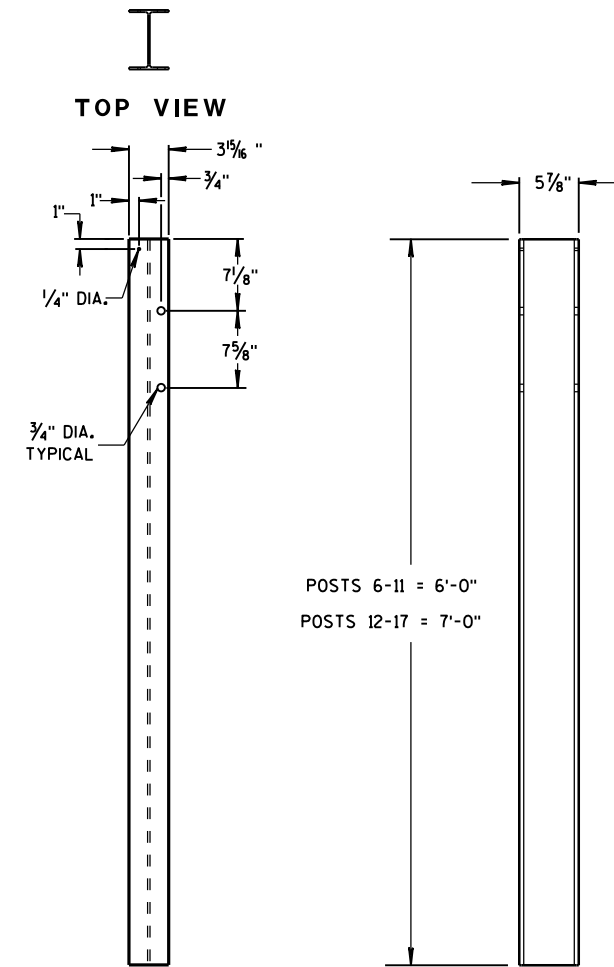


TOP VIEW



FRONT VIEW

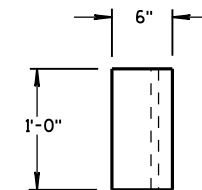
BLOCKOUT  
POSTS 1-5



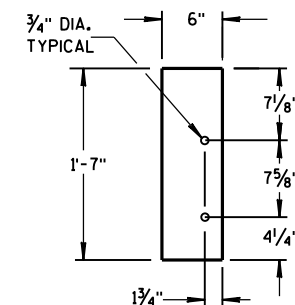
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT  
POSTS 6-17

## GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

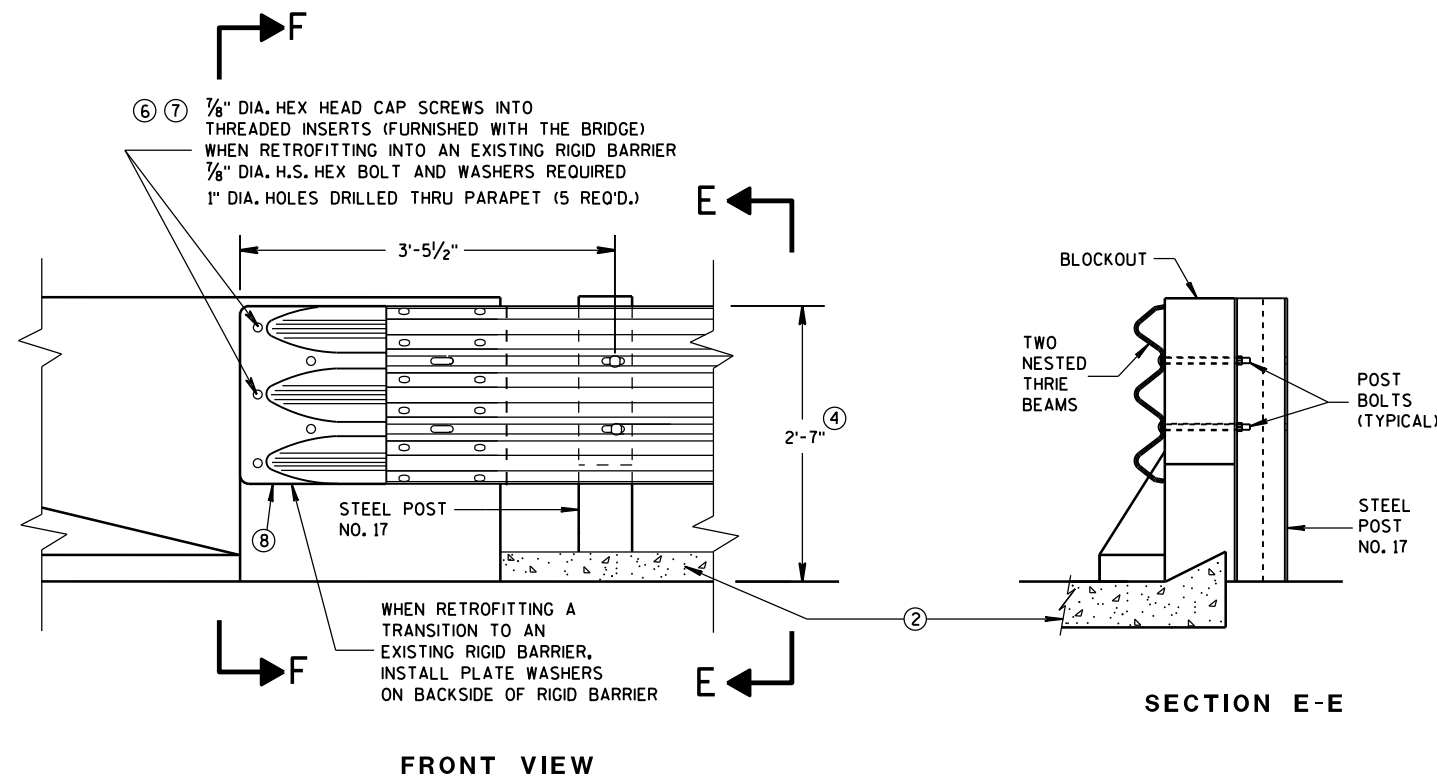
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS 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.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



## GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

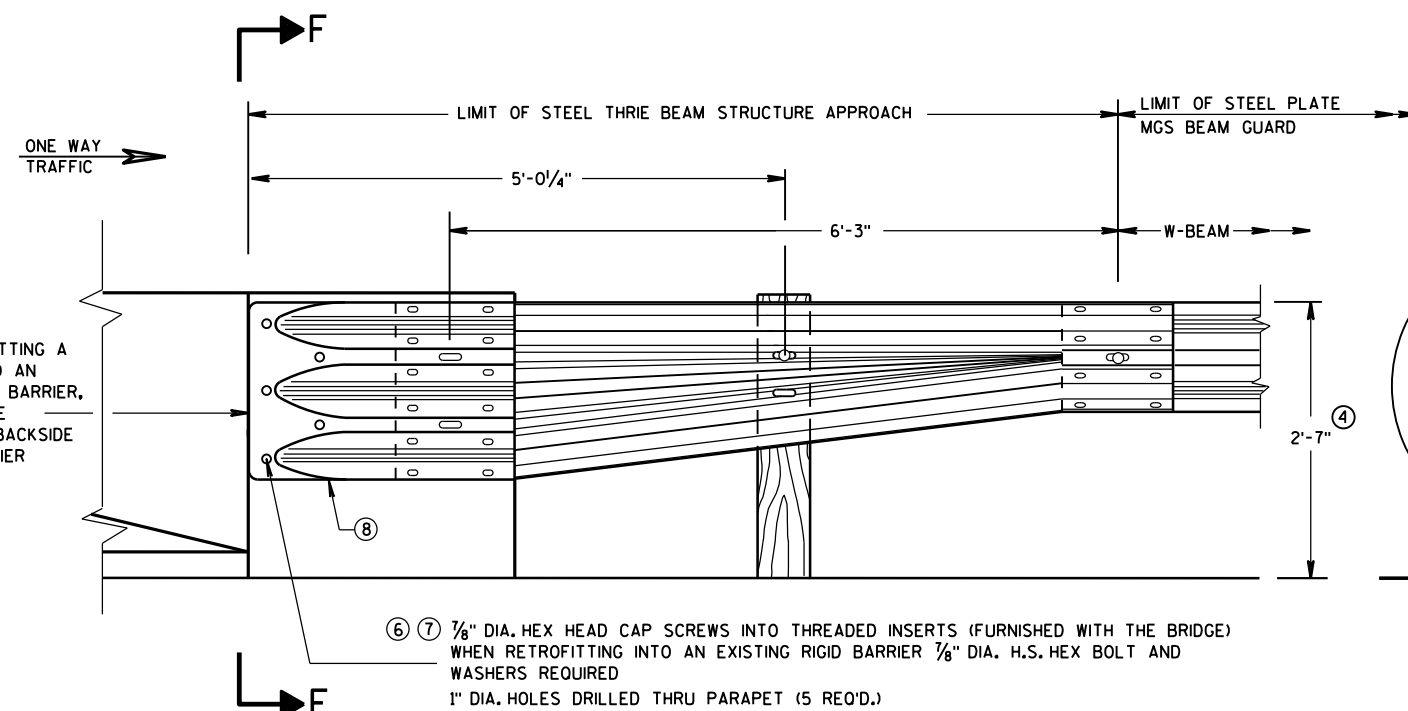
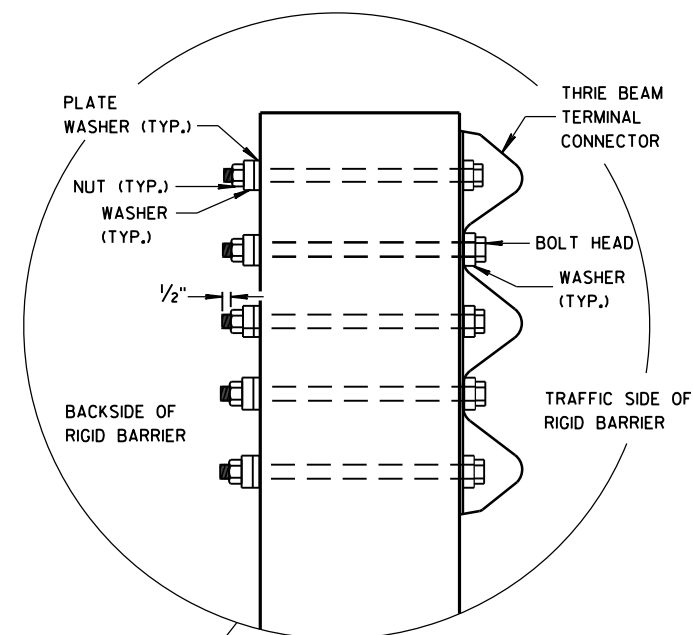
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .

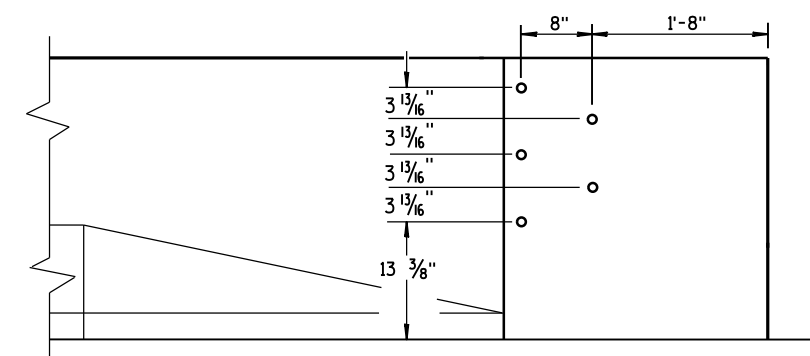
⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



## SECTION F-F



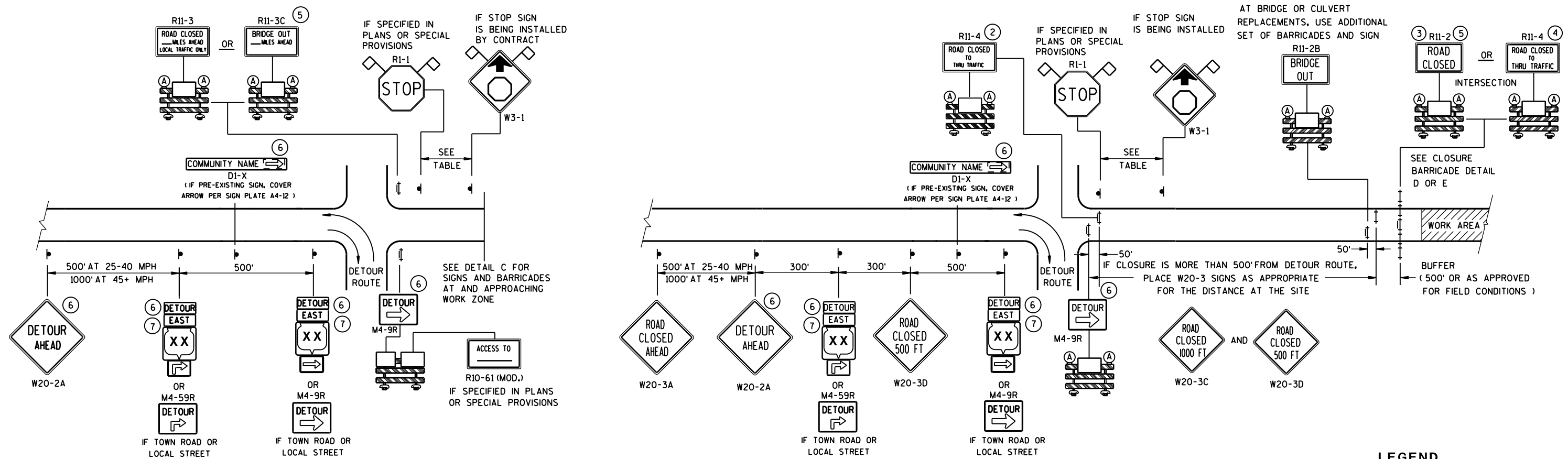
## DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FHWA

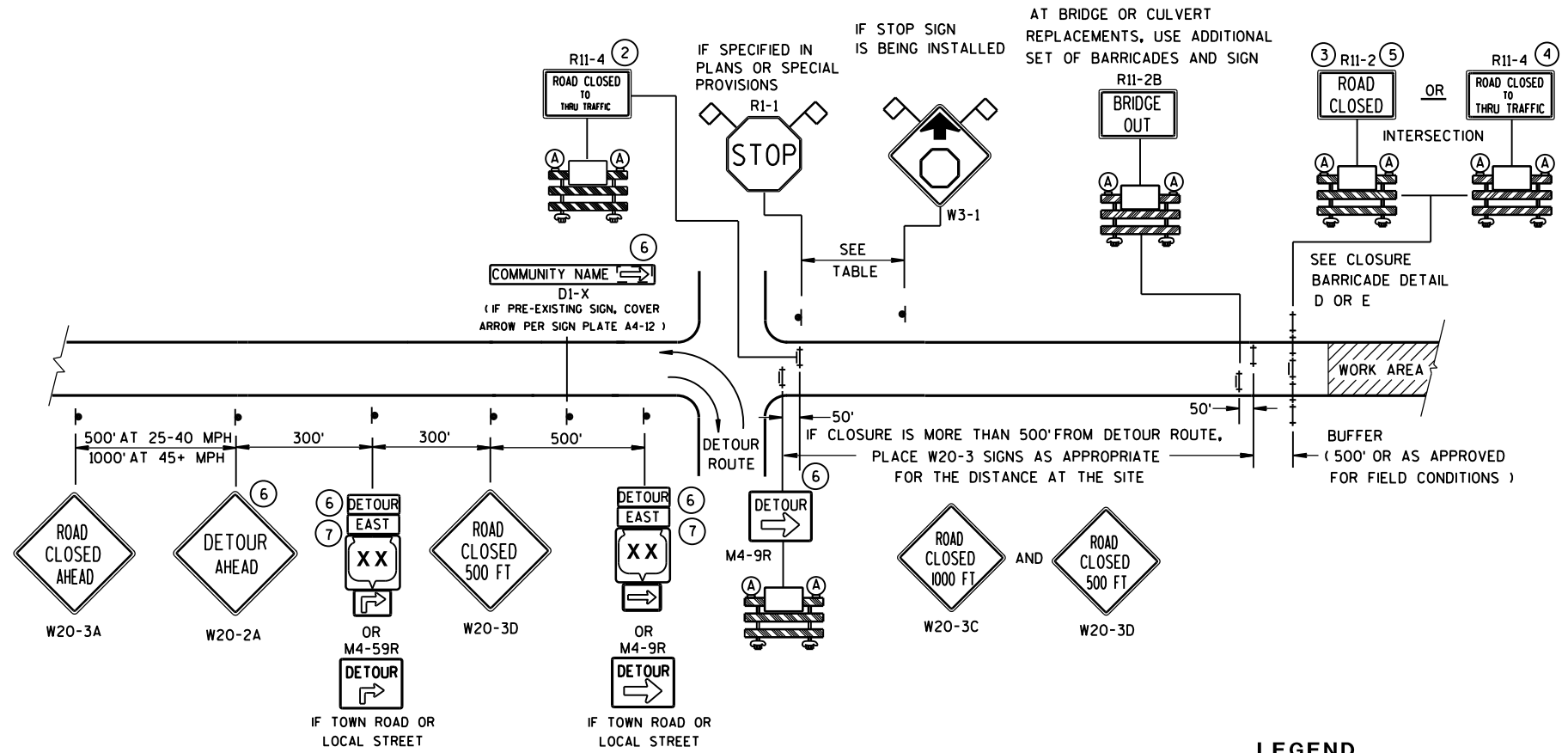
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



DETAIL A

**MAINLINE CLOSURE WITH POSTED DETOUR**

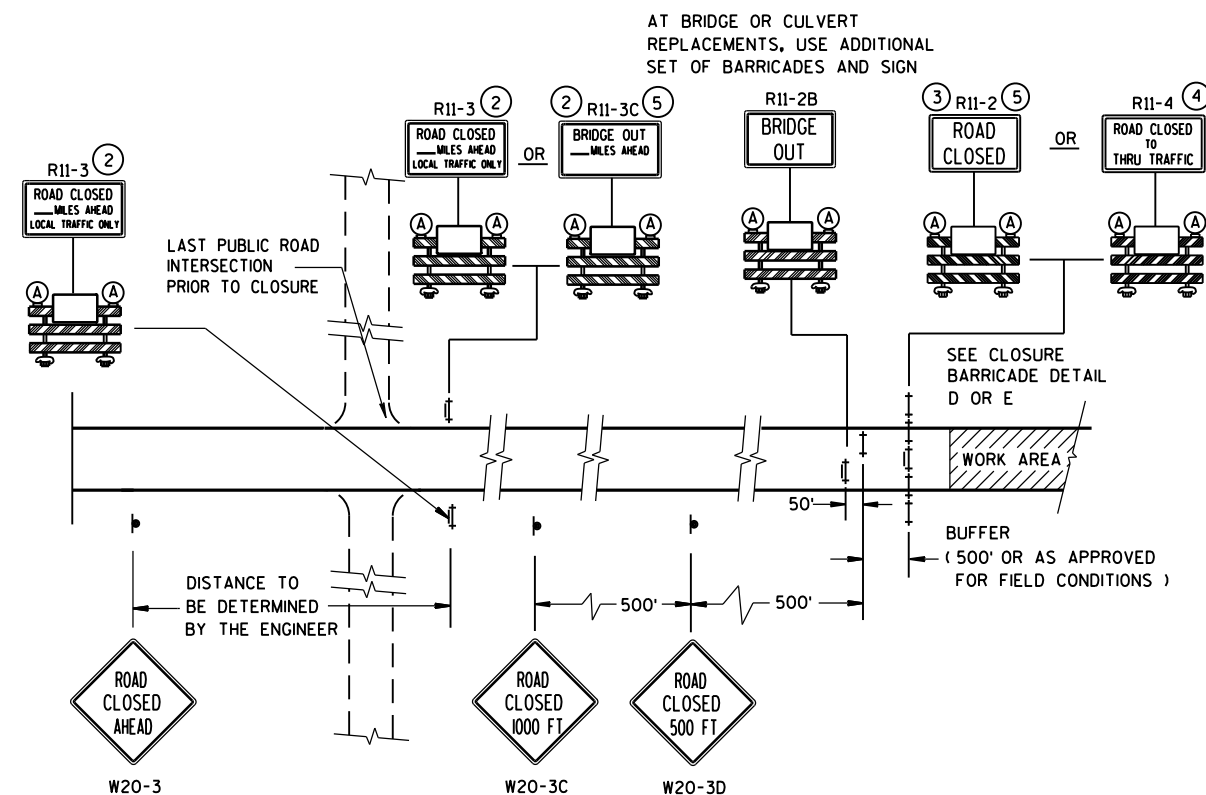
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN )



DETAIL B





**MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE ( 1000 FEET IF URBAN )










**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**


### LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)

 WORK AREA

 M4-8  
 M3-X  
 M1-4  
OR  
 M1-5A  
OR  
 M1-6

 OR   
M05-1 M06-1

 FLAGS, 16" X 16" MIN., (ORANGE)

| SPEED<br>LIMIT<br>(MPH) | "STOP<br>AHEAD"<br>ADVANCE<br>WARNING<br>DISTANCE<br>(FT) |
|-------------------------|---|
| 25                      | 200   |
| 30                      | 200   |
| 35                      | 350   |
| 40                      | 350   |
| 45                      | 500   |
| 50                      | 550   |
| 55                      | 750   |

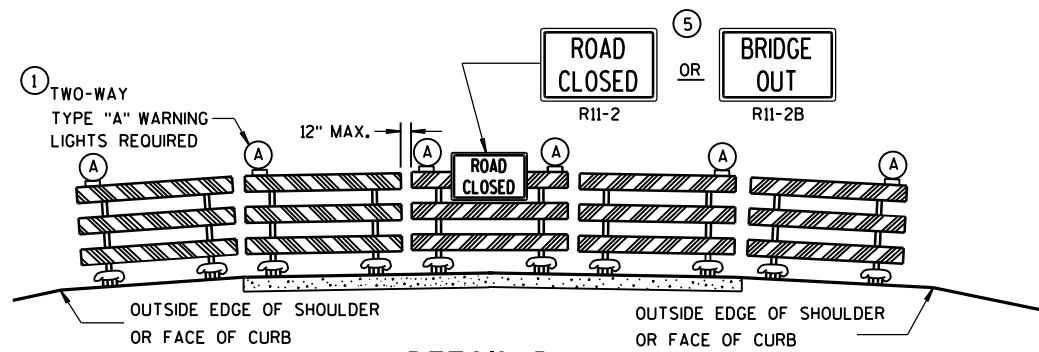
SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

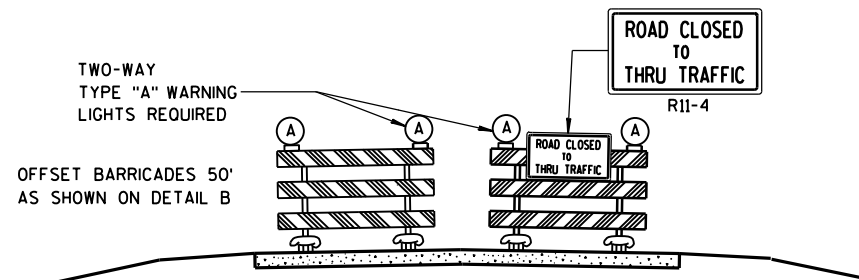
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amakobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER





DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW



DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

## GENERAL NOTES

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

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.

