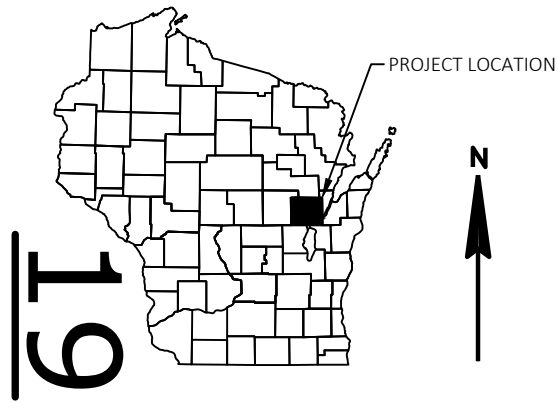


ORDER OF SHEETS

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

TOTAL SHEETS = 88



DESIGN DESIGNATION

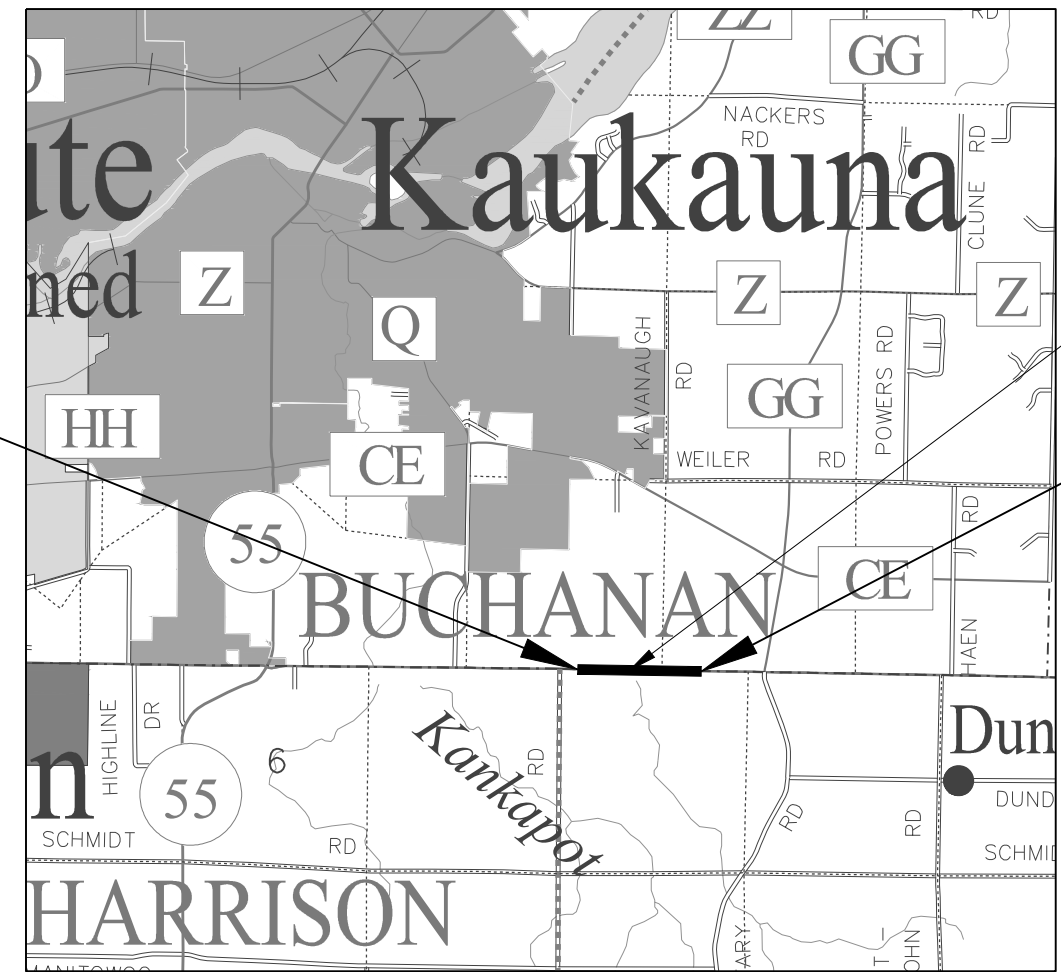
|              |      |   |         |
|--------------|------|---|---------|
| A.A.D.T.     | 2024 | = | 5600    |
| A.A.D.T.     | 2044 | = | 6000    |
| D.H.V.       |      | = | 656     |
| D.D.         |      | = | 62/38   |
| T.           |      | = | 7.7%    |
| DESIGN SPEED |      | = | 60 MPH  |
| ESALS        |      | = | 340,000 |

CONVENTIONAL SYMBOLS

| PLAN                           | PROFILE                                     |
|--------------------------------|---|
| CORPORATE LIMITS               | GRADE LINE                                  |
| PROPERTY LINE                  | ORIGINAL GROUND                             |
| LOT LINE                       | MARSH OR ROCK PROFILE (To be noted as such) |
| LIMITED HIGHWAY EASEMENT       | SPECIAL DITCH                               |
| EXISTING RIGHT OF WAY          | GRADE ELEVATION                             |
| PROPOSED OR NEW R/W LINE       | CULVERT (Profile View)                      |
| SLOPE INTERCEPT                | UTILITIES                                   |
| REFERENCE LINE                 | ELECTRIC                                    |
| EXISTING CULVERT               | FIBER OPTIC                                 |
| PROPOSED CULVERT (Box or Pipe) | GAS   |
| COMBUSTIBLE FLUIDS             | SANITARY SEWER                              |
| MARSH AREA                     | STORM SEWER                                 |
| WOODED OR SHRUB AREA           | TELEPHONE                                   |
|                                | WATER                                       |
|                                | UTILITY PEDESTAL                            |
|                                | POWER POLE                                  |
|                                | TELEPHONE POLE                              |

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION  
 PLAN OF PROPOSED IMPROVEMENT  
**BUCHANAN - HOLLAND**  
 KANKAPOT CREEK BRIDGE  
 CTH KK  
 OUTAGAMIE COUNTY

STATE PROJECT NUMBER  
**4494-07-71**



**BEGIN PROJECT**  
 STA 14+50  
 Y = 555 371.1683  
 X = 870 348.3029

**STRUCTURE B-44-0500**  
 STA 24+04.78 - STA 24+74.78

**END PROJECT**  
 STA 36+50  
 Y = 555 340.6866  
 X = 872 548.0913

LAYOUT  
 SCALE 0 0.5 MI  
 TOTAL NET LENGTH OF CENTERLINE = 0.417 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), OUTAGAMIE COUNTY NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.  
 ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

| STATE PROJECT | FEDERAL PROJECT |          |
|---------------|-----------------|----------|
|               | PROJECT         | CONTRACT |
| 4494-07-71    | WISC 2024342    | 1        |
|               |                 |          |
|               |                 |          |

ACCEPTED FOR  
 OUTAGAMIE COUNTY  
 1/30/2024  
 Date  
 (Signature and Title of Official)

ORIGINAL PLANS PREPARED BY  
**WESTBROOK**  
 Associated Engineers, Inc.  
 619 EAST HOXIE STREET  
 P.O. BOX 429  
 SPRING GREEN, WISCONSIN 53588  
 PHONE (608) 588-7866  
 FAX (608) 588-7954

WISCONSIN PROFESSIONAL ENGINEER  
 AARON B. PALMER  
 E-35695  
 RICHLAND CENTER, WI  
 DATE: 1/29/2024  
 (Professional Engineer Signature)

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION  
 PREPARED BY  
 Surveyor WESTBROOK ASSOCIATED ENGINEERS, INC.  
 Designer WESTBROOK ASSOCIATED ENGINEERS, INC.  
 Project Manager MIKE COHEN, P.E.  
 Regional Examiner NE REGION  
 Regional Supervisor BRIAN EDWARDS, P.E.

APPROVED FOR THE DEPARTMENT  
 DATE: 1/30/2024  
 Mike Cohen, P.E.  
 (Signature)

GENERAL NOTES

OUTAGAMIE COUNTY TO PERFORM WORK BY OTHERS. COORDINATE SCHEDULE WITH OUTAGAMIE COUNTY THROUGHOUT THE PROJECT TO ENSURE ALL WORK COMPLETED IN A TIMELY MANNER.

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

WETLANDS EXIST IN THE PROJECT AREA. NO DISTURBANCES SHALL OCCUR OUTSIDE OF THE SLOPE INTERCEPTS IN WETLAND AREAS.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. SILT FENCE AND TURBIDITY BARRIER SHALL BE IN PLACE PRIOR TO CONSTRUCTION.

MAINTAIN EROSION CONTROL ITEMS UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. PROTECT WETLANDS AND OTHER WATERWAYS THAT ARE PRESENT WITHIN THE PROJECT LIMITS.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED, TEMPORARY SEEDED, AND MULCHED AS DIRECTED BY THE ENGINEER.

SLOPES 2.5:1 OR STEEPER REQUIRE EROSION MAT.

APPLY SEED, MULCH OR EROSION MAT, AND FERTILIZER TO ALL DISTURBED AREAS WITHIN 7 WORKING DAYS AFTER GRADING WORK IS COMPLETED.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A VERTICAL SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

5-INCHES OF HMA PAVEMENT SHALL BE CONSTRUCTED USING A 2.5-INCH UPPER LAYER OF HMA PAVEMENT 4 LT 58-28 S AND A 2.5-INCH LOWER LAYER OF HMA PAVEMENT 3 LT 58-28 S.

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LB/SY/IN.

APPLY TACK COAT BETWEEN LAYERS OF HMA PAVEMENT AT A RATE OF 0.07 GAL/SY.

PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING, OR PARKING LANE.

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

ADJUST DITCH GRADING AS NECESSARY TO FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER IN THE FIELD.

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

D.O.T. MONUMENT IS TO BE FURNISHED BY THE STATE AND PLACED BY THE CONTRACTOR IN THE SAME WING THAT THE PROPOSED NAME PLATE WILL BE PLACED, AS DIRECTED BY THE ENGINEER.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), OUTAGAMIE COUNTY, HORIZONTAL DATUM NAD83 (2011), ELEVATION DATUM NAVD88 (2012).

CONTACTS

CONSULTANT LIAISON

WESTBROOK ASSOCIATED ENGINEERS, INC. 619 EAST HOXIE ST SPRING GREEN, WI 53588

ATTN: AARON PALMER, P.E. PH: (608) 588-7866 FAX: (608) 588-7954 apalmer@westbrookeng.com

WDNR LIAISON

DNR NORTH EAST REGION HEADQUARTERS 2984 SHAWANO AVE GREEN BAY, WI 54313

ATTN: MATT SCHAEVE PH: (920) 366-1544 Matthew.Schaeve@wisconsin.gov

COUNTY LIAISON

OUTAGAMIE COUNTY HIGHWAY DEPARTMENT 1313 HOLLAND RD APPLETON, WI 54911

ATTN: MICHAEL MORMAN, P.E. PH: (920) 832-5673 michael.morman@outagamie.org

UTILITIES

ELECTRIC

WE ENERGIES REIJO MURTO 800 S LYNNDALE DR APPLETON, WI 54914 PHONE: (920) 380-3369 EMAIL: reijo.murto@we-energies.com

COMMUNICATION

AT&T KYLE WEBER 221 W WASHINGTON ST APPLETON, WI 54915 PHONE: (920) 221-5969 EMAIL: kw715w@att.com

COMMUNICATION

CHARTER JASON ORR 3520 E DESTINATION DRIVE APPLETON, WI 54915 PHONE: (920) 378-0352 EMAIL: jason.orr@charter.com



Dial 811 or (800)242-8511

www.DiggersHotline.com

ORDER OF DETAIL SHEETS

- GENERAL NOTES
TYPICAL SECTIONS
CONSTRUCTION DETAILS
DETOUR ROUTE
ALIGNMENT DETAILS
CONTROL POINT TIES

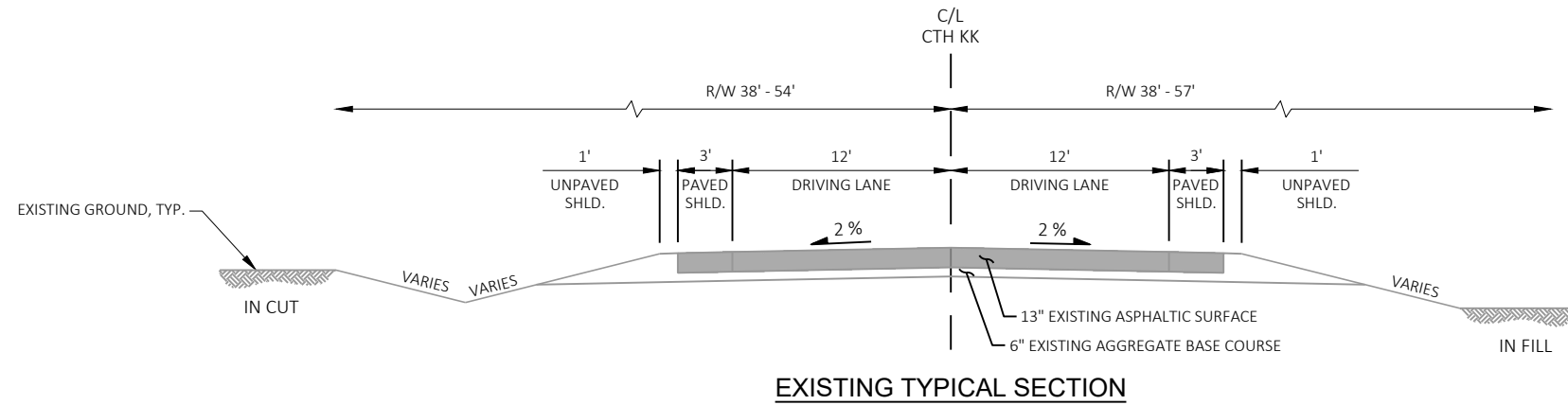
RUNOFF COEFFICIENT TABLE

Table with columns for Hydrologic Soil Group (A, B, C, D) and Slope Range (Percent) for various land uses like Land Use, Row Crops, Median Strip-Turf, etc.

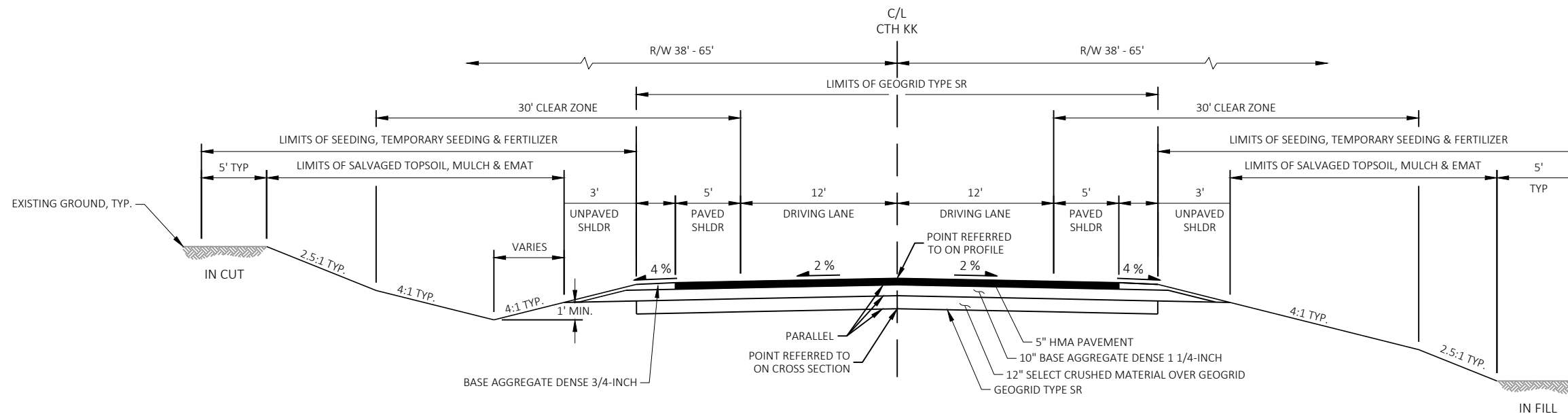
TOTAL PROJECT AREA = 4.50 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 4.78 ACRES

STANDARD ABBREVIATIONS

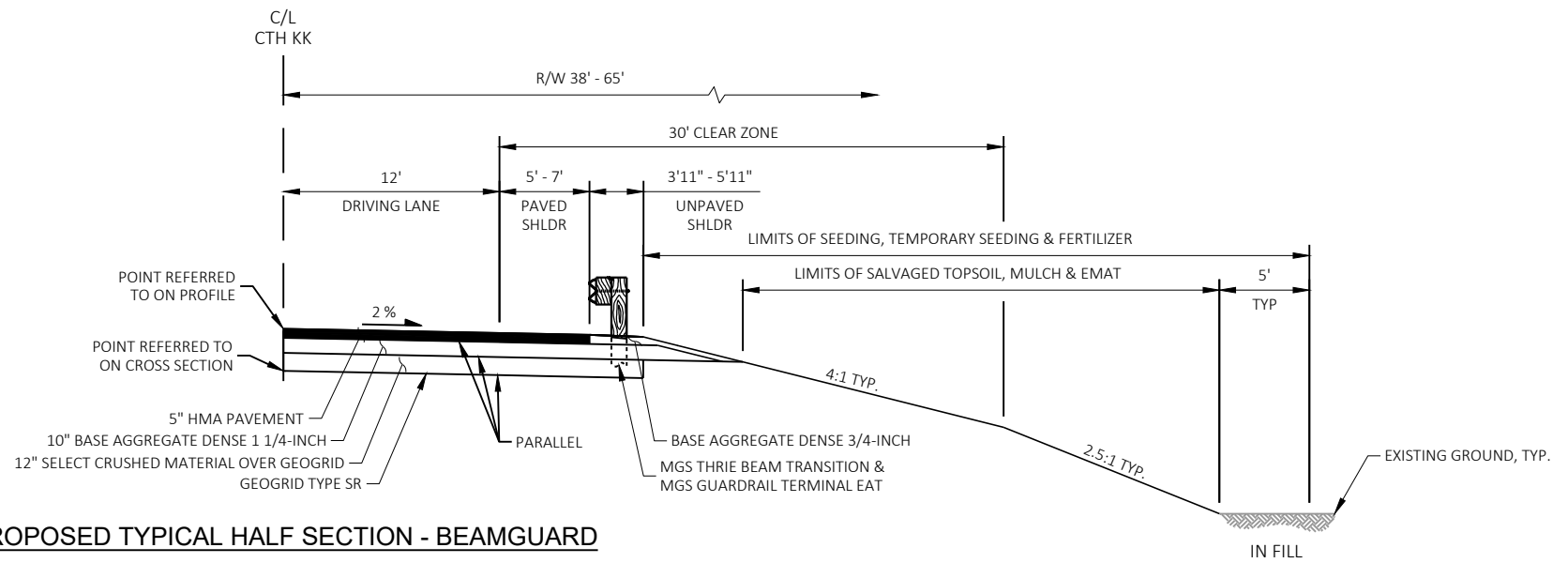
Table listing standard abbreviations such as ABUT., AC, AGG., AH, <, ASPH, AVG., A.D.T., BAD, BK, BF, B.M., BR., C/L, CC, CTH, CR., CY or CU YD, CP, C & G, D, DHV, DIA, E, X, ELEC, EL OR ELEV, ESALS, EBS, FF, FE, FG, FL or F/L, FT, FTG, GN, HT, CWT, HYD, INL, IP, JT, JCT, LHF, L, LIN FT OR LF, LC, MH, MB, ML OR M/L, N, Y, OD, PLE, PT, PC, PI, PRC, PT, POC, PVC, PCC, LB, PSI, PE, R, RR, RL OR R/L, RP, RCCP, REQD, RES, RW, RT, RHF, R/W, R, RD, RDWY, SALV, SAN S, ID, IRS, SEC, SHLDR, SHR, SW, S, SQ, SF OR SQ FT, SY or SQ YD, STD, SDD, STH, STA, SS, SG, SE, SL or S/L, SV, T, TEL, TEMP, TI, t, T or TN, TRANS, TL OR T/L, T, TYP, UNCL, UG, USH, VAR, V, VERT, VC, VOL, WM, WV, W, WB, YD, INV, Section, Shoulder, SHRINKAGE, Sidewalk, South, Square, Square Foot, Square Yard, Standard, Standard Detail Drawings, State Trunk Highway Station, Storm Sewer, Subgrade, Superelevation, Survey Line, Septic Vent, Tangent, Telephone, Temporary, Temporary Interest, Ton, Town, Transition, Transit Line, Trucks (percent of), Typical, Unclassified, Underground Cable, United States Highway, Variable, Velocity or Design Speed, Vertical, Vertical Curve, Volume, Water Main, Water Valve, West, Westbound, Yard, Invert.



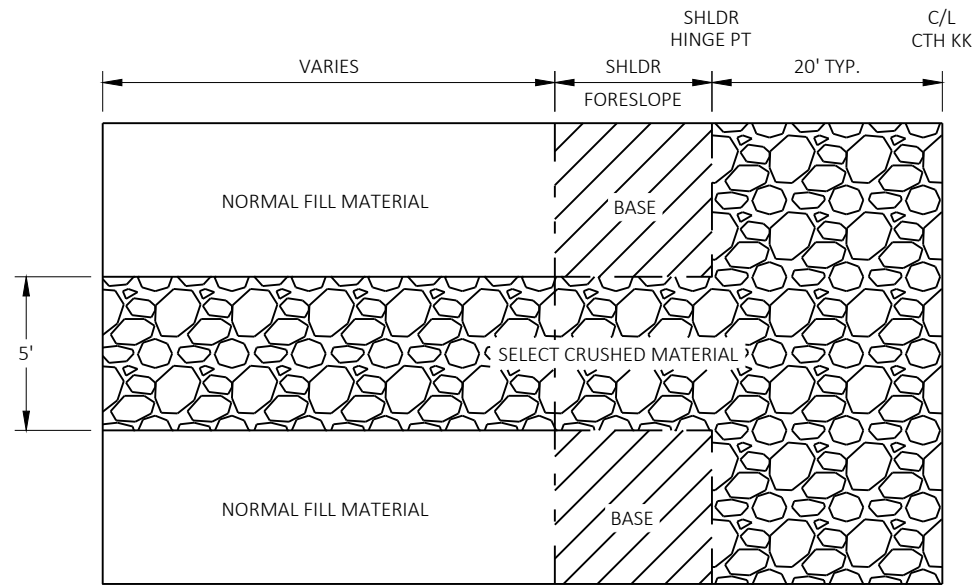
EXISTING TYPICAL SECTION



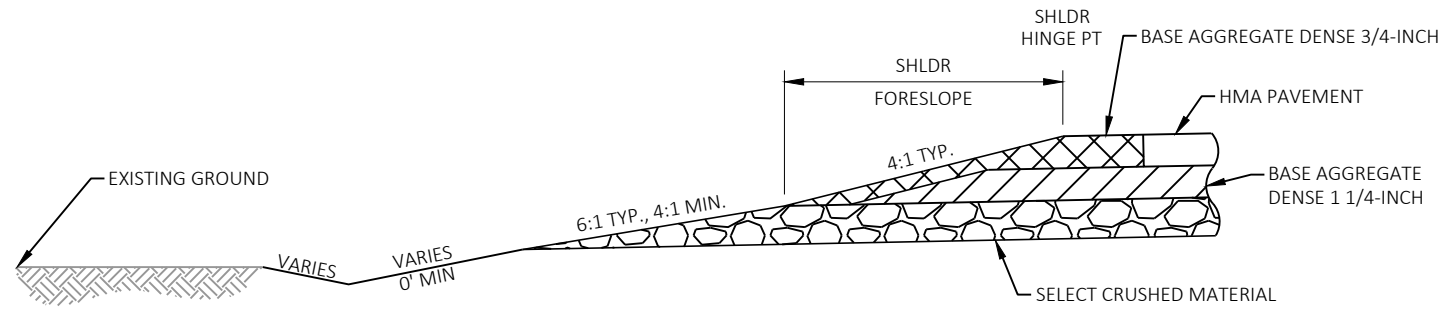
PROPOSED TYPICAL SECTION



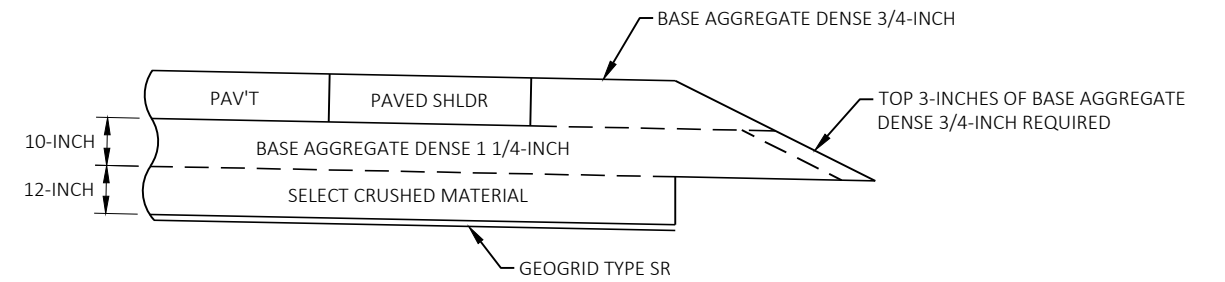
PROPOSED TYPICAL HALF SECTION - BEAMGUARD