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.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

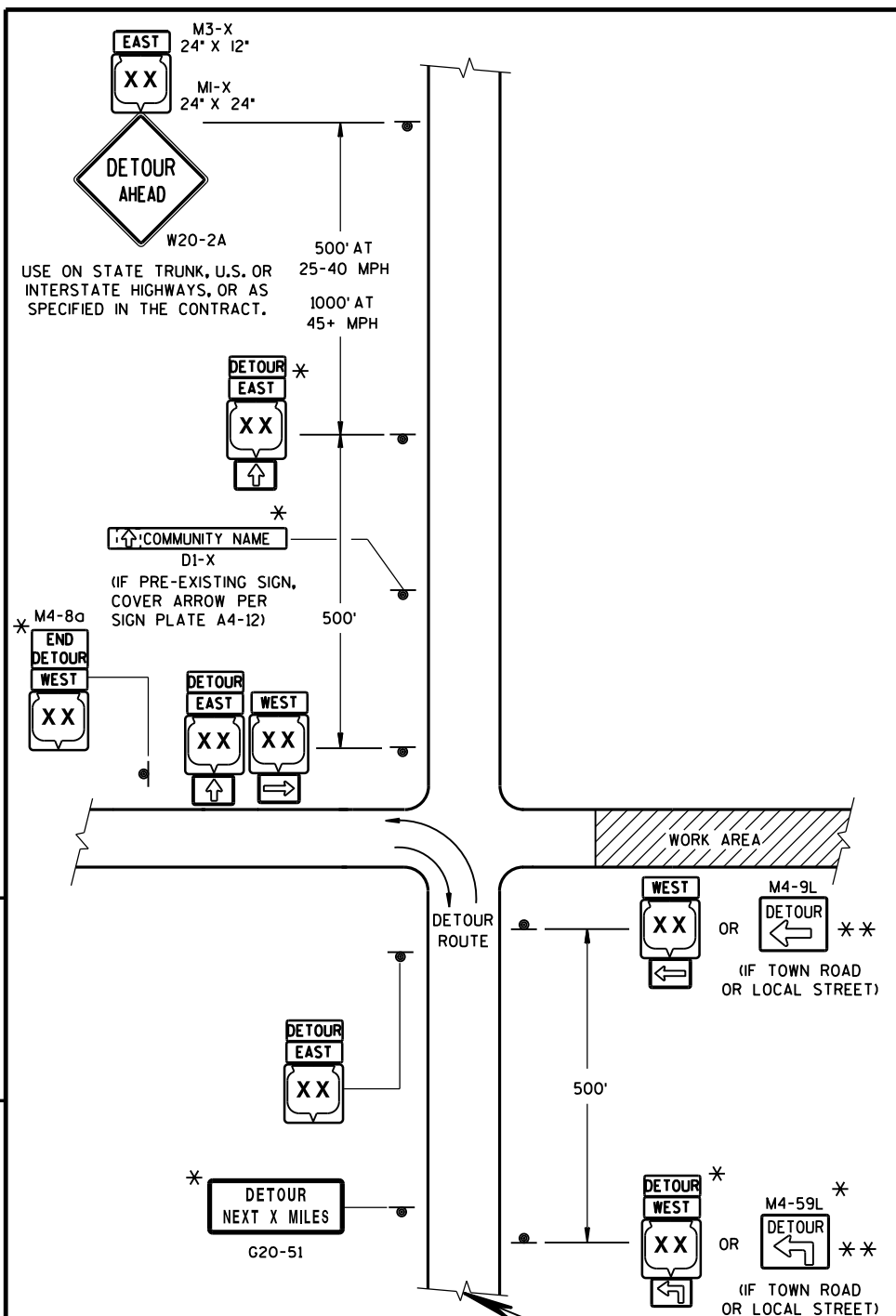
R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amokobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER



THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT

DETAIL F  
DETOUR SIGNING

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS, MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

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

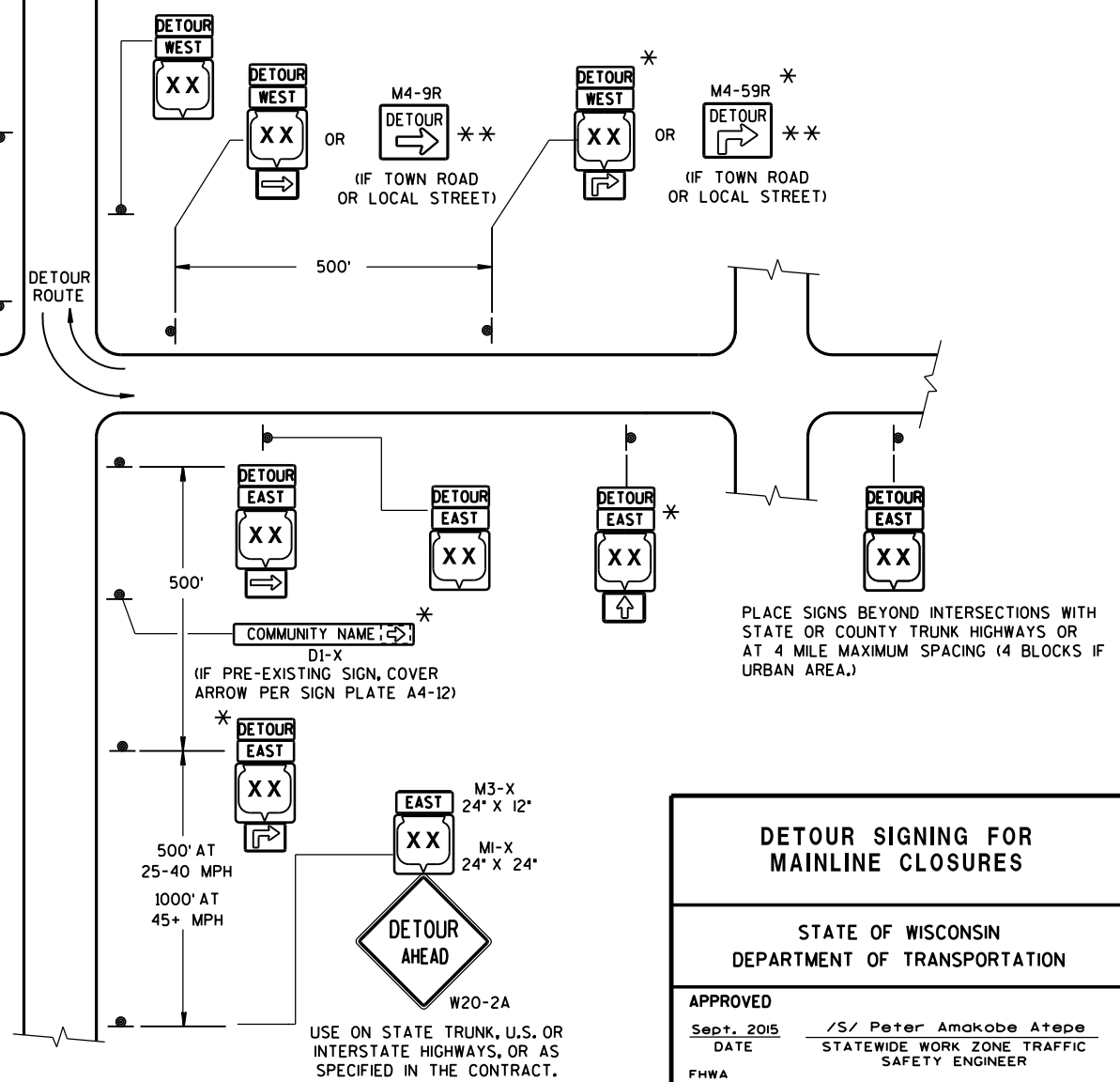
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

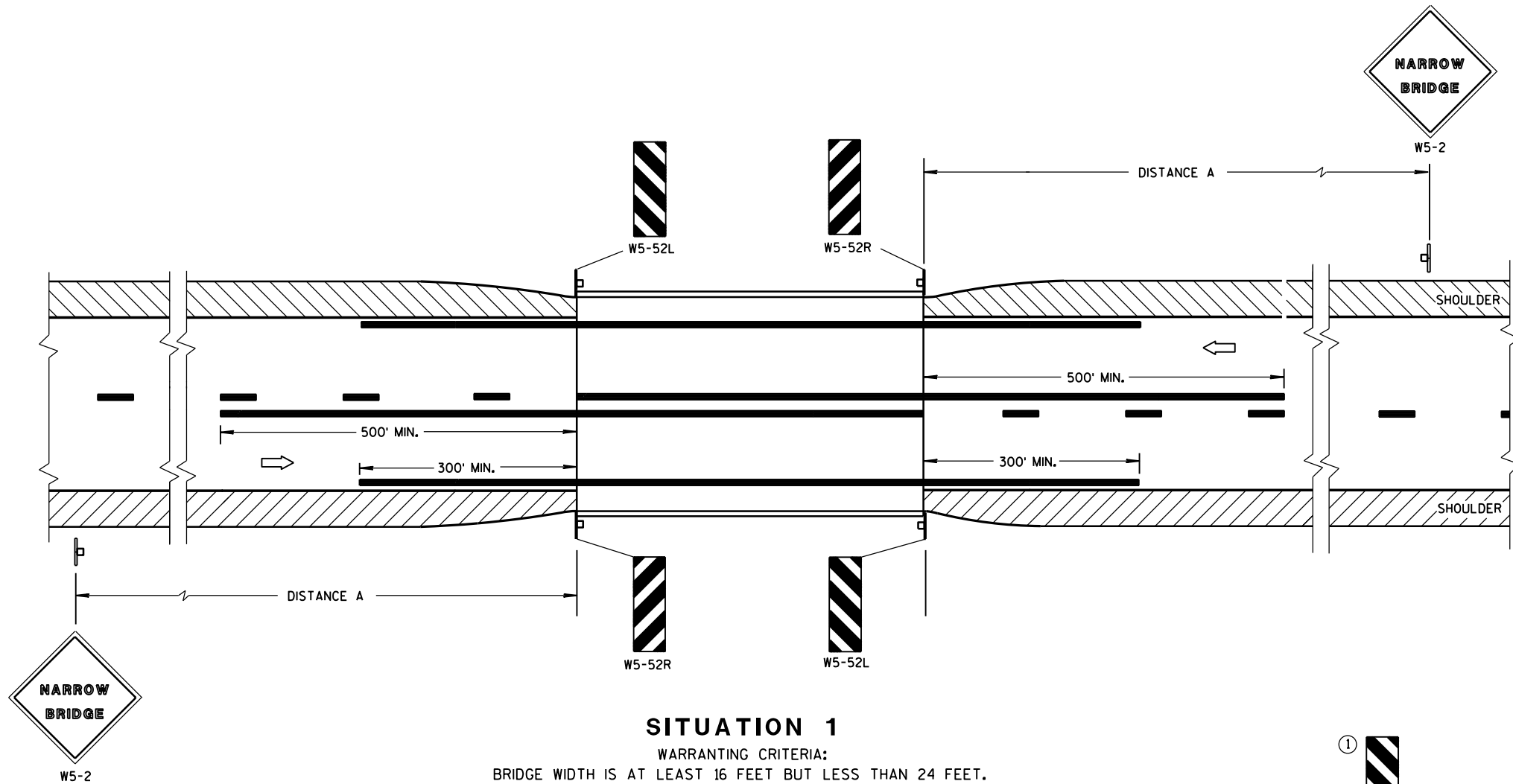
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

\* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

\*\* FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



| DETOUR SIGNING FOR<br>MAINLINE CLOSURES            |   |
|--|---|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>DATE                                   | /S/ Peter Amakobe Atepe<br>STATEWIDE WORK ZONE TRAFFIC<br>SAFETY ENGINEER |
| FHWA   |   |



### SITUATION 1

WARRANTING CRITERIA:  
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

| POSTED OR 85th PERCENTILE SPEED | DISTANCE "A" |
|---------------------------------|--------------|
| 25                              | 150'         |
| 30                              | 200'         |
| 35                              | 250'         |
| 40                              | 300'         |
| 45                              | 400'         |
| 50                              | 550'         |
| 55                              | 750'         |

### GENERAL NOTES

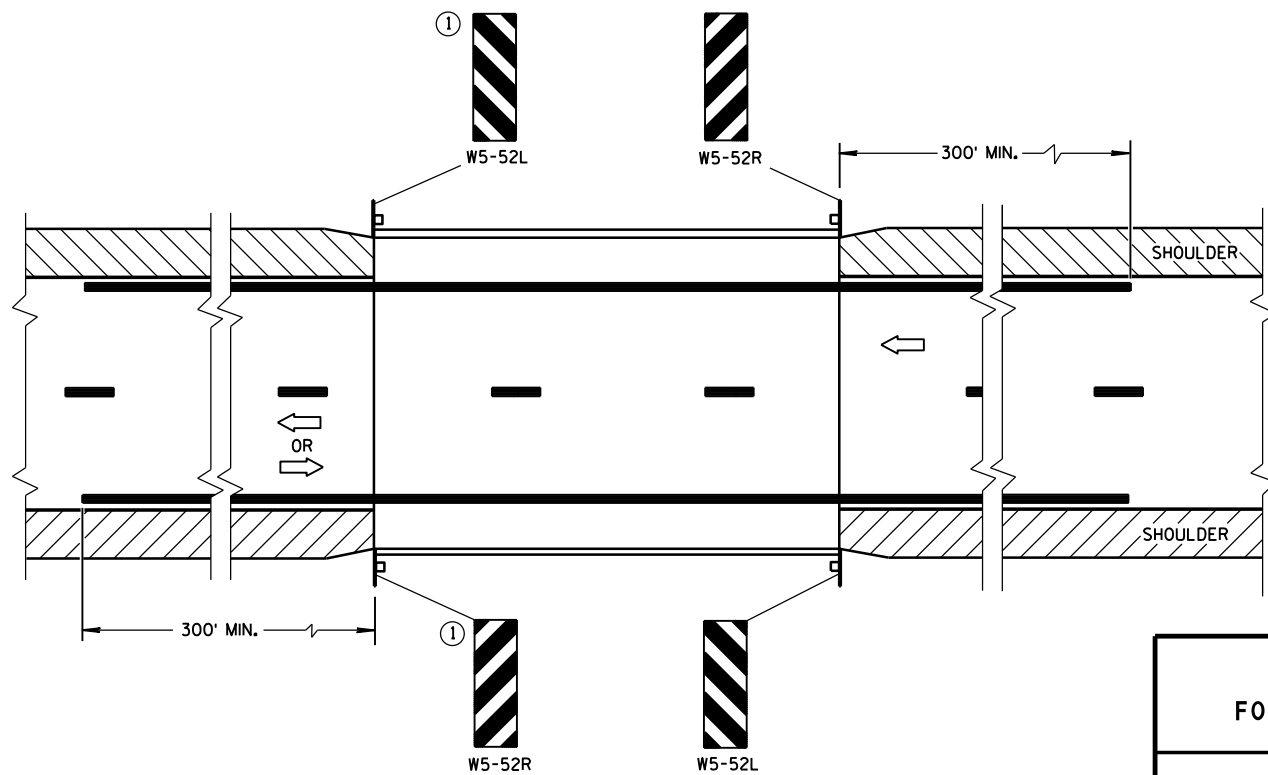
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



### SITUATION 2

WARRANTING CRITERIA:  
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND  
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

### SIGNING & MARKING FOR TWO LANE BRIDGES

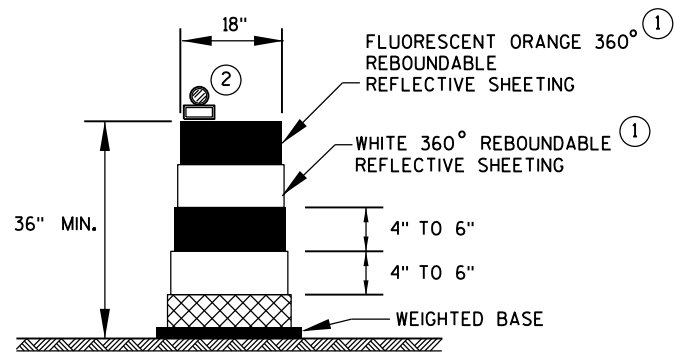
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

#### APPROVED

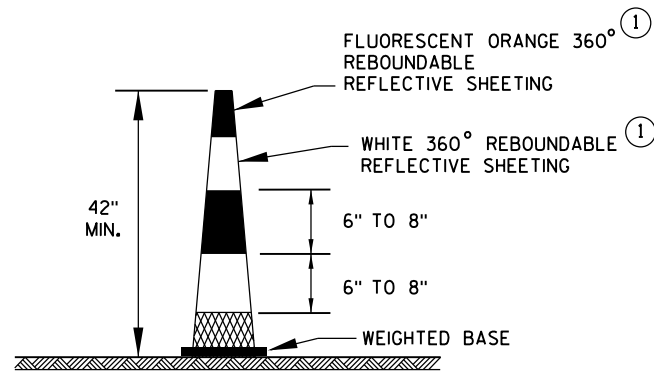
June 2017  
DATE

/S/ Matthew R. Rauch  
STATE SIGNING AND MARKING ENGINEER

FHWA



**DRUM**

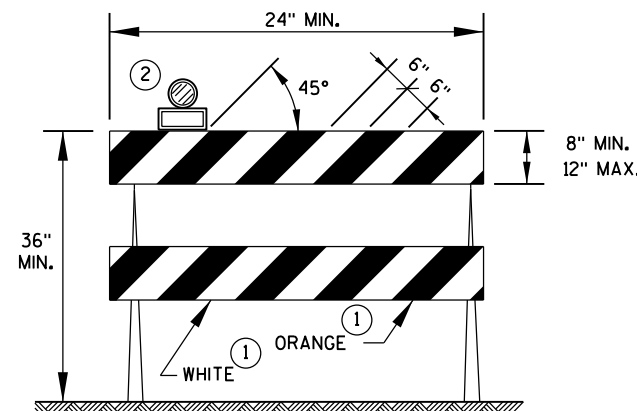


**42" CONE**

DO NOT USE IN TAPERS  
1/2 SPACING OF DRUMS

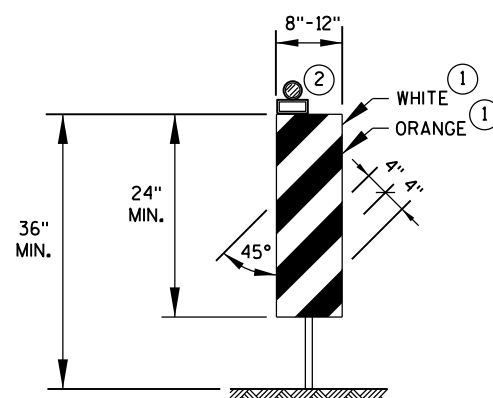
**GENERAL NOTES**

- 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.



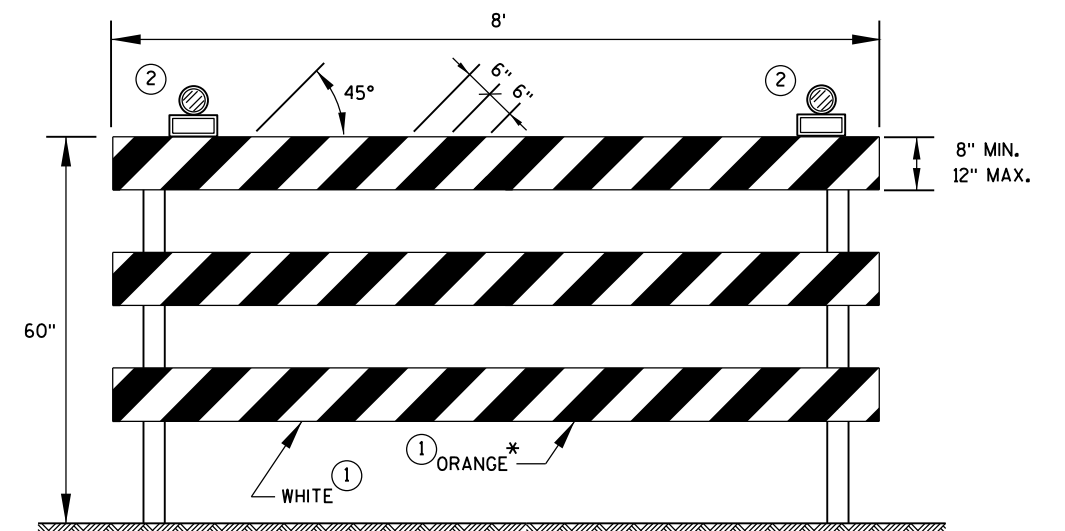
**TYPE 2 BARRICADE**

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  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS

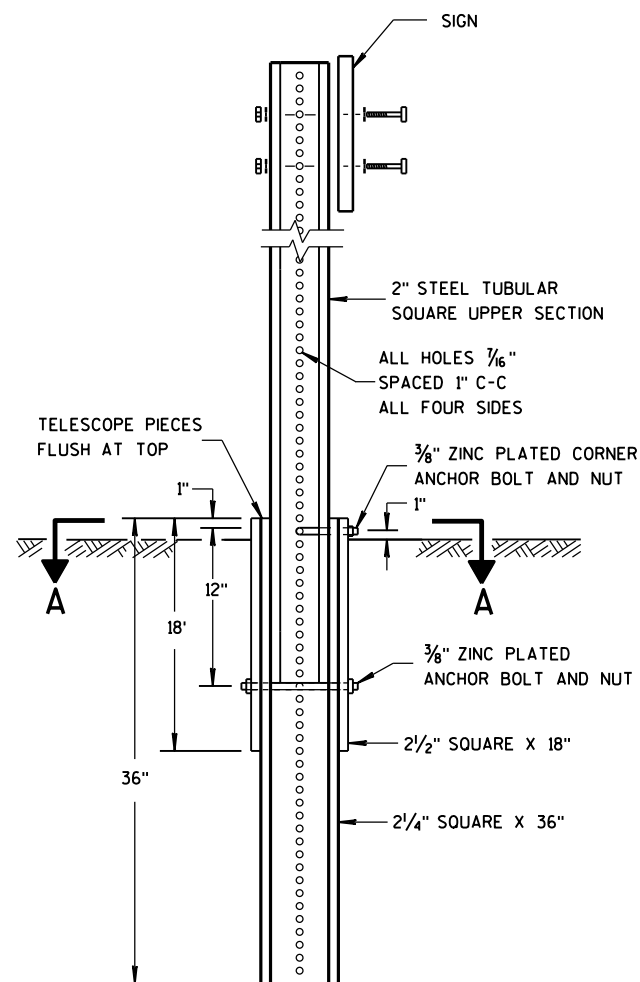
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017  
DATE

FHWA

/S/ Andrew Heidtke  
WORK ZONE ENGINEER



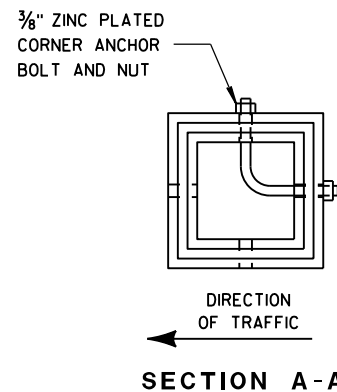
DETAIL OF TUBULAR  
STEEL SIGN POST

TUBULAR STEEL POSTS

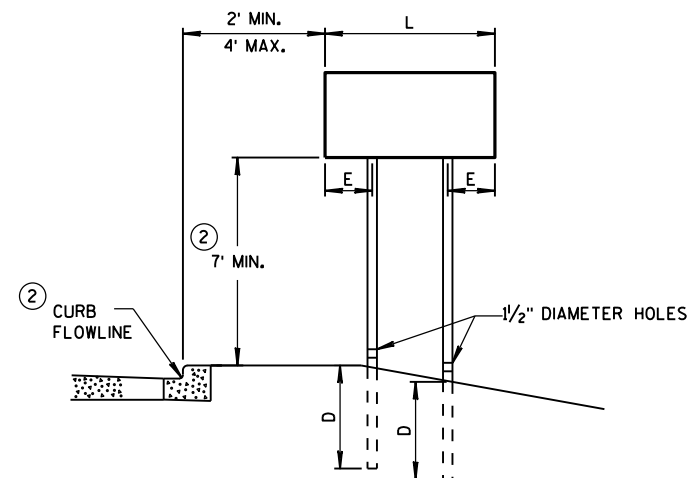
| AREA OF SIGN<br>INSTALLATION<br>(SQ. FT.)      | NUMBER OF<br>REQUIRED TUBULAR<br>STEEL POSTS |
|--|--|
| 9 OR LESS                                      | 1  |
| GREATER THAN 9<br>LESS THAN OR EQUAL<br>TO 18  | 2  |
| GREATER THAN 18<br>LESS THAN OR EQUAL<br>TO 27 | 3  |

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.



SECTION A-A

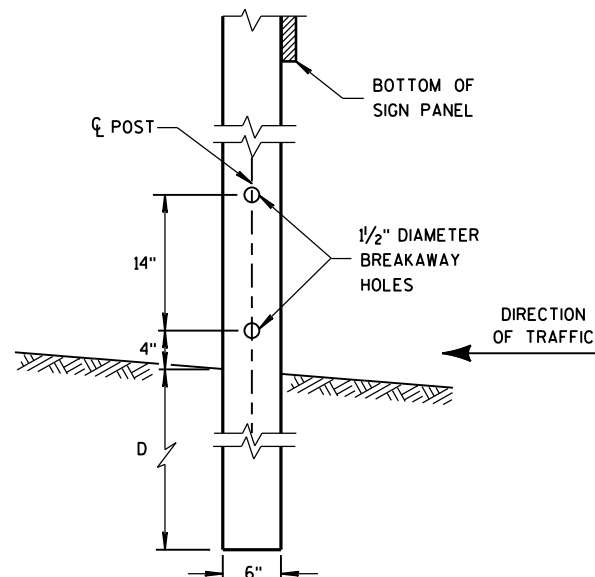


URBAN AREA

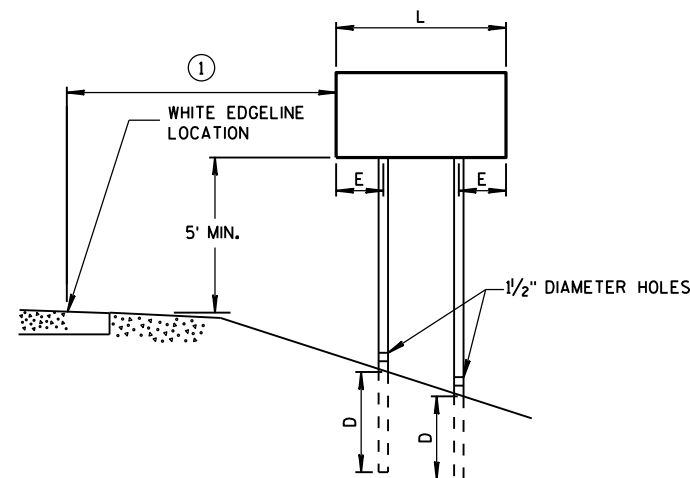
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST  
EMBEDMENT DEPTH

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



4 "x6 " WOOD POST  
MODIFICATION



RURAL AREA

4 " X 6 " WOOD POST

| 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                                   |

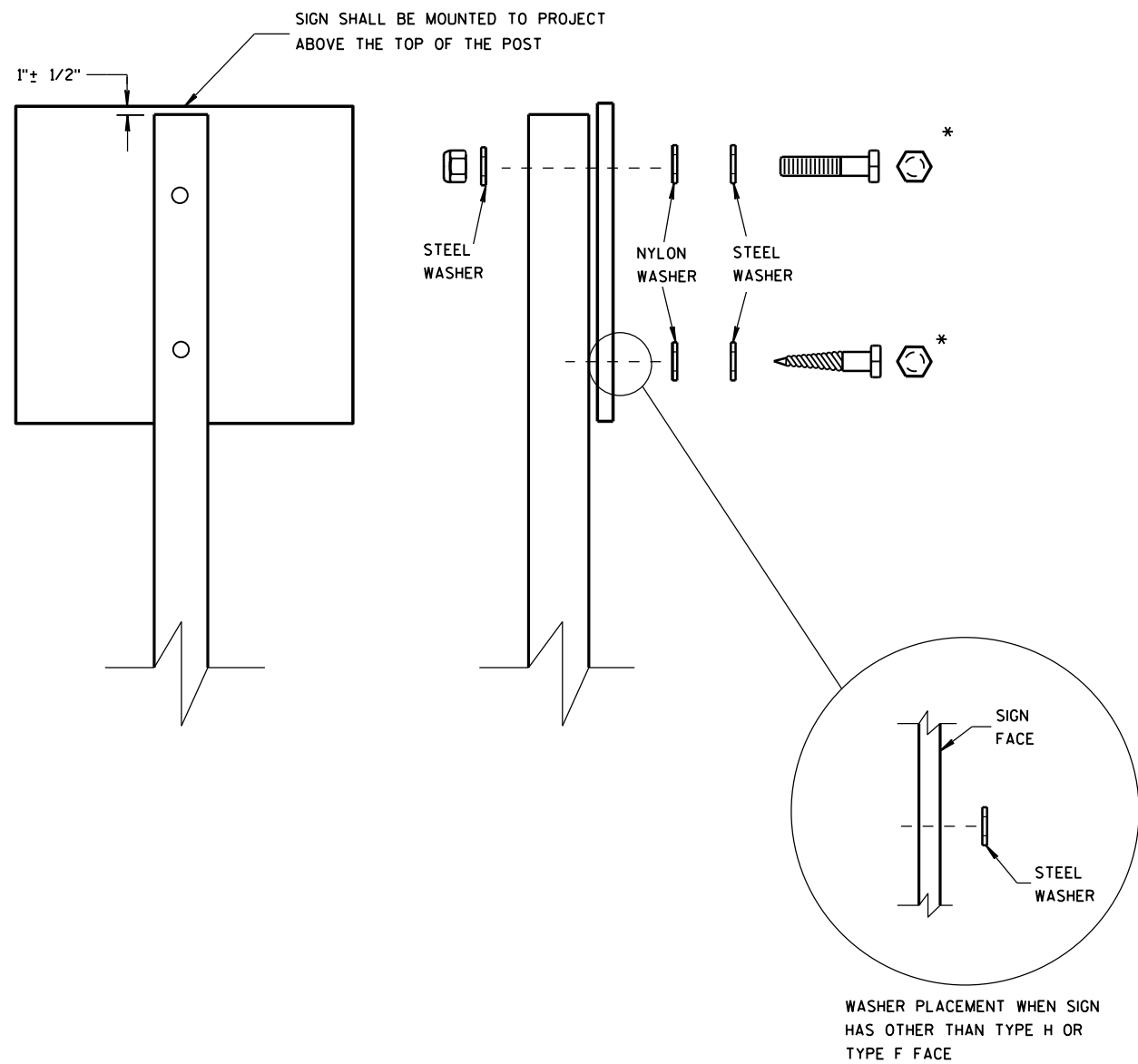
SEE NOTE ③

## 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.

TEMPORARY TRAFFIC CONTROL  
SIGN MOUNTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