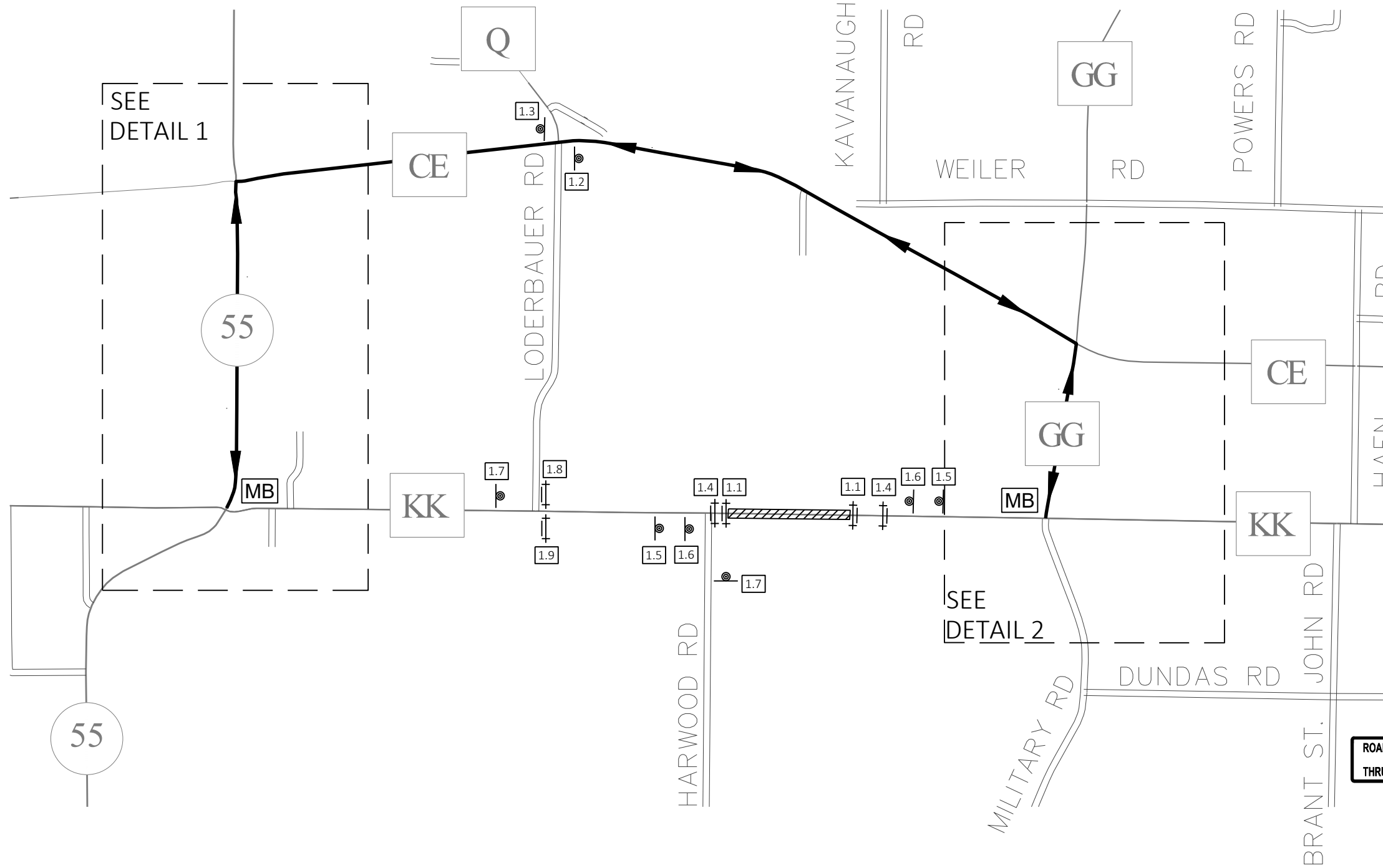
RELIEF TRENCH PLAN VIEW THROUGH SELECT CRUSHED MATERIAL



RELIEF TRENCH PROFILE VIEW

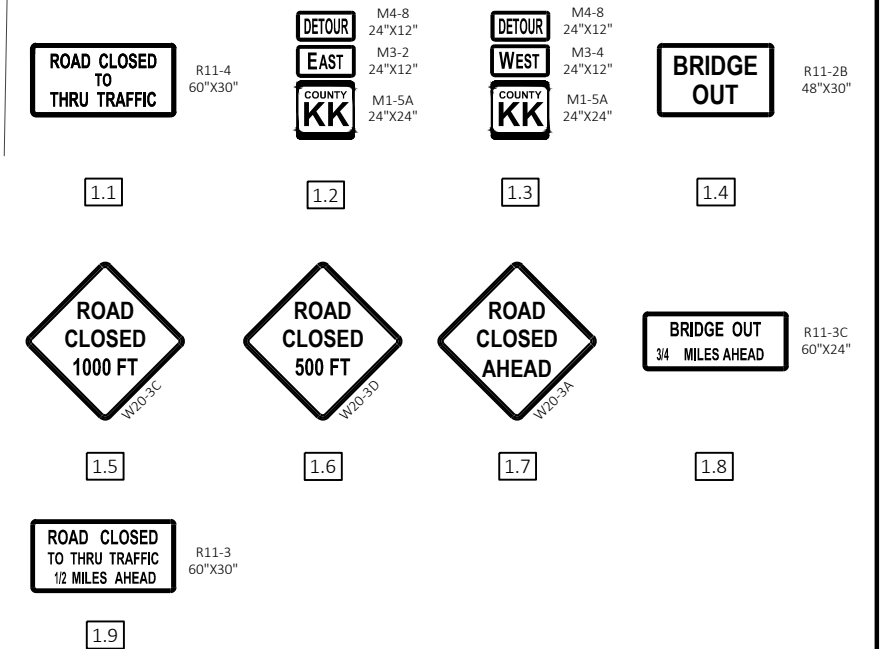


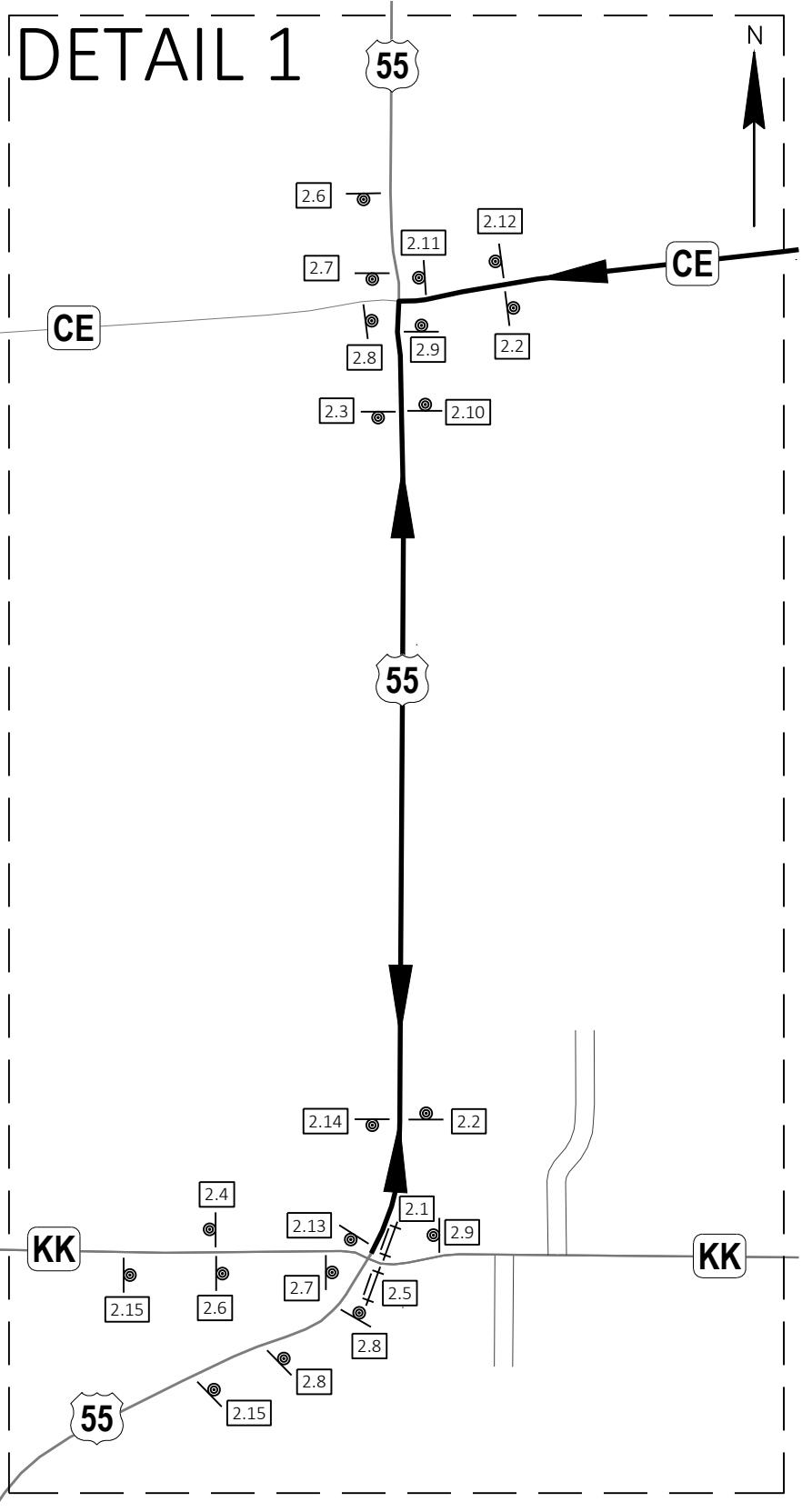
BASE AGGREGATE DENSE 3/4-INCH FOR SHOULDERS








- LEGEND**
- WORK ZONE
  - DETOUR ROUTE
  - SIGN NUMBER
  - PROPOSED SIGN MOUNTED ON POSTS
  - BARRICADE TYPE III WITH SIGN
  - PCMS BOARD

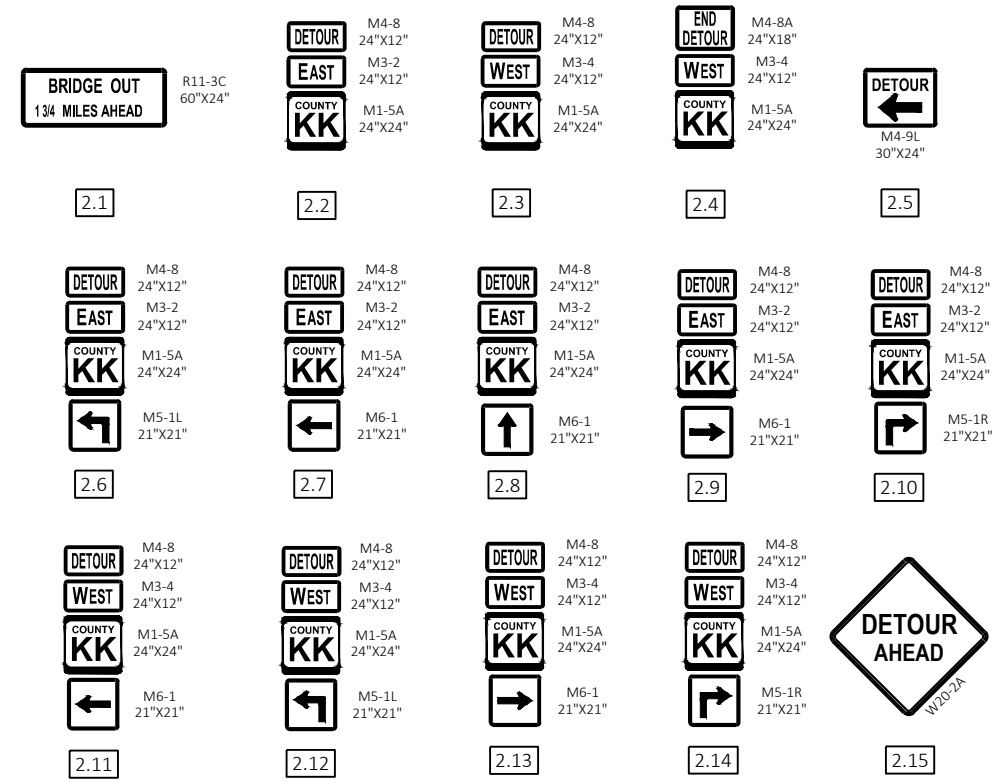
- NOTES**
- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND WISDOT SDD 15C2 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTION".
  - EXACT NUMBER, LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
  - SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLAN.
  - SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID FOR UNDER THE ITEM 'TRAFFIC CONTROL COVERING SIGNS'.
  - USE SIGN SIZE 3 ON FREEWAY, USE SIGN SIZE 2 ON LOCAL HIGHWAYS AND RAMPS.
  - IF THERE ARE EXISTING ROUTE MARKERS THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR SIGNS TO CORRESPOND WITH EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE.

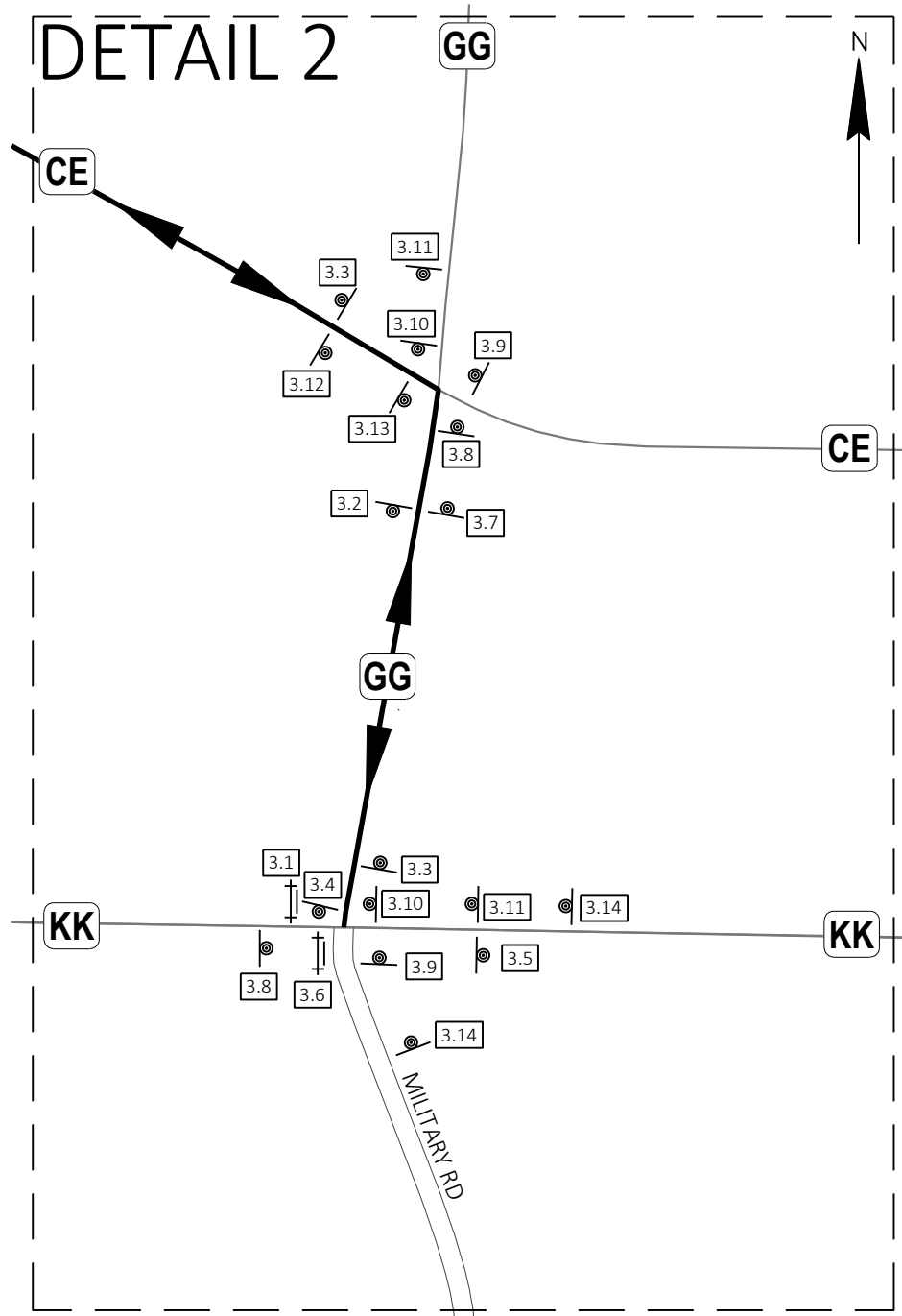




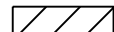



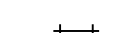
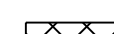
- LEGEND**
-  WORK ZONE
  -  DETOUR ROUTE
  -  SIGN NUMBER
  -  PROPOSED SIGN MOUNTED ON POSTS
  -  BARRICADE TYPE III WITH SIGN

- NOTES**
- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND WISDOT SDD 15C2 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTION".
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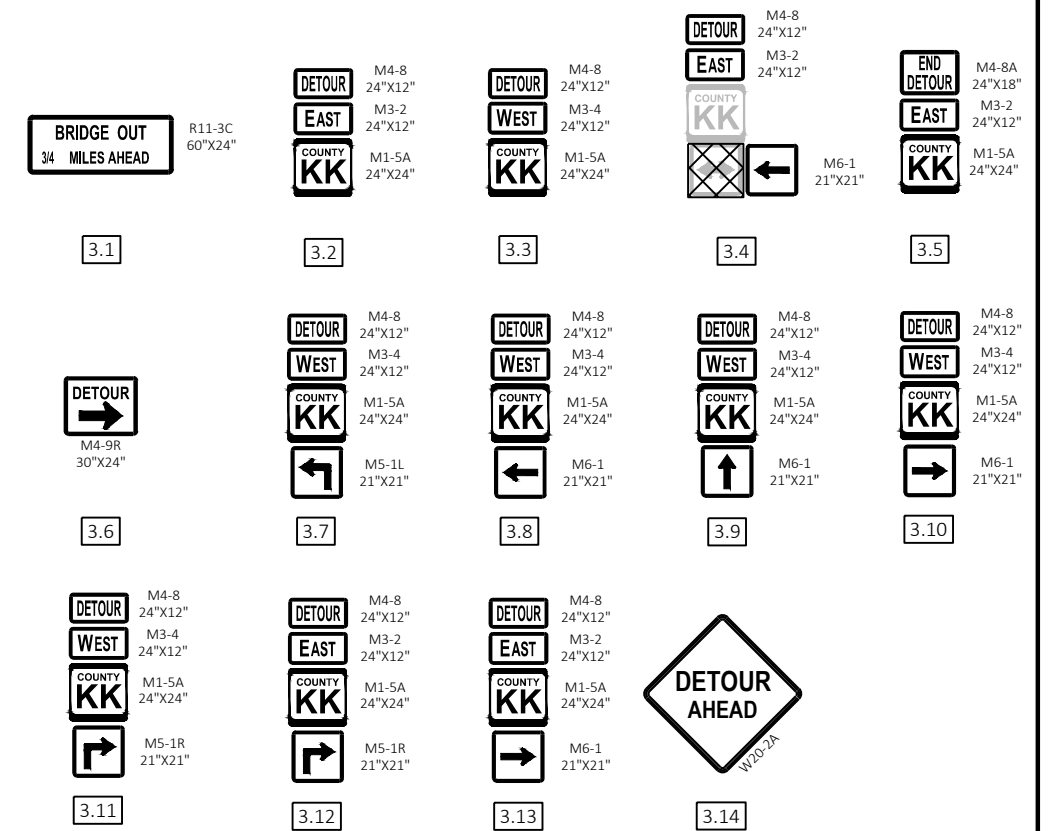


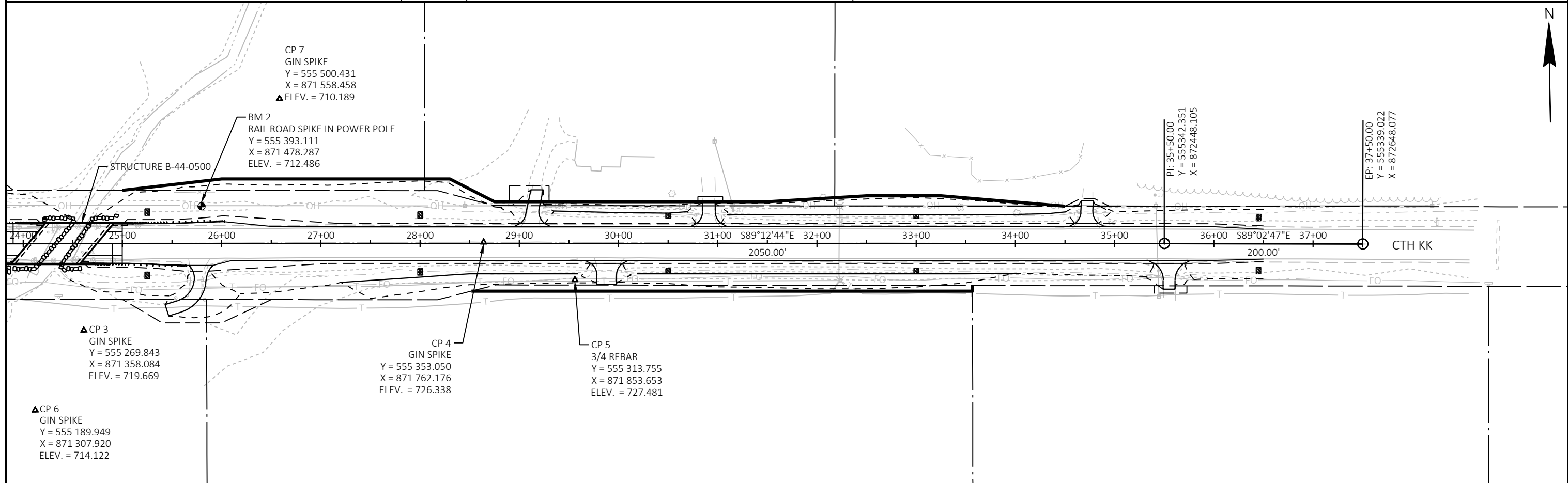
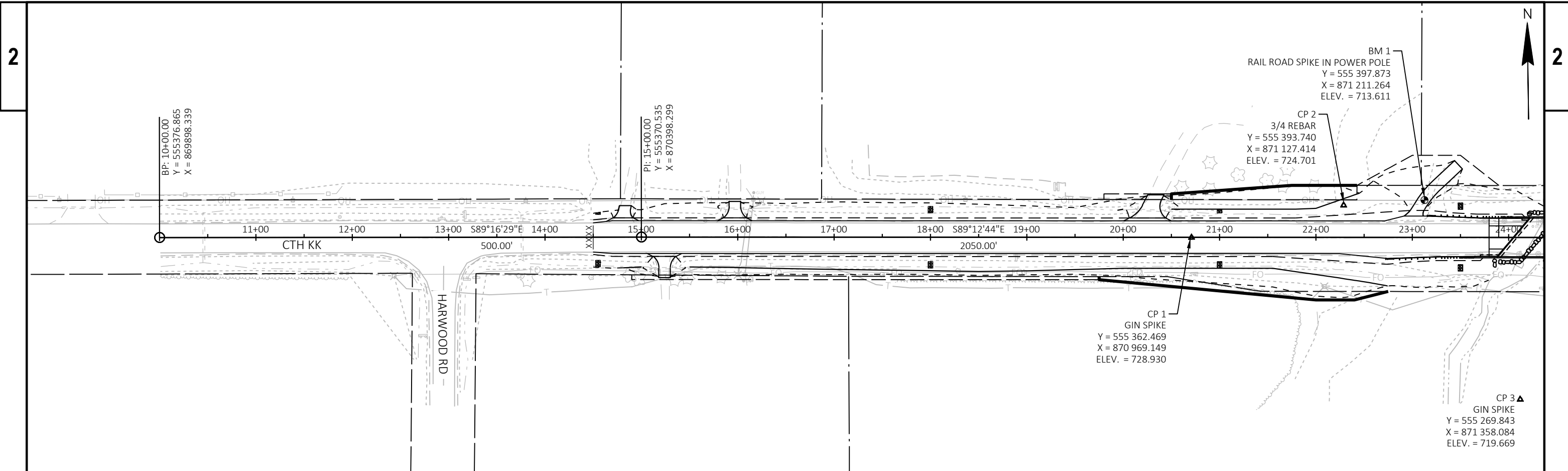
LEGEND

-  WORK ZONE
-  DETOUR ROUTE
-  SIGN NUMBER
-  PROPOSED SIGN MOUNTED ON POSTS
-  BARRICADE TYPE III WITH SIGN
-  COVER EXISTING SIGN

NOTES

- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND WISDOT SDD 15C2 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTION".
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PROJECT NO: 4494-07-71

HWY: CTH KK

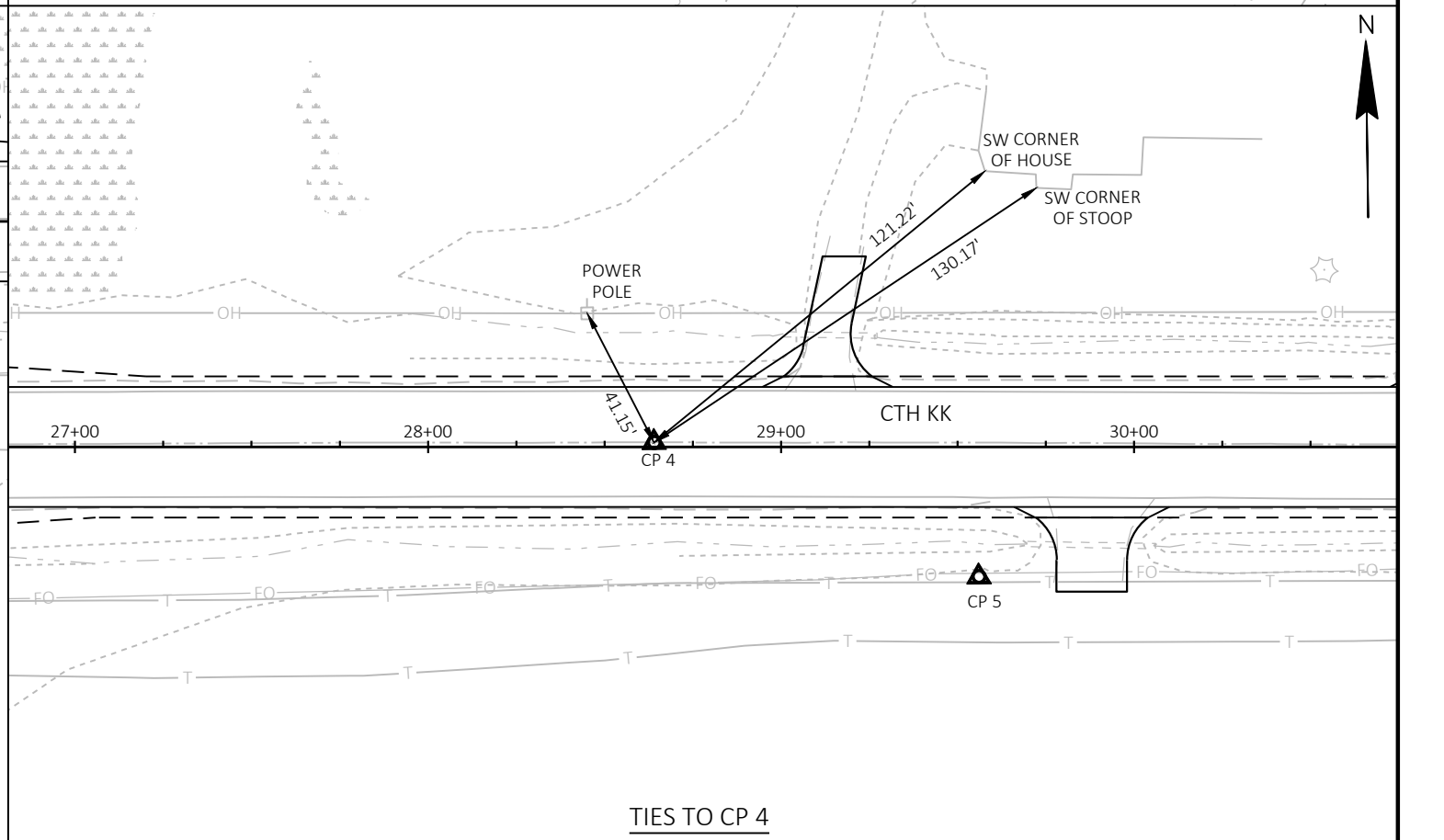
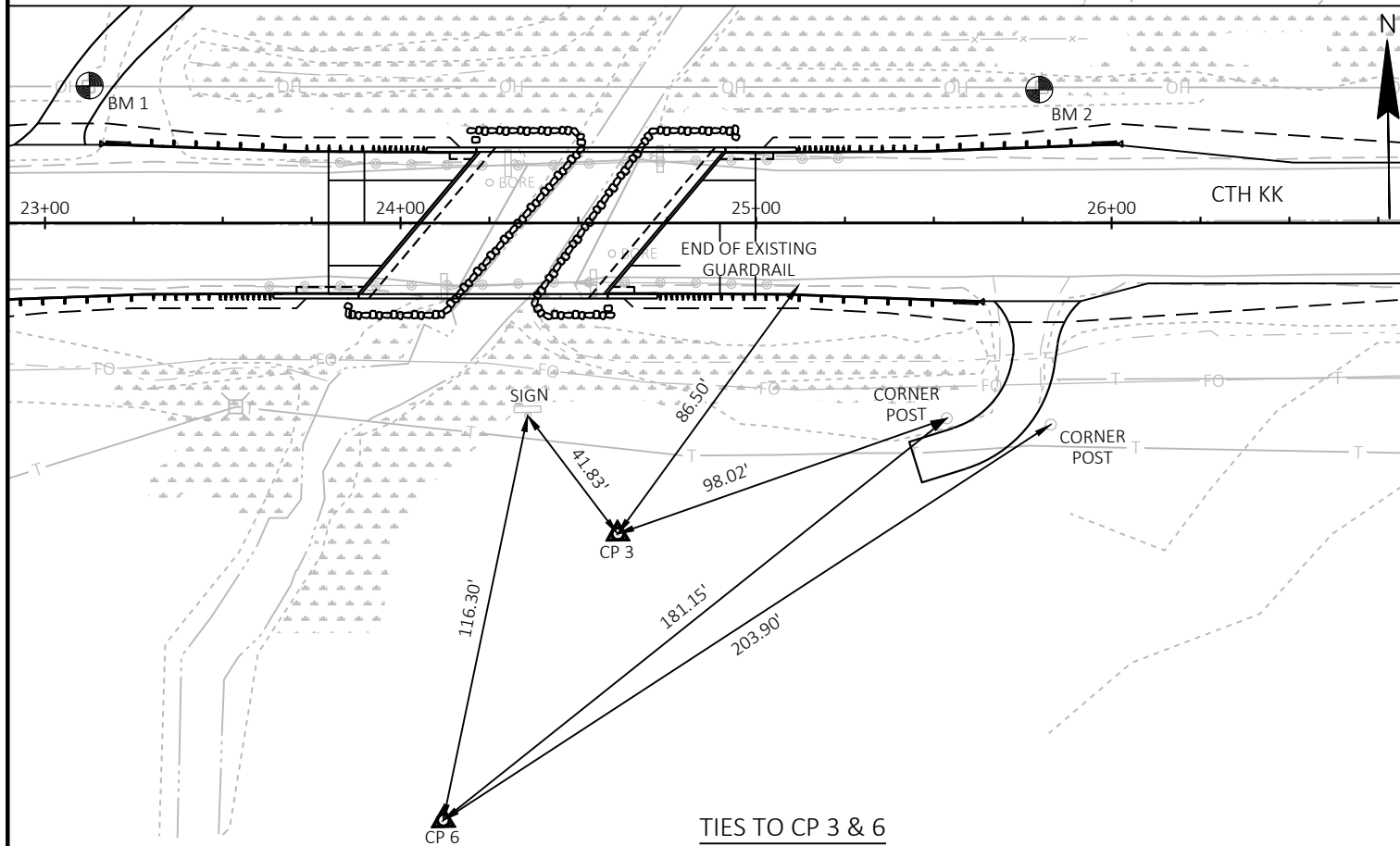
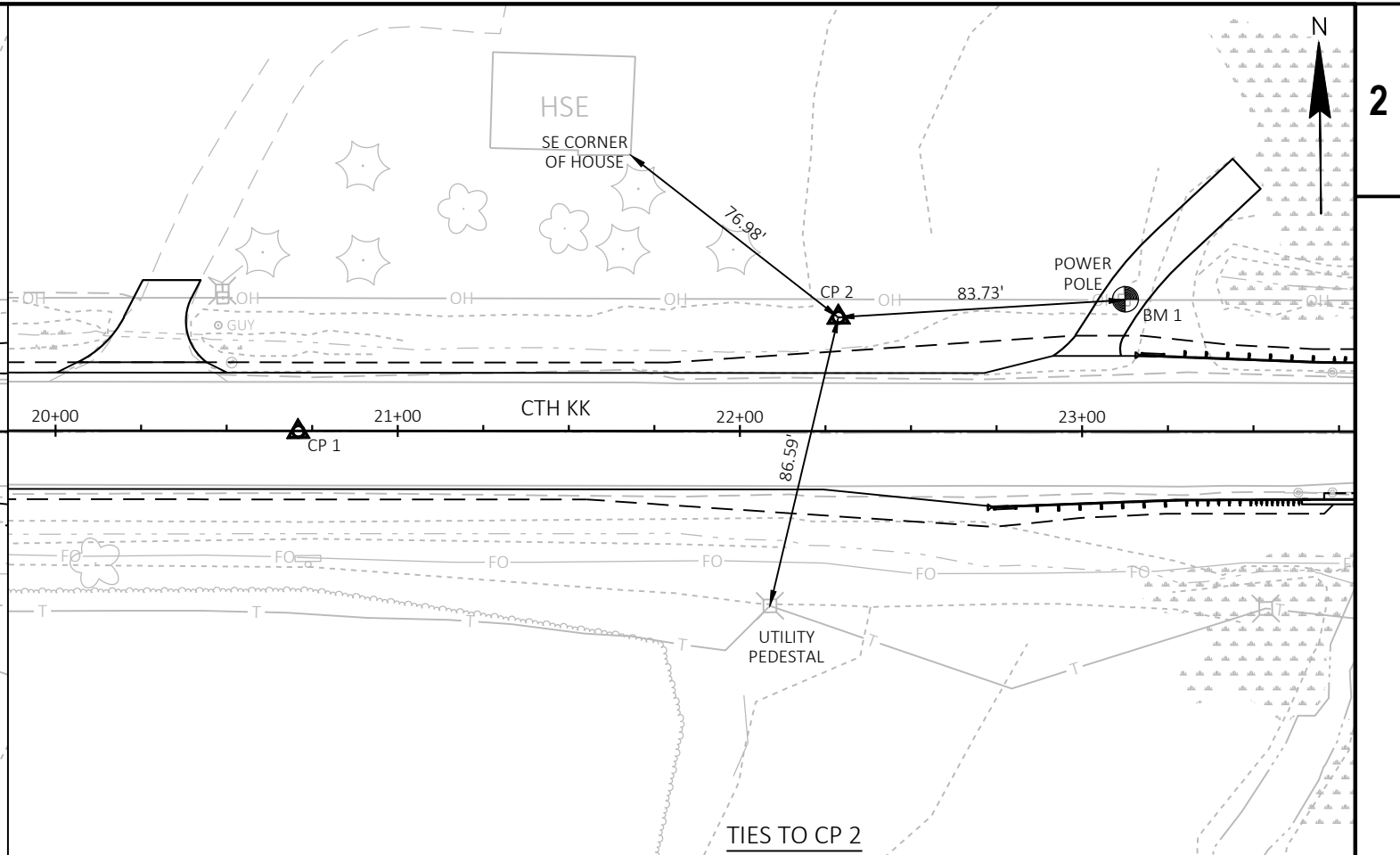
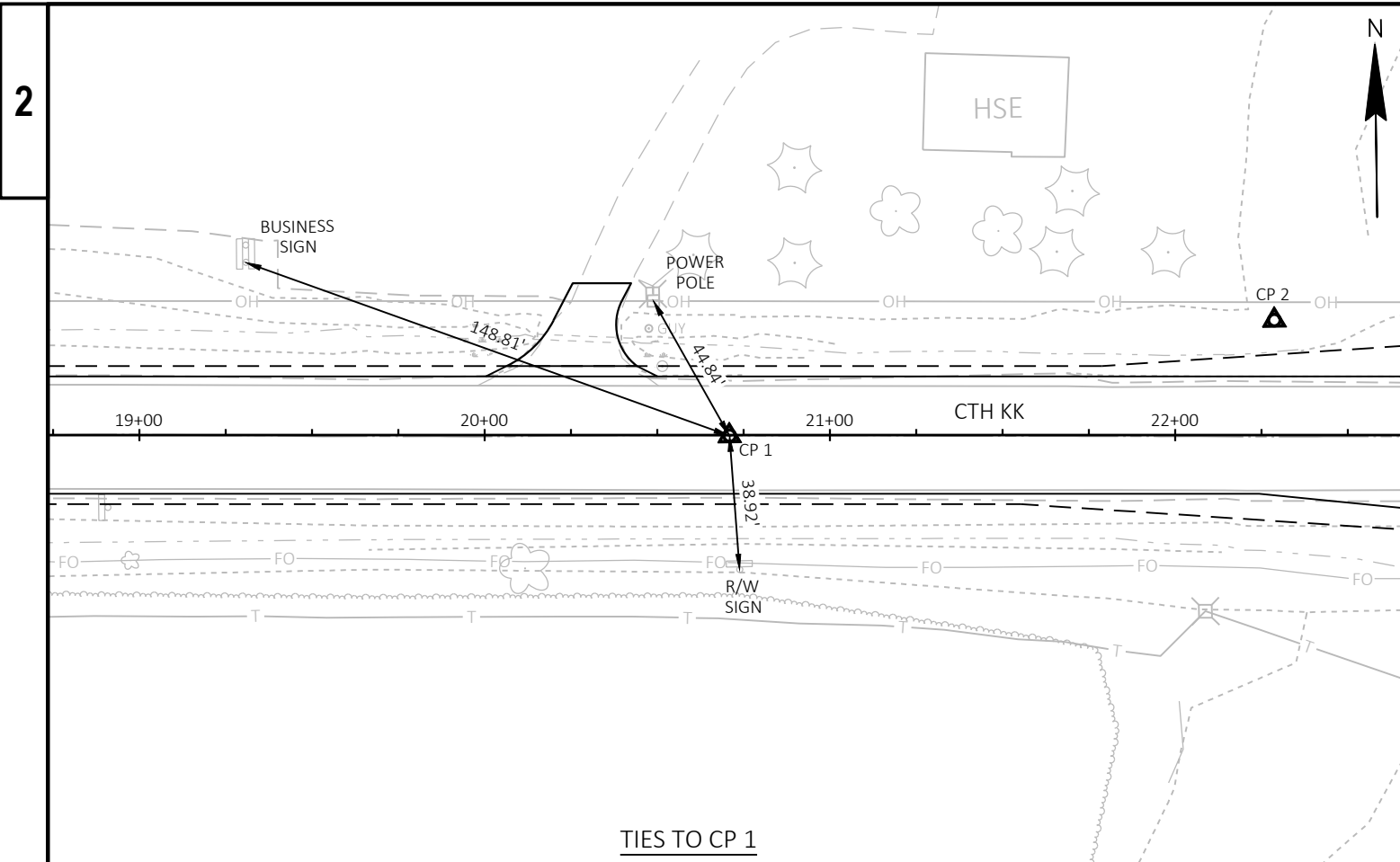
COUNTY: OUTAGAMIE

ALIGNMENT DETAILS

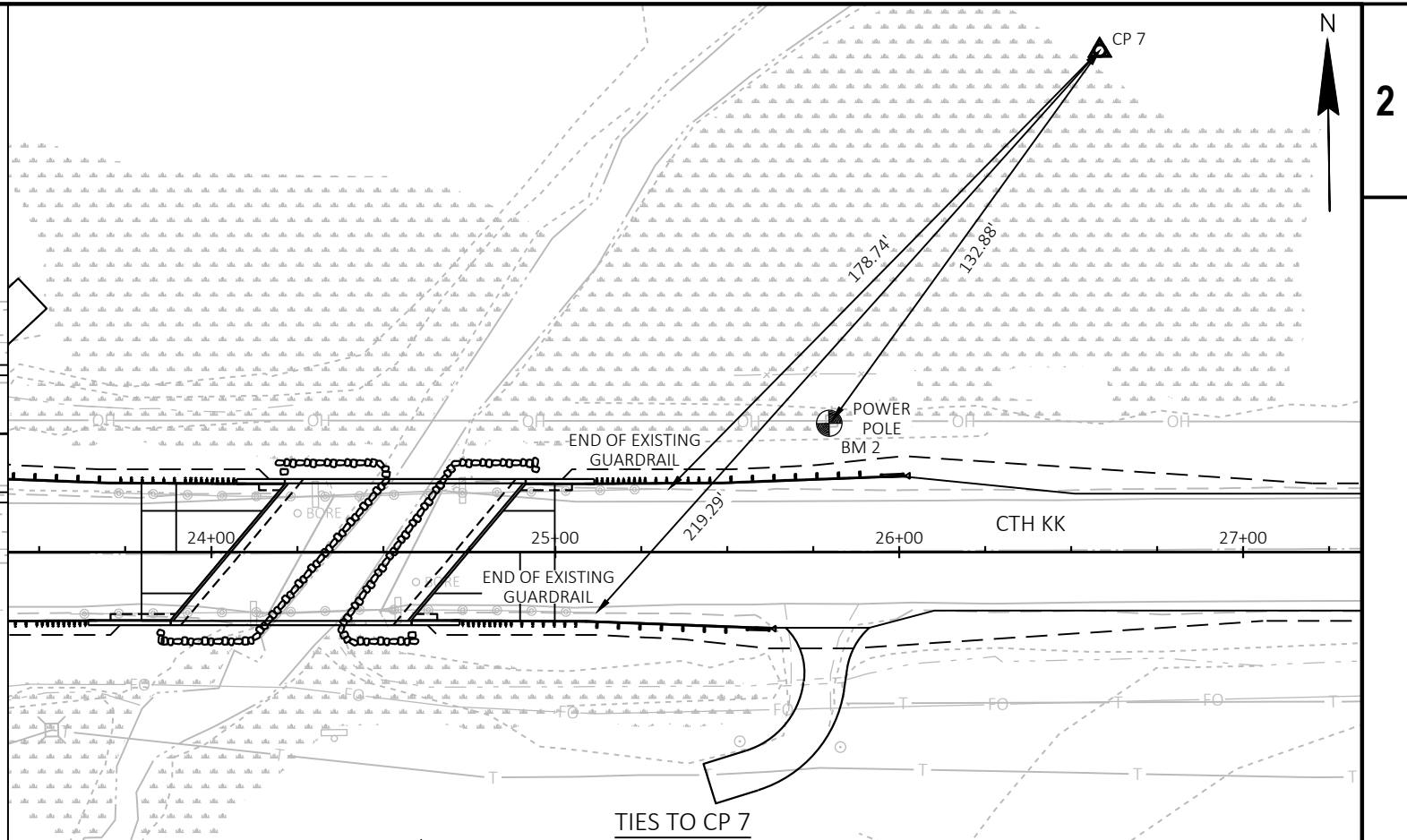
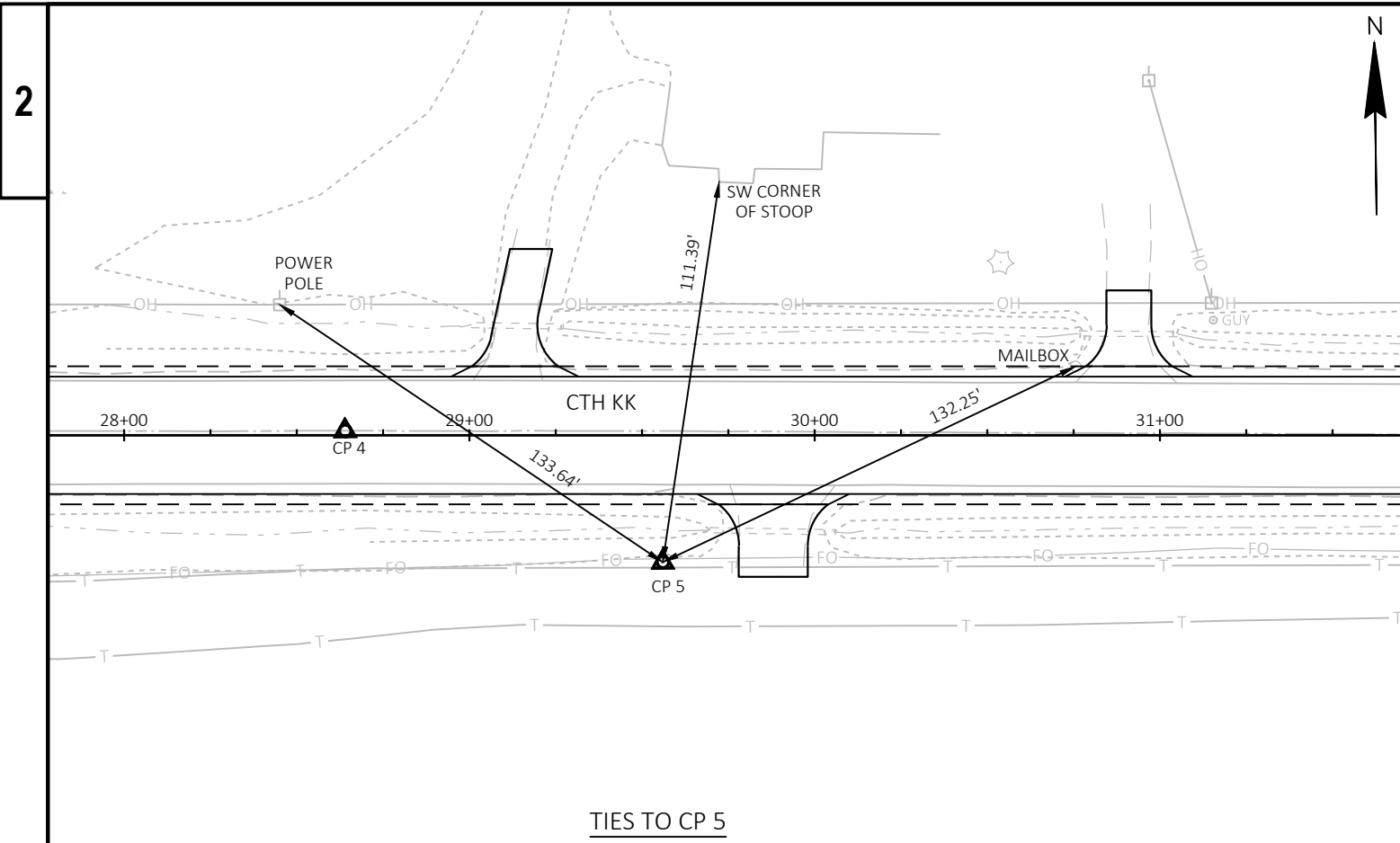
SHEET

E





|                        |             |                   |                    |       |   |
|------------------------|-------------|-------------------|--------------------|-------|---|
| PROJECT NO: 4494-07-71 | HWY: CTH KK | COUNTY: OUTAGAMIE | CONTROL POINT TIES | SHEET | E |
|------------------------|-------------|-------------------|--------------------|-------|---|



PROJECT NO: 4494-07-71

HWY: CTH KK

COUNTY: OUTAGAMIE

CONTROL POINT TIES

SHEET

E

Estimate Of Quantities

4494-07-71

| Line | Item     | Item Description  | Unit | Total      | Qty        |
|------|----------|---|------|------------|------------|
| 0002 | 203.0260 | Removing Structure Over Waterway Minimal Debris (structure) 01. B-44-0003 | EACH | 1.000      | 1.000      |
| 0004 | 204.0165 | Removing Guardrail  | LF   | 256.000    | 256.000    |
| 0006 | 206.1001 | Excavation for Structures Bridges (structure) 01. B-44-0500               | EACH | 1.000      | 1.000      |
| 0008 | 210.1500 | Backfill Structure Type A   | TON  | 770.000    | 770.000    |
| 0010 | 213.0100 | Finishing Roadway (project) 01. 4494-07-71                                | EACH | 1.000      | 1.000      |
| 0012 | 415.0410 | Concrete Pavement Approach Slab   | SY   | 224.000    | 224.000    |
| 0014 | 502.0100 | Concrete Masonry Bridges  | CY   | 273.000    | 273.000    |
| 0016 | 502.3200 | Protective Surface Treatment  | SY   | 418.000    | 418.000    |
| 0018 | 503.0137 | Prestressed Girder Type I 36W-Inch  | LF   | 264.000    | 264.000    |
| 0020 | 505.0400 | Bar Steel Reinforcement HS Structures                                     | LB   | 10,650.000 | 10,650.000 |
| 0022 | 505.0600 | Bar Steel Reinforcement HS Coated Structures                              | LB   | 27,440.000 | 27,440.000 |
| 0024 | 506.2605 | Bearing Pads Elastomeric Non-Laminated                                    | EACH | 8.000      | 8.000      |
| 0026 | 506.4000 | Steel Diaphragms (structure) 01. B-44-0500                                | EACH | 3.000      | 3.000      |
| 0028 | 513.4061 | Railing Tubular Type M  | LF   | 218.000    | 218.000    |
| 0030 | 516.0500 | Rubberized Membrane Waterproofing   | SY   | 31.000     | 31.000     |
| 0032 | 550.2128 | Piling CIP Concrete 12 3/4 X 0.50-Inch                                    | LF   | 2,950.000  | 2,950.000  |
| 0034 | 606.0300 | Riprap Heavy  | CY   | 201.000    | 201.000    |
| 0036 | 612.0406 | Pipe Underdrain Wrapped 6-Inch  | LF   | 245.000    | 245.000    |
| 0038 | 614.2500 | MGS Thrie Beam Transition   | LF   | 157.600    | 157.600    |
| 0040 | 614.2610 | MGS Guardrail Terminal EAT  | EACH | 4.000      | 4.000      |
| 0042 | 618.0100 | Maintenance and Repair of Haul Roads (project) 01. 4494-00-71             | EACH | 1.000      | 1.000      |
| 0044 | 619.1000 | Mobilization  | EACH | 1.000      | 1.000      |
| 0046 | 627.0200 | Mulching  | SY   | 7,680.000  | 7,680.000  |
| 0048 | 628.1504 | Silt Fence  | LF   | 1,500.000  | 1,500.000  |
| 0050 | 628.1520 | Silt Fence Maintenance  | LF   | 2,390.000  | 2,390.000  |
| 0052 | 628.1905 | Mobilizations Erosion Control   | EACH | 4.000      | 4.000      |
| 0054 | 628.1910 | Mobilizations Emergency Erosion Control                                   | EACH | 2.000      | 2.000      |
| 0056 | 628.2008 | Erosion Mat Urban Class I Type B  | SY   | 2,540.000  | 2,540.000  |
| 0058 | 628.6005 | Turbidity Barriers  | SY   | 196.000    | 196.000    |
| 0060 | 628.7555 | Culvert Pipe Checks   | EACH | 33.000     | 33.000     |
| 0062 | 629.0210 | Fertilizer Type B   | CWT  | 9.500      | 9.500      |
| 0064 | 630.0130 | Seeding Mixture No. 30  | LB   | 280.000    | 280.000    |
| 0066 | 630.0200 | Seeding Temporary   | LB   | 400.000    | 400.000    |
| 0068 | 630.0500 | Seed Water  | MGAL | 260.000    | 260.000    |
| 0070 | 642.5001 | Field Office Type B   | EACH | 1.000      | 1.000      |
| 0072 | 645.0111 | Geotextile Type DF Schedule A   | SY   | 88.000     | 88.000     |
| 0074 | 645.0120 | Geotextile Type HR  | SY   | 345.000    | 345.000    |
| 0076 | 646.2020 | Marking Line Epoxy 6-Inch   | LF   | 7,623.000  | 7,623.000  |
| 0078 | 648.0100 | Locating No-Passing Zones   | MI   | 0.420      | 0.420      |
| 0080 | 650.6501 | Construction Staking Structure Layout (structure) 01. B-44-0500           | EACH | 1.000      | 1.000      |
| 0082 | 650.7000 | Construction Staking Concrete Pavement                                    | LF   | 50.000     | 50.000     |
| 0084 | 650.9911 | Construction Staking Supplemental Control (project) 01. 4494-07-71        | EACH | 1.000      | 1.000      |
| 0086 | 650.9920 | Construction Staking Slope Stakes   | LF   | 2,131.000  | 2,131.000  |
| 0088 | 715.0502 | Incentive Strength Concrete Structures                                    | DOL  | 1,638.000  | 1,638.000  |
| 0090 | 715.0720 | Incentive Compressive Strength Concrete Pavement                          | DOL  | 500.000    | 500.000    |
| 0092 | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR                               | HRS  | 1,200.000  | 1,200.000  |
| 0094 | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR                                 | HRS  | 600.000    | 600.000    |
| 0096 | SPV.0195 | Special 01. Select Crushed Material For Travel Corridor                   | TON  | 82.000     | 82.000     |

**REMOVING GUARDRAIL**

| STATION        | TO | STATION | LOCATION     | 204.0165<br>LF |
|----------------|----|---------|--------------|----------------|
| 23+59          | -  | 24+17   | MAINLINE, RT | 58             |
| 23+68          | -  | 24+36   | MAINLINE, LT | 68             |
| 24+49          | -  | 25+12   | MAINLINE, RT | 63             |
| 24+66          | -  | 25+33   | MAINLINE, LT | 67             |
| PROJECT TOTALS |    |         |              | 256            |

**CONCRETE PAVEMENT APPROACH SLAB**

| STATION        | TO | STATION | LOCATION      | 415.0410<br>SY |
|----------------|----|---------|---------------|----------------|
| 23+80          | -  | 24+05   | WEST APPROACH | 112            |
| 24+74          | -  | 24+99   | EAST APPROACH | 112            |
| PROJECT TOTALS |    |         |               | 224            |

**GUARDRAIL**

| STATION        | TO | STATION  | LOCATION     | 614.2500<br>MGS THRIE<br>BEAM<br>TRANSITION<br>LF | 614.2610<br>MGS<br>GUARDRAIL<br>TERMINAL EAT<br>EACH |
|----------------|----|----------|--------------|---|--|
| 22+74.32       | -  | 24+09.95 | MAINLINE, LT | 39.40   | 1  |
| 23+17.47       | -  | 23+66.81 | MAINLINE, RT | 39.40   | 1  |
| 24+69.64       | -  | 25+62.13 | MAINLINE, RT | 39.40   | 1  |
| 25+08.62       | -  | 26+01.10 | MAINLINE, LT | 39.40   | 1  |
| PROJECT TOTALS |    |          |              | 157.60  | 4  |

**FINISHING ITEMS**

| STATION        | TO | STATION | LOCATION     | 627.0200<br>MULCHING<br>SY | 628.2008<br>EROSION MAT<br>URBAN CLASS<br>I TYPE B<br>SY | 629.0210<br>FERTILIZER<br>TYPE B<br>CWT | 630.0130<br>SEEDING<br>MIXTURE NO.<br>30<br>LB | 630.0200<br>SEEDING<br>TEMPORARY<br>LB | 630.0500<br>SEED<br>WATER<br>MGAL |
|----------------|----|---------|--------------|----------------------------|--|---|--|--|-----------------------------------|
| 14+50          | -  | 24+05   | MAINLINE, LT | 1,120                      | 550  | 1.61                                    | 50   | 70                                     | 43                                |
| 14+50          | -  | 24+05   | MAINLINE, RT | 1,500                      | 300  | 1.74                                    | 50   | 70                                     | 47                                |
| 24+74          | -  | 36+50   | MAINLINE, LT | 1,700                      | 770  | 2.16                                    | 60   | 90                                     | 58                                |
| 24+74          | -  | 36+50   | MAINLINE, RT | 1,820                      | 410  | 2.16                                    | 60   | 90                                     | 58                                |
| UNDIST         |    |         |              | 1,540                      | 510  | 1.83                                    | 60   | 80                                     | 54                                |
| PROJECT TOTALS |    |         |              | 7,680                      | 2,540  | 9.50                                    | 280  | 400                                    | 260                               |

**SILT FENCE**

| STATION        | TO | STATION | LOCATION     | 628.1504<br>SILT FENCE<br>LF | 628.1520<br>SILT FENCE<br>MAINTENANCE<br>LF |
|----------------|----|---------|--------------|------------------------------|---|
| 22+24          | -  | 24+57   | MAINLINE, LT | 260                          | 520   |
| 22+55          | -  | 23+78   | MAINLINE, RT | 125                          | 250   |
| 24+28          | -  | 27+63   | MAINLINE, RT | 350                          | 700   |
| 24+70          | -  | 29+12   | MAINLINE, LT | 460                          | 920   |
| UNDIST         |    |         |              | 305                          | ---   |
| PROJECT TOTALS |    |         |              | 1,500                        | 2,390                                       |

**MOBILIZATIONS EROSION CONTROL**

| LOCATION       | 628.1905<br>MOBILIZATIONS<br>EROSION<br>CONTROL<br>EACH | 628.1910<br>MOBILIZATIONS<br>EMERGENCY<br>EROSION<br>CONTROL<br>EACH |
|----------------|---|--|
| ID 4494-07-71  | 4   | 2  |
| PROJECT TOTALS | 4   | 2  |

**TURBIDITY BARRIERS**

| LOCATION       | 628.6005<br>SY |
|----------------|----------------|
| WEST APPROACH  | 116            |
| EAST APPROACH  | 80             |
| PROJECT TOTALS | 196            |

**CULVERT PIPE CHECKS**

| STATION        | LOCATION     | 628.7555<br>EACH |
|----------------|--------------|------------------|
| 15+24          | RT, DRIVEWAY | 3                |
| 15+97          | LT, DRIVEWAY | 3                |
| 20+27          | LT, DRIVEWAY | 3                |
| 25+79          | RT, DRIVEWAY | 3                |
| 29+13          | LT, DRIVEWAY | 3                |
| 29+88          | RT, DRIVEWAY | 3                |
| 30+91          | LT, DRIVEWAY | 3                |
| 34+71          | LT, DRIVEWAY | 3                |
| 35+55          | RT, DRIVEWAY | 3                |
| UNDIST         |              | 6                |
| PROJECT TOTALS |              | 33               |

**MARKING LINE EPOXY 6-INCH**

| STATION    | TO | STATION | LOCATION     | 646.2020<br>WHITE<br>LF | YELLOW<br>LF | REMARKS         |
|------------|----|---------|--------------|-------------------------|--------------|-----------------|
| 14+50      | -  | 36+50   | MAINLINE, LT | 2,200                   | ---          | EDGE LINE       |
| 14+50      | -  | 36+50   | MAINLINE, RT | 2,200                   | ---          | EDGE LINE       |
| 14+50      | -  | 22+80   | MAINLINE, CL | ---                     | 1038         | EB PASSING ONLY |
| 22+80      | -  | 28+30   | MAINLINE, CL | ---                     | 1100         | DOUBLE YELLOW   |
| 28+30      | -  | 35+70   | MAINLINE, CL | ---                     | 925          | WB PASSING ONLY |
|            |    |         |              | ---                     | 160          | DOUBLE YELLOW   |
| TOTAL 0010 |    |         |              | 4,400                   | 3,223        |                 |

NOTE:  
ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED.

PROJECT NO: 4494-07-71

HWY: CTH KK

COUNTY: OUTAGAMIE

MISCELLANEOUS QUANTITIES

SHEET

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**LOCATING NO-PASSING ZONES**

| STATION TO     | STATION | LOCATION | 648.0100<br>MI |
|----------------|---------|----------|----------------|
| 14+50          | - 36+50 | MAINLINE | 0.42           |
| PROJECT TOTALS |         |          | 0.42           |

NOTE:  
ALL ITEMS CATEGORY 0010  
UNLESS OTHERWISE NOTED.