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

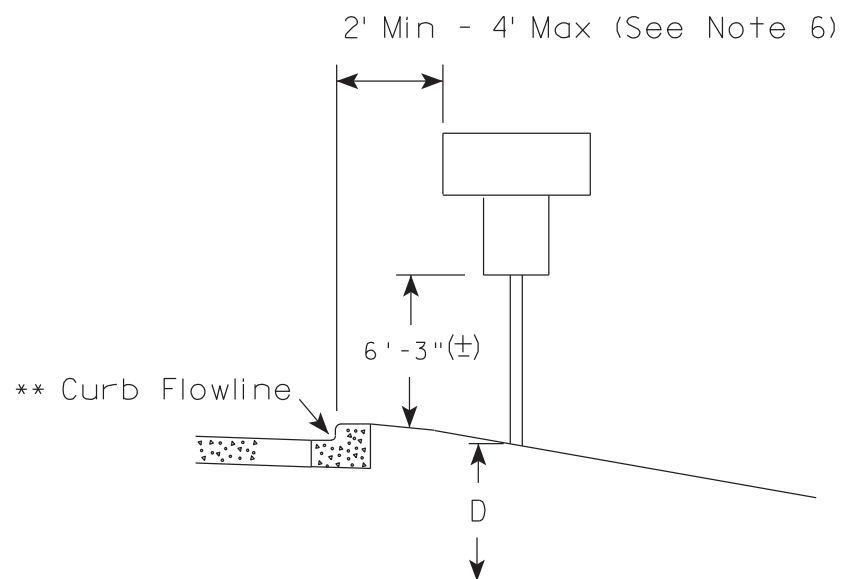
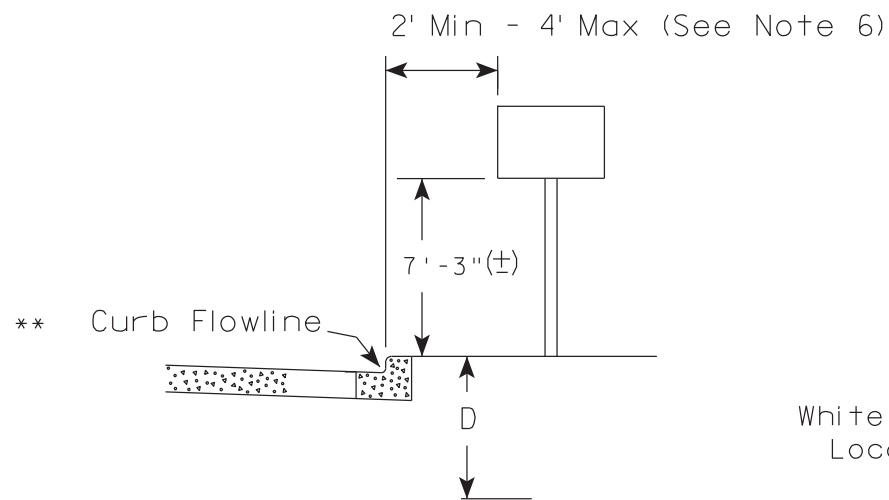
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS
  - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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

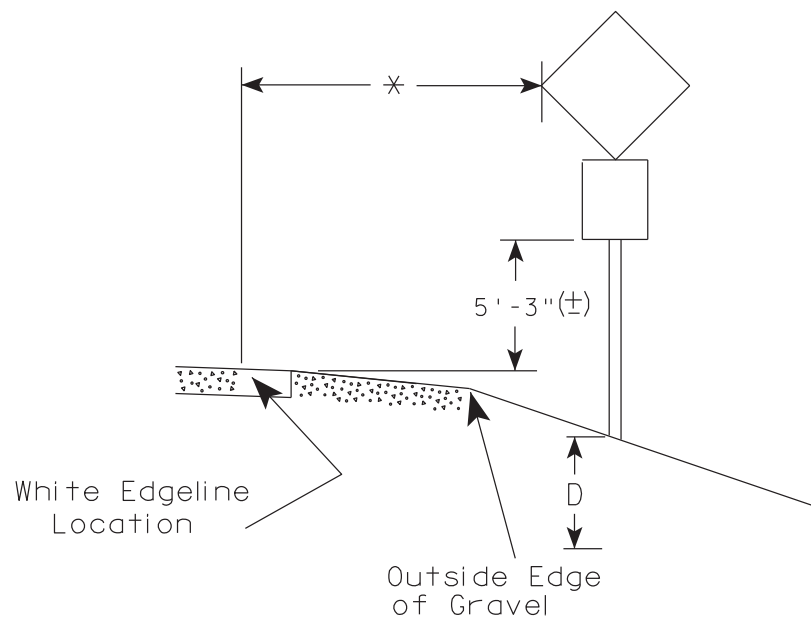
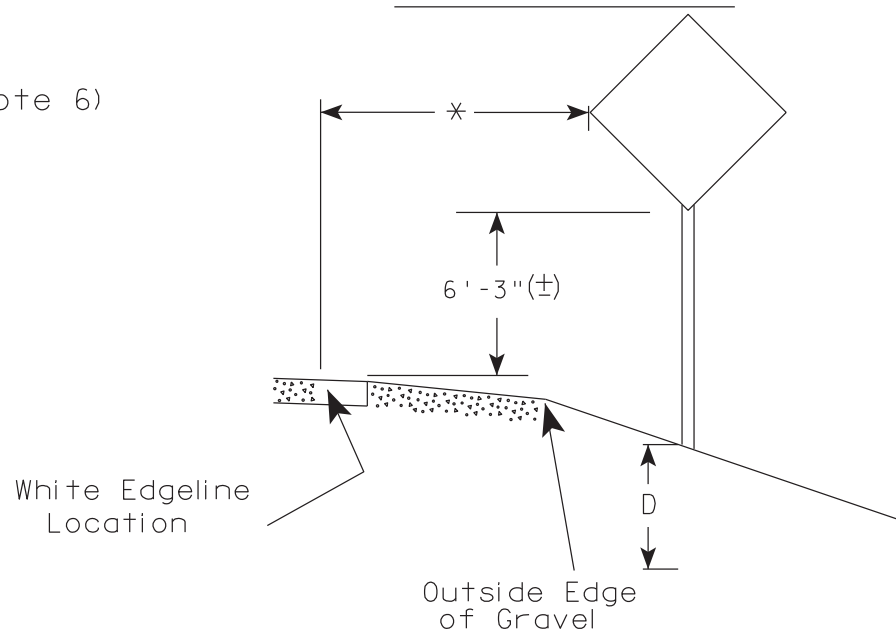
\* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

|  |  |
|--|--|
| 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 ENGINEER |
| FHWA   |  |

# URBAN AREA



# RURAL AREA (See Note 2)



## 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. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
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" (±).

## POST EMBEDMENT DEPTH

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

\*\* 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.

\* 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.

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/23/15

PLATE NO. A4-3.20

PROJECT NO: 8349-00-70

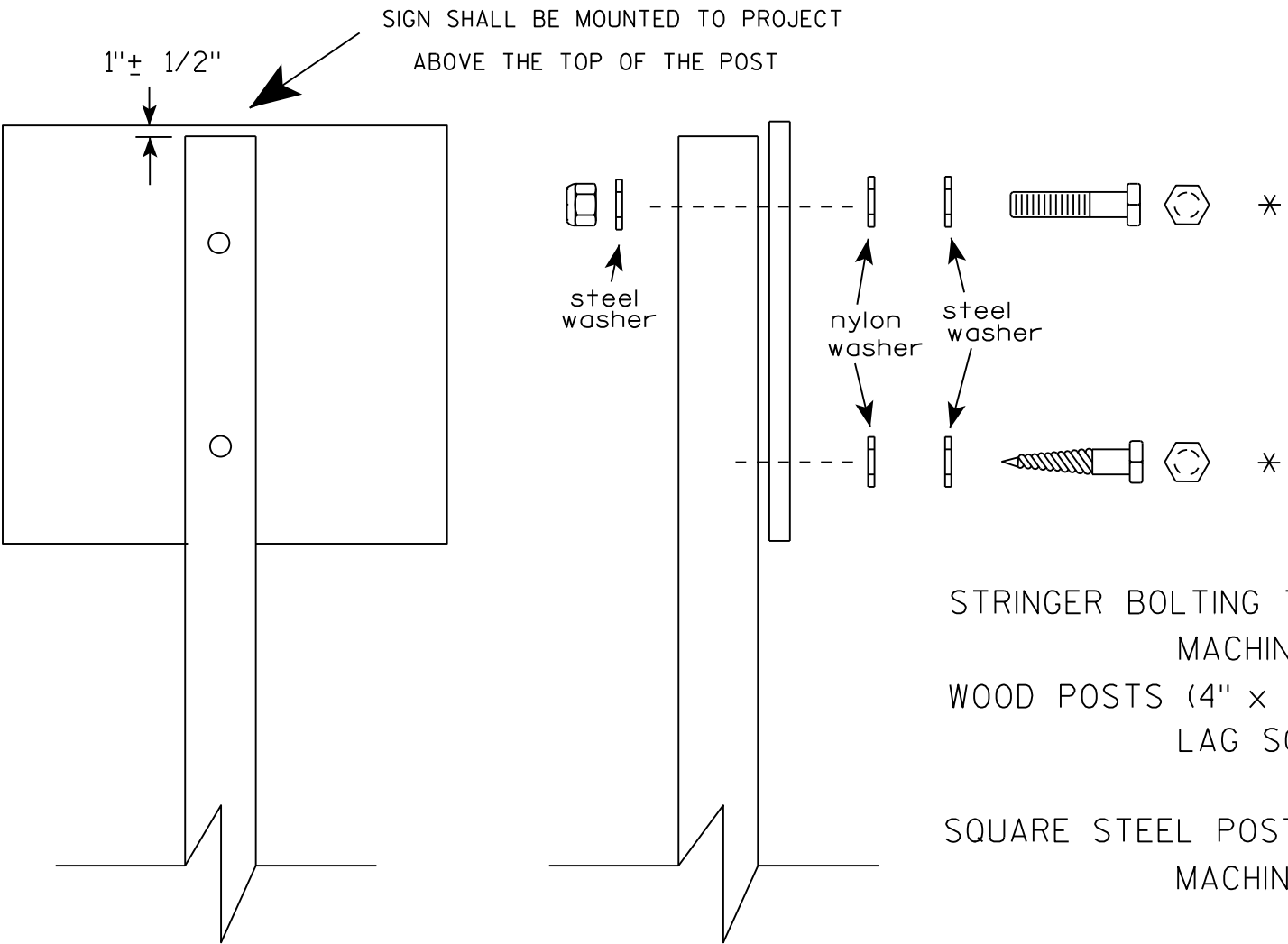
HWY: CTH F

COUNTY: BAYFIELD

SHEET NO:

E





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

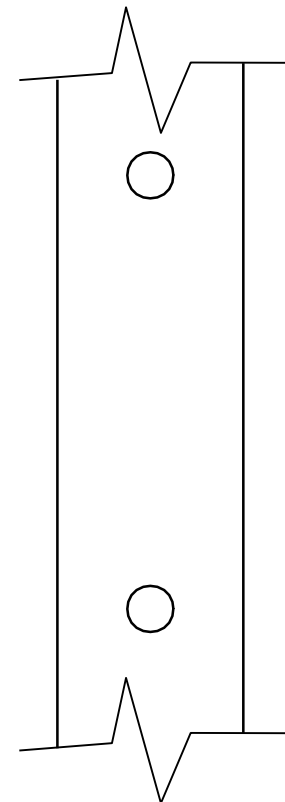
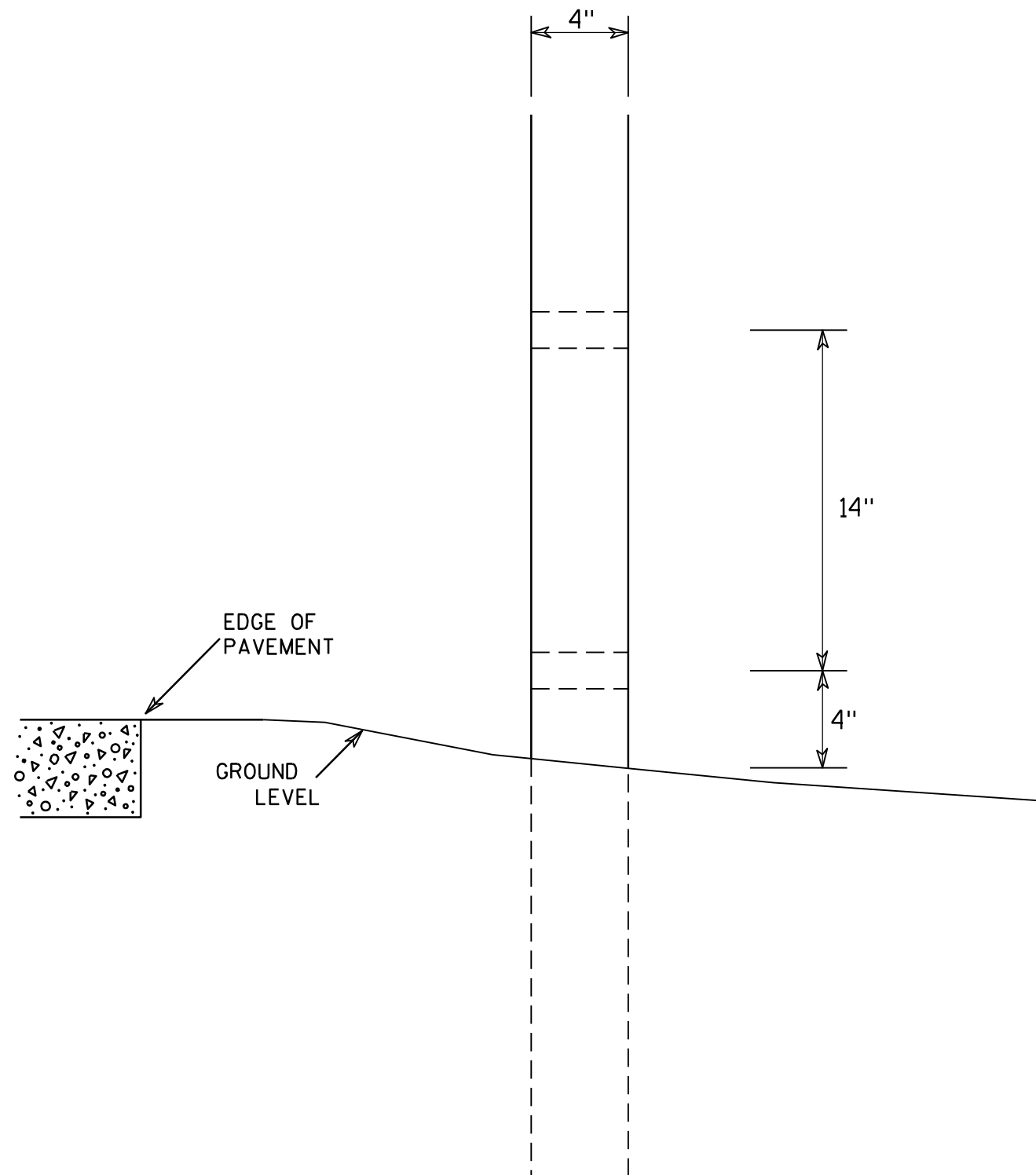
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS  
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8



SIDE VIEW

# GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" 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: 8349-00-70

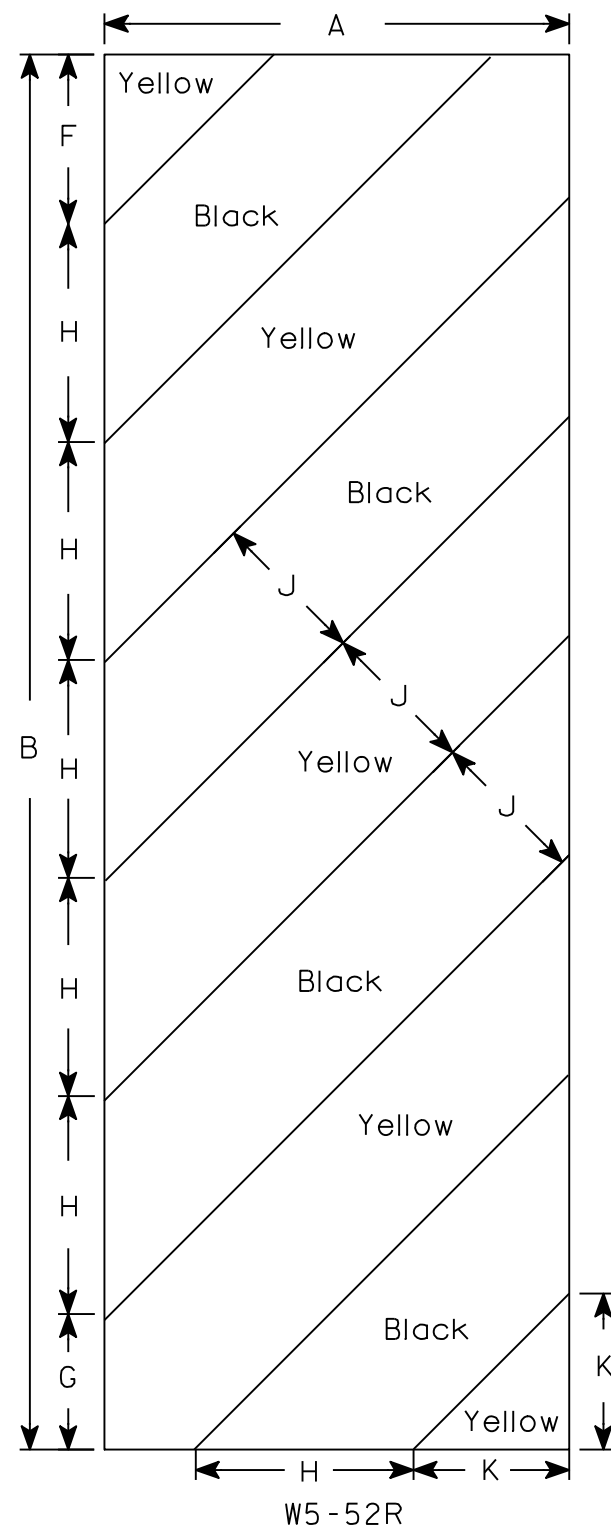
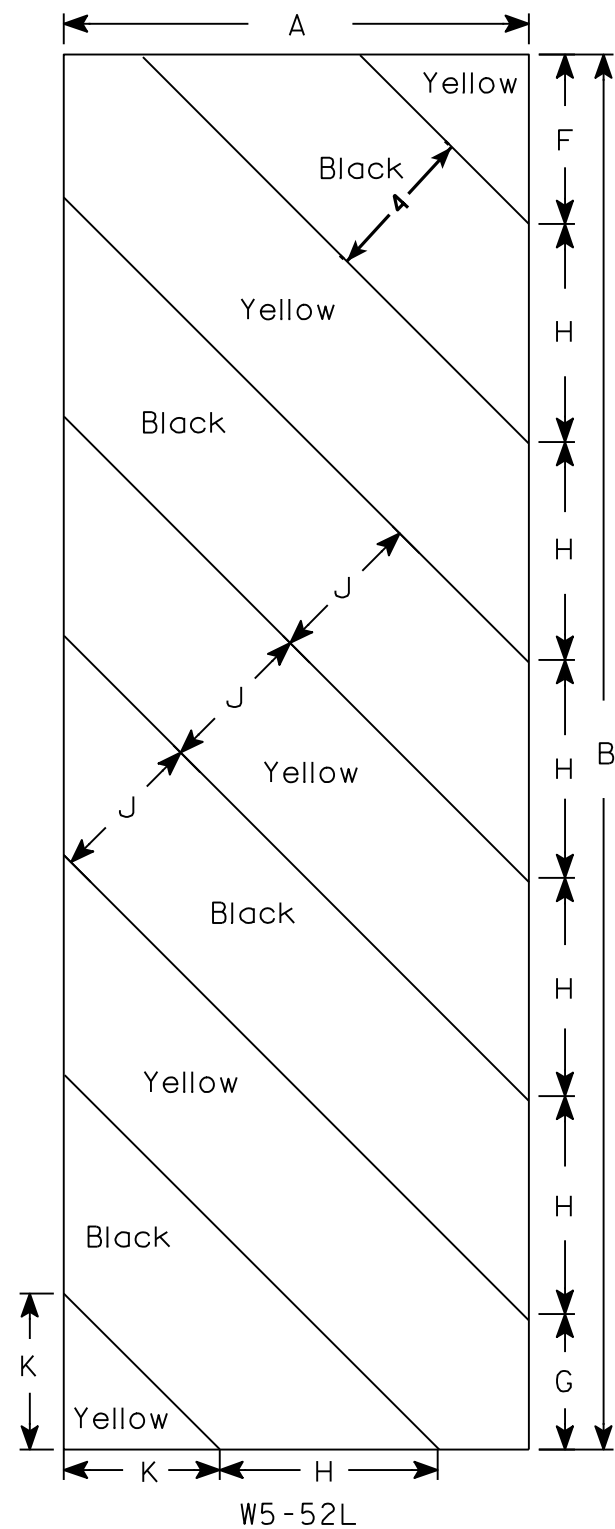
HWY: CTH F

COUNTY: BAYFIELD

SHEET NO:

E

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.
- 4. Alternate colors of stripes as shown.

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    |    |    |   |   |   |       |       |       |     |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 12 | 36 |   |   |   | 4 3⁄8 | 3 1⁄2 | 5 5⁄8 | 45° | 4 | 4     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2M   | 12 | 36 |   |   |   | 4 3⁄8 | 3 1⁄2 | 5 5⁄8 | 45° | 4 | 4     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 3    | 18 | 54 |   |   |   | 6     | 5 1⁄2 | 8 1⁄2 | 45° | 6 | 6 5⁄6 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6.75            |
| 4    |    |    |   |   |   |       |       |       |     |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 5    |    |    |   |   |   |       |       |       |     |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

## DESIGN DATA

## LIVE LOAD:

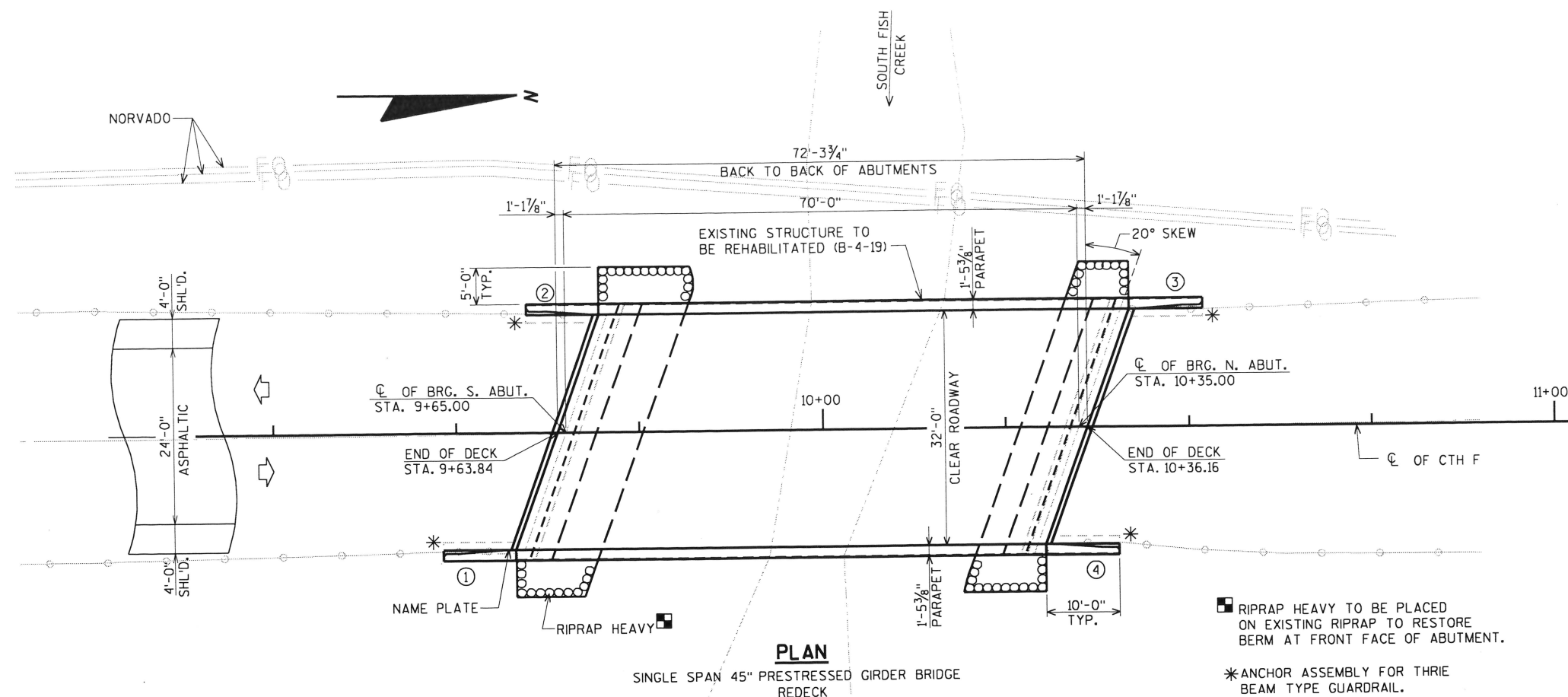
DESIGN LOADING: HS-20  
 INVENTORY RATING: HS-23  
 OPERATING RATING: HS-38  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 200 KIPS

## MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE \_\_\_\_\_  $f'_c =$  4,000 p.s.i.  
 { ALL OTHER \_\_\_\_\_  $f'_c =$  3,500 p.s.i.  
 HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) \_\_\_\_\_  $f_y =$  60,000 p.s.i.

## TRAFFIC DATA:

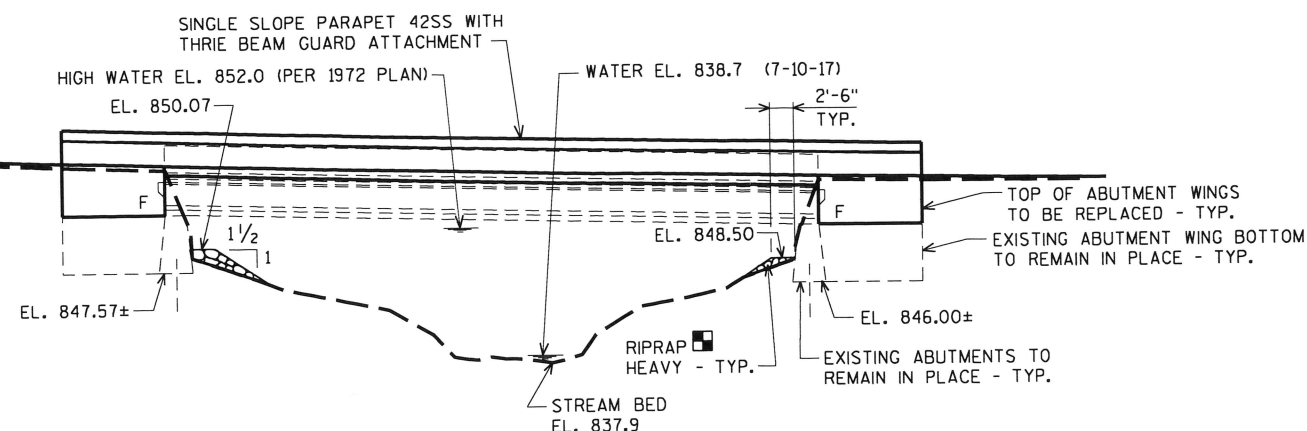
A.A.D.T. = 200 (2019)  
 A.A.D.T. = 270 (2039)  
 R.D.S. = 35 M.P.H.



■ RIPRAP HEAVY TO BE PLACED ON EXISTING RIPRAP TO RESTORE BERM AT FRONT FACE OF ABUTMENT.

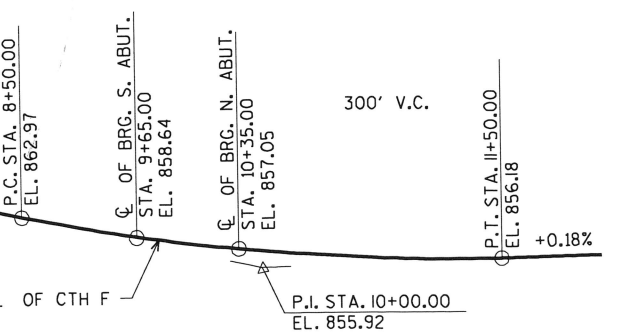
\* ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

○ DENOTES WING NUMBER.



**ELEVATION**  
 (NORMAL TO C OF CREEK)

FOR TYPICAL SECTION,  
 QUANTITIES, AND GENERAL NOTES  
 SEE SHEET 2



**PROFILE GRADE LINE**  
 (CTH F)

BENCH MARK:  
 CHIS. SQ. NW BRIDGE WING  
 STA. 10+51.7, 17.4' LT.  
 EL. 856.24

## LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES, AND NOTES
3. SOUTH ABUTMENT
4. NORTH ABUTMENT
5. STEEL DIAPHRAGM
6. SUPERSTRUCTURE
7. SUPERSTRUCTURE PLAN
8. SINGLE SLOPE PARAPET 32SS



BRIDGE OFFICE CONTACT:  
 WILLIAM DREHER  
 (608)-266-8489

CONSULTANT CONTACT:  
 DAN SYDOW  
 (715)-834-3161

| NO.  | DATE              | REVISION          | BY           |
|--|-------------------|-------------------|--------------|
|  |                   |                   |              |
| ORIGINAL PLANS PREPARED BY   |                   |                   |              |
| <b>AYRES ASSOCIATES</b><br>3433 Oakwood Hills Parkway<br>Eau Claire, WI 54701<br>www.AyresAssociates.com |                   |                   |              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION   |                   |                   |              |
| ACCEPTED   | William C. Dreher | 05/25/18          | DATE         |
| CHIEF STRUCTURES DESIGN ENGINEER   |                   |                   |              |
| <b>STRUCTURE B-4-19</b>  |                   |                   |              |
| CTH F OVER SOUTH FISH CREEK  |                   |                   |              |
| COUNTY   | BAYFIELD          | TOWN/CITY/VILLAGE | KEYSTONE     |
| DESIGN SPEC.   | REHABILITATION    | N/A               |              |
| DESIGNED BY  | JLB               | DESIGN CK'D.      | AEB          |
| DRAWN BY   | CLS               | PLANS CK'D.       | DNS          |
| <b>GENERAL PLAN</b>  |                   |                   | SHEET 1 OF 8 |

I.D.

DATE:

\$PRNAME\$  
U:\42-1097.00 - Bayfield Co, CTH F±Structures±421097 gp.dgn

8

STATE PROJECT NUMBER

8349-00-70

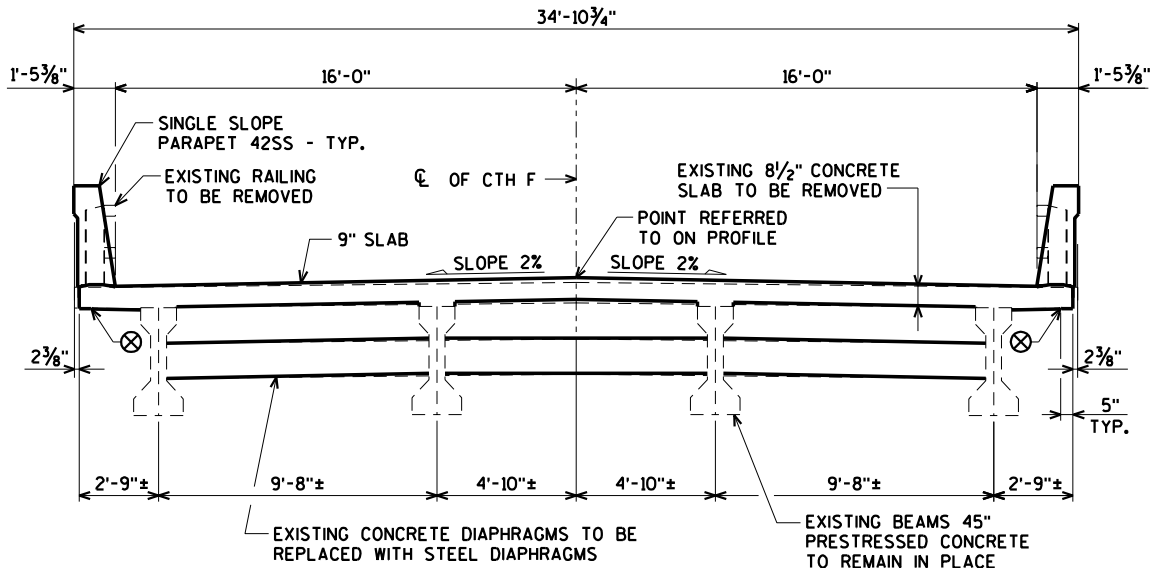
TOTAL ESTIMATED QUANTITIES

| BID ITEM NUMBER | BID ITEMS  | UNIT | S. ABUT. | N. ABUT. | SUPER. | TOTAL  |
|-----------------|--|------|----------|----------|--------|--------|
| 203.0600.S      | REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00 | LS   | -----    | -----    | -----  | 1      |
| 206.1000        | EXCAVATION FOR STRUCTURES BRIDGES B-4-19                               | LS   | -----    | -----    | -----  | 1      |
| 210.1500        | BACKFILL STRUCTURE TYPE A  | TON  | 30       | 30       | -----  | 60     |
| 502.0100        | CONCRETE MASONRY BRIDGES   | CY   | 7        | 7        | 98     | 112    |
| 502.3200        | PROTECTIVE SURFACE TREATMENT   | SY   | -----    | -----    | 270    | 270    |
| 502.3210        | PIGMENTED SURFACE SEALER   | SY   | -----    | -----    | 91     | 91     |
| 502.4204        | ADHESIVE ANCHORS NO. 4 BARS  | EACH | 20       | 20       | -----  | 40     |
| 502.4205        | ADHESIVE ANCHORS NO. 5 BARS  | EACH | -----    | -----    | 120    | 120    |
| 502.4206        | ADHESIVE ANCHORS NO. 6 BARS  | EACH | 20       | 20       | -----  | 40     |
| 505.0600        | BAR STEEL REINFORCEMENT HS COATED STRUCTURES                           | LB   | 1,280    | 1,310    | 18,190 | 20,780 |
| 506.4000        | STEEL DIAPHRAGMS B-4-19  | EACH | -----    | -----    | 3      | 3      |
| ** 509.1500     | CONCRETE SURFACE REPAIR  | SF   | -----    | -----    | -----  | 20     |
| 516.0500        | RUBBERIZED MEMBRANE WATERPROOFING                                      | SY   | 11       | 11       | -----  | 22     |
| 606.0300        | RIPRAP HEAVY   | CY   | 40       | 30       | -----  | 70     |
| 614.0150        | ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD                           | EACH | 2        | 2        | -----  | 4      |
|                 |  |      |          |          |        |        |
|                 |  |      |          |          |        |        |
|                 | NON-BID ITEMS  |      |          |          |        |        |
|                 | FILLER   |      |          |          |        |        |
|                 |  |      |          |          |        |        |

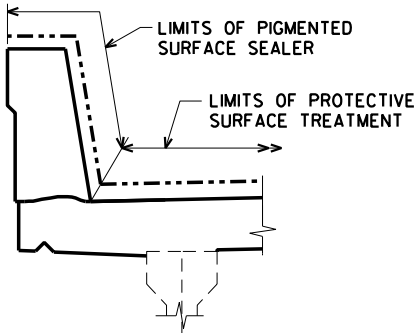
\*\* UNDISTRIBUTED AS DIRECTED BY THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.  
DIMENSIONS ARE BASED ON ORIGINAL STRUCTURE PLANS.  
BAR STEEL SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.  
ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SHOWN OR NOTED OTHERWISE.  
AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.  
VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.  
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1972.  
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.  
THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.  
JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.  
THE MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE DEPTH OF 4", WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.  
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.  
PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER TO BE APPLIED AS SHOWN IN THE DETAILS ON THIS SHEET.



CROSS SECTION THRU BRIDGE



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL

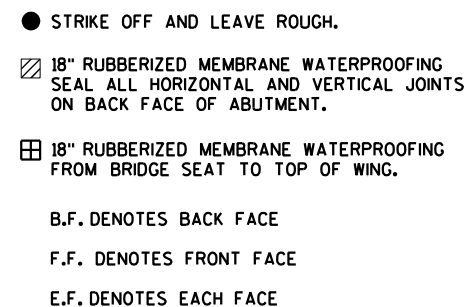
8

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
|  |      |          |                 |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-4-19                                   |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. JLB |
| TYPICAL SECTION, QUANTITIES, AND NOTES             |      |          | SHEET 2 OF 8    |

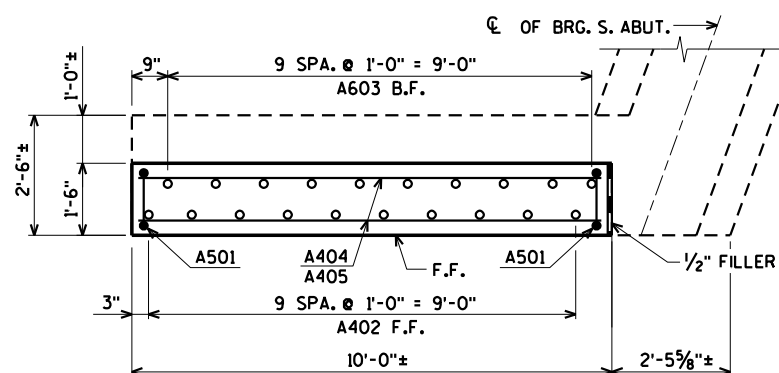
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

8349-00-70

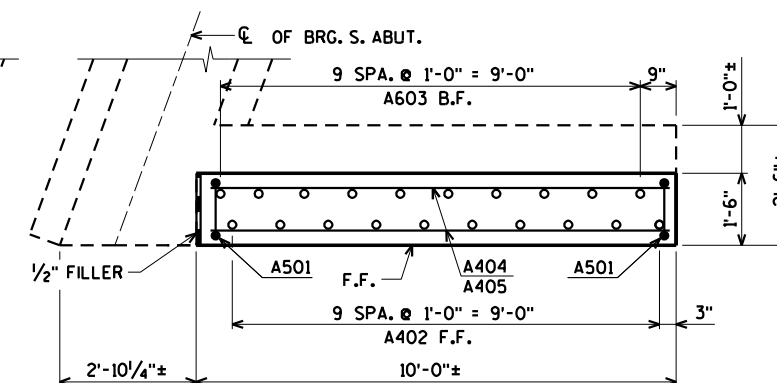
SINGLE SLOPE PARAPET 42SS  
NOT SHOWN. FOR DETAILS  
SEE SHEET 8

[illegible]

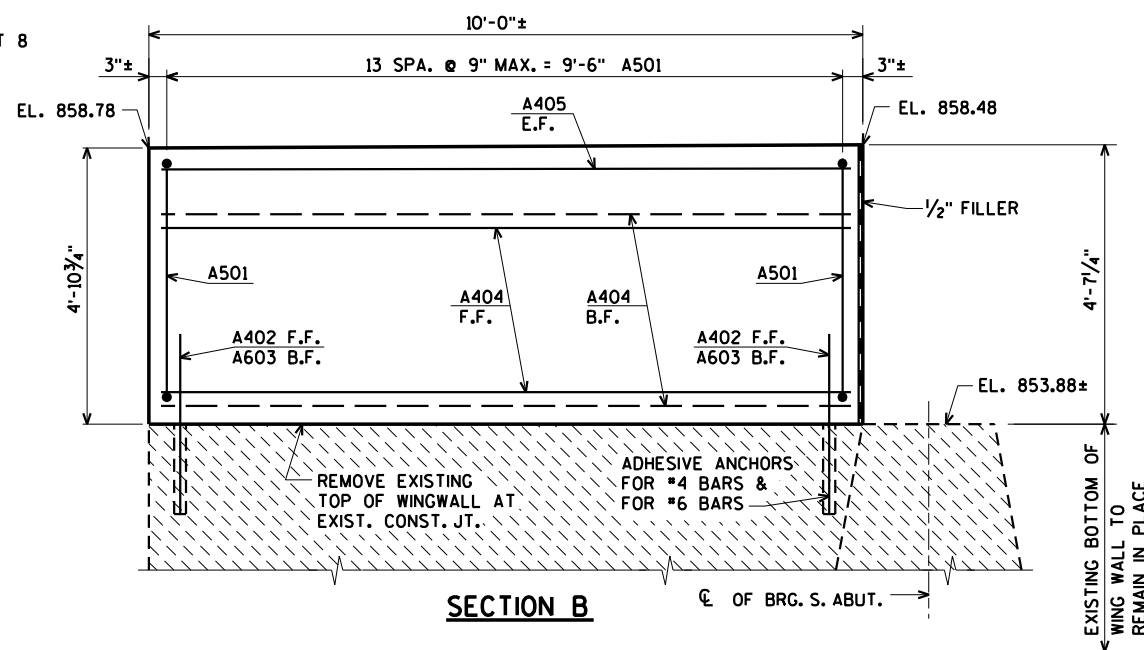
**ELEVATION**  
(LOOKING SOUTH)



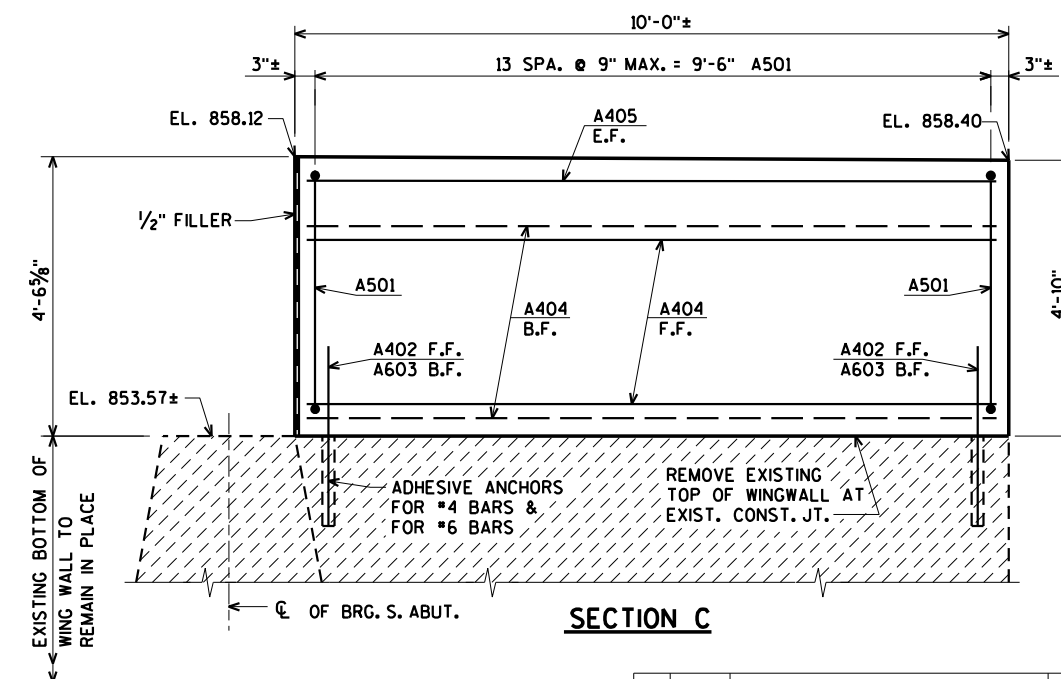
PLAN - WING I



**PLAN - WING 2**



## SECTION B



## SECTION C

|  |      |              |                 |
|--|------|--------------|-----------------|
|  |      |              |                 |
| NO.  | DATE | REVISION     | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |              |                 |
| STRUCTURE B-4-19                                   |      |              |                 |
| DRAWN BY   |      | CLS          | PLANS CK'D. JLE |
| SOUTH ABUTMENT                                     |      | SHEET 3 OF 4 |                 |

8

18

8349-00-70

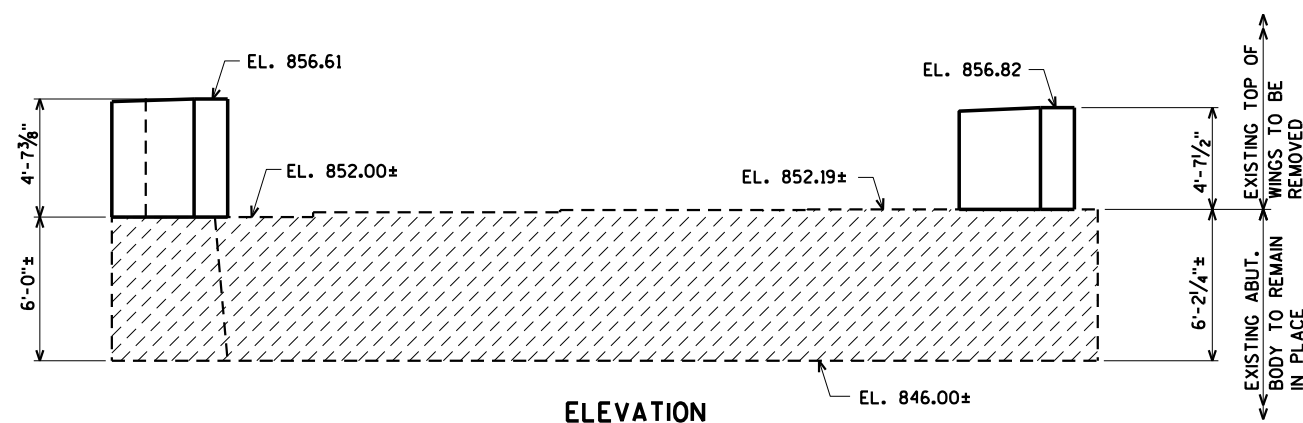
## BILL OF BARS

| BAR. NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED | BAR SERIES | 1,310" COATED                 |
|----------|------------|------------|--------|----------|---------|------------|-------------------------------|
|          |            |            |        |          |         |            | LOCATION                      |
| B501     | X          | 28         | 11'-4" | X        |         |            | WINGS 3 & 4 VERT.             |
| B402     | X          | 20         | 2'-1"  |          |         |            | WINGS 3 & 4 VERT. DOWELS F.F. |
| B603     | X          | 20         | 2'-6"  |          |         |            | WINGS 3 & 4 VERT. DOWELS B.F. |
| B404     | X          | 20         | 9'-8"  |          |         |            | WINGS 3 & 4 HORIZ. E.F.       |
| B405     | X          | 4          | 9'-8"  |          |         |            | WINGS 3 & 4 HORIZ. TOP E.F.   |
| B406     | X          | 20         | 2'-0"  |          |         |            | WINGS 3 & 4 HORIZ. DOWELS     |
|          |            |            |        |          |         |            |                               |
|          |            |            |        |          |         |            |                               |
|          |            |            |        |          |         |            |                               |

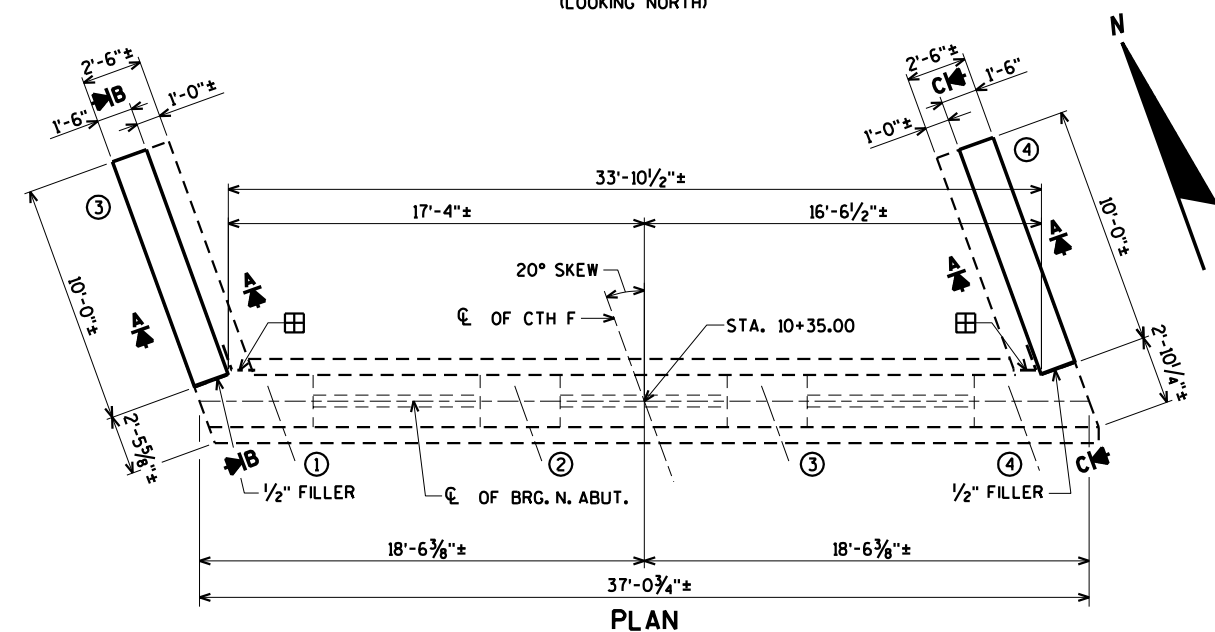
Diagram of a 5 1/2 inch square tile. The tile is labeled 5 1/2. The dimensions are 4'-2" and 1'-2".