**CONSTRUCTION STAKING**

| STATION TO     | STATION | LOCATION      | 650.6501<br>CONSTRUCTION<br>STAKING<br>STRUCTURE<br>LAYOUT<br>(STRUCTURE)<br>01. B-44-0500<br>EACH | 650.7000<br>CONSTRUCTION<br>STAKING<br>CONCRETE<br>PAVEMENT<br>LF | 650.9911<br>CONSTRUCTION<br>STAKING<br>SUPPLEMENTAL<br>CONTROL<br>(PROJECT)<br>01. 4494-07-71<br>EACH | 650.9920<br>CONSTRUCTION<br>STAKING SLOPE<br>STAKES<br>LF |
|----------------|---------|---------------|--|---|---|---|
| 14+50          | - 24+05 | WEST APPROACH | ---  | 25  | ---   | 955   |
| 24+74          | - 36+50 | EAST APPROACH | ---  | 25  | ---   | 1,176   |
| PROJECT        |         |               | ---  | ---   | 1   | ---   |
| TOTAL 0010     |         |               | 0  | 50  | 1   | 2,131   |
| PROJECT        |         |               | 1  | ---   | ---   | ---   |
| TOTAL 0020     |         |               | 1  | 0   | 0   | 0   |
| PROJECT TOTALS |         |               | 1  | 50  | 1   | 2,131   |

# WORK BY OTHERS

## CLEARING & GRUBBING

| STATION TO     | STATION | LOCATION     | 201.0105<br>CLEARING<br>STA | 201.0205<br>GRUBBING<br>STA |
|----------------|---------|--------------|-----------------------------|-----------------------------|
| 20+00          | - 24+00 | MAINLINE, LT | 4                           | 4                           |
| 20+00          | - 29+00 | MAINLINE, RT | 9                           | 9                           |
| 25+00          | - 29+00 | MAINLINE, LT | 4                           | 4                           |
| 32+00          | - 35+00 | MAINLINE, LT | 3                           | 3                           |
| PROJECT TOTALS |         |              | 20                          | 20                          |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## REMOVING ASPHALTIC SURFACE

| STATION        | LOCATION     | 204.0110<br>SY |
|----------------|--------------|----------------|
| 34+71          | DRIVEWAY, LT | 48             |
| PROJECT TOTALS |              | 48             |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## EARTHWORK SUMMARY

| STATION TO     | STATION | LOCATION      | 205.0100<br>(1)<br>EXCAVATION COMMON<br>CUT (2) | (3)<br>UNUSABLE PAVEMENT<br>MATERIAL | (4)<br>AVAILABLE<br>MATERIAL | UNEXPANDED<br>FILL | (5)<br>EXPANDED<br>FILL<br>FACTOR<br>1.25 | (6)<br>MASS ORDINATE<br>+/- | (7)<br>WASTE | 208.0100<br>(8)<br>BORROW |
|----------------|---------|---------------|---|--------------------------------------|------------------------------|--------------------|---|-----------------------------|--------------|---------------------------|
| 14+50          | - 24+05 | WEST APPROACH | 4,306   | 1,167                                | 3,139                        | 2,009              | 2,511                                     | 628                         | 628          | -628                      |
| 24+74          | - 36+50 | EAST APPROACH | 4,415   | 1,431                                | 2,984                        | 4,363              | 5,454                                     | -2,470                      | 0            | 2,470                     |
|                |         | DRIVEWAYS     | 34  | 0                                    | 34                           | 237                | 296                                       | -262                        | 0            | 262                       |
| PROJECT TOTALS |         |               | 8,755   | 2,598                                | 6,157                        | 6,609              | 8,261                                     | -2,104                      | 628          | 2,104                     |

- 1) EXCAVATION COMMON IS THE SUM OF THE CUT. ITEM 205.0100
- 2) UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN THE CUT VOLUME.
- 3) UNUSABLE PAVEMENT MATERIAL INCLUDES REMOVED ASPHALTIC PAVEMENT.
- 4) AVAILABLE MATERIAL = CUT - UNUSABLE PAVEMENT MATERIAL.
- 5) EXPANDED FILL FACTOR = 1.25. EXPANDED FILL = (UNEXPANDED FILL) x 1.25
- 6) THE MASS ORDINATE + OR - QUANTITY CALCULATED FOR THE LOCATION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIALS WITHIN THE
- 7) WASTE = POSITIVE MASS ORDINATE. WASTE MATERIAL TO BE USED ON SITE.
- 8) BORROW = NEGATIVE MASS ORDINATE. ITEM 208.0100.

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## BASE AGGREGATE DENSE

| STATION TO     | STATION | LOCATION          | 305.0110<br>BASE<br>AGGREGATE<br>DENSE 3/4-INCH<br>TON | 305.0120<br>BASE<br>AGGREGATE<br>DENSE 1 1/4-<br>INCH<br>TON | 312.0110<br>SELECT<br>CRUSHED<br>MATERIAL<br>TON | 624.0100<br>WATER<br>MGAL |
|----------------|---------|-------------------|--|--|--|---------------------------|
| 14+50          | - 24+05 | MAINLINE          | 260  | 2,470  | 2,860  | 56                        |
| 24+74          | - 36+50 | MAINLINE          | 310  | 3,080  | 3,474  | 69                        |
|                |         | UNPAVED DRIVEWAYS | ---  | 170  | ---  | ---                       |
|                |         | PAVED DRIVEWAYS   | ---  | 20   | ---  | ---                       |
| PROJECT TOTALS |         |                   | 570  | 5,740  | 6,334  | 125                       |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## ASPHALTIC ITEMS

| STATION TO     | STATION | LOCATION      | 455.0605<br>TACK COAT<br>GAL | 465.0105<br>465.0120<br>ASPHALTIC<br>SURFACE<br>TON |
|----------------|---------|---------------|------------------------------|---|
| 14+50          | - 23+80 | WEST APPROACH | 255                          | 1,030   |
| 24+99          | - 36+50 | EAST APPROACH | 315                          | 1,260   |
| PROJECT TOTALS |         |               | 570                          | 2,290   |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## ASPHALTIC SURFACE DRIVEWAYS AND FIELD

| STATION        | LOCATION     | 465.0120<br>TON |
|----------------|--------------|-----------------|
| 34+71          | DRIVEWAY, LT | 6               |
| PROJECT TOTALS |              | 6               |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

## SALVAGED TOPSOIL

| STATION TO     | STATION | LOCATION     | 625.0500<br>SY |
|----------------|---------|--------------|----------------|
| 14+50          | - 24+05 | MAINLINE, LT | 1,680          |
| 14+50          | - 24+05 | MAINLINE, RT | 1,800          |
| 24+74          | - 36+50 | MAINLINE, LT | 2,480          |
| 24+74          | - 36+50 | MAINLINE, RT | 2,230          |
| UNDIST         |         |              | 2,050          |
| PROJECT TOTALS |         |              | 10,240         |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

PROJECT NO: 4494-07-71

HWY: CTH KK

COUNTY: OUTAGAMIE

MISCELLANEOUS QUANTITIES

SHEET

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# WORK BY OTHERS

3

### CULVERT PIPES

| STATION               | LOCATION     | 203.0100                     | 520.1012                                | 520.1018                                | 520.1024                                | 520.3312                            | 520.3318                            | 520.3324                            |
|-----------------------|--------------|------------------------------|---|---|---|-------------------------------------|-------------------------------------|-------------------------------------|
|                       |              | REMOVING SMALL PIPE CULVERTS | ENDWALLS FOR APRON CULVERT PIPE 12-INCH | ENDWALLS FOR APRON CULVERT PIPE 18-INCH | ENDWALLS FOR APRON CULVERT PIPE 24-INCH | CULVERT PIPE CLASS III-A 12-INCH LF | CULVERT PIPE CLASS III-A 18-INCH LF | CULVERT PIPE CLASS III-A 24-INCH LF |
| 15+24                 | DRIVEWAY, RT | 1                            | ---                                     | ---                                     | ---                                     | ---                                 | ---                                 | ---                                 |
| 15+97                 | DRIVEWAY, LT | 1                            | 2                                       | ---                                     | ---                                     | 22                                  | ---                                 | ---                                 |
| 20+20                 | DRIVEWAY, LT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 38                                  | ---                                 |
| 25+79                 | DRIVEWAY, RT | 1                            | ---                                     | ---                                     | 2                                       | ---                                 | ---                                 | 52                                  |
| 29+13                 | DRIVEWAY, LT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 36                                  | ---                                 |
| 29+88                 | DRIVEWAY, RT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 34                                  | ---                                 |
| 30+91                 | DRIVEWAY, LT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 28                                  | ---                                 |
| 34+71                 | DRIVEWAY, LT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 28                                  | ---                                 |
| 35+55                 | DRIVEWAY, RT | 1                            | ---                                     | 2                                       | ---                                     | ---                                 | 30                                  | ---                                 |
| <b>PROJECT TOTALS</b> |              | <b>9</b>                     | <b>2</b>                                | <b>12</b>                               | <b>2</b>                                | <b>22</b>                           | <b>194</b>                          | <b>52</b>                           |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

### SIGNING

| STATION               | LOCATION | SIGN NUMBER | SIGN CODE | 634.0612                         | 637.2230                      | 638.2602                    | 638.3000                          | REMARKS                |
|-----------------------|----------|-------------|-----------|----------------------------------|-------------------------------|-----------------------------|-----------------------------------|------------------------|
|                       |          |             |           | POSTS WOOD 4X6-INCH X 12-FT EACH | SIGNS TYPE II REFLECTIVE F SF | REMOVING SIGNS TYPE II EACH | REMOVING SMALL SIGN SUPPORTS EACH |                        |
| 18+90                 | RT       | 5R          | ---       | ---                              | ---                           | 2                           | 1                                 | NARROW BRIDGE & 35 MPH |
| 22+80*                | LT       | 5           | W14-3     | 1                                | 5.56                          | ---                         | ---                               | NO PASSING ZONE        |
| 23+64                 | RT       | 1           | W5-52 R   | 1                                | 3.00                          | ---                         | ---                               | BRIDGE HASH MARKS      |
| 24+07                 | LT       | 2           | W5-52 L   | 1                                | 3.00                          | ---                         | ---                               | BRIDGE HASH MARKS      |
| 24+14                 | RT       | 1R          | ---       | ---                              | ---                           | 1                           | 1                                 | BRIDGE HASH MARKS      |
| 24+32                 | LT       | 2R          | ---       | ---                              | ---                           | 1                           | 1                                 | BRIDGE HASH MARKS      |
| 24+53                 | RI       | 3R          | ---       | ---                              | ---                           | 1                           | 1                                 | BRIDGE HASH MARKS      |
| 24+71                 | LT       | 4R          | ---       | ---                              | ---                           | 1                           | 1                                 | BRIDGE HASH MARKS      |
| 24+72                 | RT       | 3           | W5-52 L   | 1                                | 3.00                          | ---                         | ---                               | BRIDGE HASH MARKS      |
| 25+11                 | LT       | 4           | W5-52 R   | 1                                | 3.00                          | ---                         | ---                               | BRIDGE HASH MARKS      |
| 28+30*                | RT       | 6           | W14-3     | 1                                | 5.56                          | ---                         | ---                               | NO PASSING ZONE        |
| 32+24                 | LI       | 6R          | ---       | ---                              | ---                           | 2                           | 1                                 | NARROW BRIDGE & 35 MPH |
| <b>PROJECT TOTALS</b> |          |             |           | <b>6</b>                         | <b>23.12</b>                  | <b>8</b>                    | <b>6</b>                          |                        |

\* ADJUST LOCATION BASED ON THE RESULTS OF LOCATING NO PASSING ZONES.

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

### TRAFFIC CONTROL

| LOCATION              | DURATION DAY | 643.0420  | 643.0705  | 643.0900                          | 643.0910                             | 643.0920                              | 643.1050                               | 643.5000             |
|-----------------------|--------------|---|---|-----------------------------------|--------------------------------------|---------------------------------------|--|----------------------|
|                       |              | TRAFFIC CONTROL BARRICADES TYPE III (NO.) (DAY) | TRAFFIC CONTROL WARNING LIGHTS TYPE A (NO.) (DAY) | TRAFFIC CONTROL SIGNS (NO.) (DAY) | TRAFFIC CONTROL COVERING TYPE I EACH | TRAFFIC CONTROL COVERING TYPE II EACH | TRAFFIC CONTROL SIGNS PCMS (NO.) (DAY) | TRAFFIC CONTROL EACH |
| CLOSURE               | 103          | 16 1,648  | 32 3,296  | 12 1,236                          | ---                                  | ---                                   | ---                                    | ---                  |
| DETOUR                | 103          | 4 412   | 8 824   | 148 15,244                        | 4                                    | 1                                     | ---                                    | ---                  |
| UNDISTRIBUTED PROJECT | 7            | 5 515   | 10 1,030  | 40 4,120                          | ---                                  | 2                                     | ---                                    | ---                  |
| <b>PROJECT TOTALS</b> |              | <b>25 2,575</b>                                 | <b>50 5,150</b>                                   | <b>200 20,600</b>                 | <b>4</b>                             | <b>3</b>                              | <b>2 14</b>                            | <b>1</b>             |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

### GEOGRID TYPE SR

| STATION TO            | STATION | LOCATION | 645.0220 SY    |
|-----------------------|---------|----------|----------------|
| 14+50                 | -       | 24+05    | MAINLINE 4,470 |
| 24+74                 | -       | 36+50    | MAINLINE 5,450 |
| <b>PROJECT TOTALS</b> |         |          | <b>9,920</b>   |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

### CONSTRUCTION STAKING

| STATION TO            | STATION | LOCATION | 650.4500 CONSTRUCTION STAKING SUBGRADE LF | 650.5000 CONSTRUCTION STAKING BASE LF |
|-----------------------|---------|----------|---|---------------------------------------|
| 14+50                 | -       | 24+05    | WEST APPROACH 955                         | 955                                   |
| 24+74                 | -       | 36+50    | EAST APPROACH 1,176                       | 1,176                                 |
| <b>PROJECT TOTALS</b> |         |          | <b>2,131</b>                              | <b>2,131</b>                          |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

### SAWING ASPHALT

| STATION               | LOCATION     | 690.0150 LF |
|-----------------------|--------------|-------------|
| 14+50                 | MAINLINE     | 30          |
| 34+71                 | DRIVEWAY, LT | 12          |
| 36+50                 | MAINLINE     | 30          |
| <b>PROJECT TOTALS</b> |              | <b>72</b>   |

\*\*FOR INFORMATION ONLY: WORK BY OTHERS.

PROJECT NO: 4494-07-71

HWY: CTH KK

COUNTY: OUTAGAMIE

MISCELLANEOUS QUANTITIES

SHEET

E

|  |                      |                   |
|--|----------------------|-------------------|
| R/W PROJECT NUMBER<br>4494-07-00   | SHEET NUMBER<br>4.01 | TOTAL SHEETS<br>5 |
| FEDERAL PROJECT NUMBER<br>4.01   |                      |                   |
| PLAT OF RIGHT OF WAY REQUIRED FOR<br><b>BUCHANAN - HOLLAND<br/>KANKAPOT CREEK BRIDGE</b> |                      |                   |
| CTH KK   | OUTAGAMIE/CALUMET    |                   |
| CONSTRUCTION PROJECT NUMBER<br>4494-07-71  |                      |                   |

CONVENTIONAL SYMBOLS

|   |     |                           |  |                                      |    |
|---|-----|---------------------------|--|--------------------------------------|----|
| SECTION LINE  | --- | SECTION CORNER SYMBOL     |  | R/W MONUMENT (TO BE SET)             | ●  |
| QUARTER LINE  | --- | SECTION CORNER MONUMENT   |  | NON-MONUMENTED R/W POINT             | ○  |
| SIXTEENTH LINE  | --- | GEODETIC SURVEY MONUMENT  |  | FOUND IRON PIN (1-INCH UNLESS NOTED) | IP |
| NEW REFERENCE LINE  | --- | SIXTEENTH CORNER MONUMENT |  | OFF-PREMISE SIGN                     |    |
| NEW R/W LINE  | --- | SIGN                      |  | COMPENSABLE                          |    |
| EXISTING R/W OR HE LINE                                     | --- | OFF-PREMISE SIGN          |  | NON-COMPENSABLE                      |    |
| PROPERTY LINE   | --- | PARCEL NUMBER (25)        |  | UTILITY NUMBER (40)                  |    |
| LOT, TIE & OTHER MINOR LINES                                | --- | PARALLEL OFFSETS          |  |                                      |    |
| SLOPE INTERCEPT   | --- |                           |  |                                      |    |
| CORPORATE LIMITS  | --- |                           |  |                                      |    |
| UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)        | --- |                           |  |                                      |    |
| NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)              | --- |                           |  |                                      |    |
| TEMPORARY LIMITED EASEMENT AREA                             | --- |                           |  |                                      |    |
| EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT) | --- |                           |  |                                      |    |
| TRANSMISSION STRUCTURES                                     | --- |                           |  |                                      |    |
| BUILDING TO BE REMOVED                                      | --- |                           |  |                                      |    |
| BRIDGE  | --- |                           |  |                                      |    |
| CULVERT   | --- |                           |  |                                      |    |

CONVENTIONAL UTILITY SYMBOLS

|                             |     |
|-----------------------------|-----|
| WATER                       | --- |
| GAS                         | --- |
| TELEPHONE                   | --- |
| OVERHEAD TRANSMISSION LINES | --- |
| ELECTRIC                    | --- |
| CABLE TELEVISION            | --- |
| FIBER OPTIC                 | --- |
| SANITARY SEWER              | --- |
| STORM SEWER                 | --- |
| ELECTRIC TOWER              | --- |

CONVENTIONAL ABBREVIATIONS

|                                 |       |                                  |        |
|---------------------------------|-------|----------------------------------|--------|
| ACCESS RIGHTS                   | AR    | POINT OF COMPOUND CURVE          | PCC    |
| ACRES                           | AC    | POINT OF INTERSECTION            | PI     |
| AHEAD                           | AH    | PROPERTY LINE                    | PL     |
| ALUMINUM                        | ALUM  | RECORDED AS                      | (100') |
| AND OTHERS                      | ET AL | REEL / IMAGE                     | R/I    |
| BACK                            | BK    | REFERENCE LINE                   | R/L    |
| BLOCK                           | BLK   | REMAINING                        | REM    |
| CENTERLINE                      | C/L   | RESTRICTIVE DEVELOPMENT EASEMENT | RDE    |
| CERTIFIED SURVEY MAP            | CSM   | RIGHT                            | RT     |
| CONCRETE                        | CONC  | RIGHT OF WAY                     | R/W    |
| COUNTY                          | CO    | SECTION                          | SEC    |
| COUNTY TRUNK HIGHWAY            | CTH   | SEPTIC VENT                      | SEPV   |
| DISTANCE                        | DIST  | SQUARE FEET                      | SF     |
| CORNER                          | COR   | STATE TRUNK HIGHWAY              | STH    |
| DOCUMENT NUMBER                 | DOC   | STATION                          | STA    |
| EASEMENT                        | EASE  | TELEPHONE PEDESTAL               | TP     |
| EXISTING                        | EX    | TEMPORARY LIMITED EASEMENT       | TLE    |
| GAS VALVE                       | GV    | TRANSPORTATION PROJECT PLAT      | TPP    |
| GRID NORTH                      | GN    | UNITED STATES HIGHWAY            | USH    |
| HIGHWAY EASEMENT                | HE    | VOLUME                           | V      |
| IDENTIFICATION                  | ID    |                                  |        |
| LAND CONTRACT                   | LC    |                                  |        |
| LEFT                            | LT    |                                  |        |
| MONUMENT                        | MON   |                                  |        |
| NATIONAL GEODETIC SURVEY NUMBER | NGS   |                                  |        |
| OUTLOT                          | OL    |                                  |        |
| PAGE                            | P     |                                  |        |
| POINT OF TANGENCY               | PT    |                                  |        |
| PERMANENT LIMITED EASEMENT      | PLE   |                                  |        |
| POINT OF BEGINNING              | POB   |                                  |        |
| POINT OF CURVATURE              | PC    |                                  |        |

CURVE DATA ABBREVIATIONS

|                    |         |
|--------------------|---------|
| LONG CHORD         | LCH     |
| LONG CHORD BEARING | LCB     |
| RADIUS             | R       |
| DEGREE OF CURVE    | D       |
| CENTRAL ANGLE      | Δ/DELTA |
| LENGTH OF CURVE    | L       |
| TANGENT            | T       |
| DIRECTION AHEAD    | DA      |
| DIRECTION BACK     | DB      |

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), OUTAGAMIE COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN GREEN BAY/NE REGION.

PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE DETAIL PAGES.

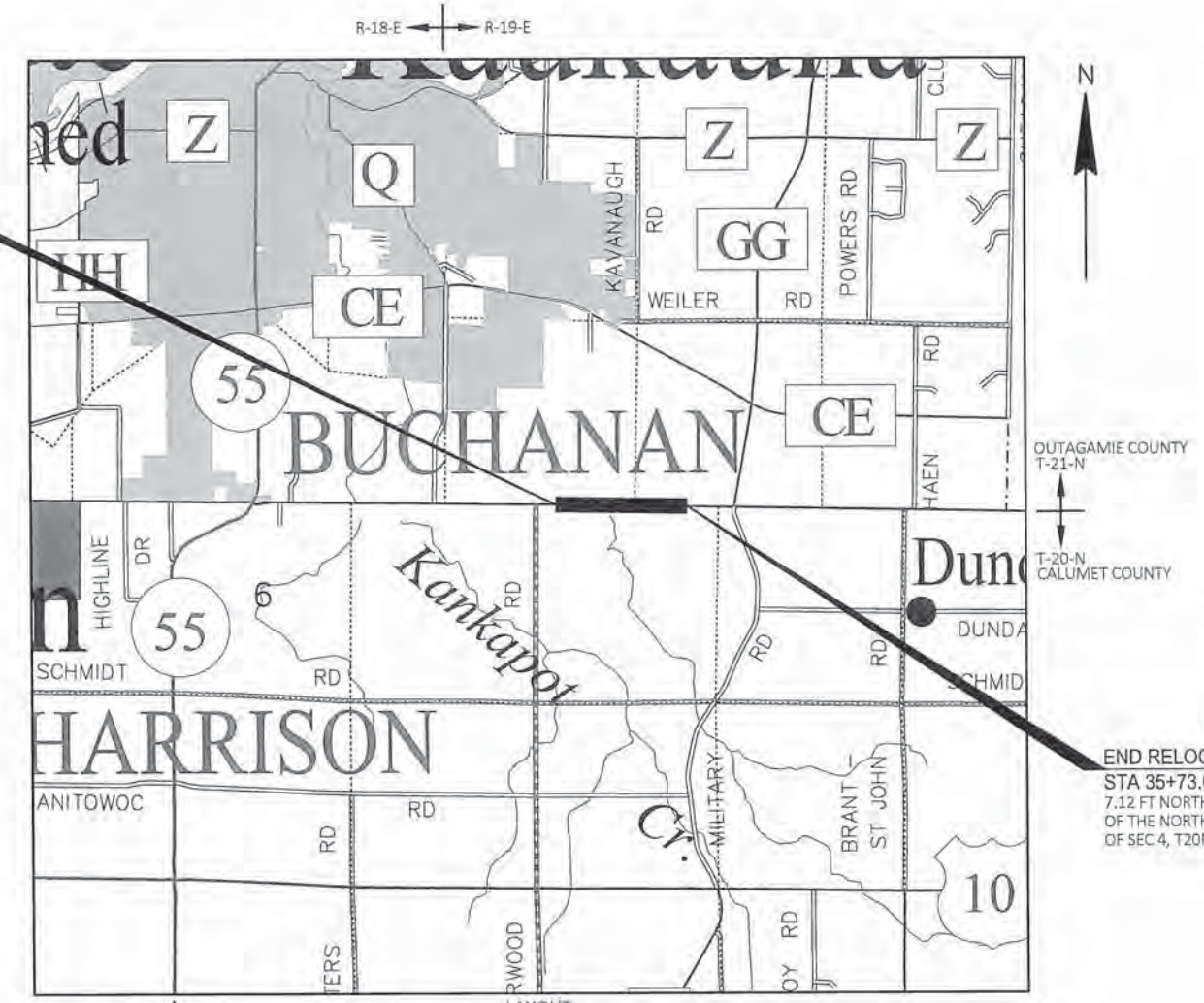
INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON THE DETAIL PAGES.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE OR PLANT THEREON ANY VEGETATION THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL TLES EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

PROPERTY LINES SHOWN ON THIS PLAT FOR PROPERTIES BEING IMPACTED ARE DRAWN FROM DATA DERIVED FROM FILED/RECORDED MAPS AND DOCUMENTS OF PUBLIC RECORD. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

EXISTING CTH KK RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING PREVIOUSLY COMPLETED RIGHT-OF-WAY PROJECTS 0733 (2), DATED APRIL 22, 1948, CERTIFICATE OF SURVEY COMPLETED BY DAVID M. SCHMALZ, DATED OCT 6, 1998 (OUTAGAMIE COUNTY); PLAT OF SURVEY BY KEITH J. VALENTYNE, DATED FEB 24, 2005 (OUTAGAMIE COUNTY); PLAT OF SURVEY COMPLETED BY ROBERT F. REIDER, DATED JUNE 28, 2017 (OUTAGAMIE COUNTY); CSM 1217 (CALUMET COUNTY); AND CSM 2898 (CALUMET COUNTY).

BEGIN RELOCATION ORDER  
STA 14+90.00  
0.03 FT NORTH AND 11.80 FT EAST  
OF THE SOUTH QUARTER CORNER  
OF SEC 31, T21N, R19E.



END RELOCATION ORDER  
STA 35+73.00  
7.12 FT NORTH AND 303.61 FT WEST  
OF THE NORTH QUARTER CORNER  
OF SEC 4, T20N, R19E.

CAUTION:  
THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

ACCEPTED FOR  
**CALUMET COUNTY**  
Date: 8-9-23  
*Todd H. Remondino*  
(Signature and Title of Official)  
County Admin.

ACCEPTED FOR  
**OUTAGAMIE COUNTY**  
Date: 8/8/23  
*D. J. Stine*  
County Admin.

ORIGINAL PLANS PREPARED BY  
**WESTBROOK**  
Associated Engineers, Inc.  
619 East Hoxie St. | P.O. Box 429 | Spring Green, WI 53588  
P: (608) 588-7666 | F: (608) 588-7954 | www.westbrookeng.com

WISCONSIN  
NICHOLAS J. BREY  
S-3145  
LAVALLE  
WISCONSIN  
LAND SURVEYOR  
08/04/2023

REVISION DATE  
DATE: 8-4-23  
*Clate B. Brey*  
(Signature)



## SCHEDULE OF LANDS AND INTERESTS

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO OUTAGAMIE COUNTY.

**OUTAGAMIE COUNTY**

| PARCEL NUMBER | SHEET NUMBER | OWNER(S)   | INTEREST REQUIRED | R/W ACRES REQUIRED |          |       | T.L.E. ACRES |
|---------------|--------------|--|-------------------|--------------------|----------|-------|--------------|
|               |              |  |                   | NEW                | EXISTING | TOTAL |              |
| 1             | 4.03         | RANDALL P. THIEMER AND TARA A. GREBE                       | T.L.E. & FEE      | 0.053              | 0.173    | 0.226 | 0.036        |
| 2             | 4.03 & 4.04  | JOSEPH A WITTMAN AND OLIVIA J. WHITMAN, HIS WIFE           | T.L.E. & FEE      | 0.068              | 0.373    | 0.441 | 0.043        |
| 3             | 4.04         | JOSEPH A WITTMAN AND OLIVIA J. WHITMAN, HIS WIFE           | T.L.E. & FEE      | 0.052              | 0.375    | 0.427 | 0.018        |
| 4             | 4.04         | ANDREW T. ERICKSON AND KATIE L. ERICKSON, HUSBAND AND WIFE | T.L.E. & FEE      | 0.039              | 0.201    | 0.240 | 0.005        |
| 200           | 4.03 & 4.04  | CHARTER  | RELEASE OF RIGHTS | ---                | ---      | ---   | ---          |
| 300           | 4.03 & 4.04  | WE ENERGIES  | RELEASE OF RIGHTS | ---                | ---      | ---   | ---          |

4

4

## SCHEDULE OF LANDS AND INTERESTS

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE OUTAGAMIE COUNTY.

**CALUMET COUNTY**

| PARCEL NUMBER | SHEET NUMBER | OWNER(S)   | INTEREST REQUIRED | R/W ACRES REQUIRED |          |       | T.L.E. ACRES |
|---------------|--------------|--|-------------------|--------------------|----------|-------|--------------|
|               |              |  |                   | NEW                | EXISTING | TOTAL |              |
| 5             | 4.03         | DAVID BRUX   | T.L.E.            | 0.000              | 0.000    | 0.000 | 0.022        |
| 6             | 4.03 & 4.04  | DAVID BRUX   | T.L.E. & FEE      | 0.046              | 0.344    | 0.390 | 0.055        |
| 7             | 4.04         | RDT PROPERTIES, LLC, A WISCONSIN LIMITED LIABILITY COMPANY | T.L.E. & FEE      | 0.067              | 0.489    | 0.556 | 0.022        |
| 8             | 4.04         | MARK L. SIMON AND AMY. SIMON, HUSBAND AND WIFE             | T.L.E.            | 0.000              | 0.000    | 0.000 | 0.006        |
| 100           | 4.03 & 4.04  | AT&T   | RELEASE OF RIGHTS | ---                | ---      | ---   | ---          |

|               |  |  |  |  |
|---------------|--|--|--|--|
| REVISION DATE |  |  |  |  |
|               |  |  |  |  |
|               |  |  |  |  |

|                 |
|-----------------|
| DATE 08/03/2023 |
| GRID FACTOR     |

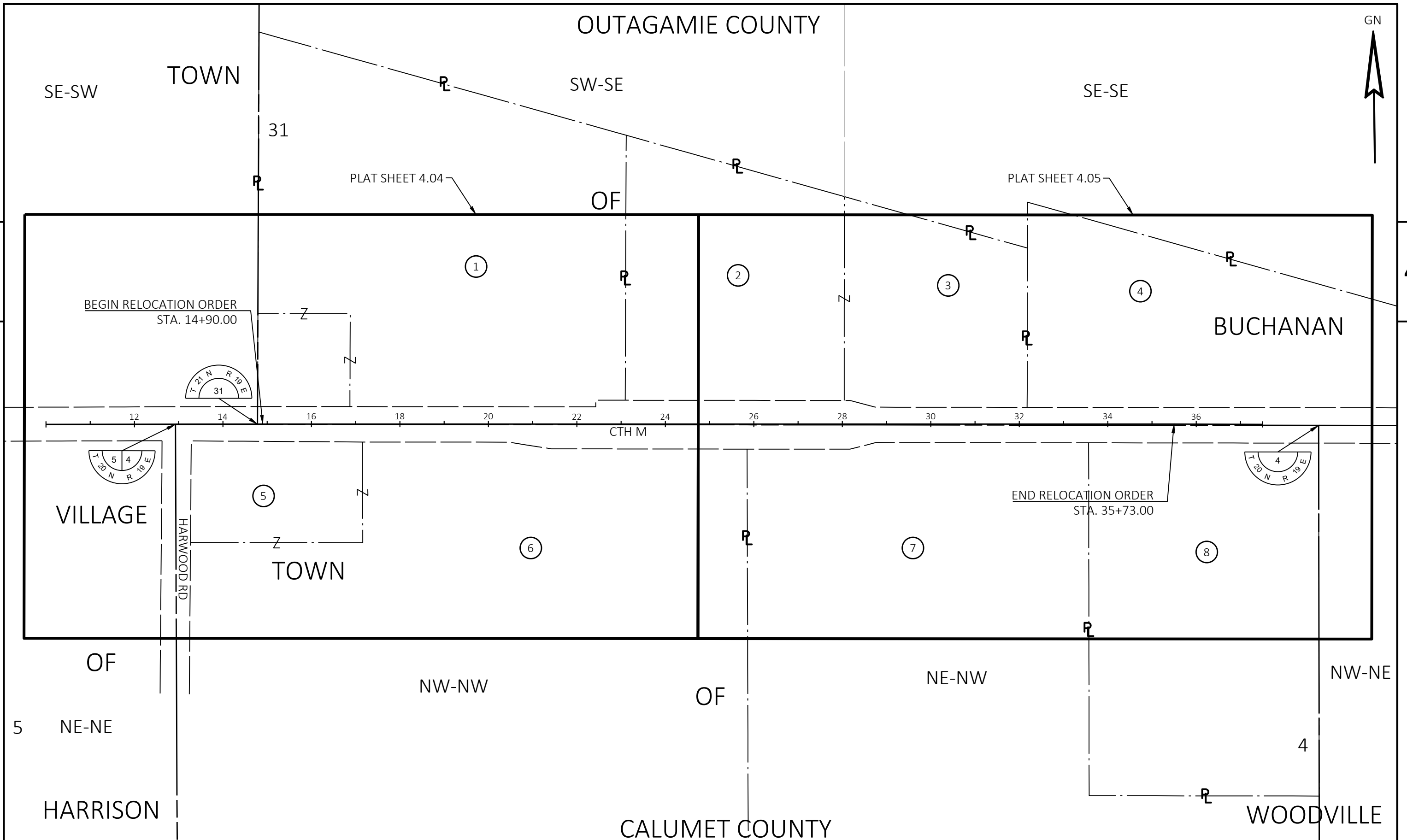
NOT TO SCALE

|                           |
|---------------------------|
| HWY: CTH KK               |
| COUNTY: OUTAGAMIE/CALUMET |

|                             |            |
|-----------------------------|------------|
| STATE R/W PROJECT NUMBER    | 4494-07-00 |
| CONSTRUCTION PROJECT NUMBER | 4494-07-71 |

|            |      |
|------------|------|
| PLAT SHEET | 4.02 |
| PS&E SHEET |      |

E



|               |                 |              |                           |  |                 |
|---------------|-----------------|--------------|---------------------------|--|-----------------|
| REVISION DATE | DATE 08/03/2023 | NOT TO SCALE | HWY: CTH KK               | STATE R/W PROJECT NUMBER 4494-07-00    | PLAT SHEET 4.03 |
|               | GRID FACTOR     |              | COUNTY: OUTAGAMIE/CALUMET | CONSTRUCTION PROJECT NUMBER 4494-07-71 | PS&E SHEET      |

SE ¼ - SW ¼  
SEC 31

TOWN OF BUCHANAN

SW ¼ - SE ¼  
SEC 31

GN

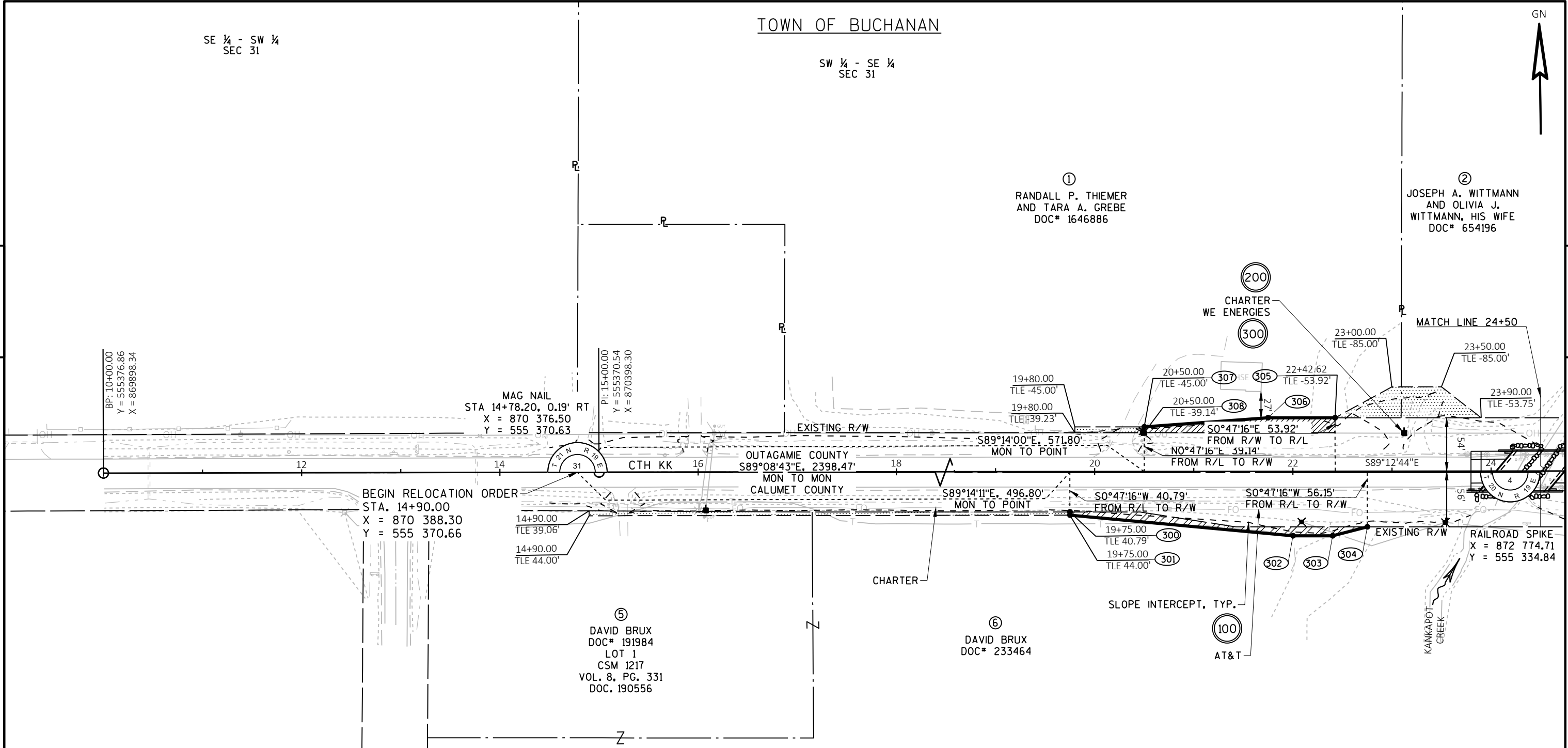


①  
RANDALL P. THIEMER  
AND TARA A. GREBE  
DOC# 1646886

②  
JOSEPH A. WITTMANN  
AND OLIVIA J.  
WITTMANN, HIS WIFE  
DOC# 654196

4

4



BEGIN RELOCATION ORDER  
STA. 14+90.00  
X = 870 388.30  
Y = 555 370.66

14+90.00  
TLE 39.06'  
14+90.00  
TLE 44.00'

⑤  
DAVID BRUX  
DOC# 191984  
LOT 1  
CSM 1217  
VOL. 8, PG. 331  
DOC. 190556

⑥  
DAVID BRUX  
DOC# 233464

SLOPE INTERCEPT, TYP.  
⑩  
AT&T

RAILROAD SPIKE  
X = 872 774.71  
Y = 555 334.84

| POINT | STATION  | OFFSET | NORTHING   | EASTING    |
|-------|----------|--------|------------|------------|
| 300   | 19+75.00 | 40.79  | 555 323.21 | 870 872.70 |
| 301   | 19+75.00 | 44.00  | 555 320.01 | 870 872.65 |
| 302   | 22+00.00 | 65.00  | 555 295.92 | 871 097.34 |
| 303   | 22+40.00 | 65.00  | 555 295.37 | 871 137.34 |
| 304   | 22+75.00 | 56.15  | 555 303.74 | 871 172.45 |
| 305   | 22+42.62 | -53.92 | 555 414.23 | 871 141.60 |
| 306   | 21+75.00 | -53.92 | 555 415.17 | 871 073.98 |
| 307   | 20+50.00 | -45.00 | 555 407.97 | 870 948.87 |
| 308   | 20+50.00 | -39.14 | 555 402.11 | 870 948.79 |

R/W COURSE TABLE

| COURSE  | BEARING     | DISTANCE |
|---------|-------------|----------|
| 300-301 | S0°47'16"W  | 3.21'    |
| 301-302 | S83°52'48"E | 225.98'  |
| 302-303 | S89°12'44"E | 40.00'   |
| 303-304 | N76°35'40"E | 36.10'   |
| 305-306 | N89°12'44"W | 67.62'   |
| 306-307 | S86°42'26"W | 125.32'  |
| 307-308 | S0°47'16"W  | 5.86'    |

NW ¼ - NW ¼  
SEC 4

TOWN OF WOODVILLE

|               |       |       |       |       |
|---------------|-------|-------|-------|-------|
| REVISION DATE | _____ | _____ | _____ | _____ |
|               |       |       |       |       |
|               |       |       |       |       |

DATE 08/03/2023  
GRID FACTOR \_\_\_\_\_



HWY: CTH KK  
COUNTY: OUTAGAMIE/CALUMET

STATE R/W PROJECT NUMBER 4494-07-00  
CONSTRUCTION PROJECT NUMBER 4494-07-71

PLAT SHEET 4.04  
PS&E SHEET \_\_\_\_\_

E

TOWN OF BUCHANAN

GN

SW 1/4 - SE 1/4  
SEC 31

SE 1/4 - SE 1/4  
SEC 31

②  
JOSEPH A. WITTMANN AND  
OLIVIA J. WITTMANN, HIS WIFE  
DOC# 654196

③  
JOSEPH A. WITTMANN AND  
OLIVIA J. WITTMANN, HIS WIFE  
DOC# 654196

④  
ANDREW T. ERICKSON AND KATIE L. ERICKSON,  
HUSBAND AND WIFE  
DOC# 2259803

4

4

MATCH LINE 24+50

MAG NAIL  
X = 870 376.50  
Y = 555 370.63

N0°47'16"E 53.62'  
FROM R/L TO R/W

②00  
CHARTER  
WE ENERGIES

28+90.00  
TLE -58.00'  
28+90.00  
TLE -42.00'

29+30.00  
TLE -58.00'  
30+80.00  
TLE -47.00'

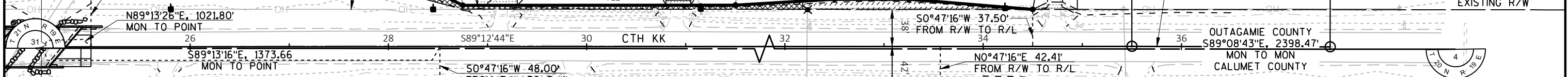
31+05.00  
TLE -47.00'  
31+05.00  
TLE -42.00'

34+65.00  
TLE -45.00'  
34+50.00  
TLE -37.50'

34+80.00  
TLE -45.00'  
34+95.00  
TLE -37.45'

END RELOCATION ORDER  
STA. 35+73.00  
X = 872 471.10  
Y = 555 334.84

EP: 37+50.00  
Y = 555339.02  
X = 872648.08



25+00.00  
TLE 56.45'  
25+40.00  
TLE 80.00'

26+50.00  
TLE 56.63'  
26+00.00  
TLE 80.00'

CHARTER

④10

SLOPE INTERCEPT, TYP.

④08  
④09

35+40.00  
TLE 42.63'  
35+40.00  
TLE 50.00'

35+73.00  
TLE 42.61'  
35+73.00  
TLE 50.00'

RAILROAD SPIKE  
X = 872 774.71  
Y = 555 334.84

⑥  
DAVID BRUX  
DOC# 233464

①00  
AT&T

NW 1/4 - NW 1/4  
SEC 4

⑦  
RDT PROPERTIES, LLC,  
A WISCONSIN LIMITED LIABILITY COMPANY  
DOC# 491752  
LOT 2  
CSM 2898  
VOL. 23, PG. 325  
DOC. 404872

⑧  
MARK L. SIMON AND AMY. SIMON,  
HUSBAND AND WIFE  
LOT 1  
CSM 2898  
VOL. 23, PG. 325  
DOC. 404872

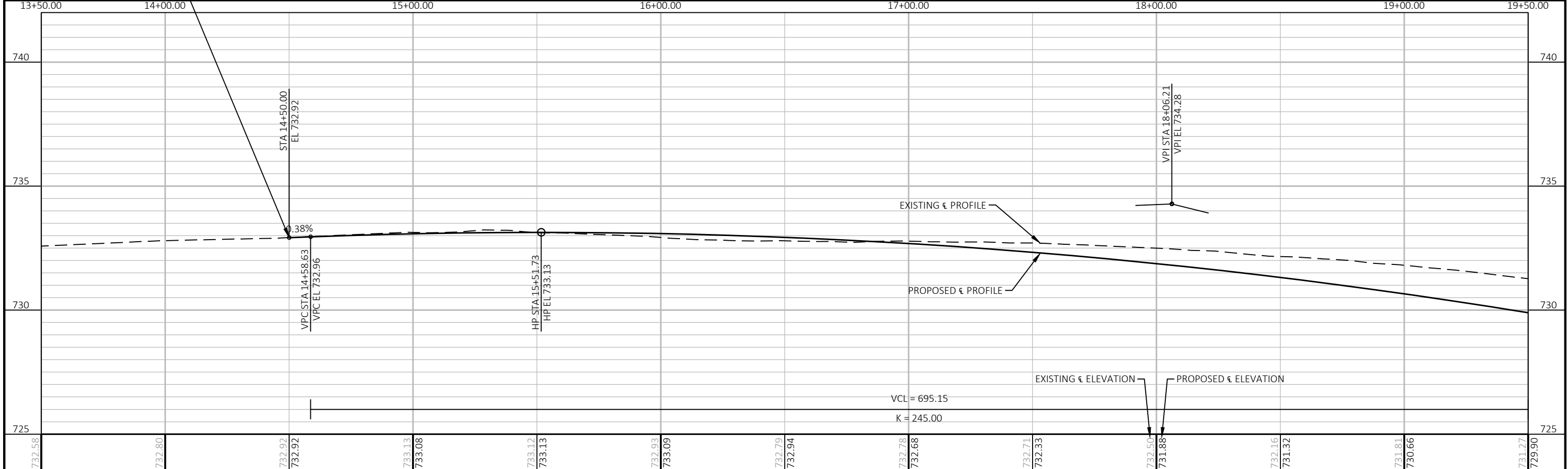
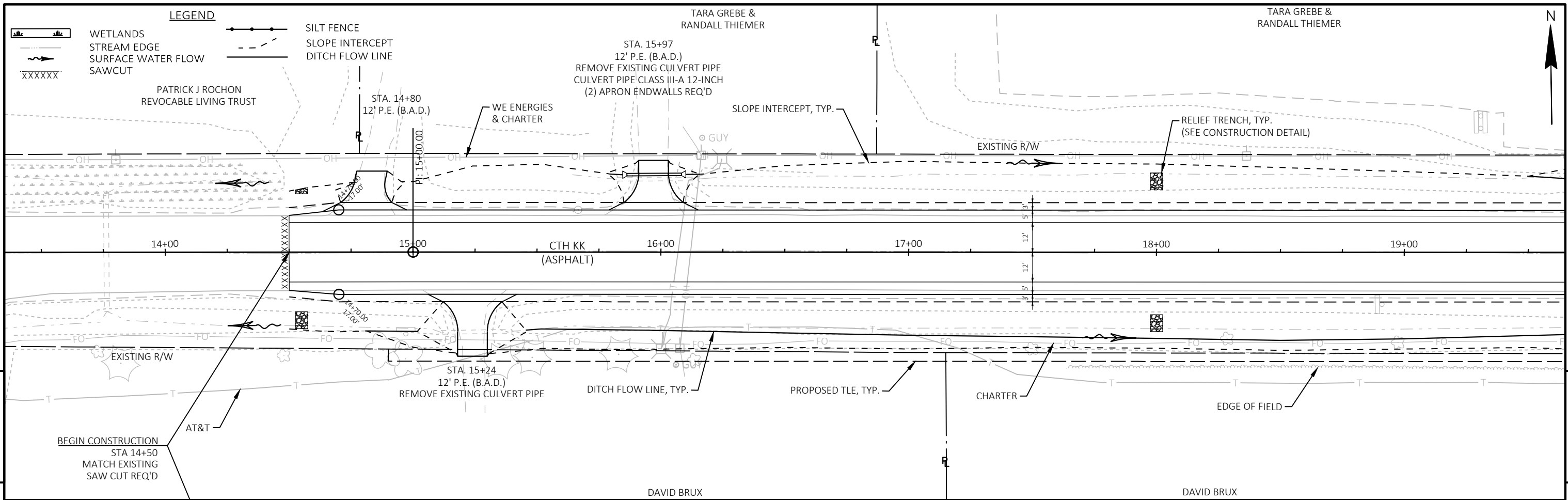
| POINT | STATION  | OFFSET | NORTHING   | EASTING    |
|-------|----------|--------|------------|------------|
| 400   | 25+00.00 | -53.62 | 555 410.40 | 871 398.94 |
| 401   | 26+00.00 | -65.00 | 555 420.41 | 871 499.09 |
| 402   | 28+30.00 | -65.00 | 555 417.24 | 871 729.07 |
| 403   | 28+75.00 | -42.00 | 555 393.63 | 871 773.75 |
| 404   | 31+50.00 | -42.00 | 555 389.85 | 872 048.72 |
| 405   | 32+50.00 | -48.00 | 555 394.47 | 872 148.79 |
| 406   | 33+25.00 | -48.00 | 555 393.44 | 872 223.79 |
| 407   | 34+50.00 | -37.50 | 555 381.22 | 872 348.63 |
| 408   | 33+56.79 | 42.41  | 555 302.61 | 872 254.33 |
| 409   | 33+56.79 | 48.00  | 555 297.01 | 872 254.25 |
| 410   | 28+51.87 | 48.00  | 555 303.95 | 871 749.38 |

| COURSE  | BEARING     | DISTANCE |
|---------|-------------|----------|
| 400-401 | N84°17'35"E | 100.65'  |
| 401-402 | S89°12'44"E | 230.00'  |
| 402-403 | S62°08'25"E | 50.54'   |
| 403-404 | S89°12'44"E | 275.00'  |
| 404-405 | N87°21'15"E | 100.18'  |
| 405-406 | S89°12'44"E | 75.00'   |
| 406-407 | S84°24'41"E | 125.44'  |
| 408-409 | S0°47'16"W  | 5.60'    |
| 409-410 | N89°12'44"W | 504.92'  |

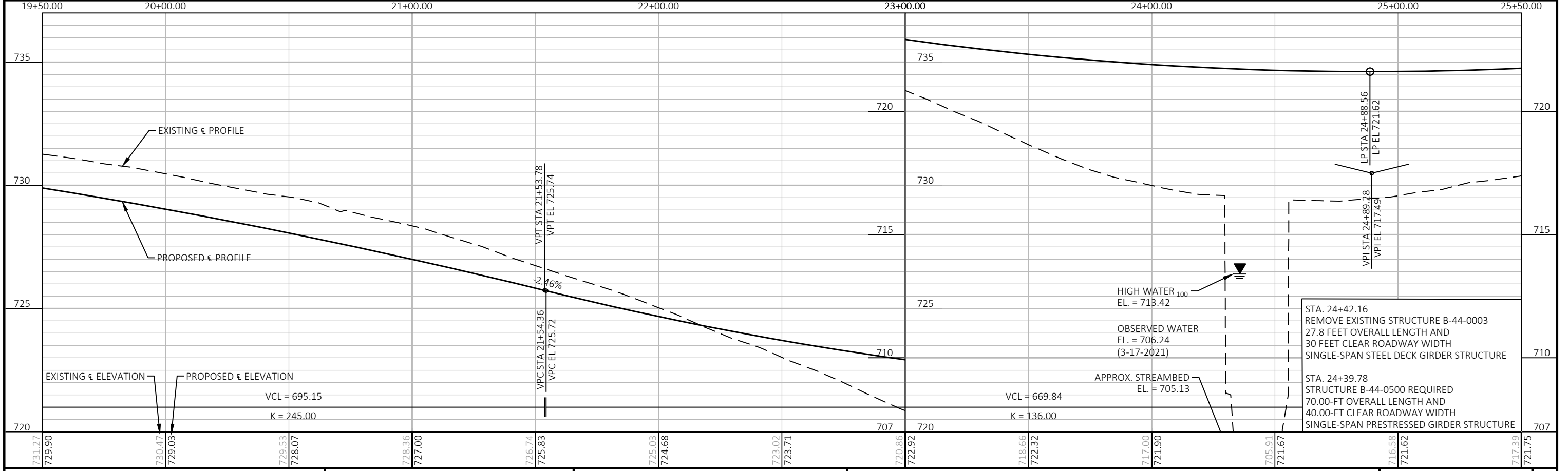
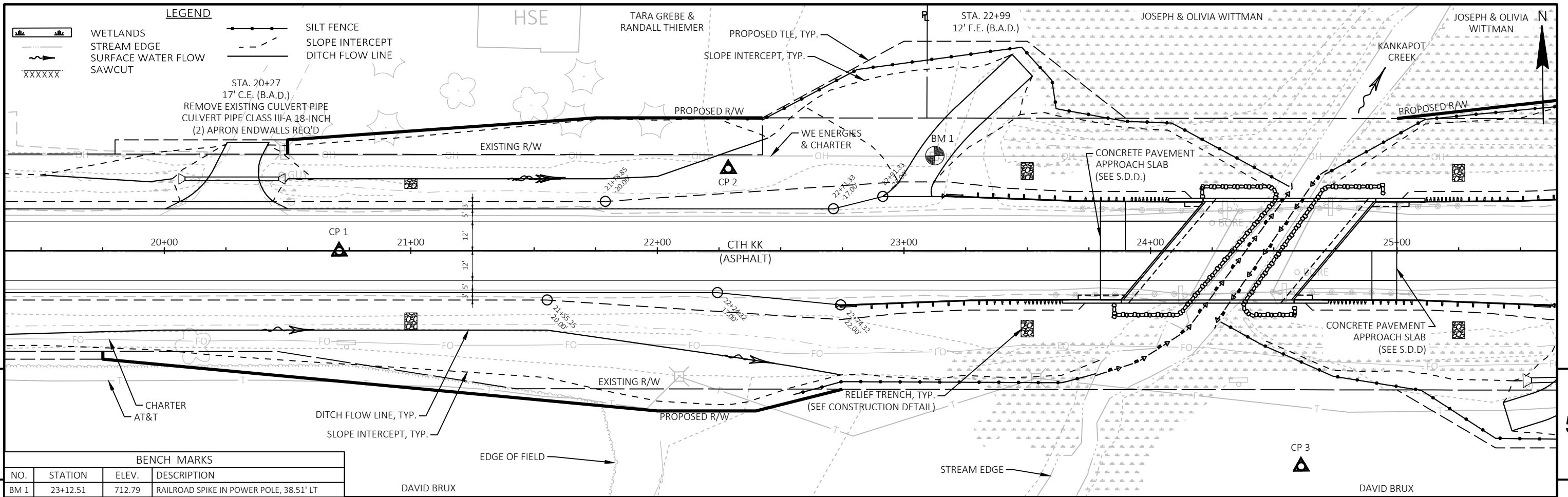
NE 1/4 - NW 1/4  
SEC 4

TOWN OF WOODVILLE

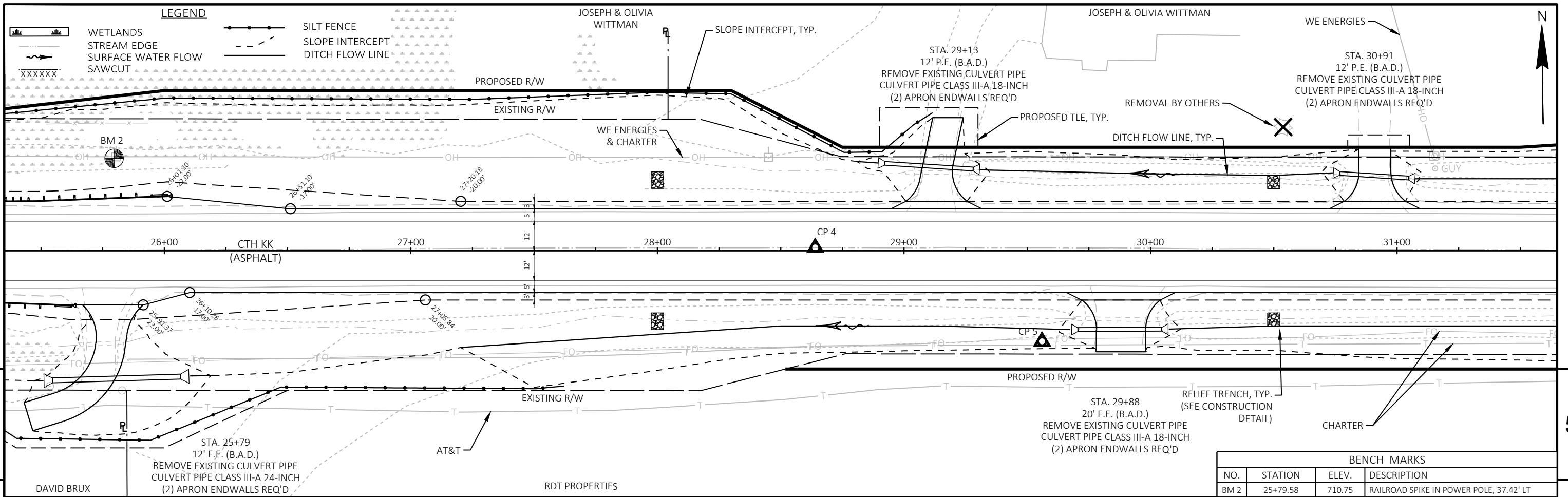
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|---------------|-----------------|-------------------------|---------------------------|--|-----------------|
| REVISION DATE | DATE 08/03/2023 | SCALE, FEET<br>0 50 100 | HWY: CTH KK               | STATE R/W PROJECT NUMBER 4494-07-00    | PLAT SHEET 4.05 |
|               | GRID FACTOR     |                         | COUNTY: OUTAGAMIE/CALUMET | CONSTRUCTION PROJECT NUMBER 4494-07-71 | PS&E SHEET      |