E.F. DENOTES EACH FACE

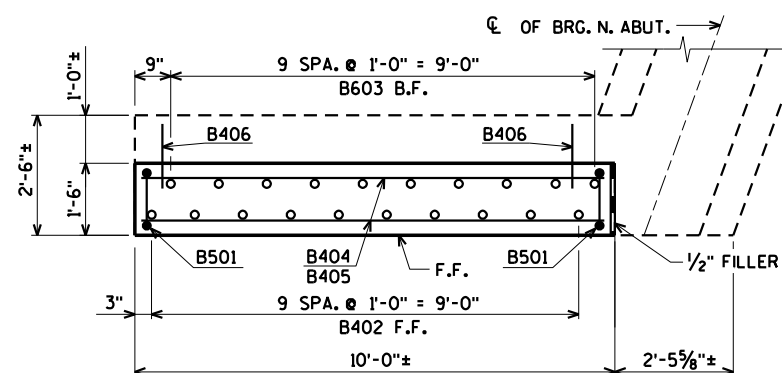
NOTE:  
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF  
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.  
(1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)



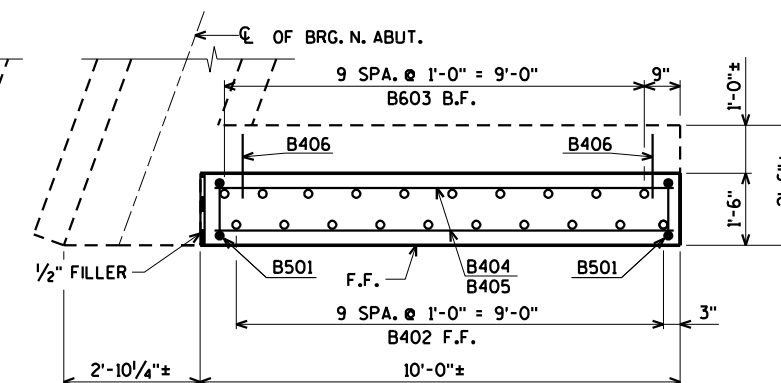
**ELEVATION**  
(LOOKING NORTH)



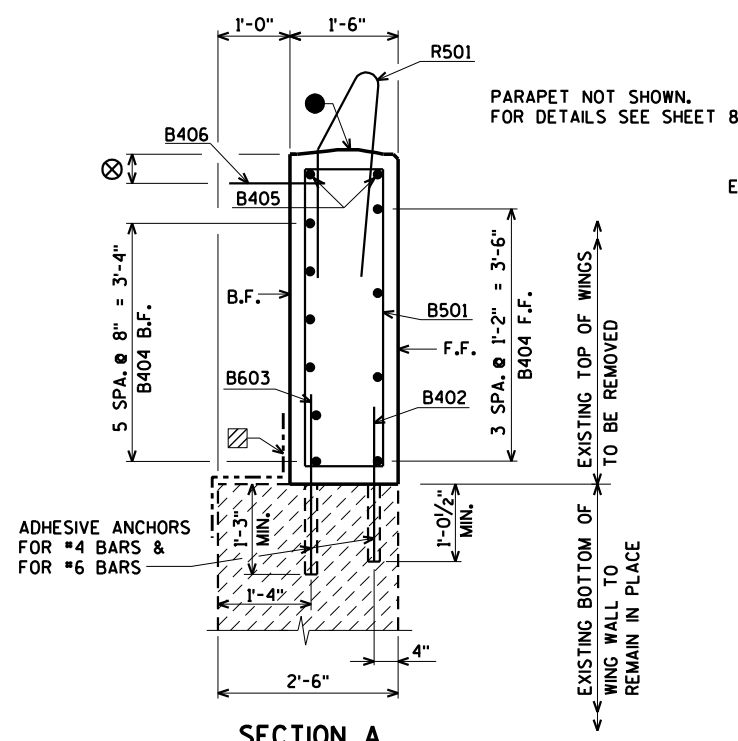
## PLAN



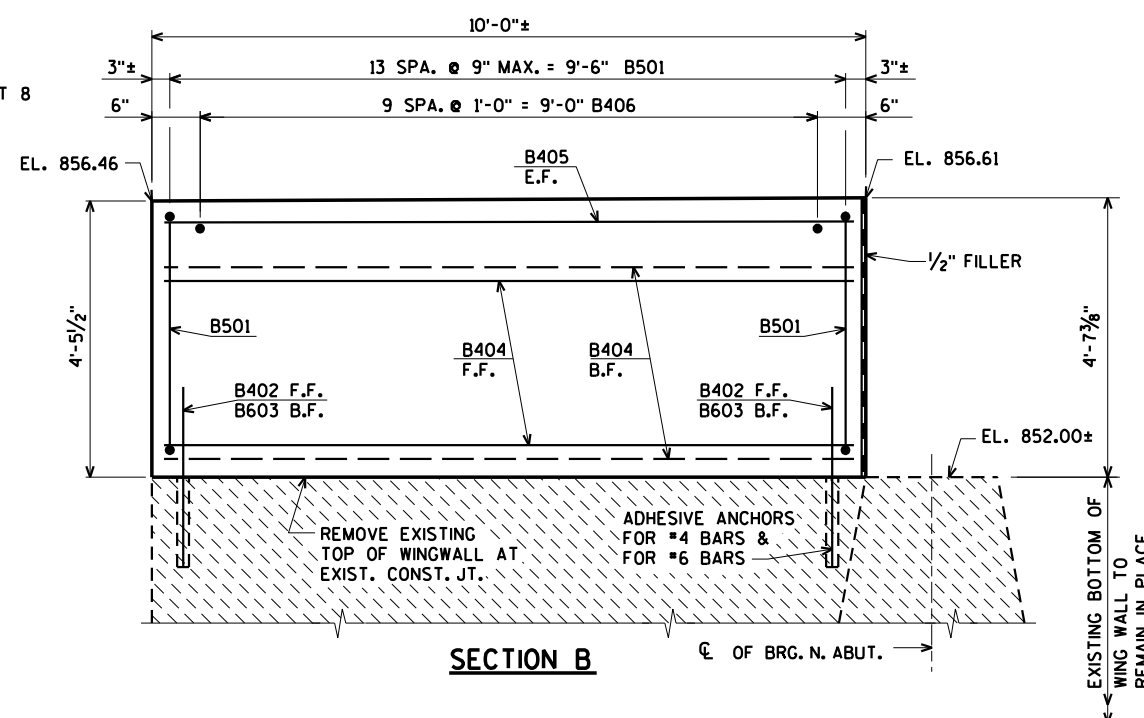
### PLAN - WING 3



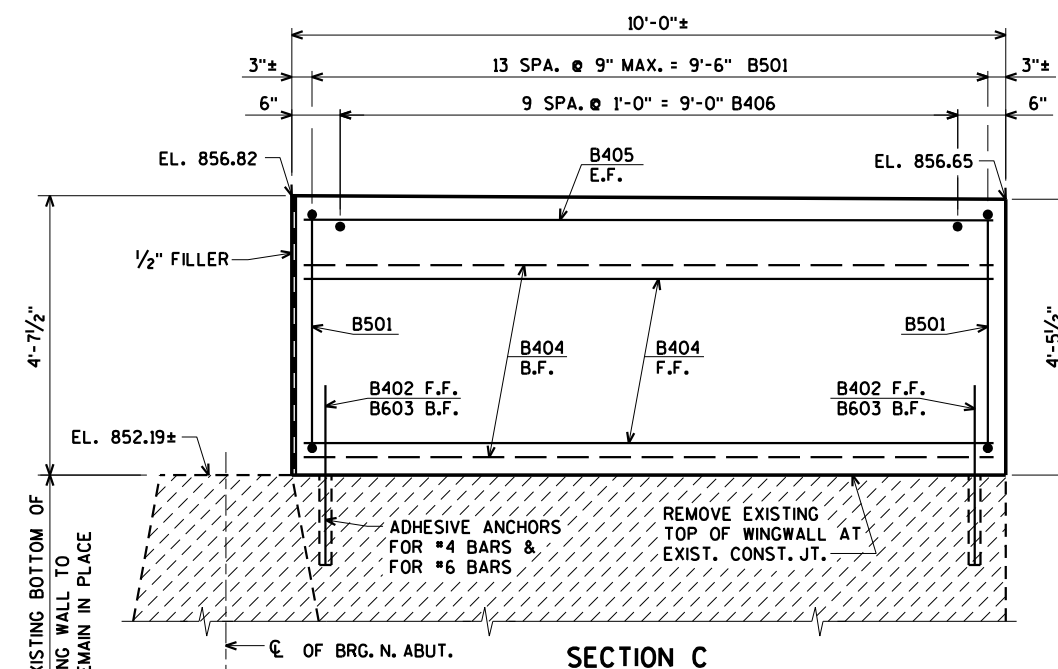
PLAN - WING 4



## SECTION A



## SECTION B



## SECTION C

|  |      |            |                 |
|--|------|------------|-----------------|
|  |      |            |                 |
| NO.  | DATE | REVISION   | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |            |                 |
| STRUCTURE B-4-19                                   |      |            |                 |
| DRAWN BY   |      | CLS        | PLANS CK'D. JLE |
| NORTH<br>ABUTMENT                                  |      | SHEET 4 OF |                 |

ORIGINAL PLANS PREPARED BY

**AYRES**  
**ASSOCIATES**

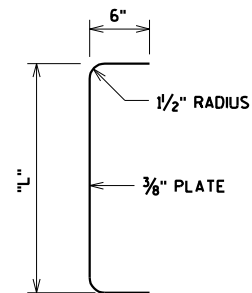
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
[www.AyresAssociates.com](http://www.AyresAssociates.com)

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8

TABLE

| GIRDER HEIGHT | DIM. "A"  | DIM. "B"  | DIM. "L"  | * DIM. "X" |
|---------------|-----------|-----------|-----------|------------|
| 28"           | 1'-0 7/8" | 5 7/8"    | 9 1/2"    | 2 1/4"     |
| 36"           | 1'-2 7/8" | 9 7/8"    | 1'-1 1/2" | 3 1/4"     |
| 45"           | 1'-5 3/8" | 1'-1 7/8" | 1'-5 1/2" | 2 1/4"     |
| 45W"          | 1'-3 7/8" | 8 7/8"    | 1'-0 1/2" | 2 3/4"     |
| 54"           | 1'-7 7/8" | 1'-5 7/8" | 1'-9 1/2" | 4 1/4"     |
| 54W"          | 1'-9 7/8" | 1'-5 7/8" | 1'-9 1/2" | 4 1/4"     |



SECTION THRU ALTERNATE DIAPHRAGM

\*DIM "X" = 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

CORE 1/4" DIA. HOLES IN WEB (HOLES SHALL MISS EXIST. BAR STEEL.)

3 1/2" x 3 1/2" x 5/16" PLATE WASHER

3 1/2" x 3 1/2" x 1/2" PLATE WASHER

7/8" DIA. HIGH STRENGTH BOLTS WITH HEX NUT & TWO WASHERS

( FOR EXTERIOR GIRS. & STAGGERED DIAPHRAGMS )

DETAIL B

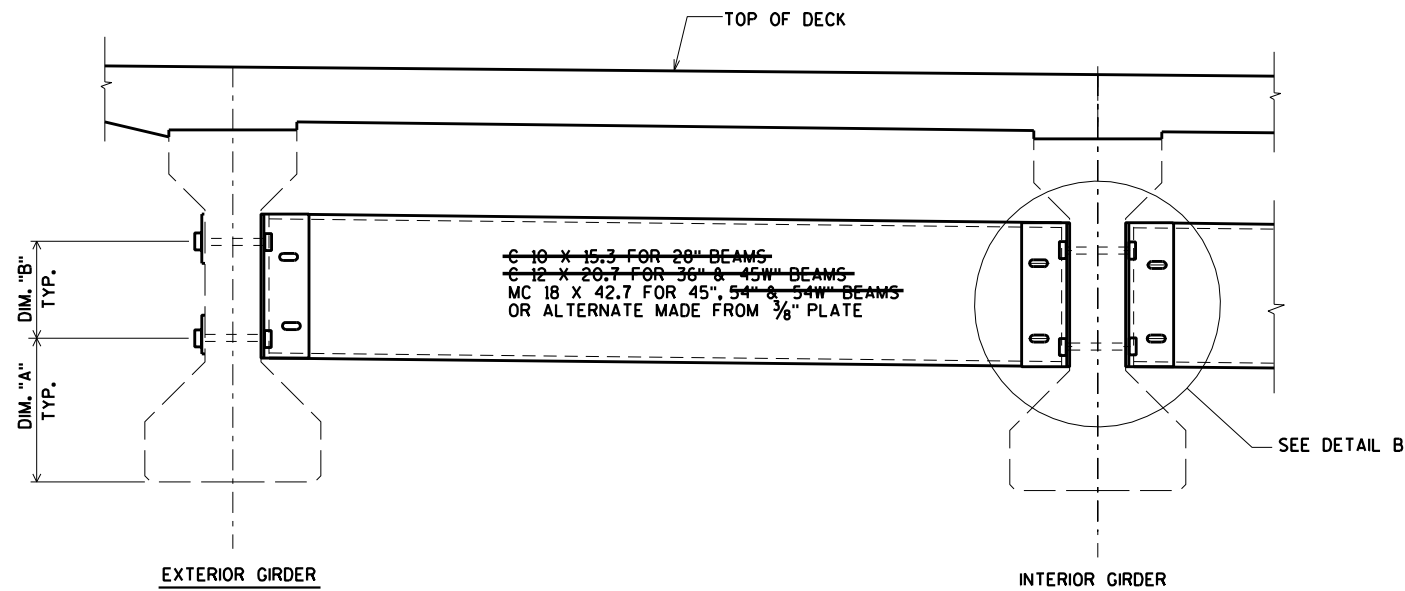
CORE 1/4" DIA. HOLES IN WEB (HOLES SHALL MISS EXIST. BAR STEEL.)

1 5/8" x 2 3/8" SLOTTED HOLES IN ANGLE

7/8" DIA. HIGH STRENGTH BOLTS WITH HEX NUT, TWO WASHERS AND A 3 1/2" SQUARE x 5/16" PLATE WASHER ON SLOTTED SIDE.

7/8" DIA. HIGH STRENGTH BOLTS WITH HEX NUT, TWO WASHERS & 3 1/2" x 3 1/2" x 5/16" PLATE WASHERS.

( FOR CONTINUOUS LINE OF DIAPHRAGMS )



PART TRANSVERSE SECTION AT DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-4-19", EACH.

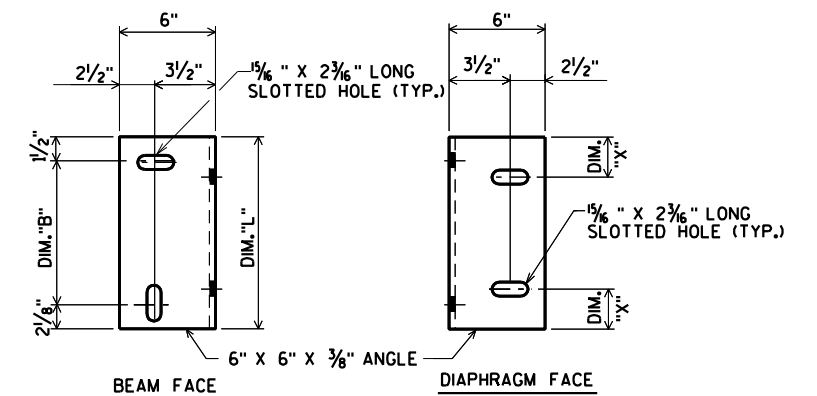
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

CORING HOLES IN EXISTING GIRDERS SHALL BE CONSIDERED INCIDENTAL TO "STEEL DIAPHRAGMS B-4-19".



DIAPHRAGM SUPPORT

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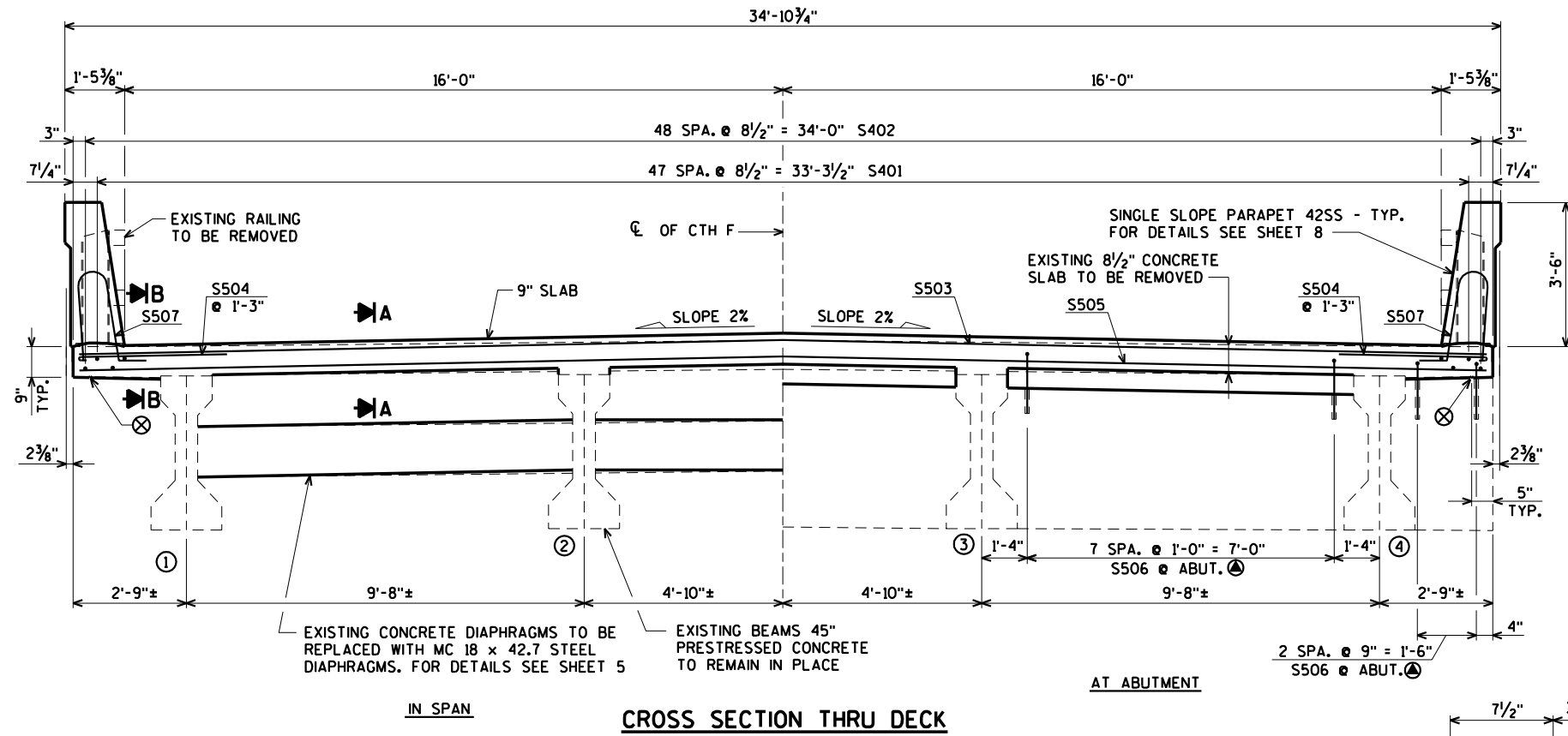
STATE PROJECT NUMBER

8349-00-70

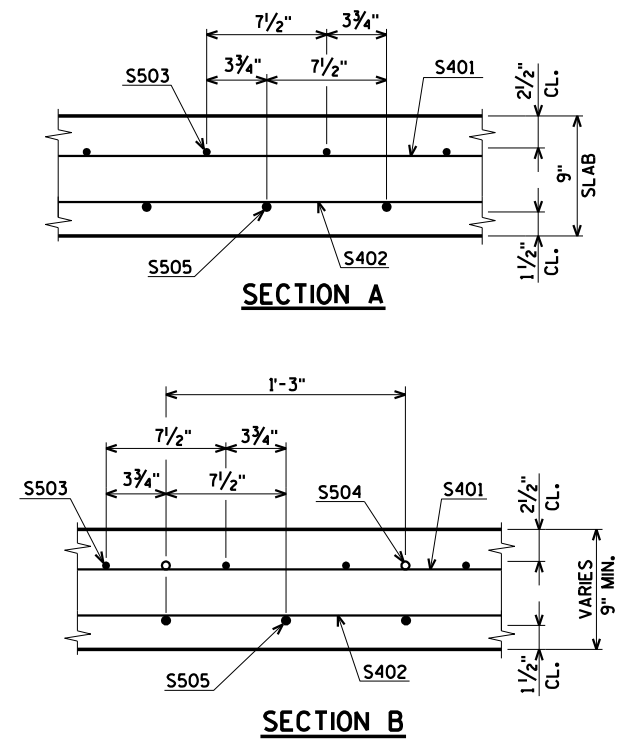
### BILL OF BARS

| BAR NO. | COATED BAR | NO. REQ'D. | LENGTH  | BENT BAR | BUNDLED BAR SERIES | 18,190* COATED                 |
|---------|------------|------------|---------|----------|--------------------|--------------------------------|
|         |            |            |         |          |                    | LOCATION                       |
| S401    | X          | 96         | 37'-2"  |          |                    | SLAB LONG. TOP                 |
| S402    | X          | 98         | 36'-10" |          |                    | SLAB LONG. BOT.                |
| S503    | X          | 114        | 36'-4"  |          |                    | SLAB TRANS. TOP                |
| S504    | X          | 116        | 4'-8"   | X        |                    | SLAB TRANS. TOP AT SLAB EDGE   |
| S505    | X          | 115        | 36'-4"  |          |                    | SLAB TRANS. BOT.               |
| S506    | X          | 120        | 2'-9"   | X        |                    | DOWEL BAR AT ABUT.             |
| S507    | X          | 216        | 4'-5"   | X        |                    | PARAPET VERT.                  |
| S508    | X          | 216        | 6'-8"   | X        |                    | PARAPET VERT.                  |
| S509    | X          | 32         | 36'-11" |          |                    | PARAPET HORIZ.                 |
| S510    | X          | 2          | 35'-1"  |          |                    | SLAB TRANS. TOP AT END OF DECK |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

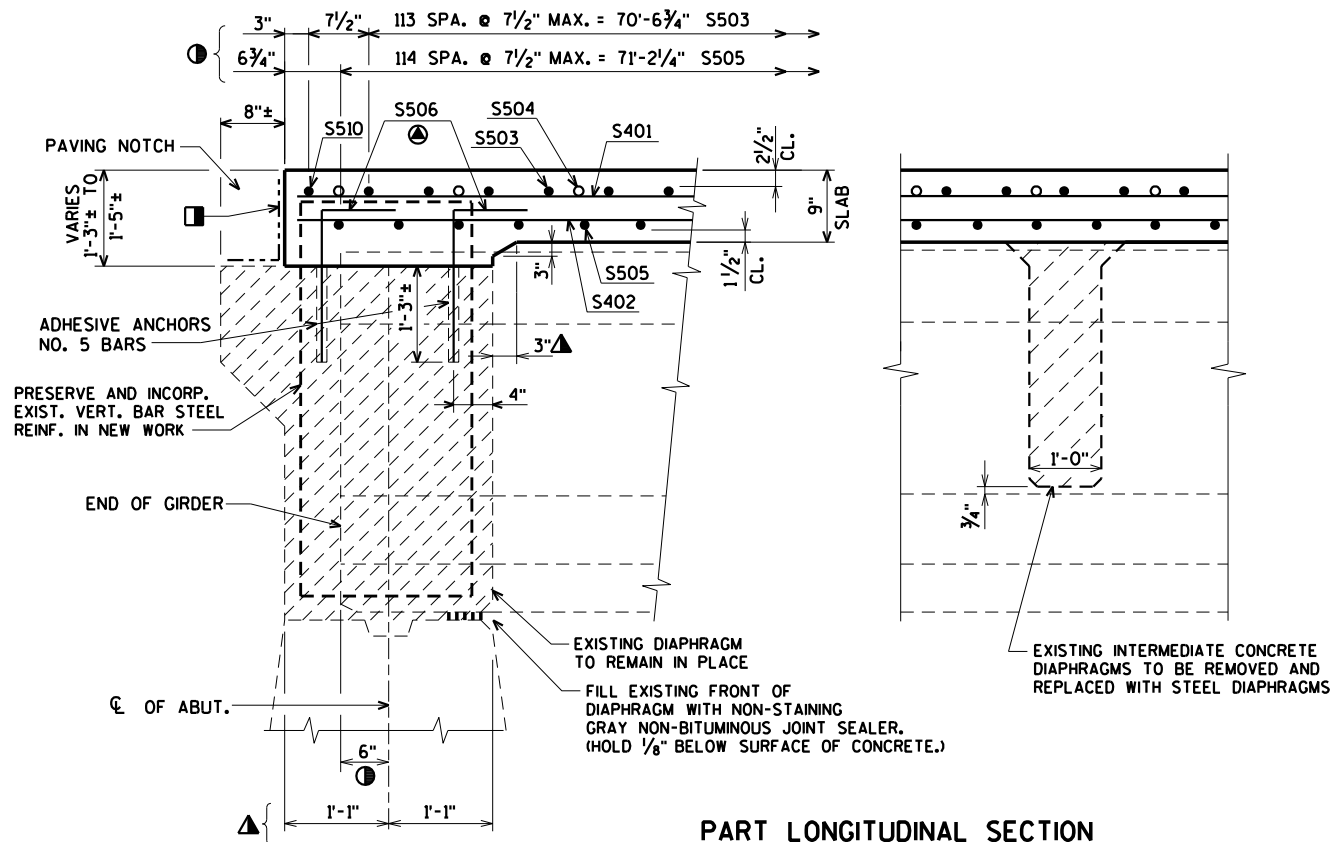
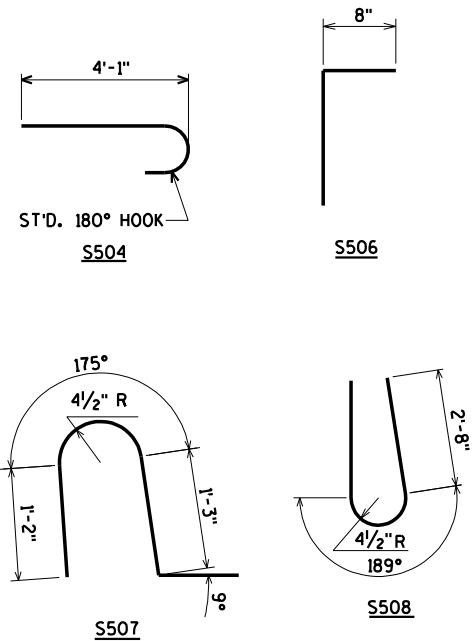


### CROSS SECTION THRU DECK



### SECTION A

### SECTION B



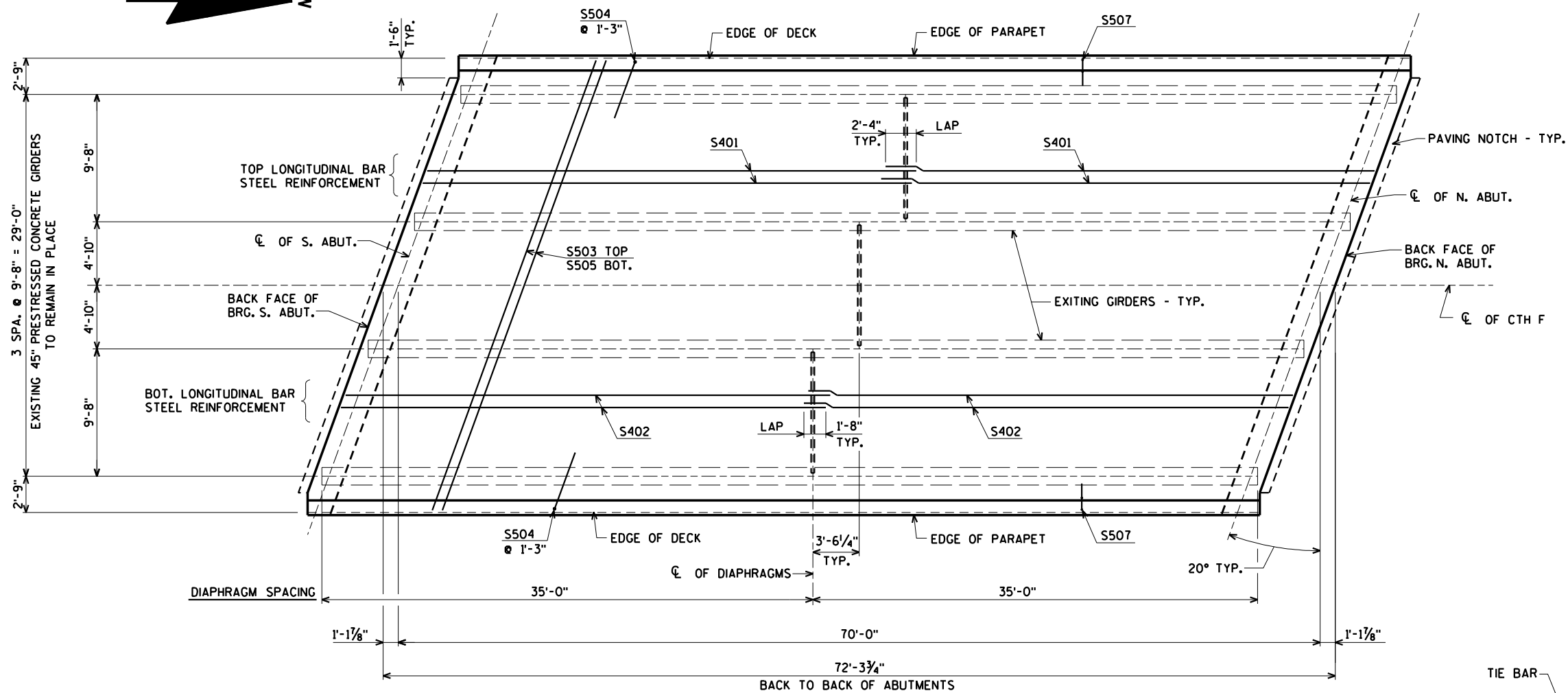
### PART LONGITUDINAL SECTION

- ① DIMENSIONS MEASURED ALONG  $\phi$  OF GIRDER.
- ▲ DIMENSIONS MEASURED NORMAL TO  $\phi$  OF SUBSTRUCTURE UNIT.

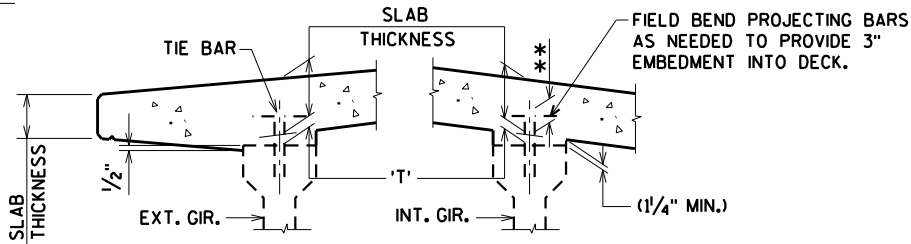
NOTE:  
DAMAGE TO THE EXISTING GIRDERS CAUSED  
DURING DECK REMOVAL OPERATIONS WILL  
BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-4-19                                   |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. JLB |
| SUPERSTRUCTURE                                     |      |          | SHEET 6 OF 8    |



PLAN



SLAB HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR,  
\*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT  $\mathcal{C}$  OF SUBSTRUCTURE UNITS & AT  $\frac{1}{10}$  POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:  
- TOP OF DECK ELEV. AT FINAL GRADE  
- TOP OF GIRDER ELEVATION  
+ DEAD LOAD DEFLECTION  
- SLAB THICKNESS  
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

TOP OF DECK ELEVATIONS

|                    | $\mathcal{C}$ OF BRG. S. ABUT. | 0.1 PT. | 0.2 PT. | 0.3 PT. | 0.4 PT. | 0.5 PT. | 0.6 PT. | 0.7 PT. | 0.8 PT. | 0.9 PT. | $\mathcal{C}$ OF BRG. N. ABUT. |
|--------------------|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------------------|
| W. EDGE OF DECK    | 858.12                         | 857.93  | 857.76  | 857.58  | 857.42  | 857.27  | 857.12  | 856.98  | 856.85  | 856.73  | 856.61                         |
| GIRDER 1           | 858.20                         | 858.02  | 857.84  | 857.66  | 857.50  | 857.34  | 857.19  | 857.05  | 856.92  | 856.80  | 856.68                         |
| GIRDER 2           | 858.49                         | 858.30  | 858.12  | 857.94  | 857.77  | 857.61  | 857.46  | 857.32  | 857.18  | 857.05  | 856.93                         |
| $\mathcal{C}$ ROAD | 858.64                         | 858.45  | 858.26  | 858.08  | 857.91  | 857.75  | 857.60  | 857.45  | 857.31  | 857.18  | 857.06                         |
| GIRDER 3           | 858.59                         | 858.40  | 858.21  | 858.03  | 857.86  | 857.69  | 857.54  | 857.39  | 857.25  | 857.12  | 856.99                         |
| GIRDER 4           | 858.50                         | 858.30  | 858.11  | 857.93  | 857.75  | 857.58  | 857.42  | 857.27  | 857.12  | 856.99  | 856.86                         |
| E. EDGE OF DECK    | 858.48                         | 858.28  | 858.08  | 857.90  | 857.72  | 857.55  | 857.39  | 857.24  | 857.09  | 856.95  | 856.82                         |

DEAD LOAD DEFLECTIONS

| UNITS ARE INCHES | 0.1 PT. | 0.2 PT. | 0.3 PT. | 0.4 PT. | 0.5 PT. | 0.6 PT. | 0.7 PT. | 0.8 PT. | 0.9 PT. |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| SPAN 1           | 0.3     | 0.6     | 0.9     | 1.0     | 1.1     | 1.0     | 0.9     | 0.6     | 0.3     |

|  |      |          |                 |
|--|------|----------|-----------------|
| NO.  | DATE | REVISION | BY              |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-4-19                                   |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. JLB |
| SUPERSTRUCTURE PLAN                                |      |          | SHEET 7 OF 8    |

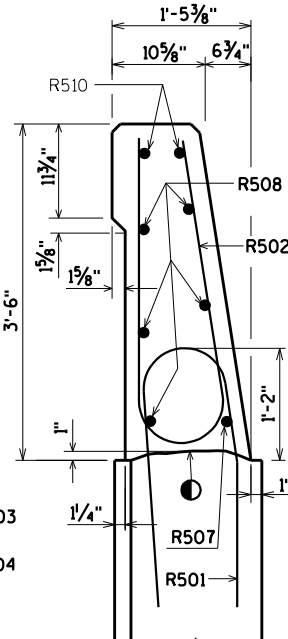
ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

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U:\42-1097.00 - Bayfield Co. CTH F±Structures\421097 sup.dgn

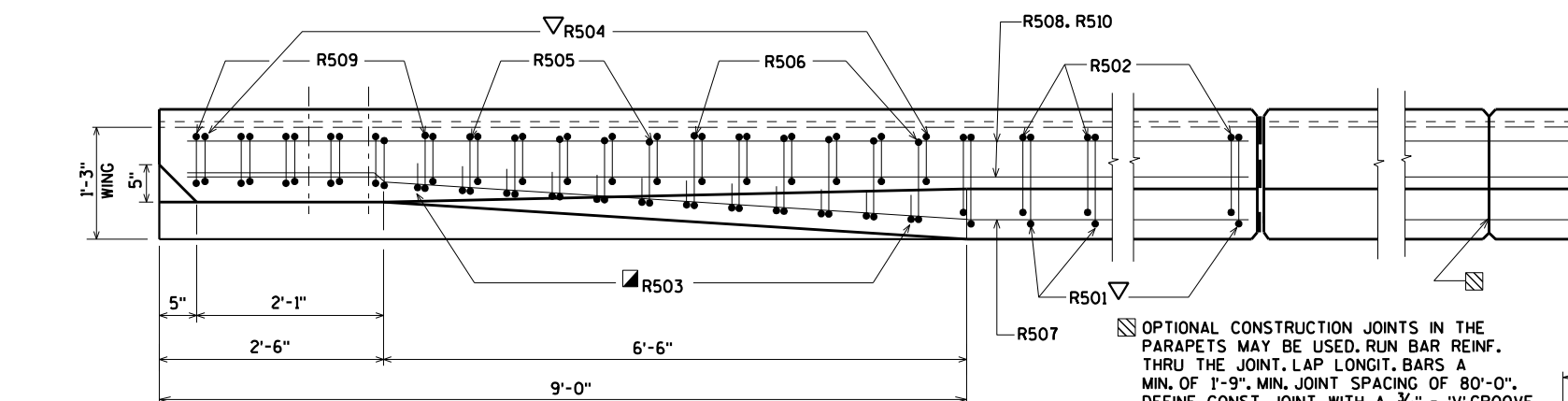
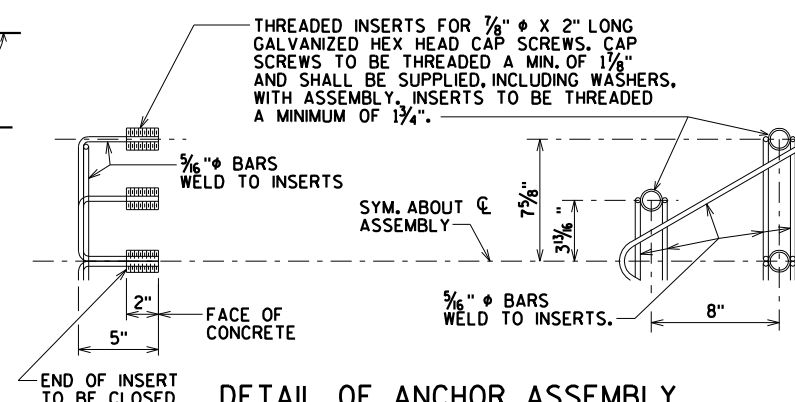
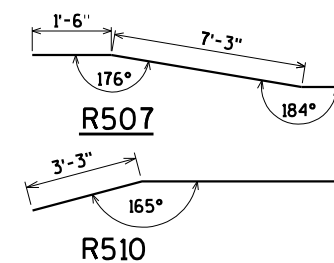
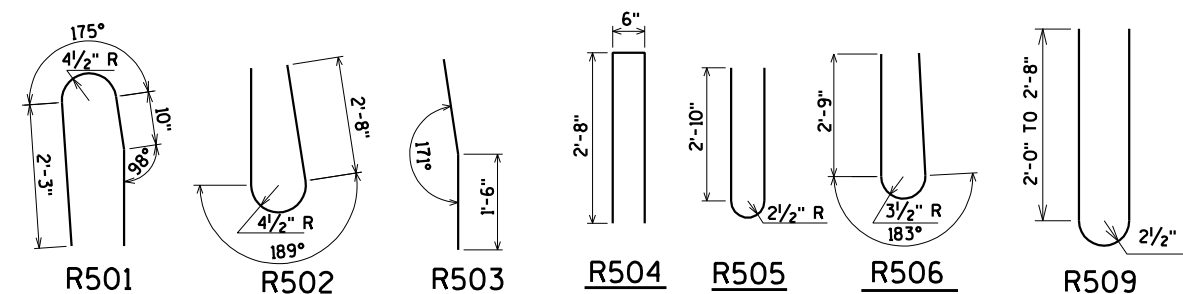
| BAR MARK | COAT | WEST ABUT. | EAST ABUT. | LENGTH | BENT | BAR SERIES | LOCATION       |
|----------|------|------------|------------|--------|------|------------|----------------|
| R501     | X    | 4          | 4          | 5-10   | X    |            | PARAPET VERT.  |
| R502     | X    | 4          | 4          | 6-8    | X    |            | PARAPET VERT.  |
| R503     | X    | 22         | 22         | 3-0    | X    |            | PARAPET VERT.  |
| R504     | X    | 34         | 34         | 5-7    | X    |            | PARAPET VERT.  |
| R505     | X    | 10         | 10         | 6-5    | X    |            | PARAPET VERT.  |
| R506     | X    | 12         | 12         | 6-6    | X    |            | PARAPET VERT.  |
| R507     | X    | 2          | 2          | 9-7    | X    |            | PARAPET HORIZ. |
| R508     | X    | 10         | 10         | 9-7    |      |            | PARAPET HORIZ. |
| R509     | X    | 12         | 12         | 5-5    | X    | ▲          | PARAPET VERT.  |
| R510     | X    | 4          | 4          | 9-8    | X    |            | PARAPET HORIZ. |

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD". EACH.

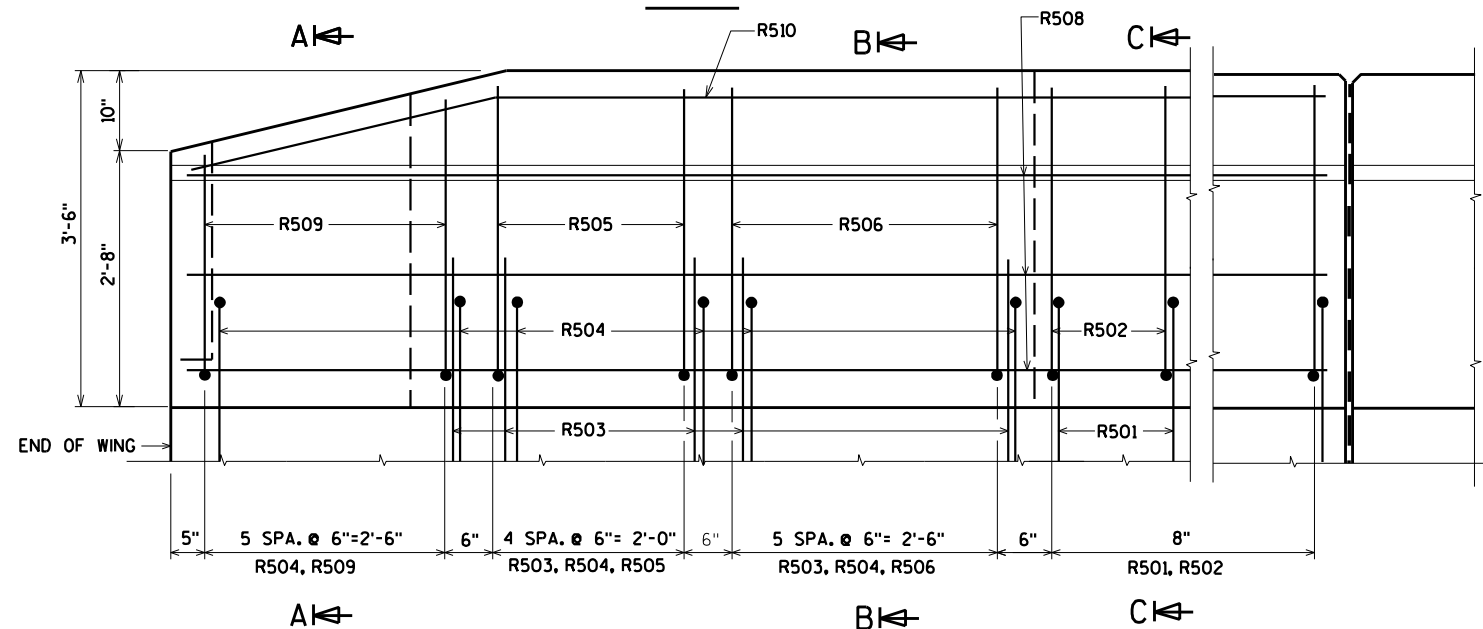
|                              |  |
|------------------------------|--|
| SINGLE SLOPE<br>PARAPET 42SS |  |
|------------------------------|--|



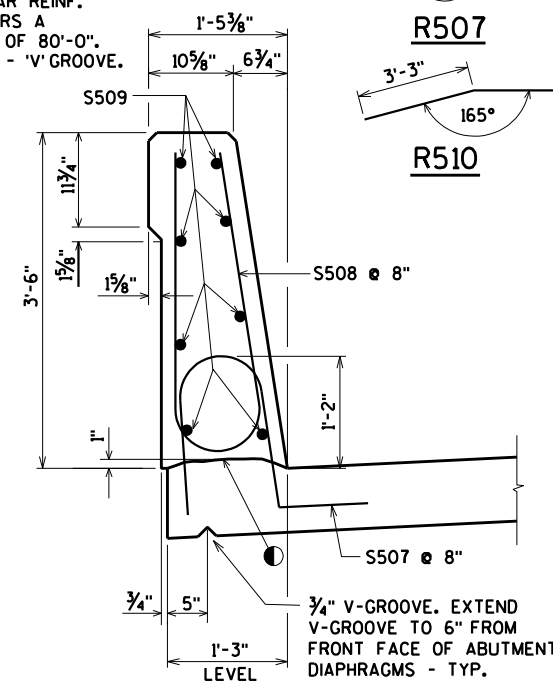
## SECTION C



OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



\* ADJUST LOCATIONS OF BARS TO  
ALLOW PLACEMENT OF ANCHOR ASSEMBLY  
FOR RAILING AND BEAM GUARD



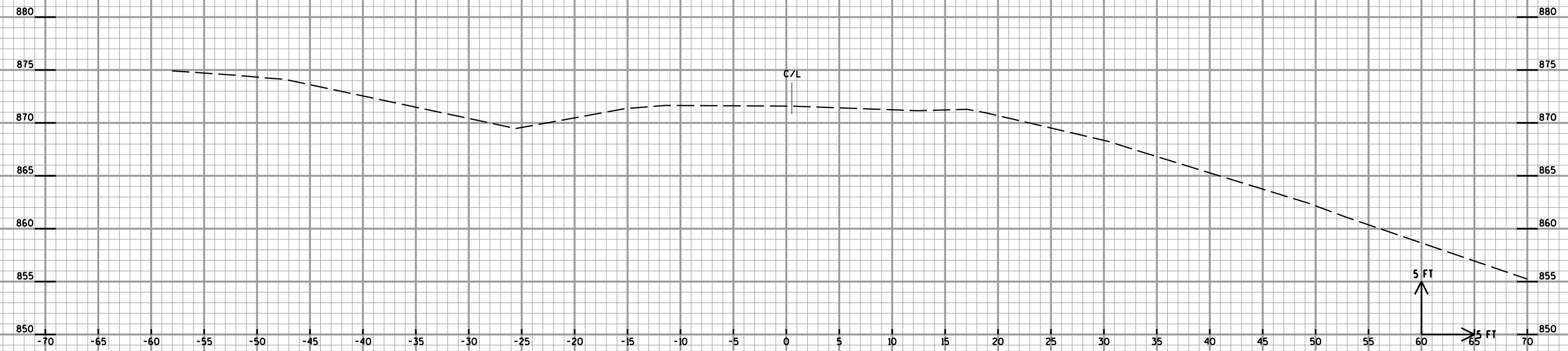
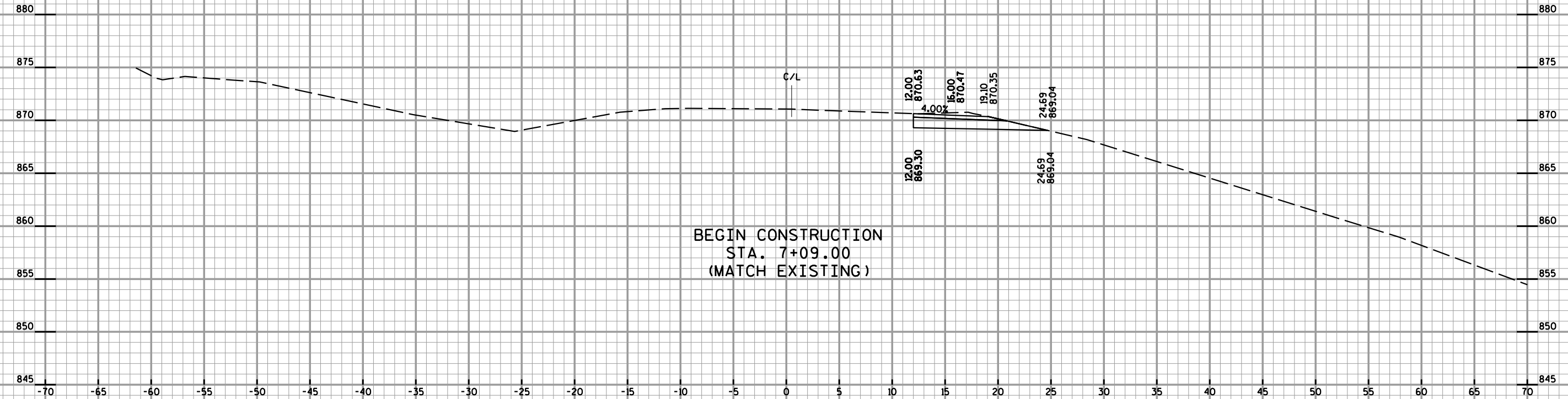
▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

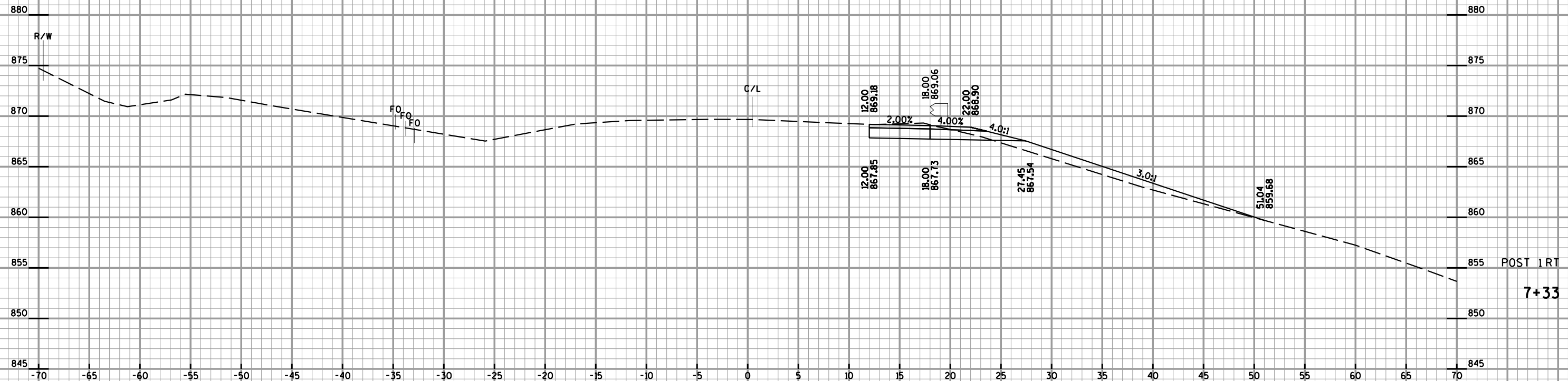
**AVRES**  
**ASSOCIATES**

**3433 Oakwood Hills Parkway**  
**Eau Claire, WI 54701**  
**[www.AyresAssociates.com](http://www.AyresAssociates.com)**

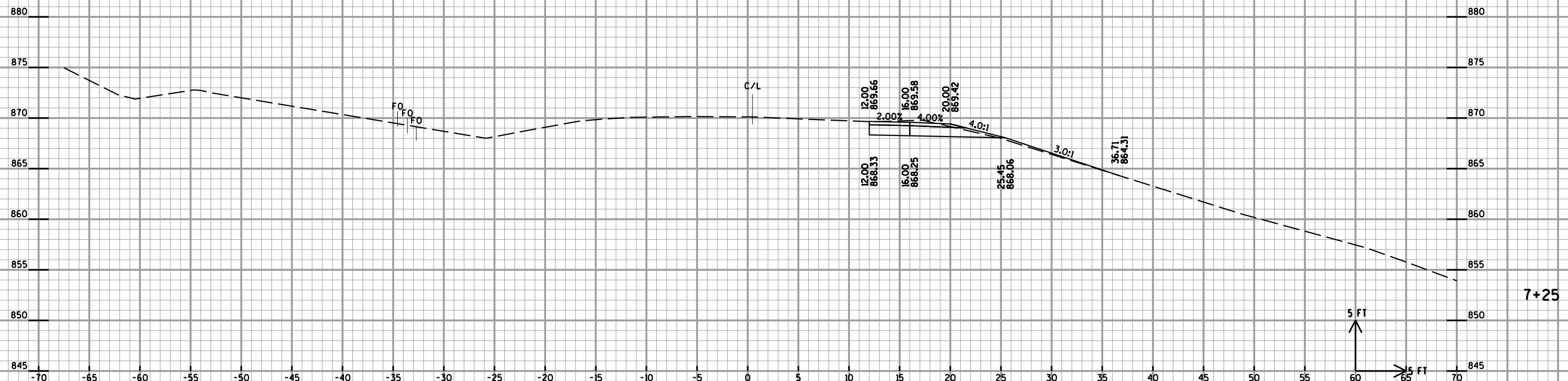
| CTH F COMPUTER EARTHWORK |          |           |      |                                   |      |                     |                          |               |
|--------------------------|----------|-----------|------|-----------------------------------|------|---------------------|--------------------------|---------------|
| Station                  | Distance | Area (SF) |      | Incremental Vol (CY) (Unadjusted) |      | Cumulative Vol (CY) |                          | Mass Ordinate |
|                          |          | Cut       | Fill | Cut                               | Fill | Cut<br>1.00         | Expanded<br>Fill<br>1.30 |               |
|                          |          |           |      |                                   |      |                     |                          |               |
| 7+09                     | --       | 13.4      | 0.0  |                                   |      |                     |                          |               |
| 7+25                     | 16       | 13.3      | 1.3  | 8                                 | 0    | 8                   | 1                        | 7             |
| 7+33                     | 8        | 13.3      | 15.7 | 4                                 | 3    | 12                  | 4                        | 8             |
| 7+50                     | 17       | 12.8      | 5.7  | 8                                 | 7    | 20                  | 13                       | 8             |
| 7+58                     | 8        | 12.6      | 1.3  | 4                                 | 1    | 24                  | 14                       | 10            |
| 7+75                     | 17       | 12.1      | 0.1  | 8                                 | 0    | 32                  | 14                       | 17            |
| 7+83                     | 8        | 11.9      | 0.0  | 4                                 | 0    | 35                  | 15                       | 21            |
| 8+00                     | 17       | 11.5      | 0.1  | 7                                 | 0    | 42                  | 15                       | 28            |
| 8+25                     | 25       | 22.3      | 0.0  | 16                                | 0    | 58                  | 15                       | 44            |
| 8+50                     | 25       | 55.2      | 0.9  | 36                                | 0    | 94                  | 15                       | 79            |
| 8+57                     | 7        | 57.5      | 1.6  | 15                                | 0    | 109                 | 16                       | 93            |
| 8+75                     | 18       | 55.4      | 1.6  | 38                                | 1    | 146                 | 17                       | 129           |
| 8+82                     | 7        | 54.8      | 1.6  | 14                                | 0    | 161                 | 17                       | 143           |
| 9+00                     | 18       | 53.6      | 0.7  | 36                                | 1    | 197                 | 18                       | 178           |
| 9+07                     | 7        | 56.0      | 0.2  | 14                                | 0    | 211                 | 19                       | 192           |
| 9+25                     | 18       | 63.0      | 0.0  | 40                                | 0    | 251                 | 19                       | 232           |
| 9+50                     | 25       | 37.8      | 0.0  | 47                                | 0    | 297                 | 19                       | 279           |
| 9+64                     | 14       | 37.8      | 0.0  | 20                                | 0    | 317                 | 19                       | 298           |
| B-04-0019                | --       | --        | --   | --                                | --   | --                  | --                       | --            |
| 10+36                    | --       | 34.4      | 12.4 | --                                | --   | --                  | --                       | --            |
| 10+50                    | 14       | 34.4      | 12.4 | 18                                | 6    | 335                 | 27                       | 308           |
| 10+75                    | 25       | 63.3      | 11.4 | 45                                | 11   | 380                 | 41                       | 338           |
| 11+00                    | 25       | 58.3      | 14.2 | 56                                | 12   | 436                 | 57                       | 379           |
| 11+25                    | 25       | 56.4      | 0.8  | 53                                | 7    | 489                 | 66                       | 423           |
| 11+50                    | 25       | 50.9      | 1.5  | 50                                | 1    | 539                 | 67                       | 472           |
| 11+54                    | 4        | 18.2      | 1.0  | 5                                 | 0    | 544                 | 67                       | 477           |
| 11+68                    | 14       | 18.2      | 2.2  | 9                                 | 1    | 554                 | 68                       | 485           |
| 11+75                    | 7        | 17.9      | 5.3  | 5                                 | 1    | 558                 | 70                       | 489           |
| 11+79                    | 4        | 17.6      | 9.1  | 3                                 | 1    | 561                 | 71                       | 490           |
| 11+93                    | 14       | 16.7      | 23.5 | 9                                 | 8    | 570                 | 82                       | 488           |
| 12+00                    | 7        | 16.6      | 25.2 | 4                                 | 6    | 574                 | 90                       | 484           |
| 12+04                    | 4        | 16.6      | 28.1 | 2                                 | 4    | 577                 | 95                       | 481           |
| 12+18                    | 14       | 17.0      | 14.3 | 9                                 | 11   | 585                 | 110                      | 476           |
| 12+25                    | 7        | 17.2      | 6.1  | 4                                 | 3    | 590                 | 113                      | 477           |
| 12+36                    | 11       | 17.6      | 0.6  | 7                                 | 1    | 597                 | 115                      | 482           |
| 12+50                    | 14       | 9.2       | 0.0  | 7                                 | 0    | 604                 | 115                      | 489           |
|                          |          |           |      | 604                               | 89   |                     |                          |               |

|                        |   |
|------------------------|---|
| Note 1 - Cut           | Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core. |
| Note 2 - Fill          | Volume needed to be filled.   |
| Note 3 - Mass Ordinate | (Cut) - (Fill * 1.30)   |