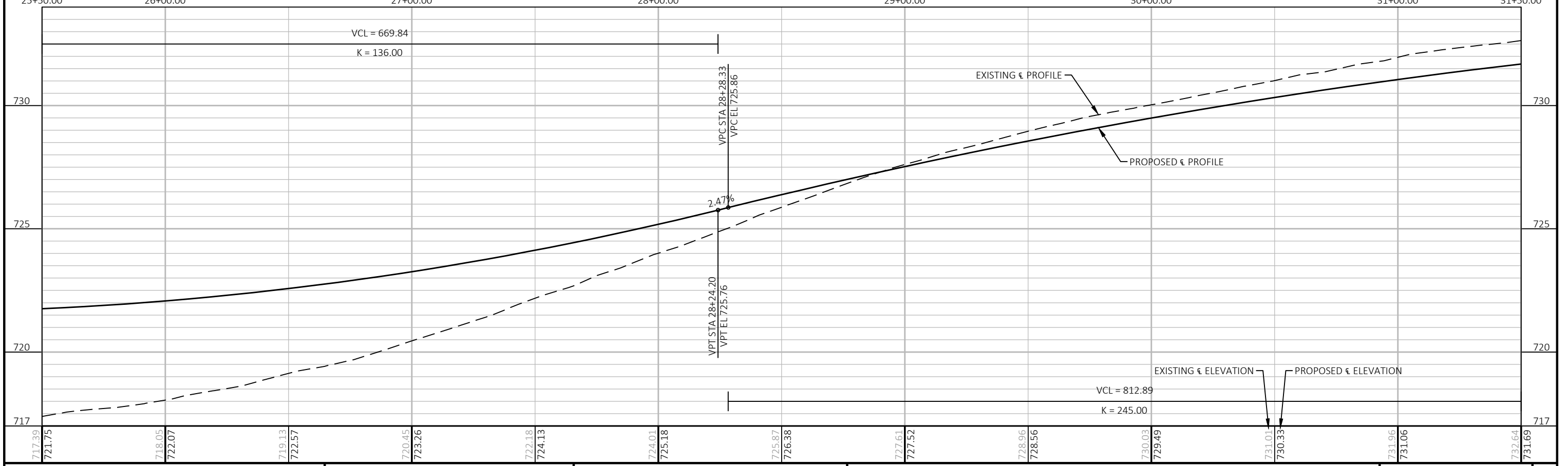
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|------------------------|-------------|-------------------|--------------------------|---------|
| PROJECT NO: 4494-07-71 | HWY: CTH KK | COUNTY: OUTAGAMIE | PLAN AND PROFILE: CTH KK | SHEET 5 |
|------------------------|-------------|-------------------|--------------------------|---------|



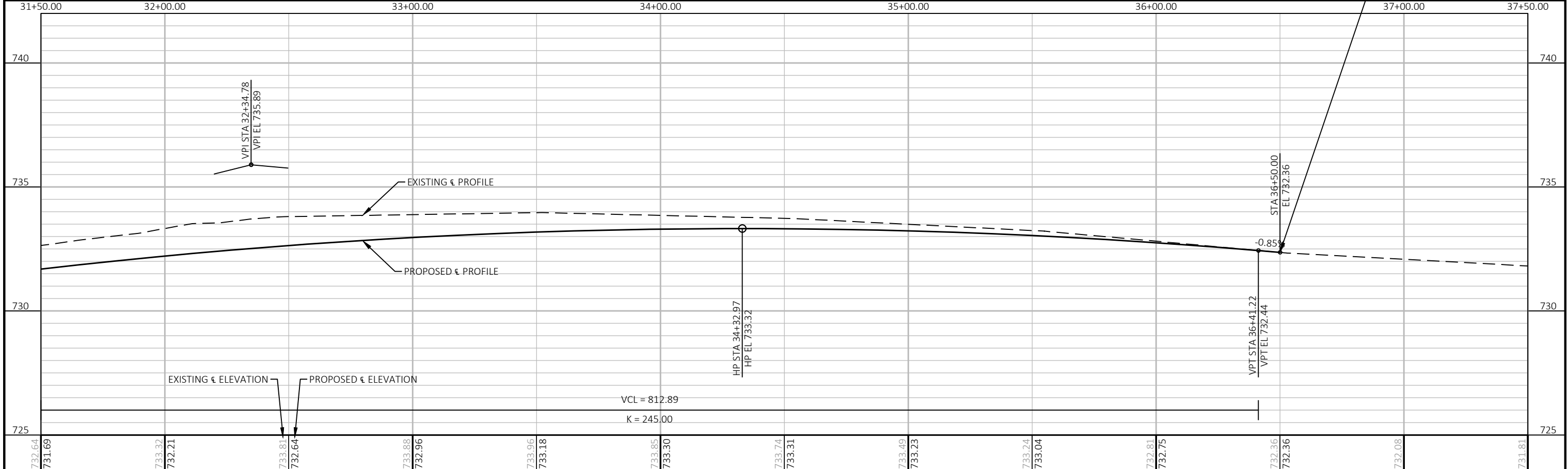
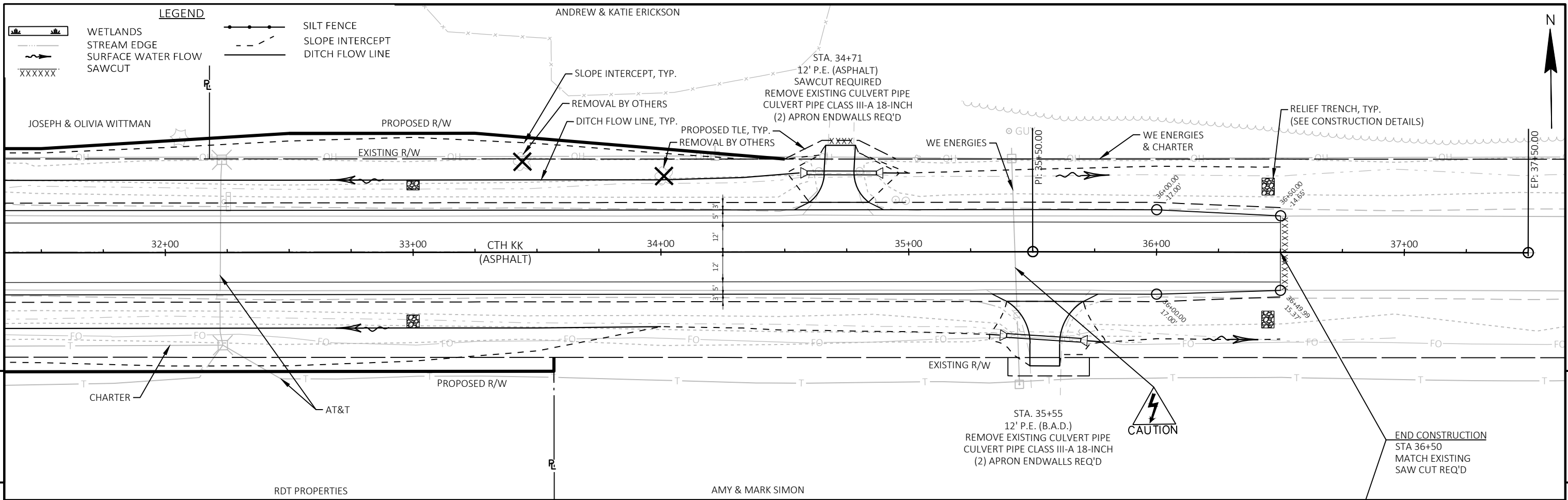
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      PLAN AND PROFILE: CTH KK      SHEET: 5



| BENCH MARKS |          |        |   |
|-------------|----------|--------|---|
| NO.         | STATION  | ELEV.  | DESCRIPTION                             |
| BM 2        | 25+79.58 | 710.75 | RAILROAD SPIKE IN POWER POLE, 37.42' LT |



PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      PLAN AND PROFILE: CTH KK      SHEET: 5

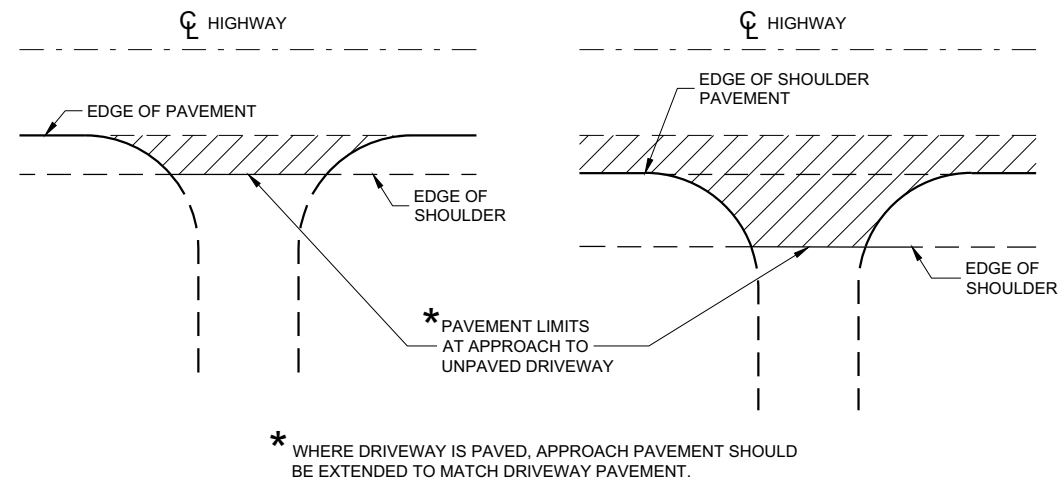


|                        |             |                   |                          |         |
|------------------------|-------------|-------------------|--------------------------|---------|
| PROJECT NO: 4494-07-71 | HWY: CTH KK | COUNTY: OUTAGAMIE | PLAN AND PROFILE: CTH KK | SHEET 5 |
|------------------------|-------------|-------------------|--------------------------|---------|



## Standard Detail Drawing List

|           |   |
|-----------|---|
| 08D21-01  | DRIVEWAYS WITHOUT CURB & GUTTER                                   |
| 08E09-06  | SILT FENCE  |
| 08E11-02  | TURBIDITY BARRIER   |
| 08E15-01  | CULVERT PIPE CHECK  |
| 08F01-11  | APRON ENDWALLS FOR CULVERT PIPE                                   |
| 08F04-08  | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL           |
| 12A03-10  | NAME PLATE (STRUCTURES)   |
| 13B02-09A | CONCRETE PAVEMENT APPROACH SLAB                                   |
| 14B42-07A | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-07B | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-07C | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B42-07D | MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL                          |
| 14B44-04A | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B44-04B | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B44-04C | MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)          |
| 14B45-05A | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-05B | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-05C | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 14B45-05H | MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)              |
| 15C02-09A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                        |
| 15C02-09B | BARRICADES AND SIGNS FOR VARIOUS CLOSURES                         |
| 15C02-09C | DETOUR SIGNING FOR MAINLINE CLOSURES                              |
| 15C06-12  | SIGNING & MARKING FOR TWO LANE BRIDGES                            |
| 15C08-23A | PERMANENT LONGITUDINAL PAVEMENT MARKINGS                          |
| 15C11-10B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS |

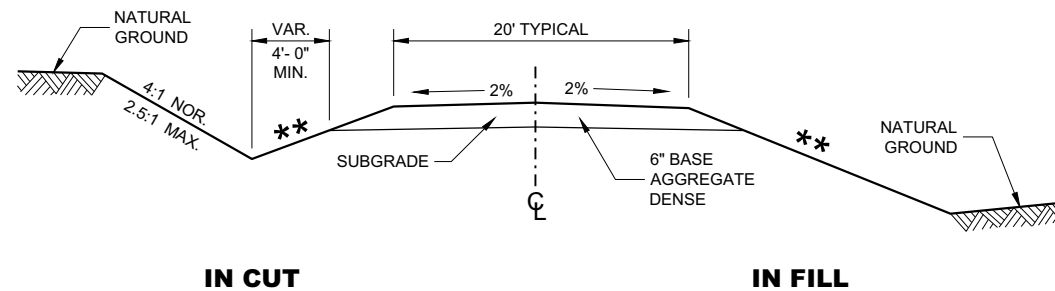


**PLAN VIEW**  
(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**  
(PAVED SHOULDER ON HIGHWAY)

\* WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

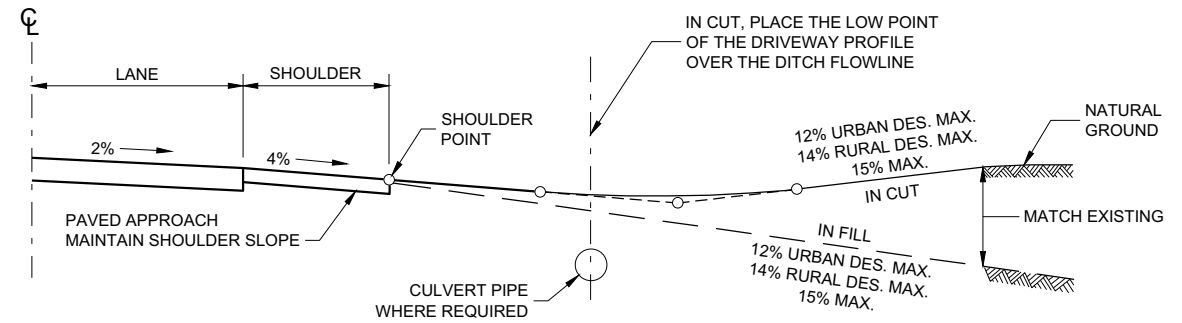
**RURAL DRIVEWAY INTERSECTION DETAIL  
(NO CURB AND GUTTER OR SIDEWALK)**



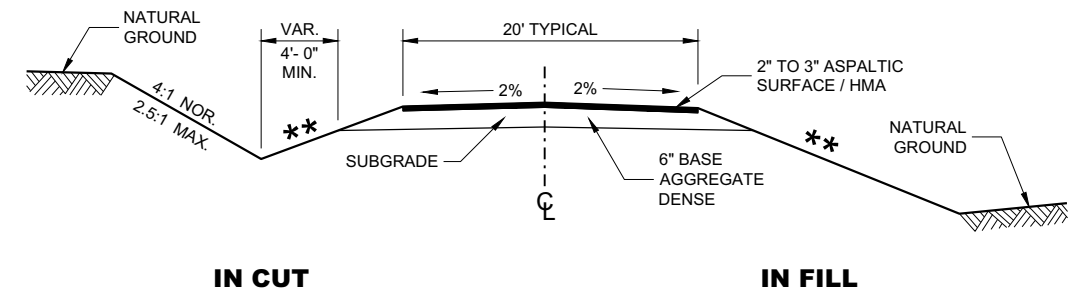
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
AGGREGATE SURFACE**

\*\* SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

| POSTED SPEED MPH | MAX. SLOPE |
|------------------|------------|
| <35              | 4:1        |
| ≥ 35 TO < 60     | 6:1        |
| ≥60              | 10:1       |

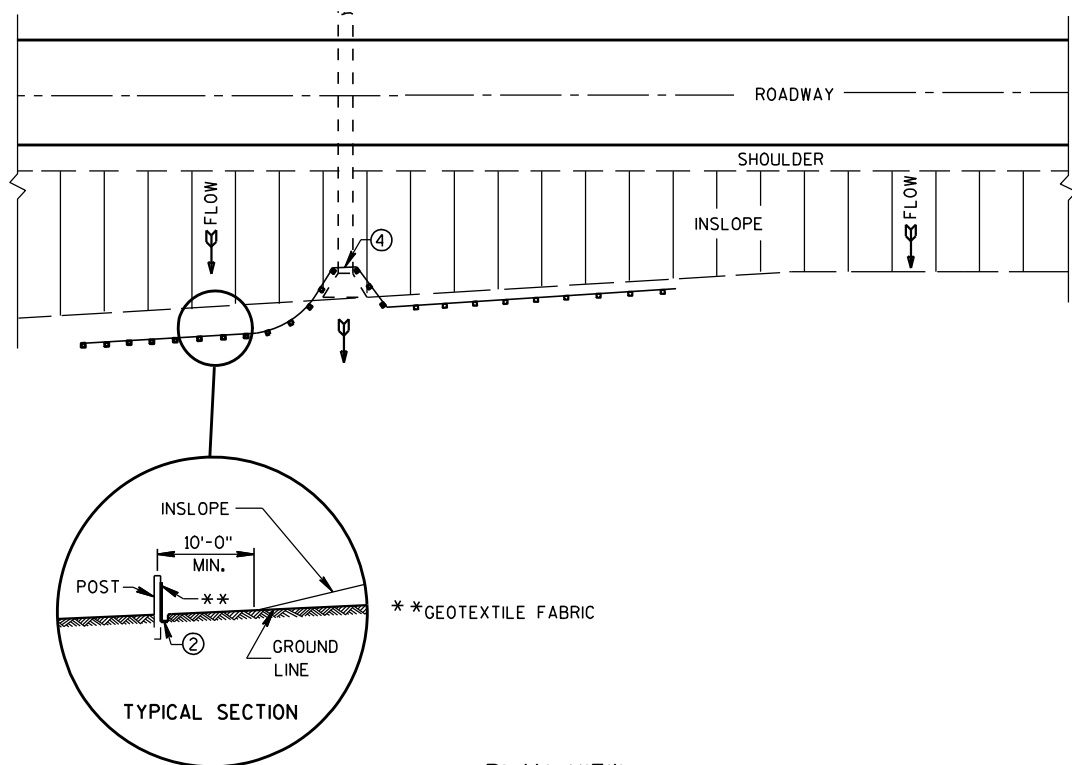


**TYPICAL DRIVEWAY PROFILES**

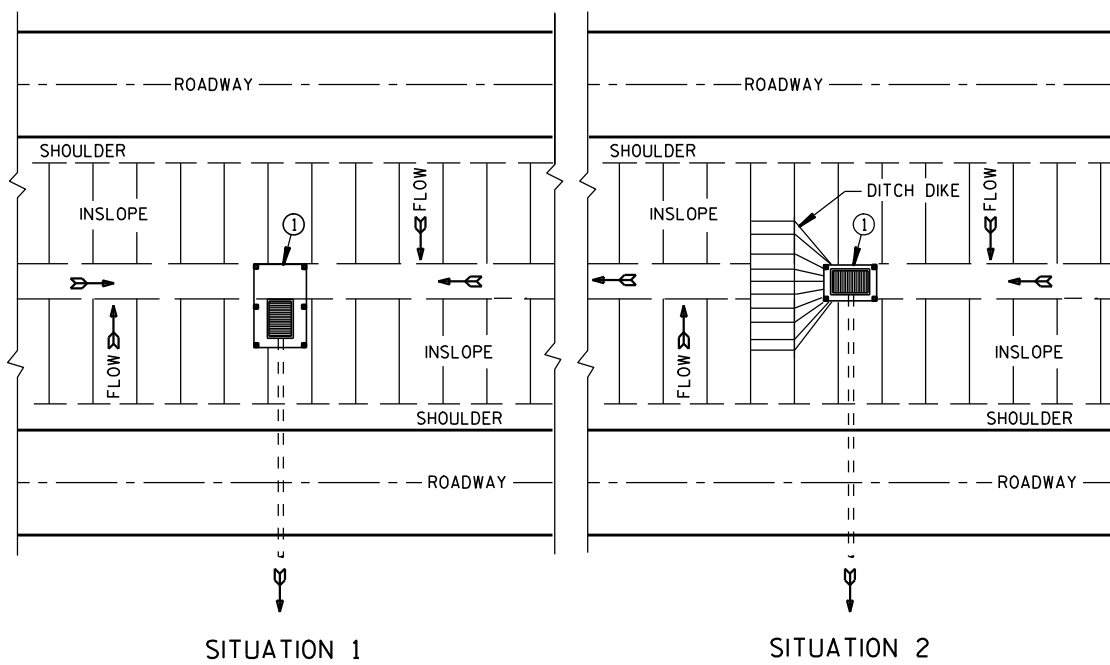


**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
ASPHALTIC SURFACE**

|  |   |
|--|---|
| <b>DRIVEWAYS WITHOUT CURB AND GUTTER</b>           |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>December 2017<br>DATE                  | /S/ Rodney Taylor<br>ROADWAY STANDARDS DEVELOPMENT<br>UNIT SUPERVISOR |
| FHWA   |   |



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

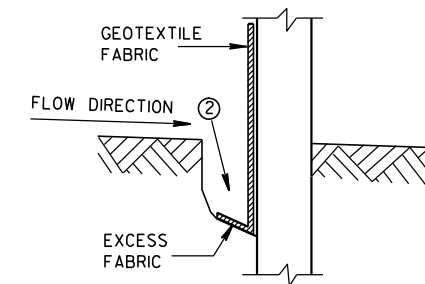


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

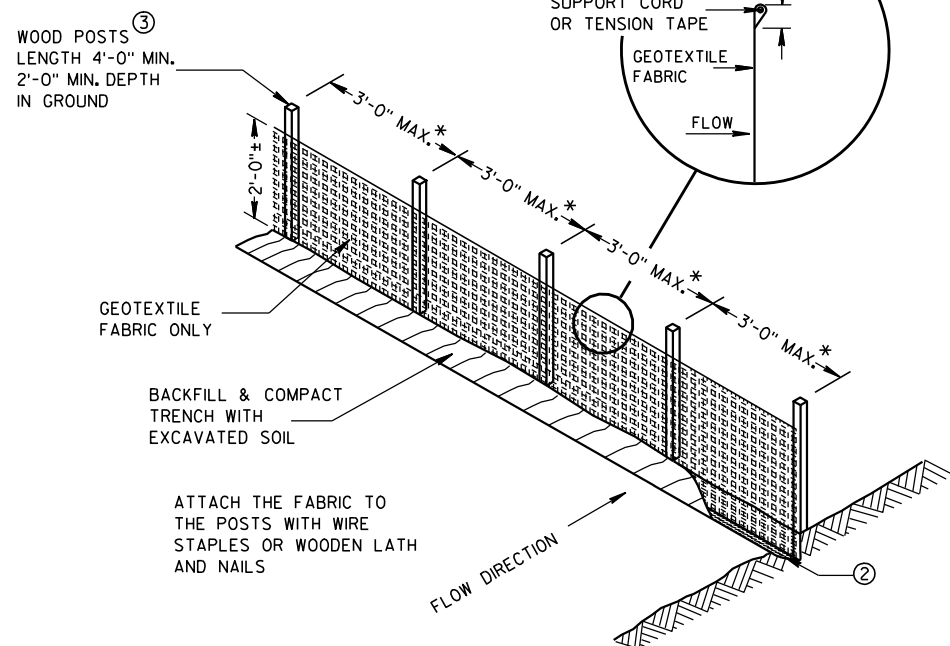
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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 1 1/8" X 1 1/8" 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.



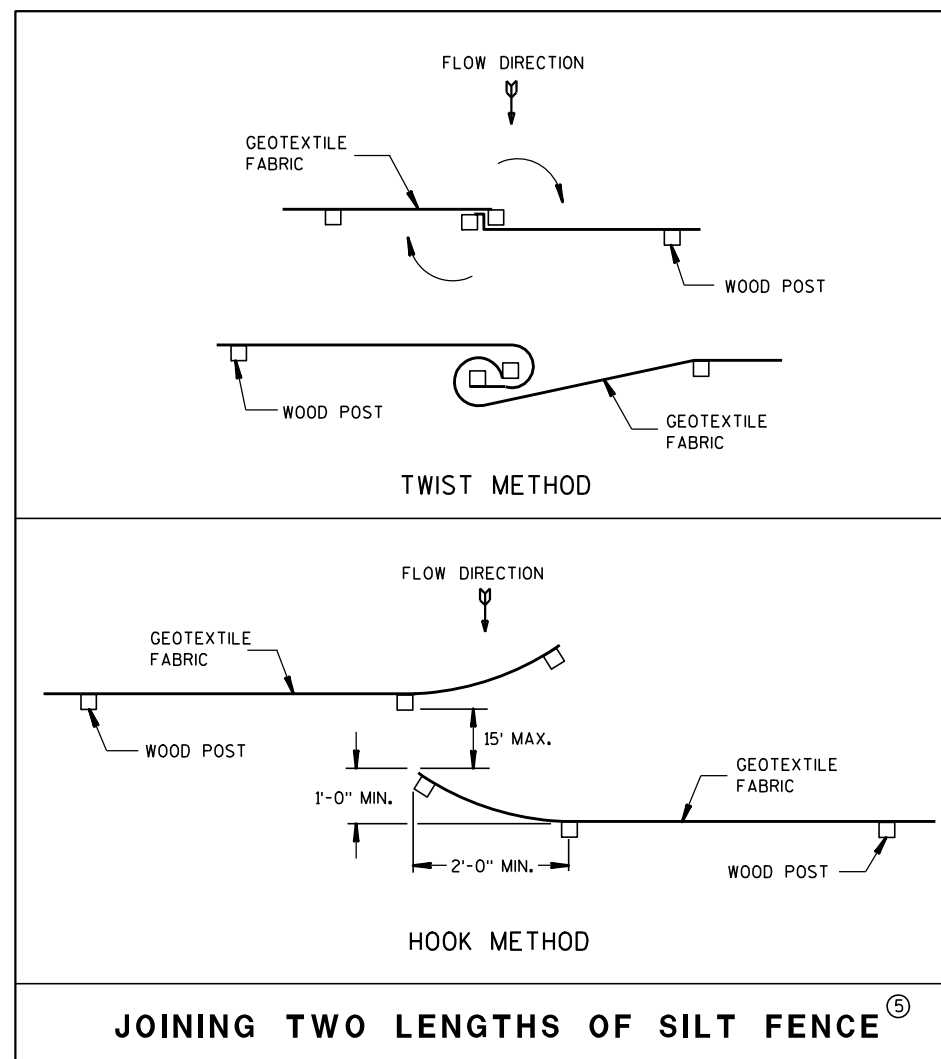
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

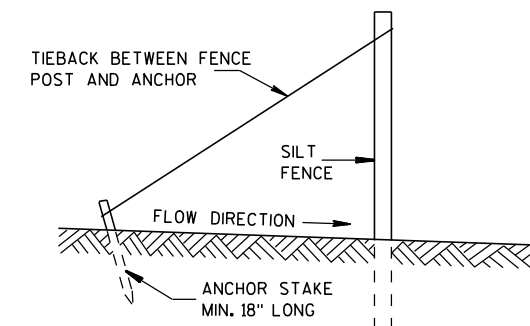


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤

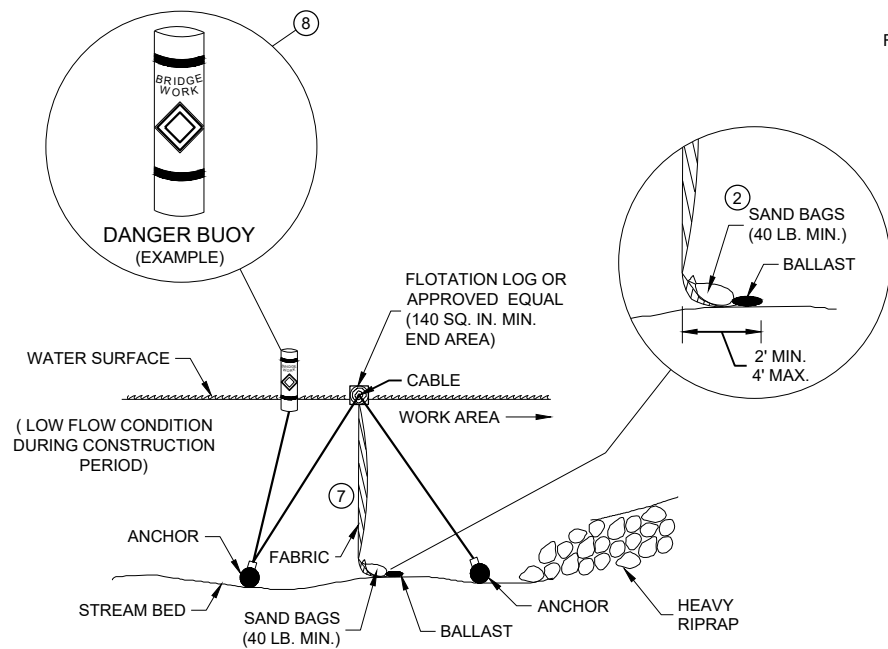


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

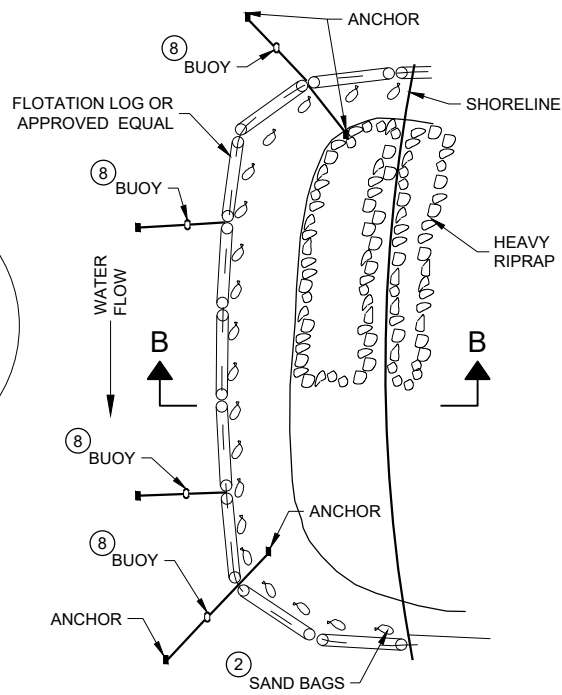
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05 /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA

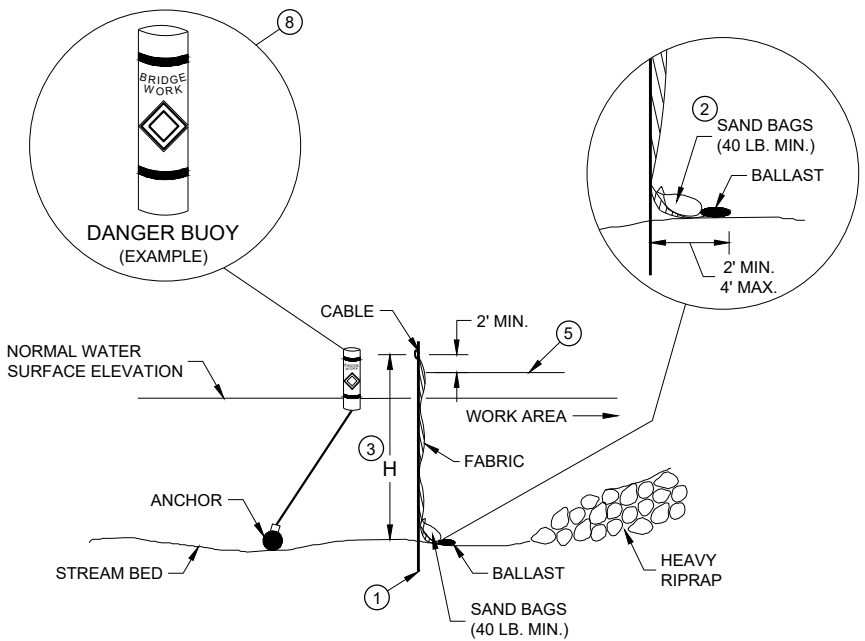


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

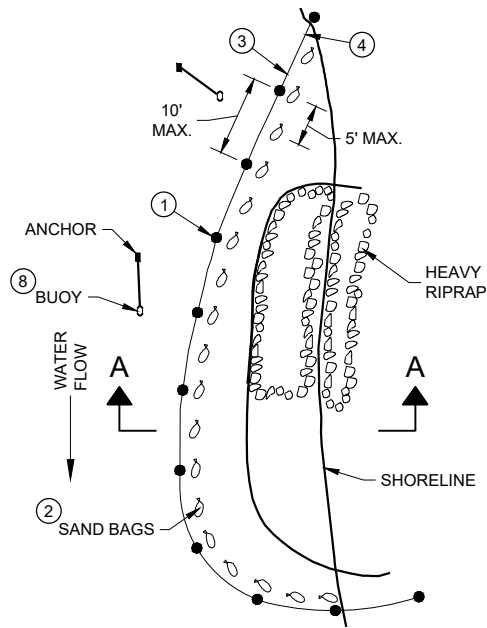


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

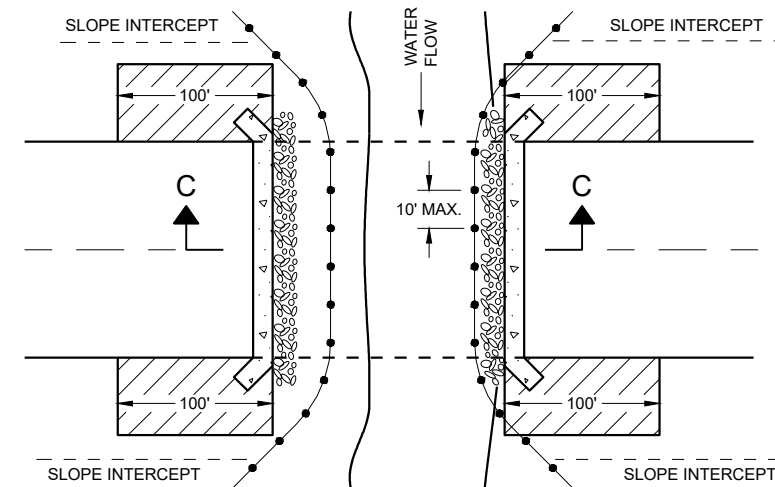
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

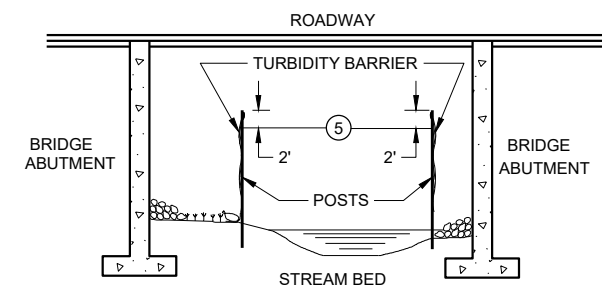
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



**PLAN VIEW**



**SECTION C - C**

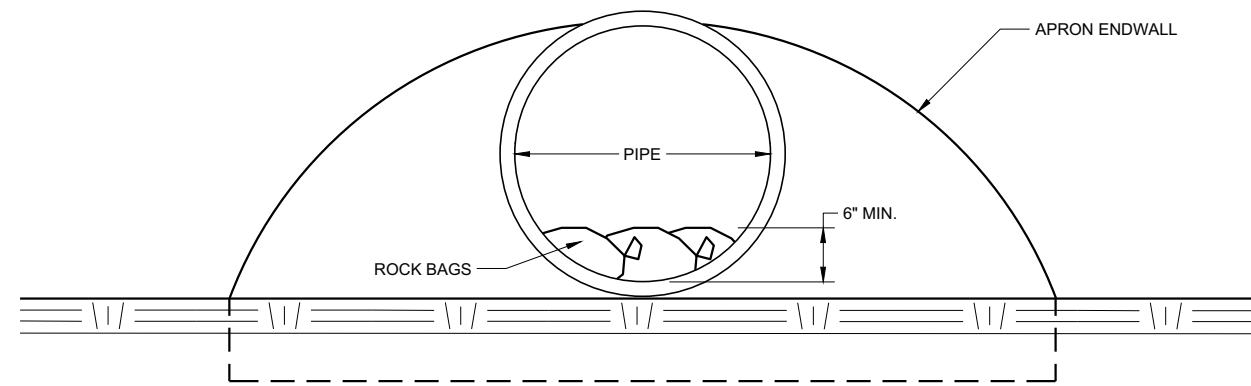
**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

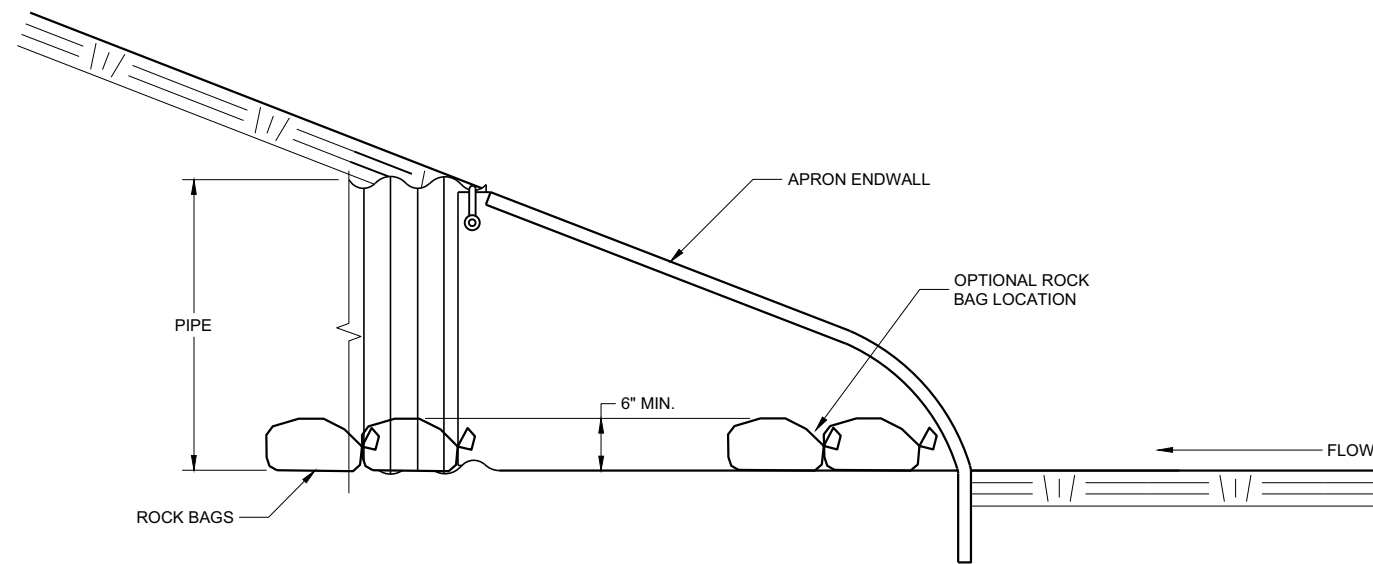
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER

FHWA



**END VIEW**



**SIDE VIEW**

**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

6

6

SDD 08E15 - 01

SDD 08E15 - 01

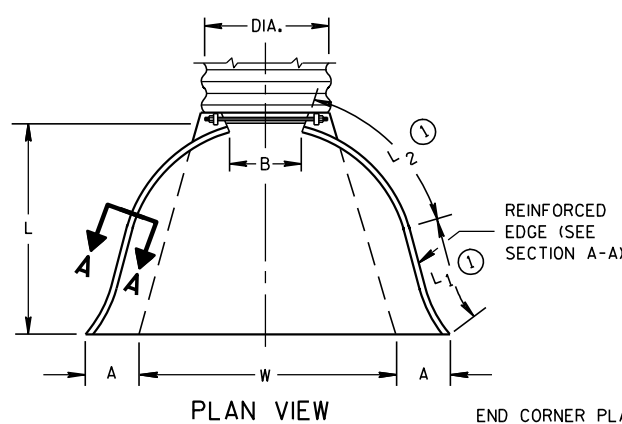
|  |   |
|--|---|
| <b>CULVERT PIPE CHECK</b>                          |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>May 2019<br>DATE                       | /S/ Daniel Schave<br>EROSION CONTROL ENGINEER |
| <small>FHWA</small>                                |   |

| METAL APRON ENDWALLS |                      |       |                     |          |         |             |    |        |         |               |       |
|----------------------|----------------------|-------|---------------------|----------|---------|-------------|----|--------|---------|---------------|-------|
| PIPE DIA. (IN.)      | MIN. THICK. (Inches) |       | DIMENSIONS (Inches) |          |         |             |    |        |         | APPROX. SLOPE | BODY  |
|                      | STEEL                | ALUM. | A (±1")             | B (MAX.) | H (±1") | L (±1 1/2") | L1 | L2     | W (±2") |               |       |
| 12                   | .064                 | .060  | 6                   | 6        | 6       | 21          | 12 | 17 1/2 | 24      | 2 1/2 to 1    | 1 Pc. |
| 15                   | .064                 | .060  | 7                   | 8        | 6       | 26          | 14 | 21 3/4 | 30      | 2 1/2 to 1    | 1 Pc. |
| 18                   | .064                 | .060  | 8                   | 10       | 6       | 31          | 15 | 28 1/4 | 36      | 2 1/2 to 1    | 1 Pc. |
| 21                   | .064                 | .060  | 9                   | 12       | 6       | 36          | 18 | 29 5/8 | 42      | 2 1/2 to 1    | 1 Pc. |
| 24                   | .064                 | .075  | 10                  | 13       | 6       | 41          | 18 | 37 1/4 | 48      | 2 1/2 to 1    | 1 Pc. |
| 30                   | .079                 | .075  | 12                  | 16       | 8       | 51          | 18 | 52 1/4 | 60      | 2 1/2 to 1    | 1 Pc. |
| 36                   | .079                 | .105  | 14                  | 19       | 9       | 60          | 24 | 59 3/4 | 72      | 2 1/2 to 1    | 2 Pc. |
| 42                   | .109                 | .105  | 16                  | 22       | 11      | 69          | 24 | 75 5/8 | 84      | 2 1/2 to 1    | 2 Pc. |
| 48                   | .109                 | .105  | 18                  | 27       | 12      | 78          | 24 | 81     | 90      | 2 1/4 to 1    | 3 Pc. |
| 54                   | .109                 | .105  | 18                  | 30       | 12      | 84          | 30 | 85 1/2 | 102     | 2 1/4 to 1    | 3 Pc. |
| 60                   | .109x                | .105x | 18                  | 33       | 12      | 87          | —  | —      | 114     | 2 to 1        | 3 Pc. |
| 66                   | .109x                | .105x | 18                  | 36       | 12      | 87          | —  | —      | 120     | 2 to 1        | 3 Pc. |
| 72                   | .109x                | .105x | 18                  | 39       | 12      | 87          | —  | —      | 126     | 2 to 1        | 3 Pc. |
| 78                   | .109x                | .105x | 18                  | 42       | 12      | 87          | —  | —      | 132     | 1 1/2 to 1    | 3 Pc. |
| 84                   | .109x                | .105x | 18                  | 45       | 12      | 87          | —  | —      | 138     | 1 1/2 to 1    | 3 Pc. |
| 90                   | .109x                | .105x | 18                  | 37       | 12      | 87          | —  | —      | 144     | 1 1/2 to 1    | 3 Pc. |
| 96                   | .109x                | .105x | 18                  | 35       | 12      | 87          | —  | —      | 150     | 1 1/2 to 1    | 3 Pc. |

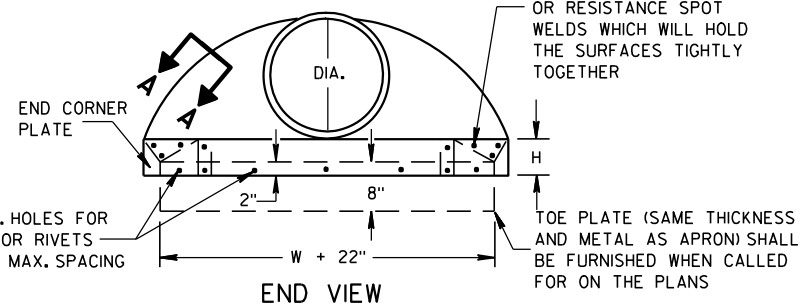
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

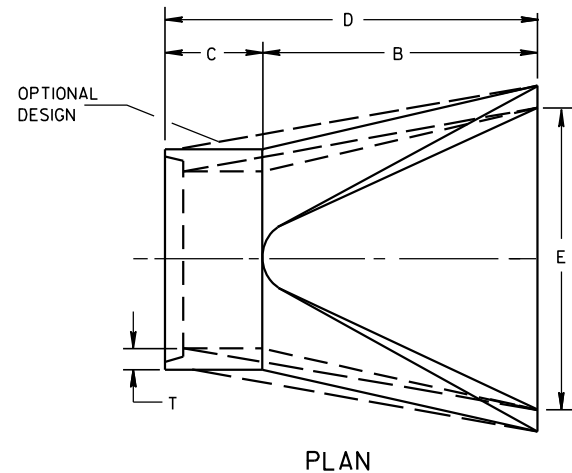
\* MINIMUM  
\*\* MAXIMUM



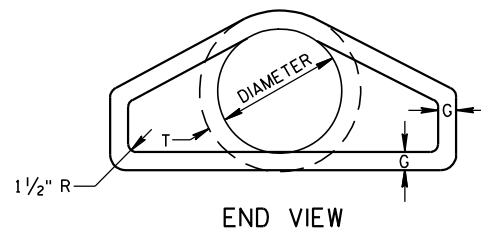
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



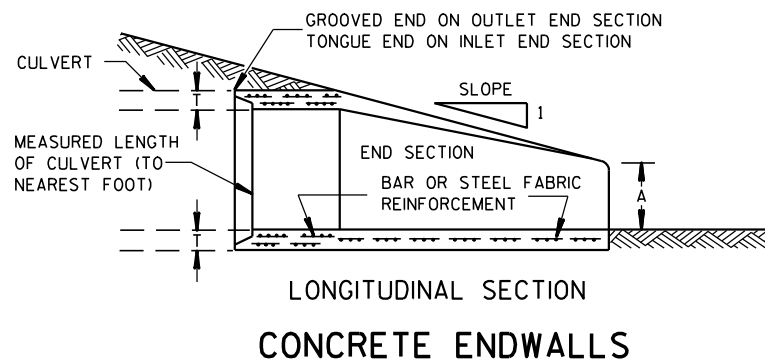
SIDE ELEVATION  
METAL ENDWALLS



PLAN

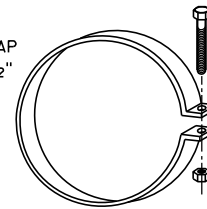


END VIEW

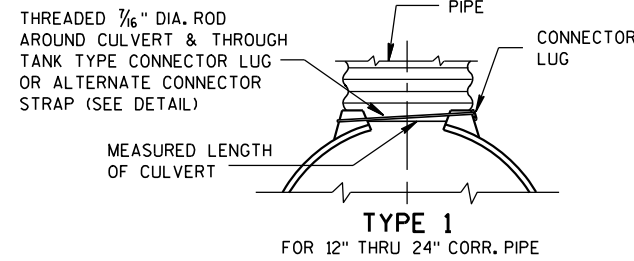


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

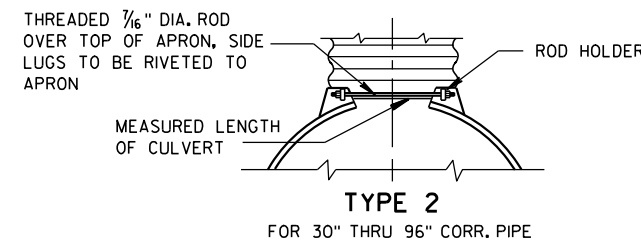
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



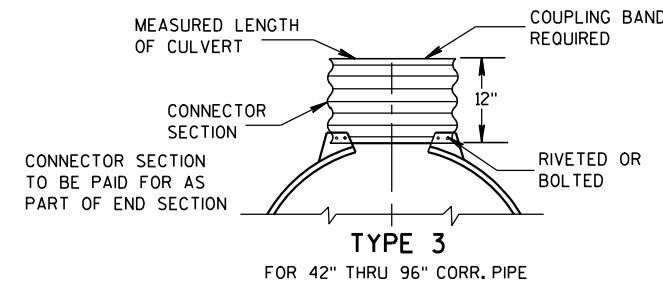
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



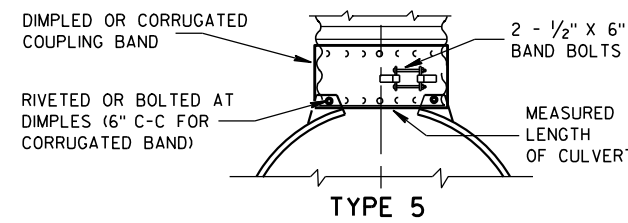
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



TYPE 5  
ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

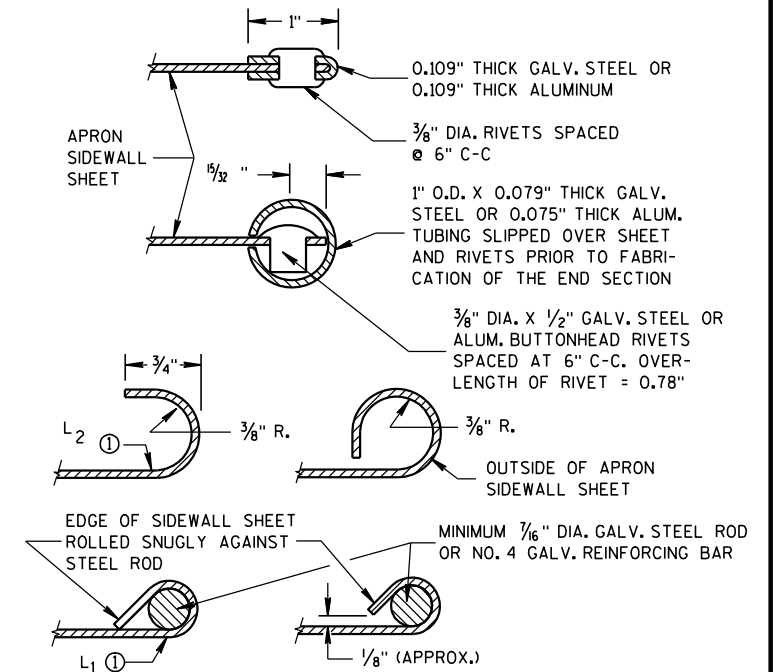
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

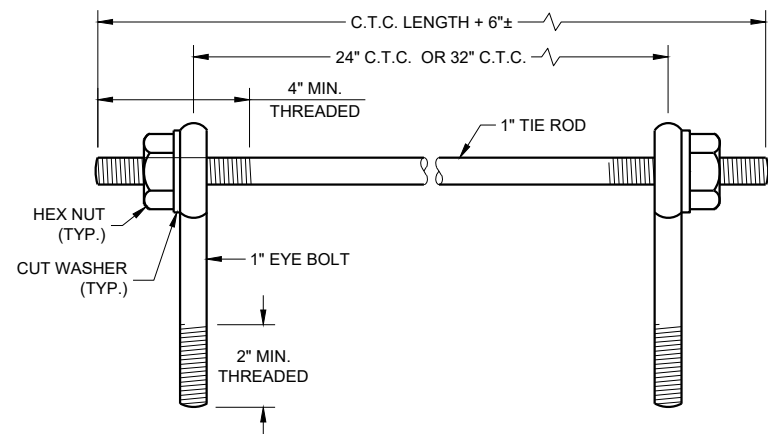
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR  
CULVERT PIPE

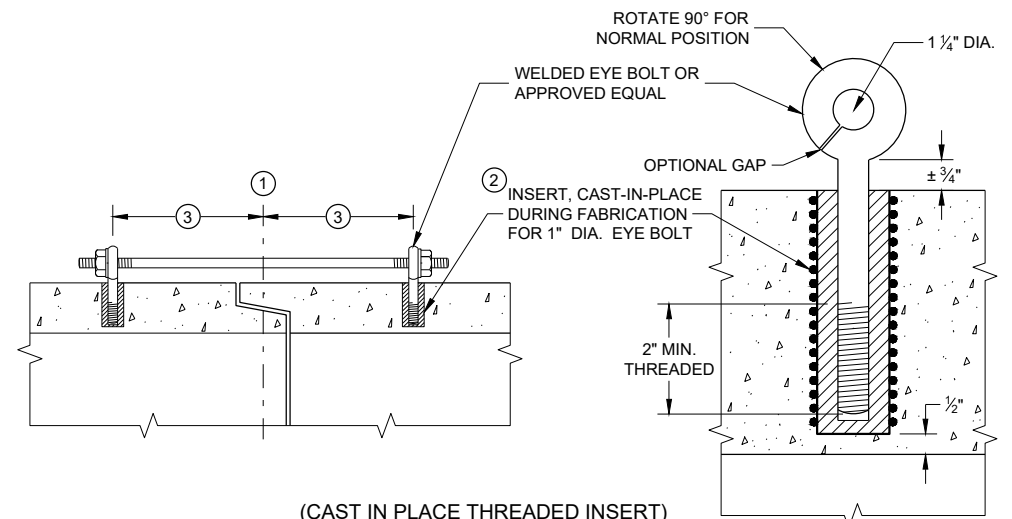
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



**EYE BOLTS AND TIE ROD**

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)**



(CAST IN PLACE THREADED INSERT)  
**LONGITUDINAL SECTIONS**

**GENERAL NOTES**

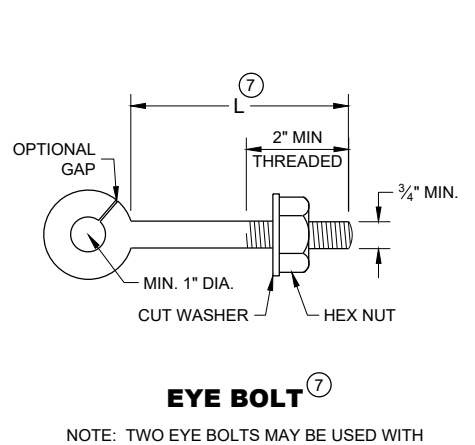
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

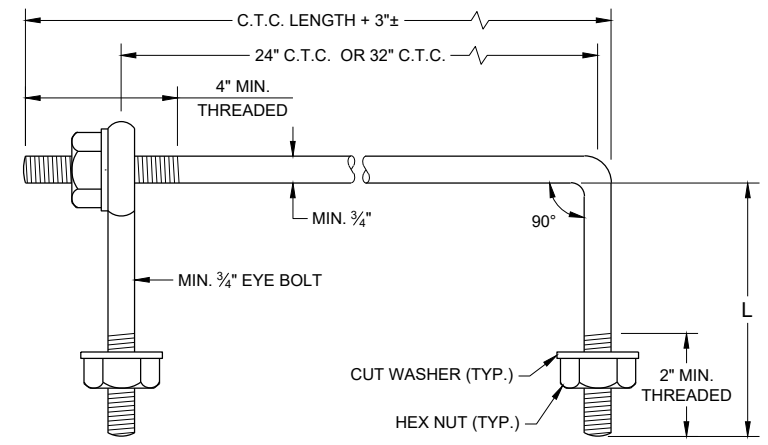
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- ⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

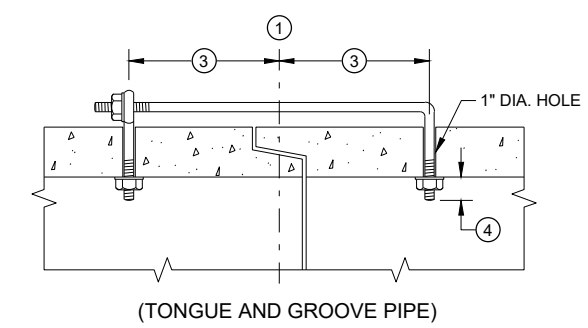


**EYE BOLT** ⑦

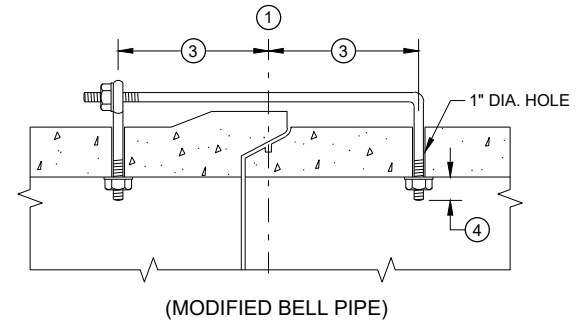
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30\"/>



**EYE BOLT AND TIE ROD**



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

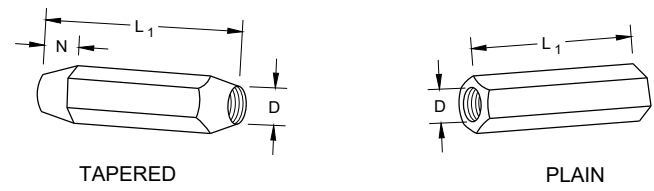
**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18\"/>

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)**

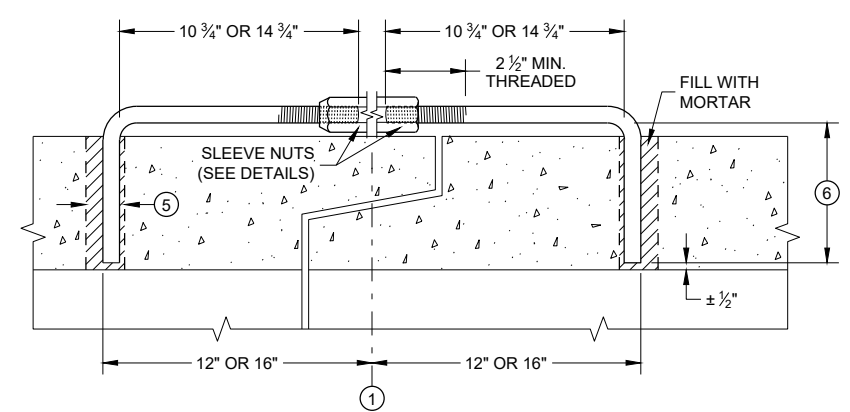
**ADJUSTABLE TIE ROD TABLE**

| PIPE DIAMETER | TIE ROD DIAMETER | D   | L <sub>1</sub> | N      |
|---------------|------------------|-----|----------------|--------|
| 12 - 60       | 5/8              | 5/8 | 5              | 1/2    |
| 66 - 84       | 3/4              | 3/4 | 5              | 1/2    |
| 90 - 144      | 1                | 1   | 7              | 1 7/16 |