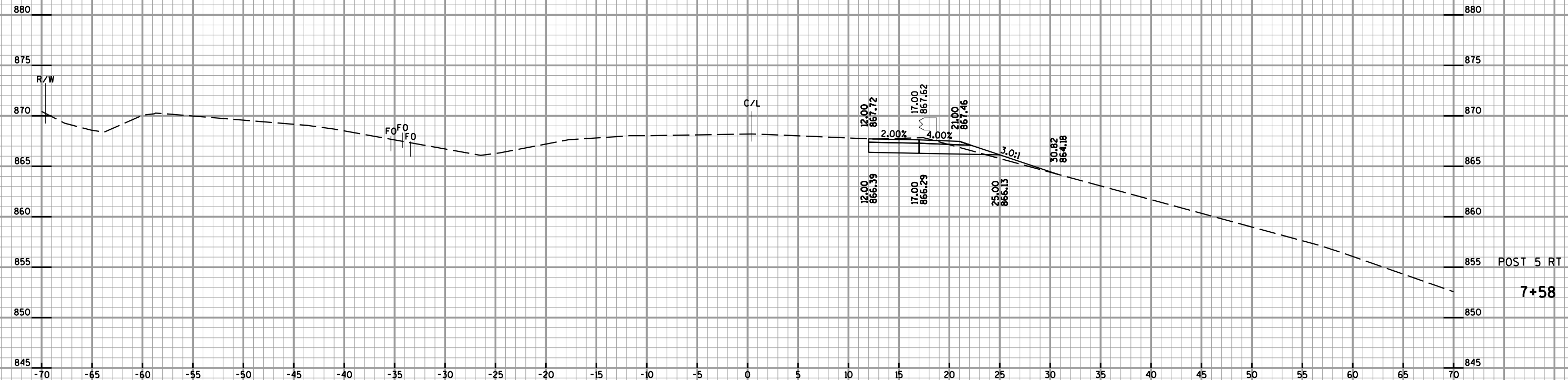


POST 1 RT  
7+33

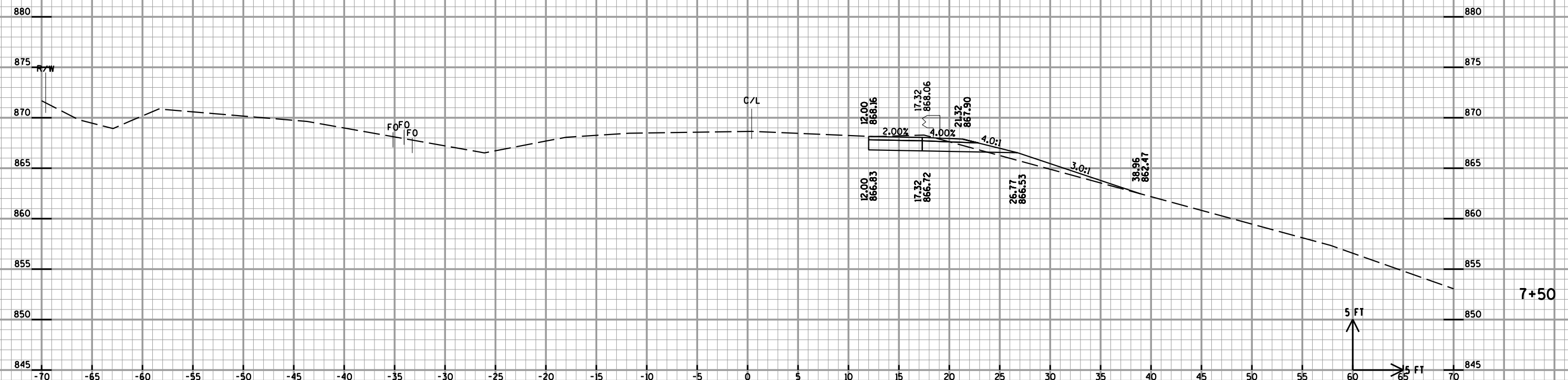


7+25

5 FT  
5 FT

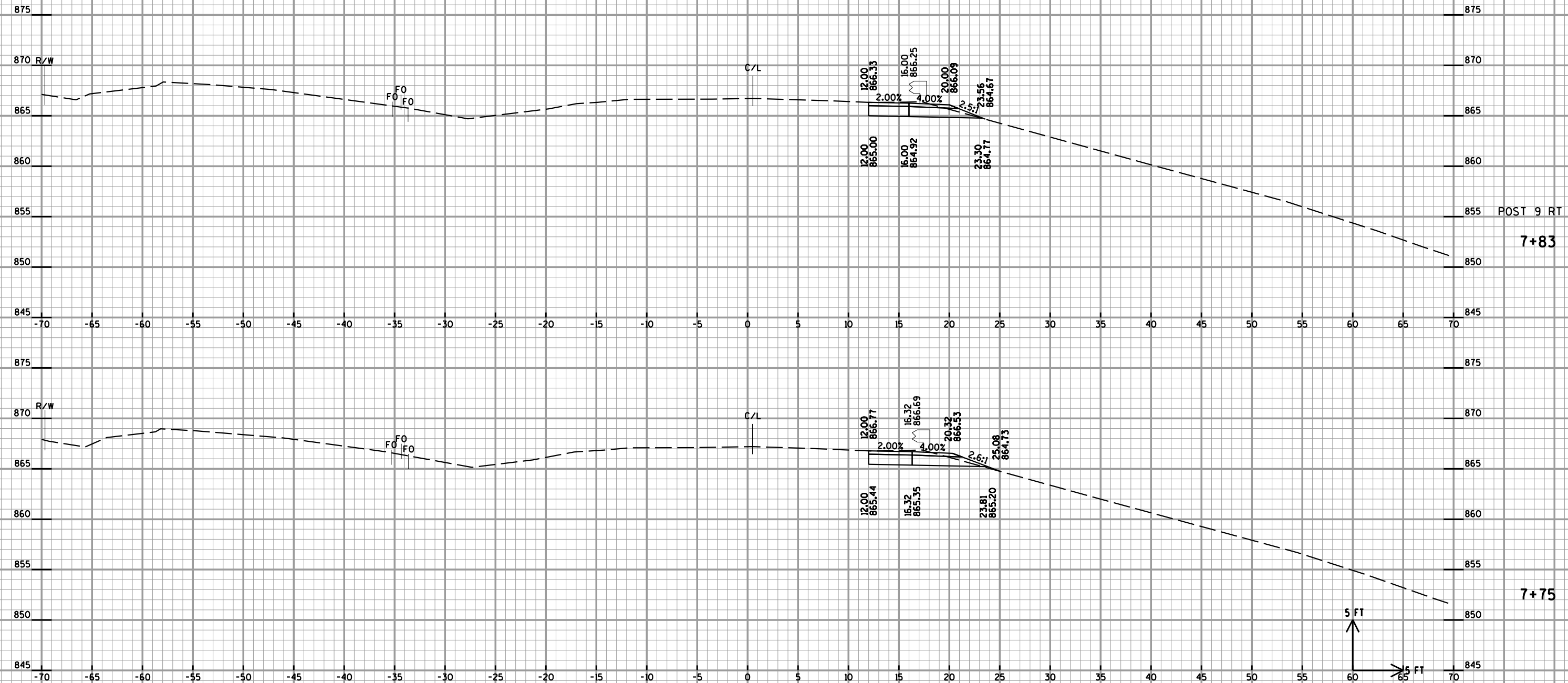


POST 5 RT  
7+58

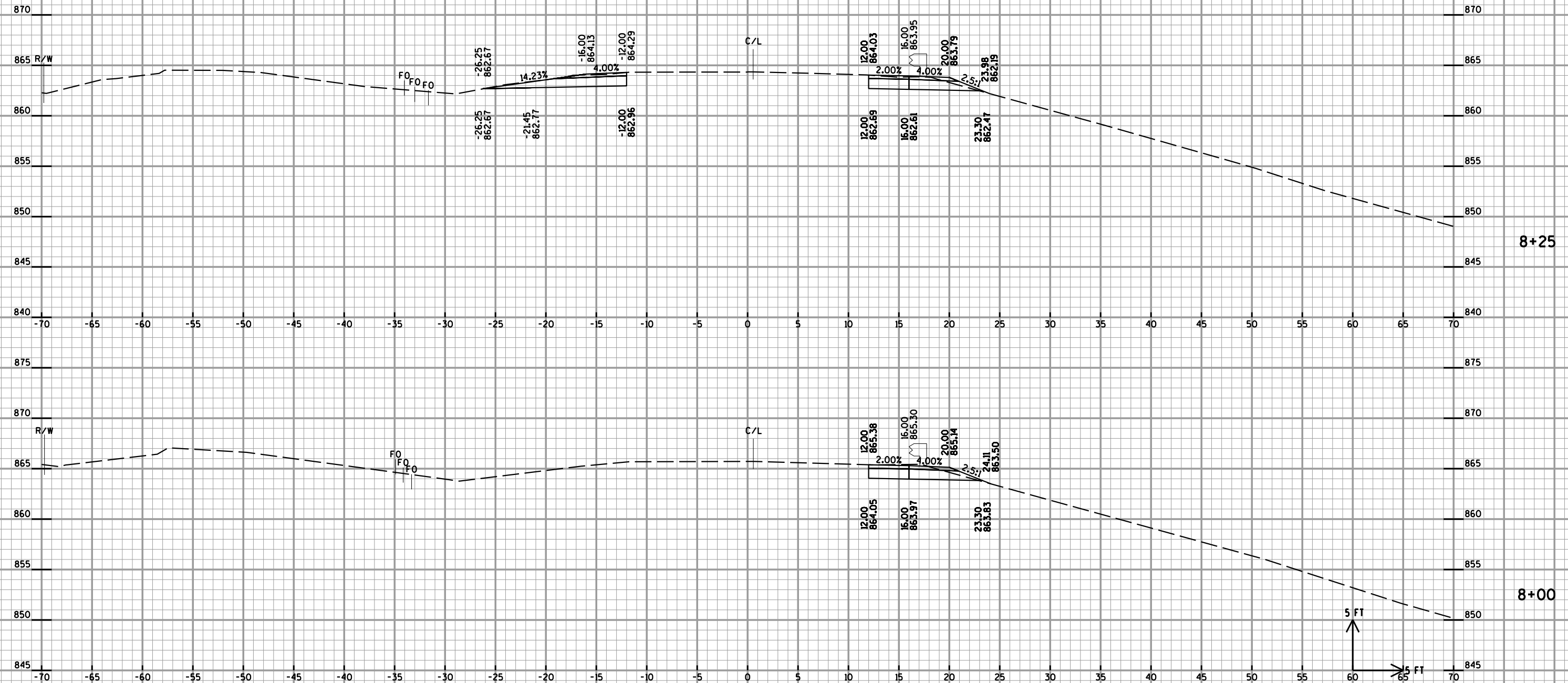


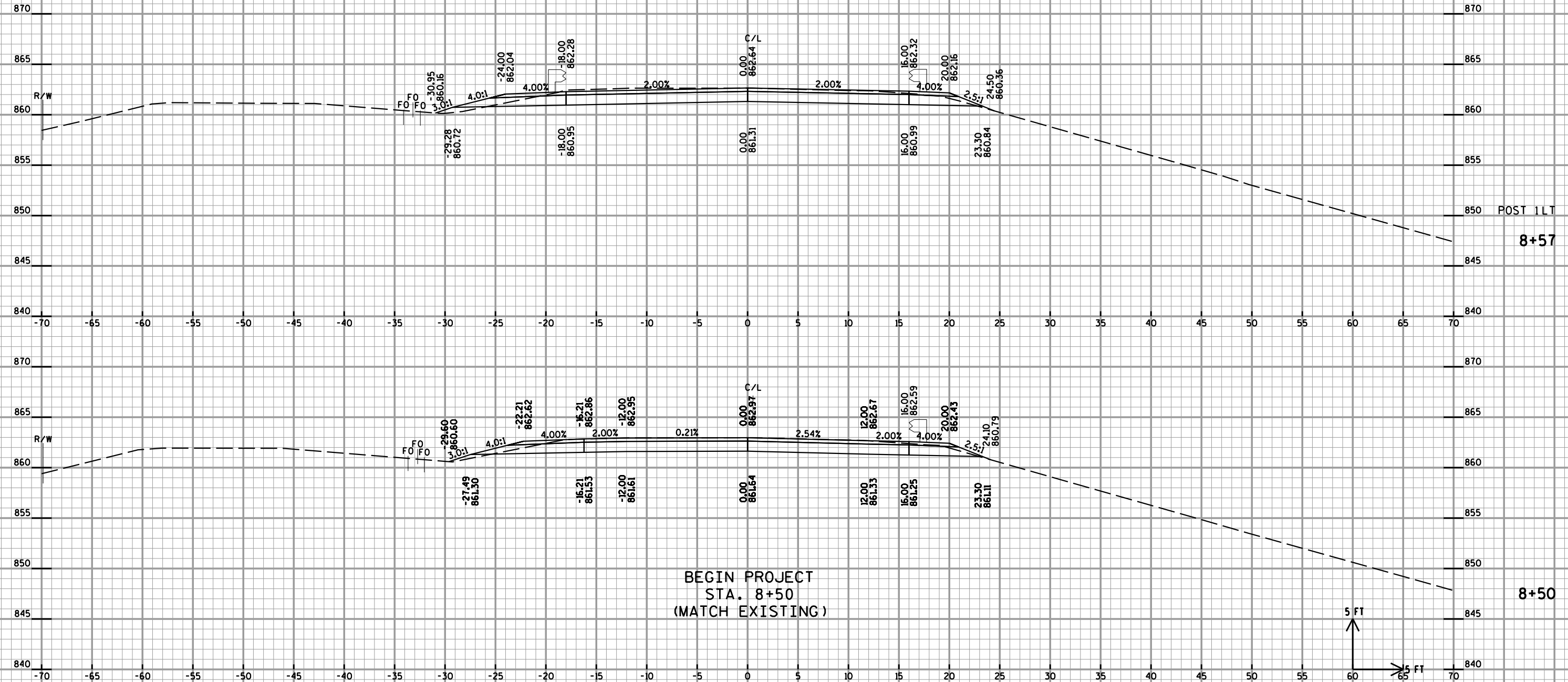
7+50

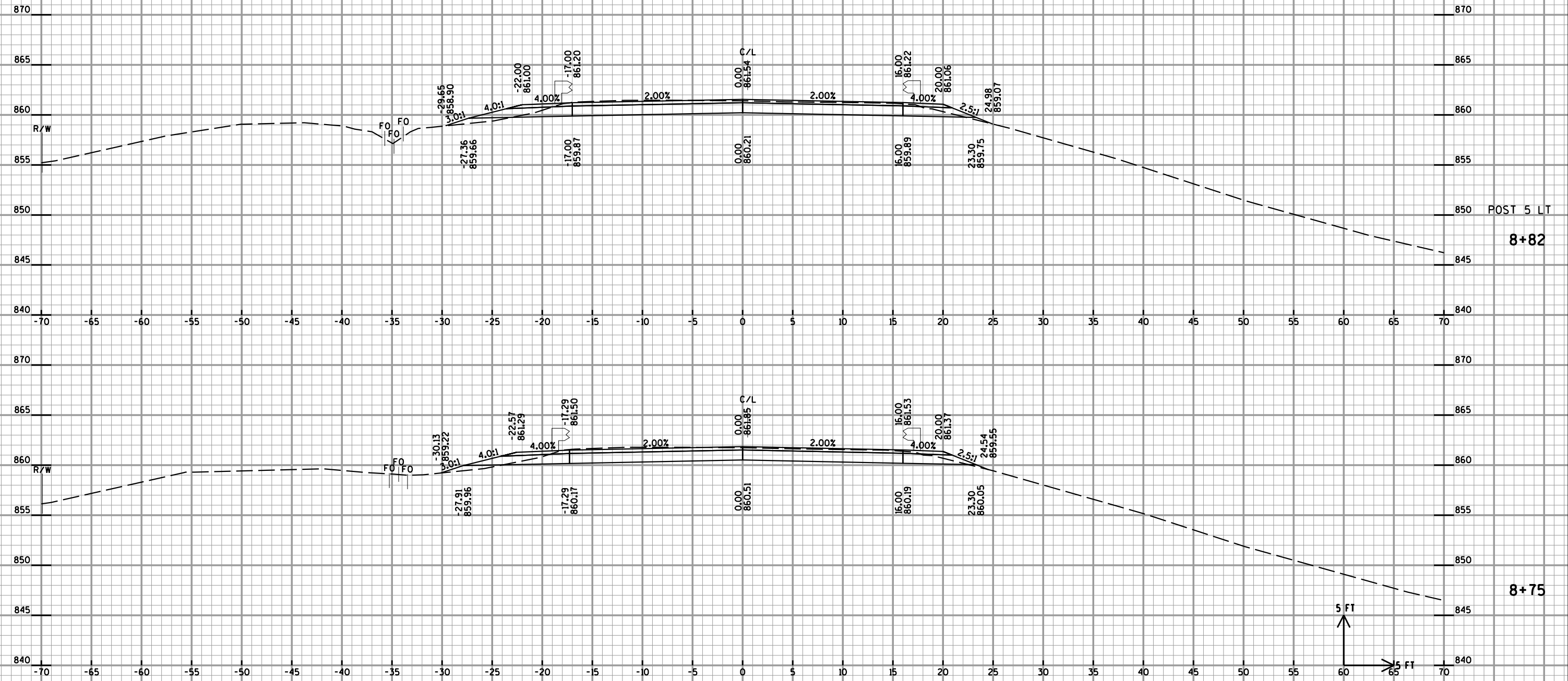
5 FT  
5 FT

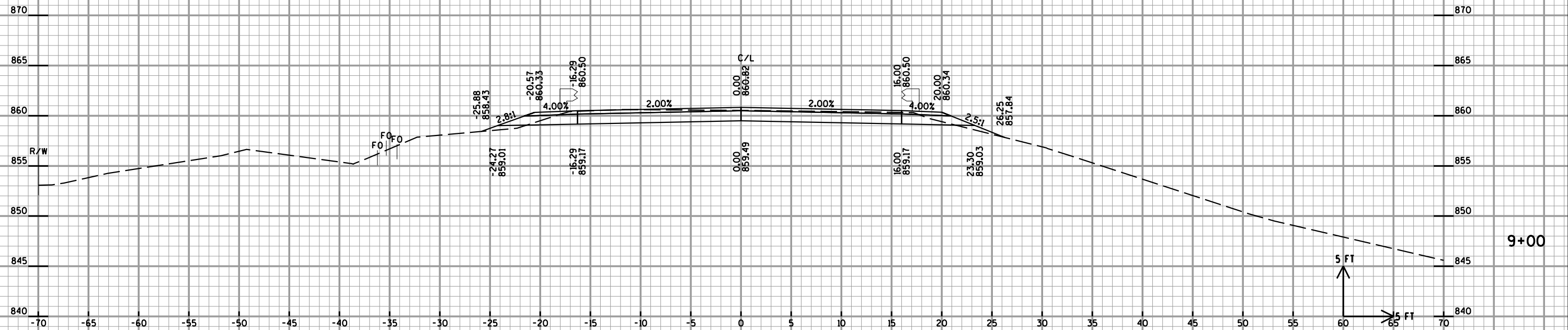
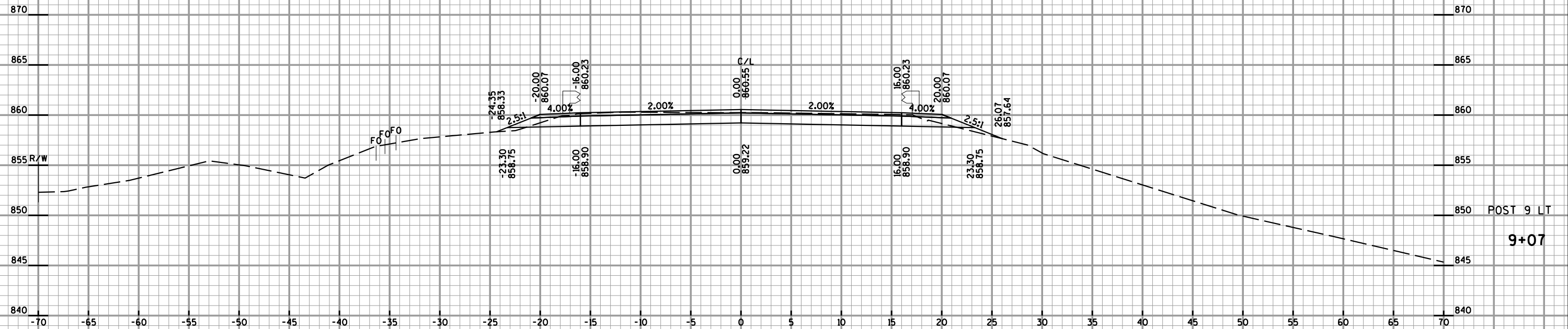


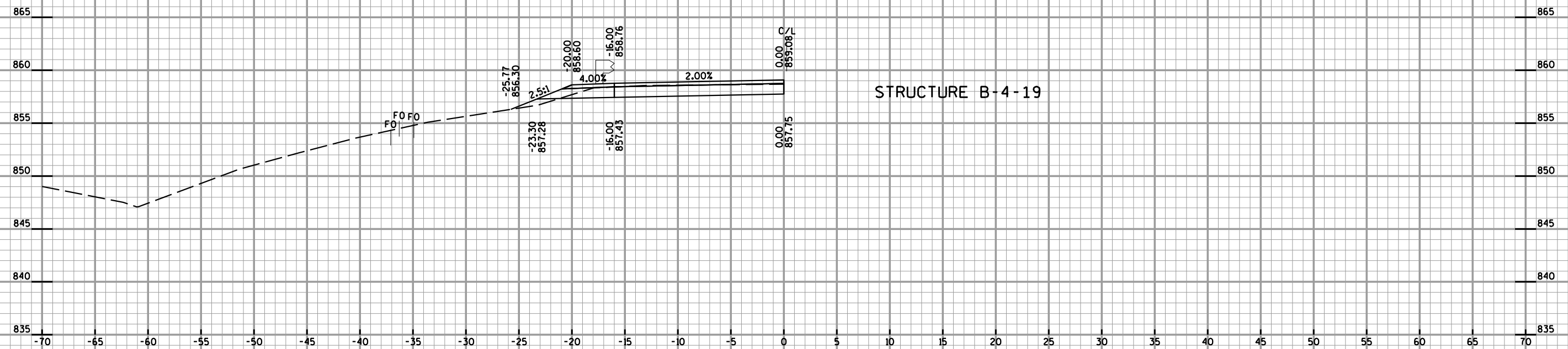






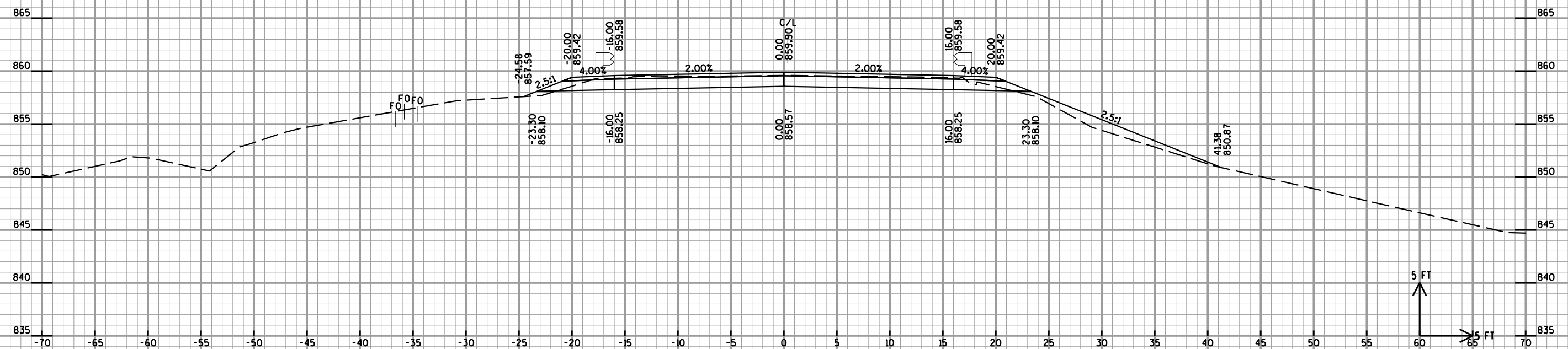






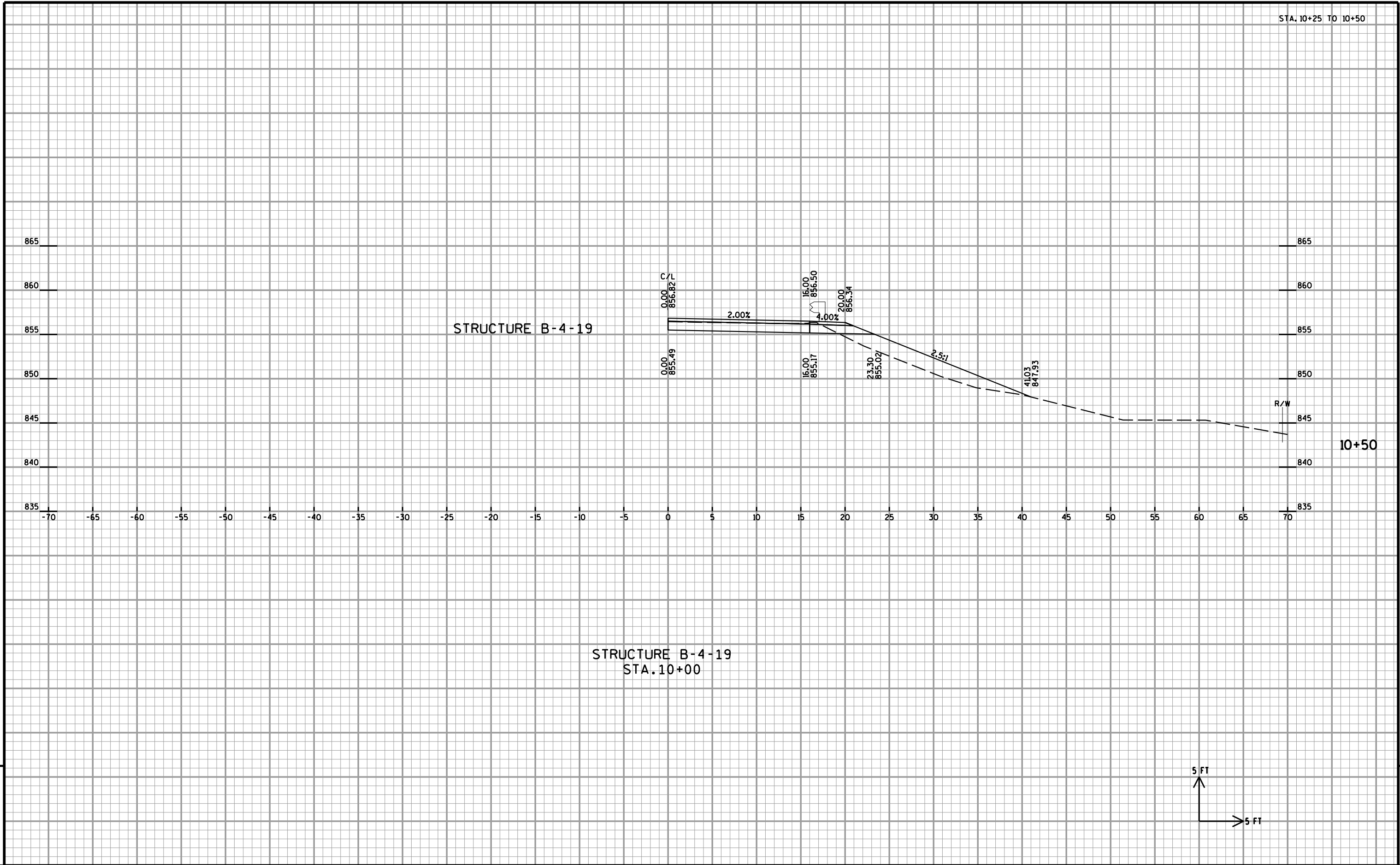
STRUCTURE B-4-19

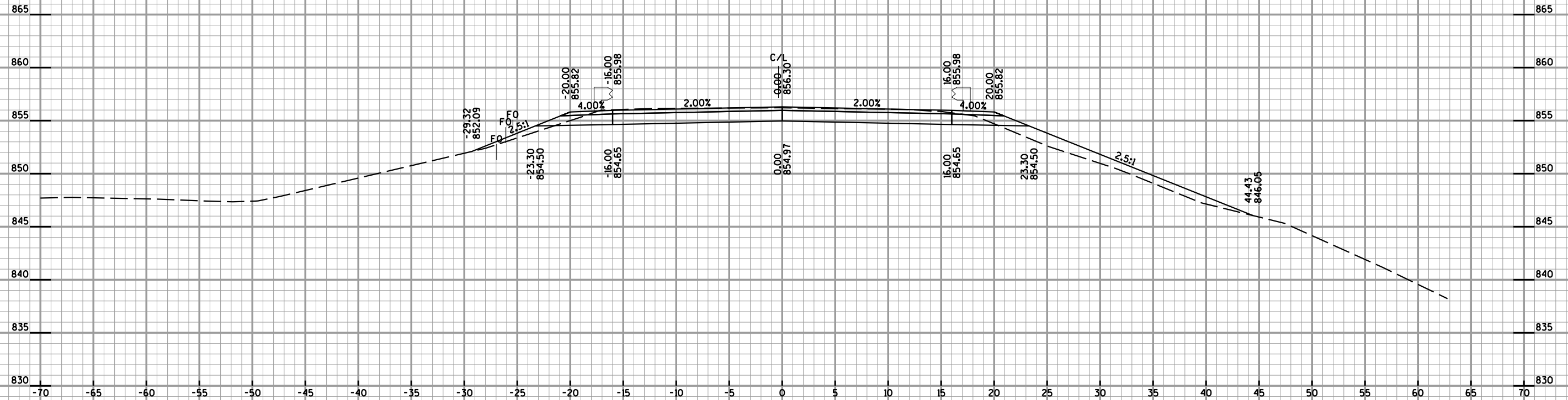
+50

 $9+25$ 

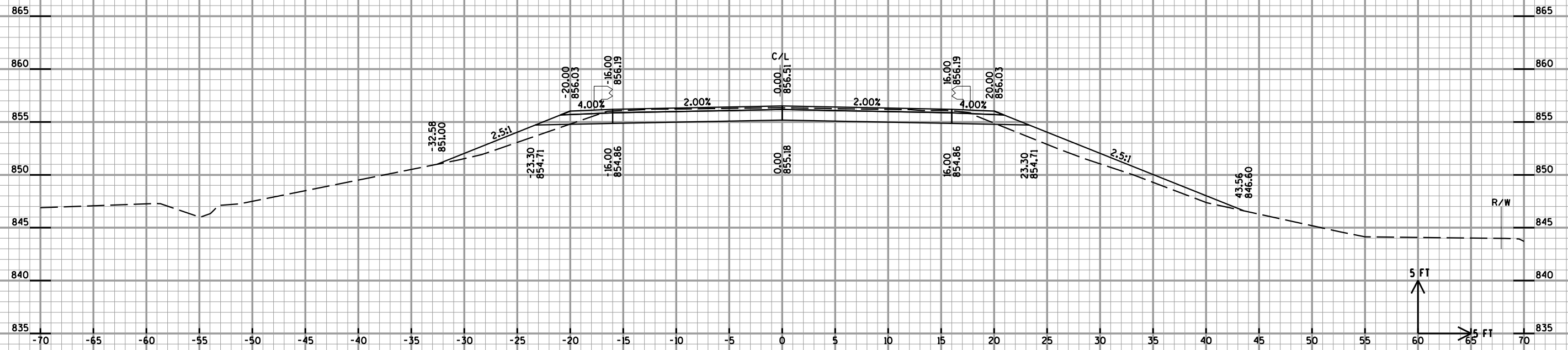
5 FT

→ 5 FT

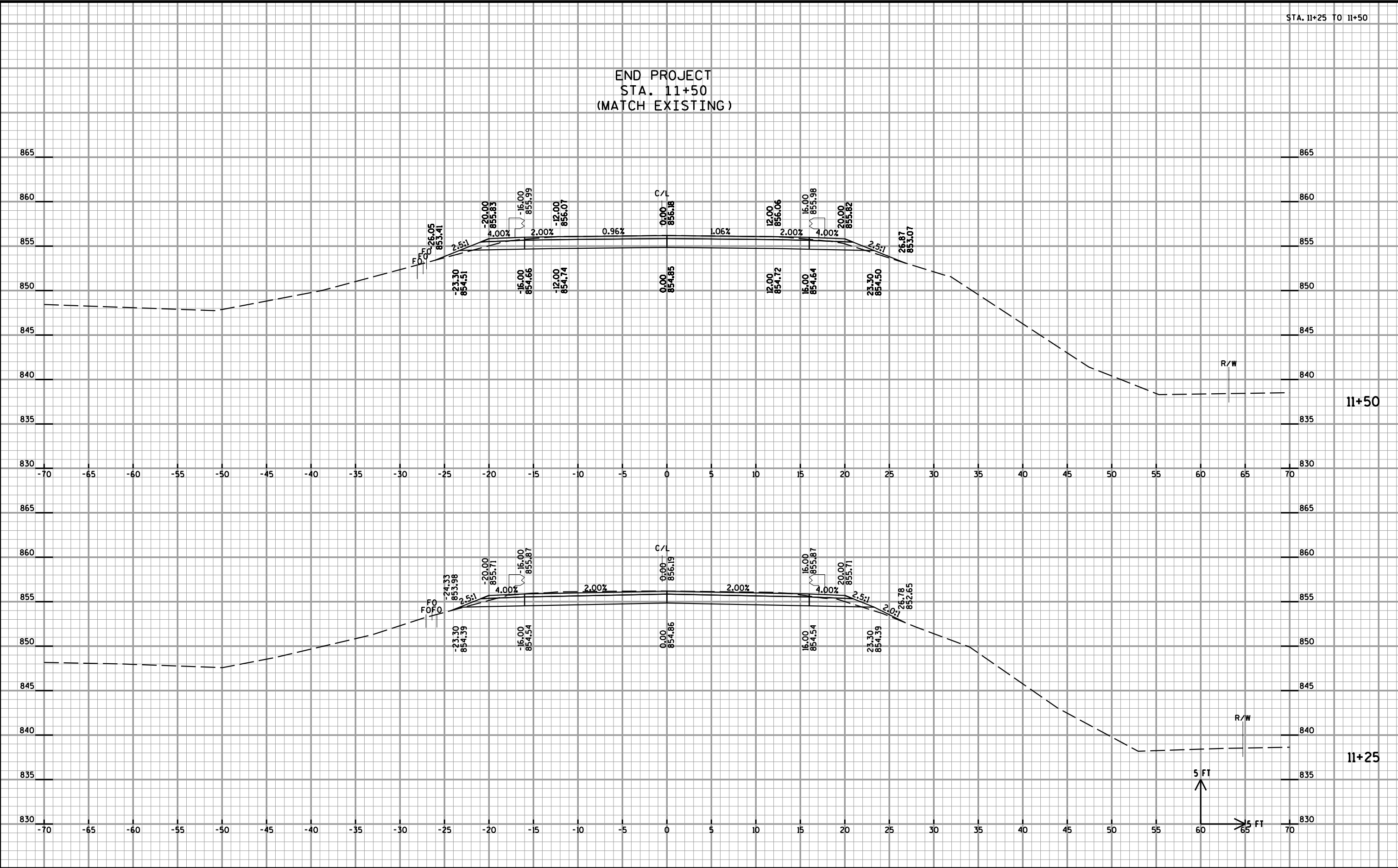




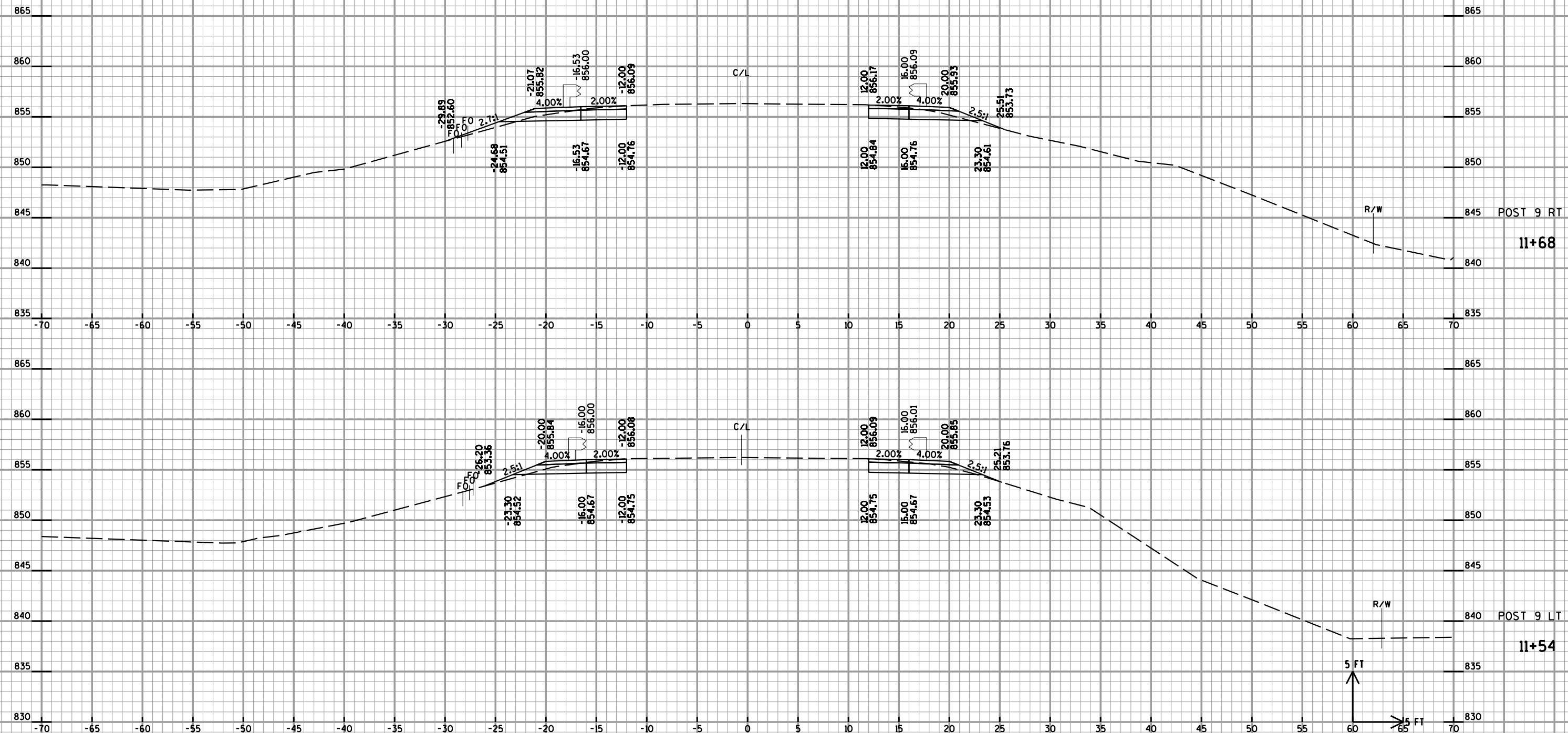
11+00

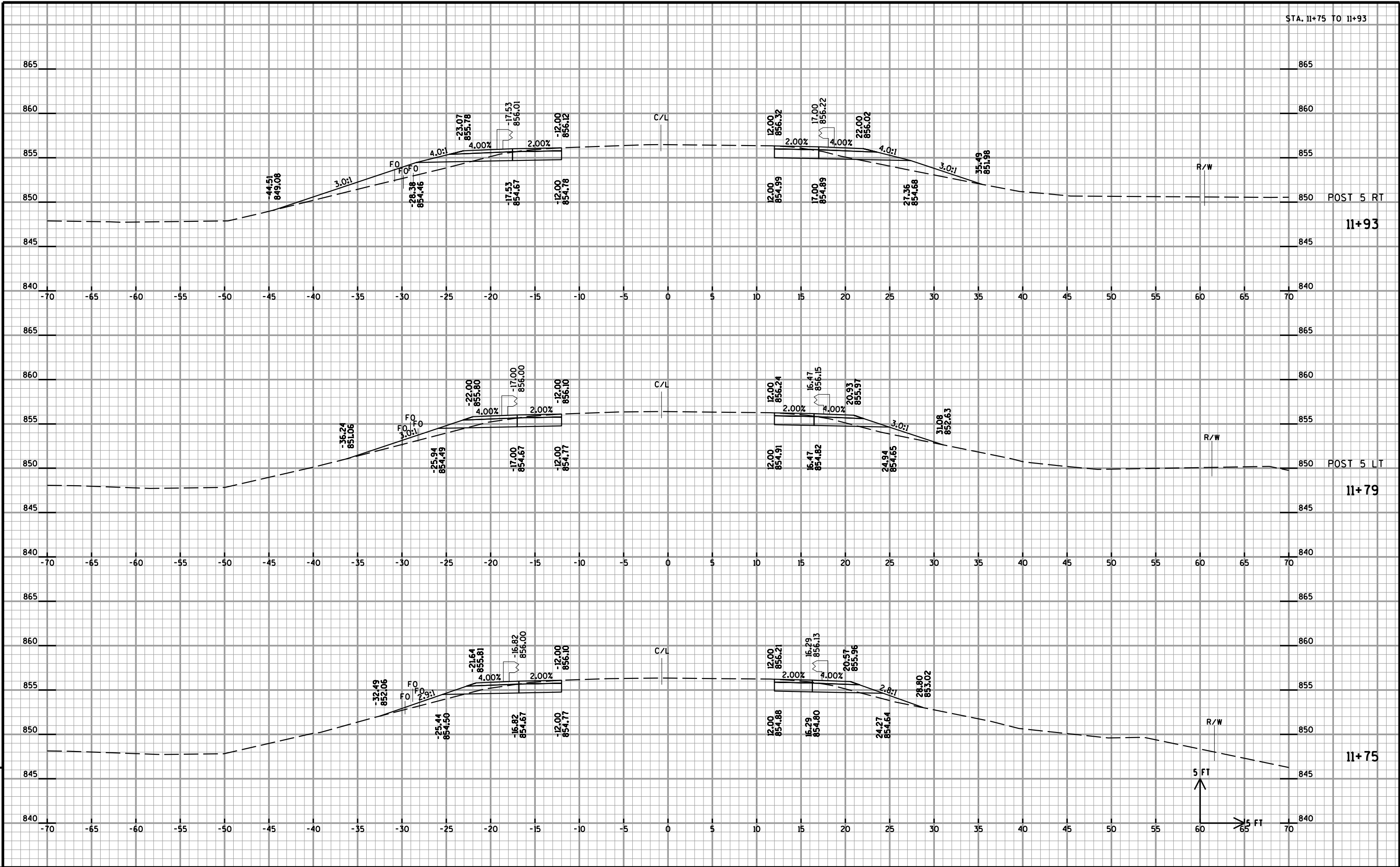


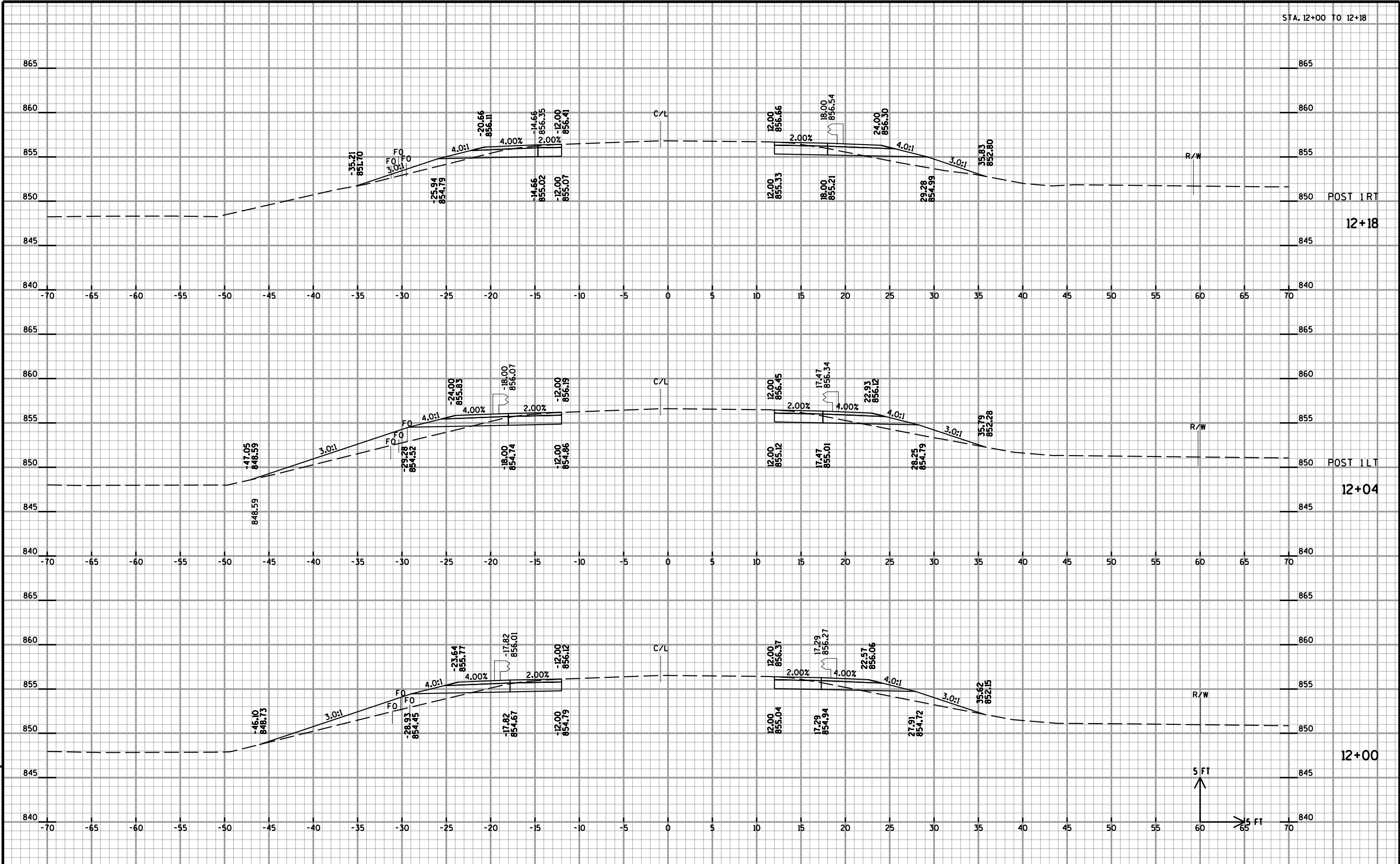
10+75











PROJECT NO: 8349-00-70

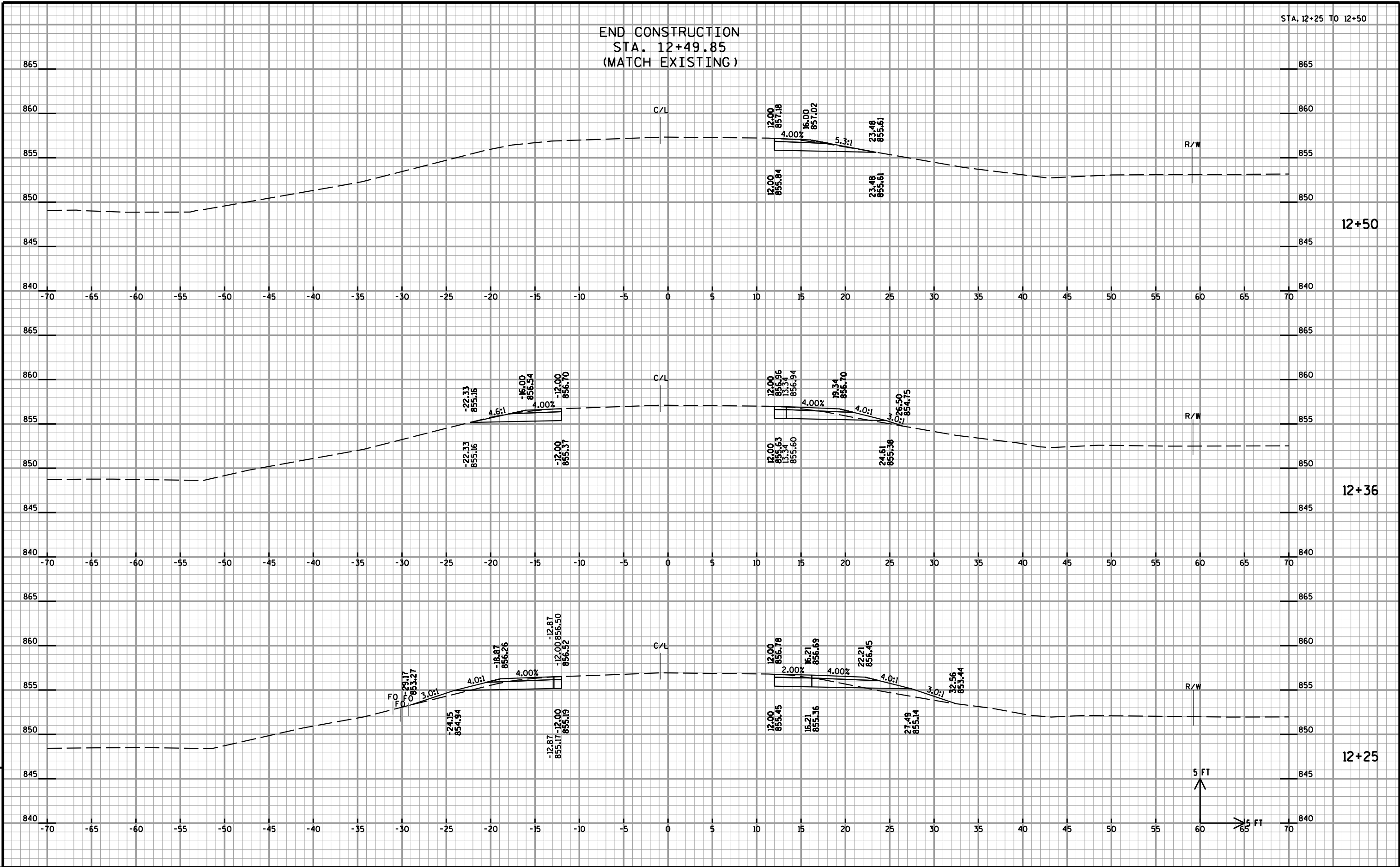
HWY: CTH F

COUNTY: BAYFIELD

CROSS SECTIONS

SHEET

E



## Notes



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