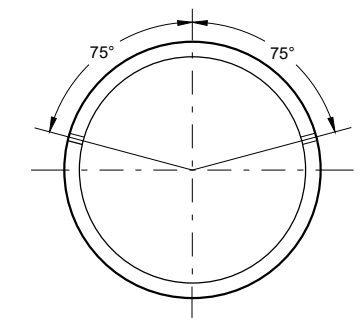
DIMENSIONS SHOWN ARE IN INCHES



**RIGHT AND LEFT THREADS SLEEVE NUTS**

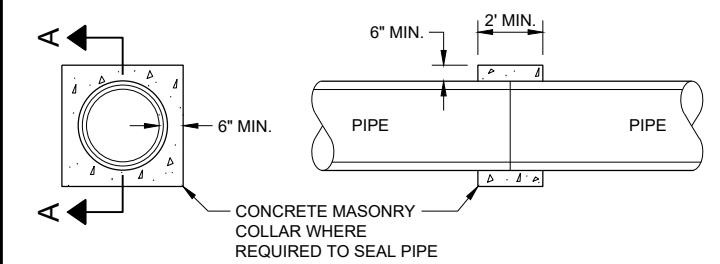


**LONGITUDINAL SECTION**  
**ADJUSTABLE TIE ROD (ALTERNATE NO. 3)**



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

**TRANSVERSE SECTION**

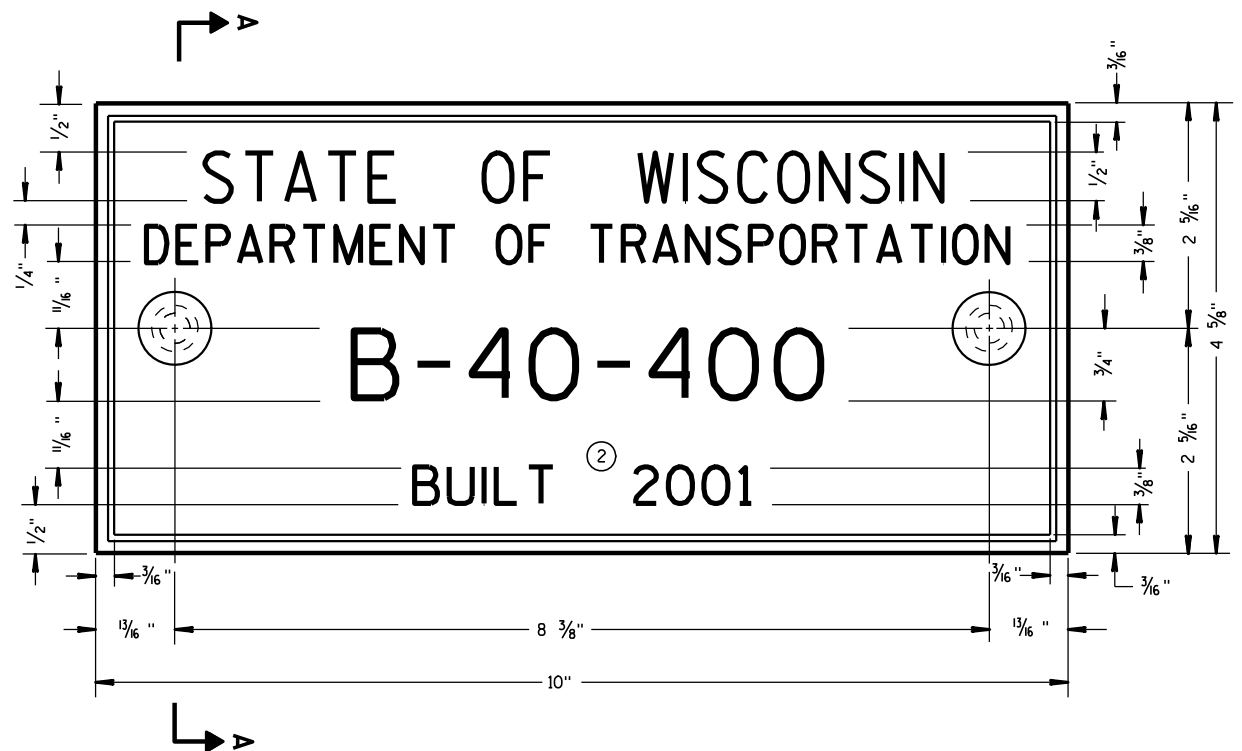


**SECTION A - A**  
**CONCRETE COLLAR DETAIL**

**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



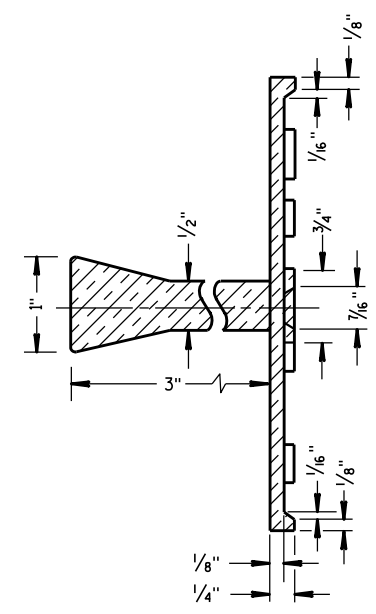
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

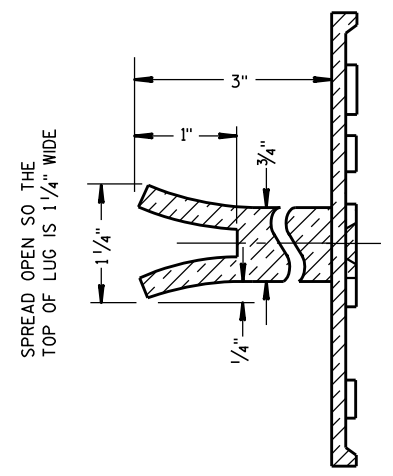
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

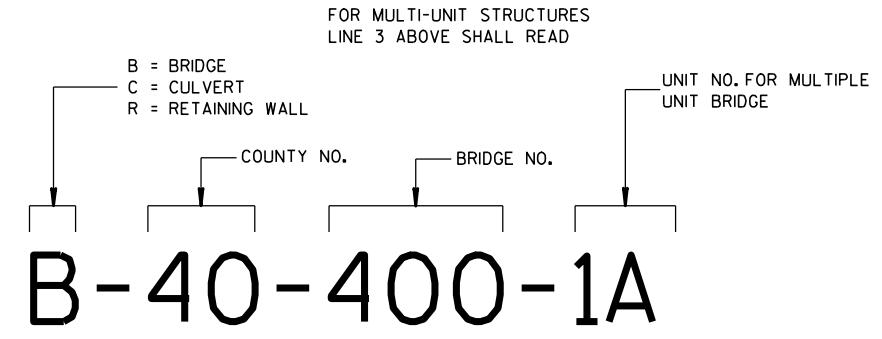
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



**SECTION A-A**

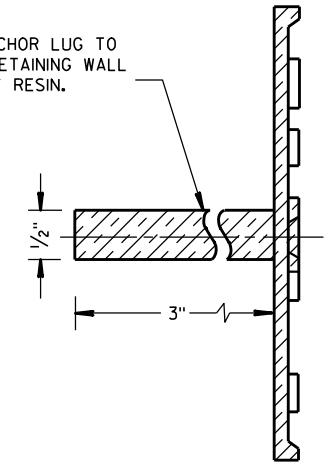


**ALTERNATE LUG**



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

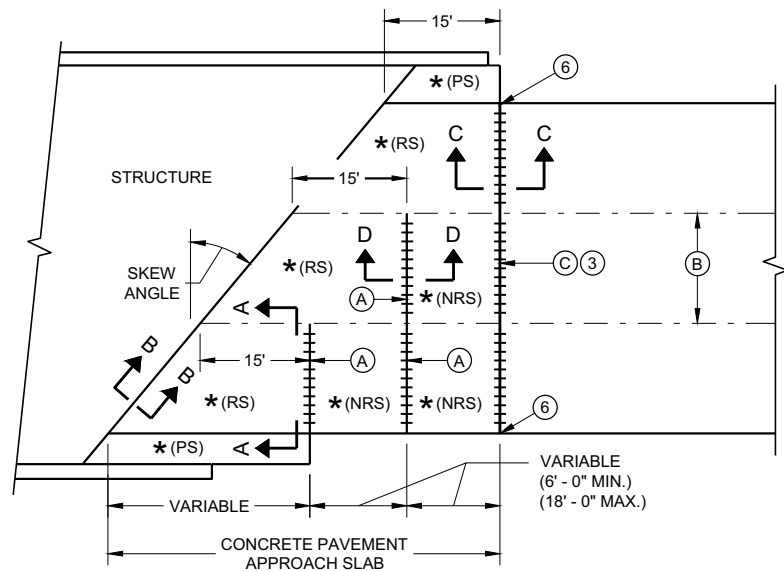
- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



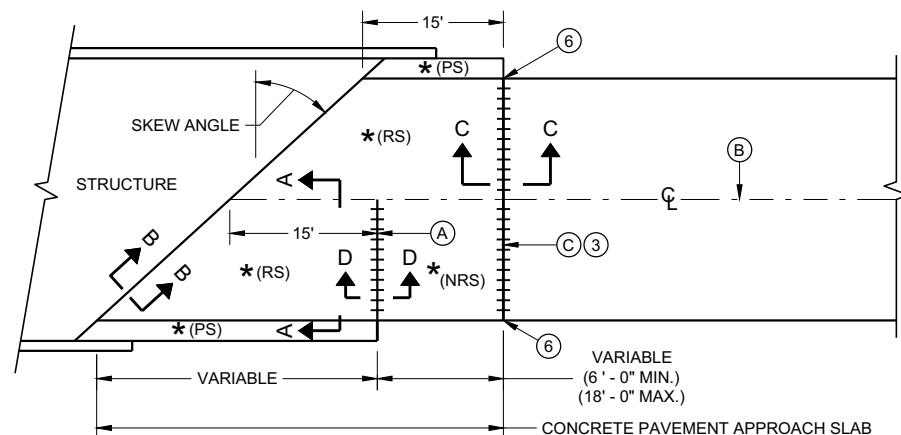
**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

|  |  |
|--|--|
| <b>NAME PLATE<br/>(STRUCTURES)</b>                 |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>DATE<br>3/26/10                        | /S/ Scot Becker<br>CHIEF STRUCTURAL DEVELOPMENT ENGINEER |
| FHWA   |  |

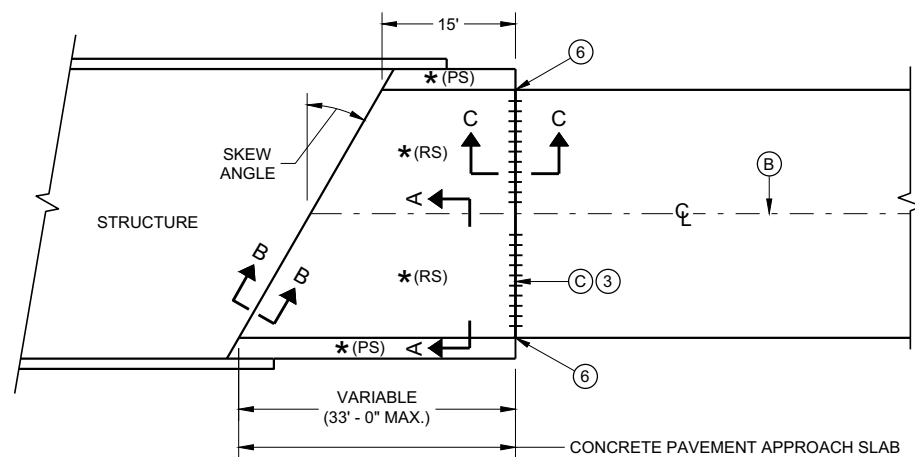




**SKewed APPROACH  
(PAVEMENT MORE THAN TWO LANES)**

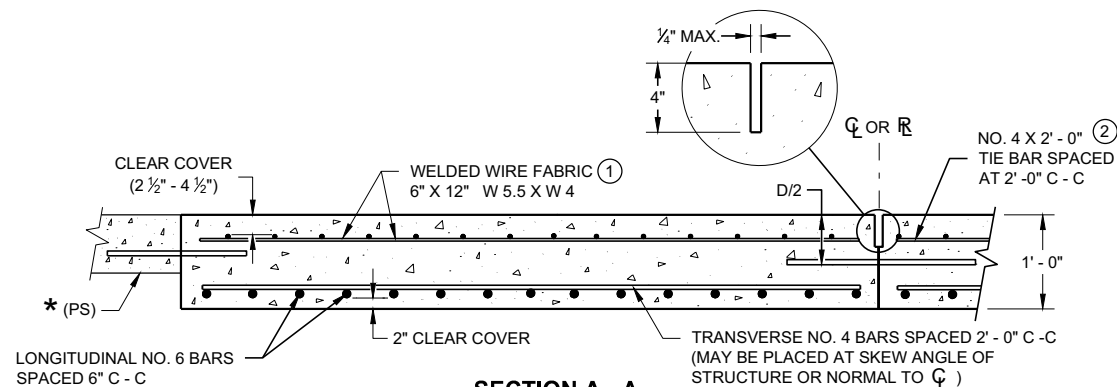


**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

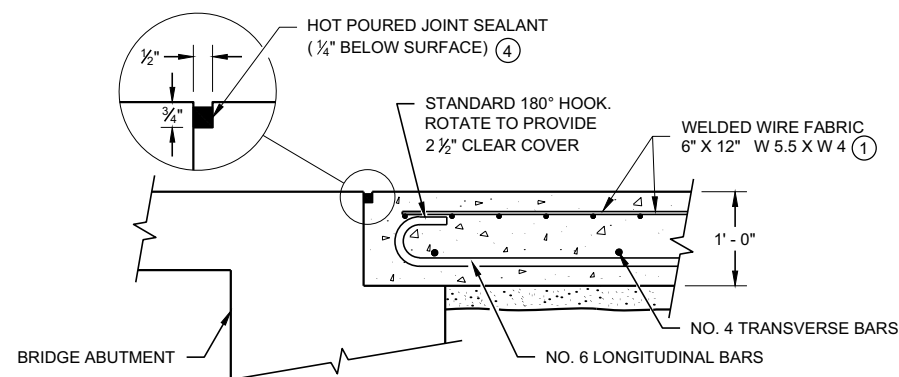


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**  
**APPROACH SLAB AND ADJACENT PAVEMENT**

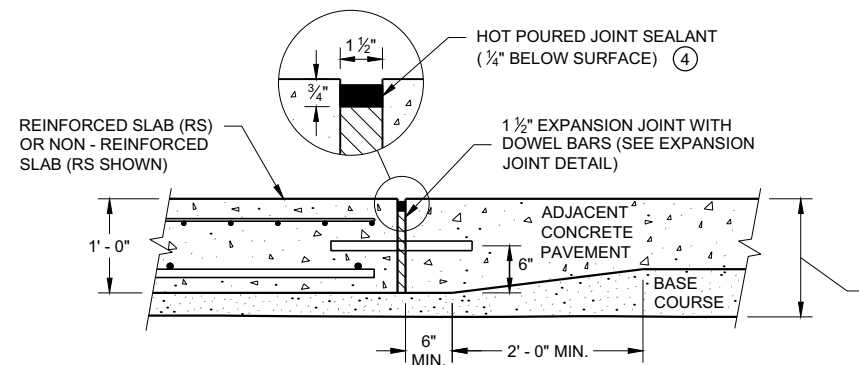
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



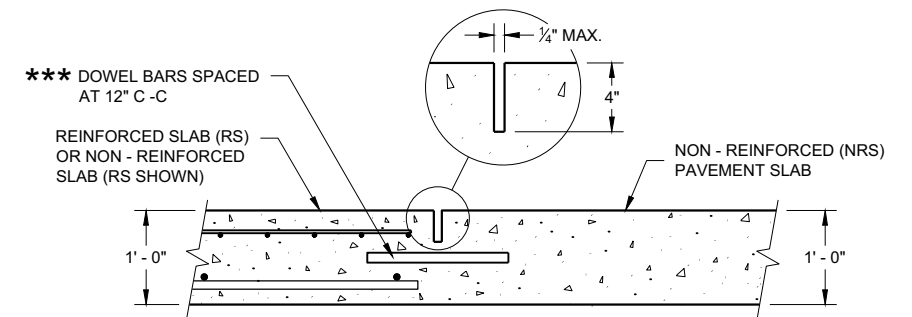
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



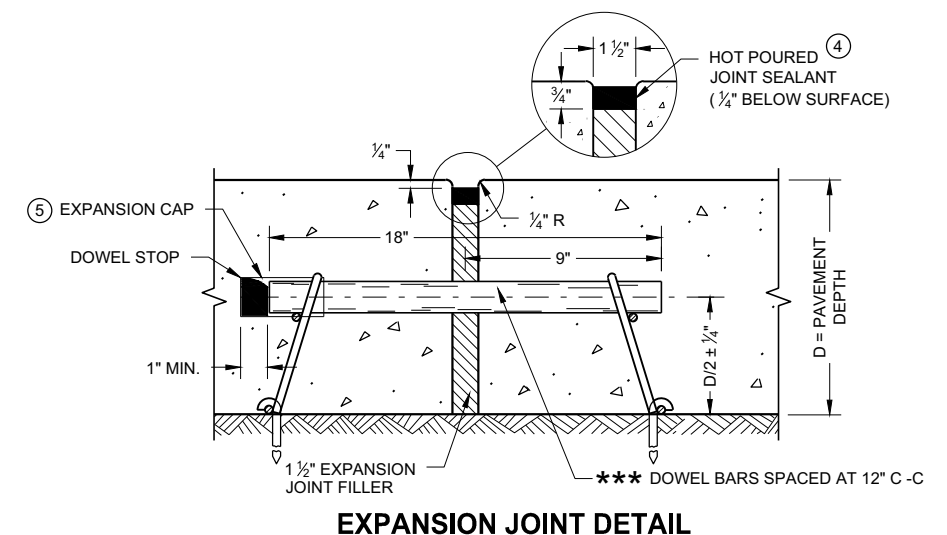
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .



**SECTION D - D  
CONTRACTION JOINT**



**EXPANSION JOINT DETAIL**

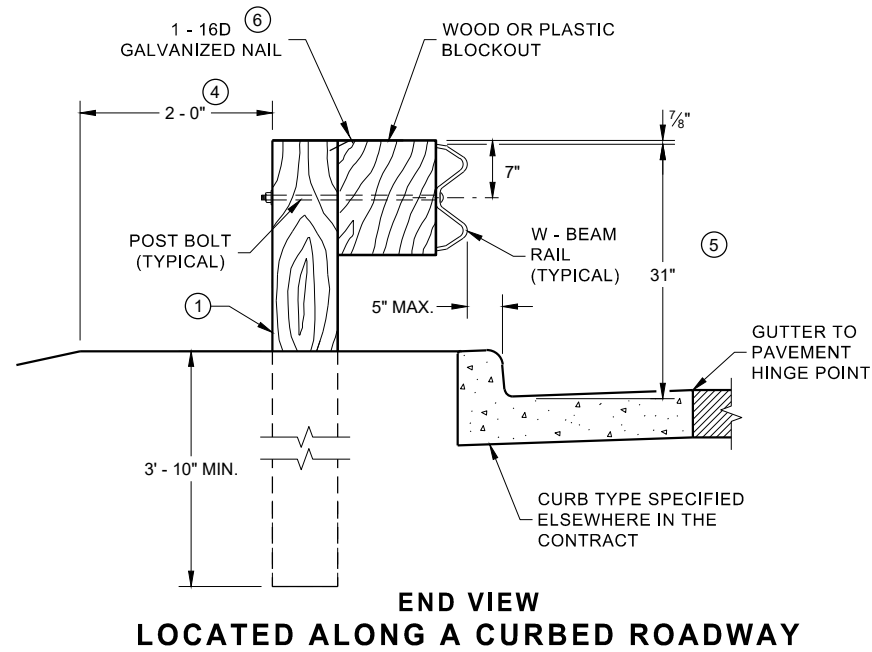
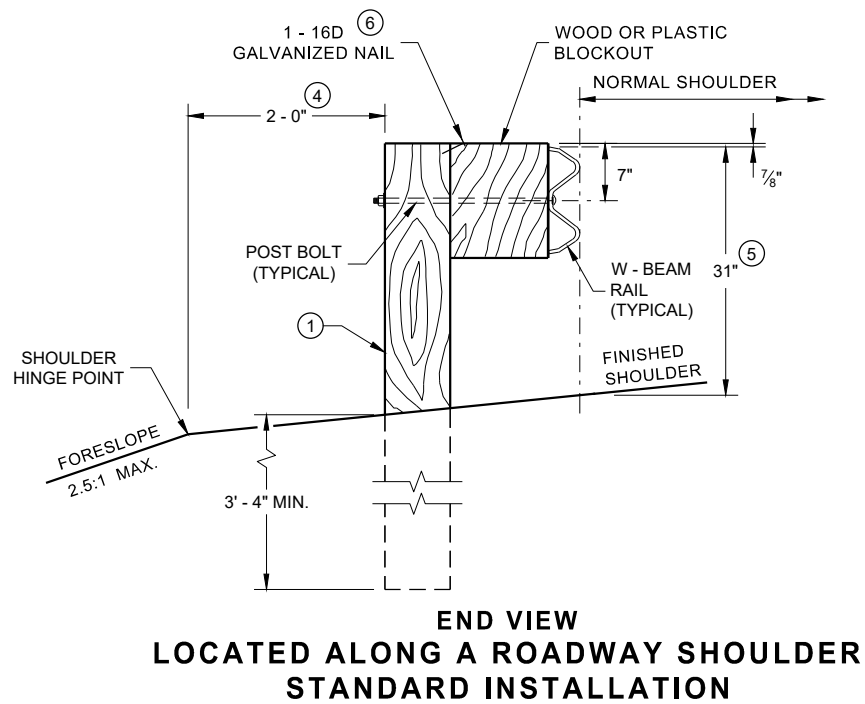
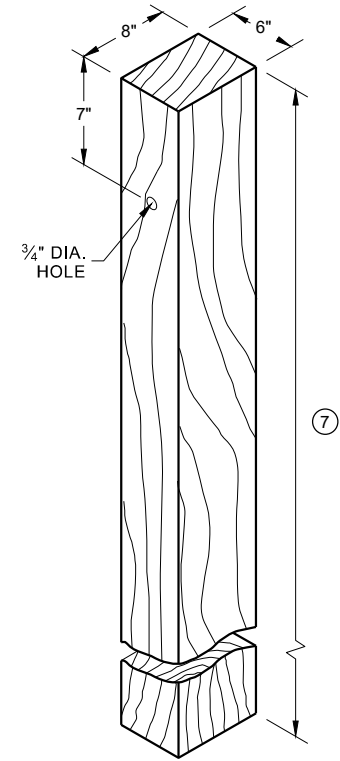
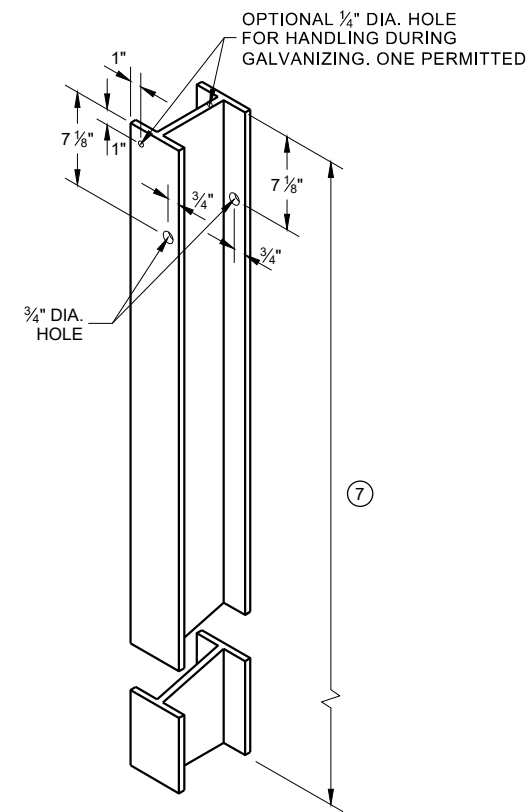
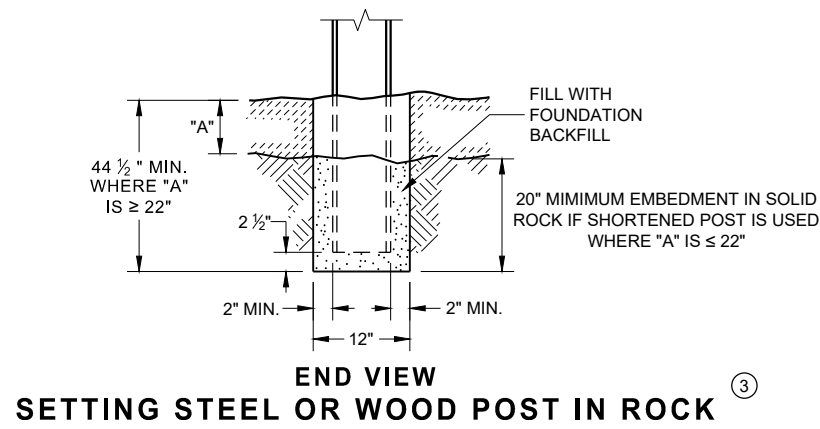
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

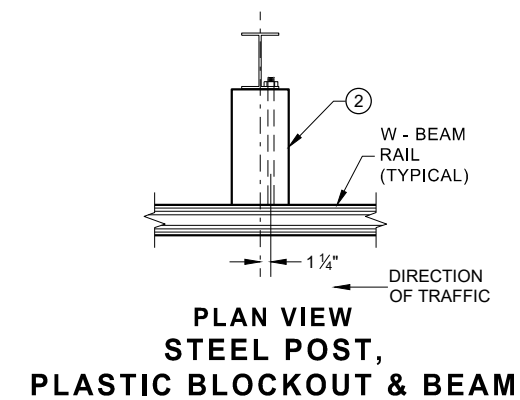
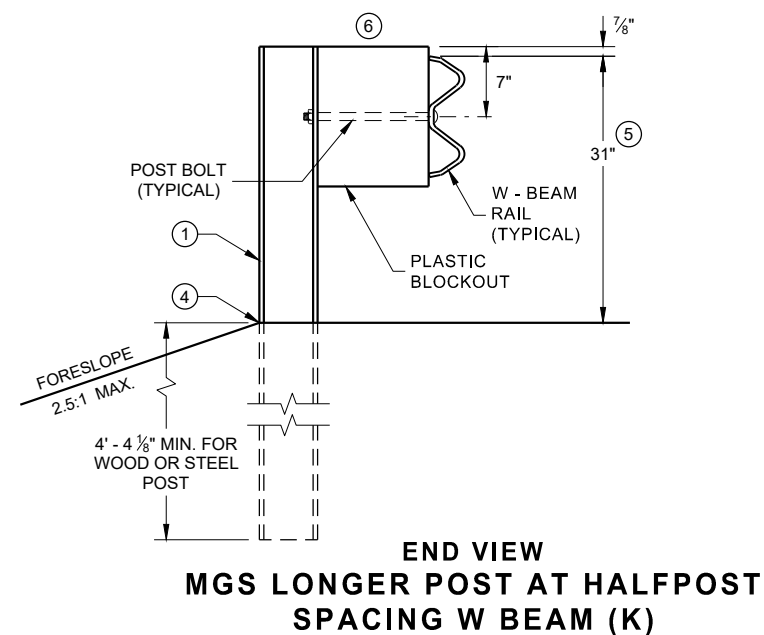
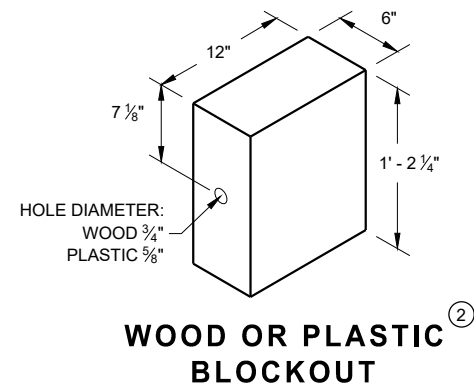
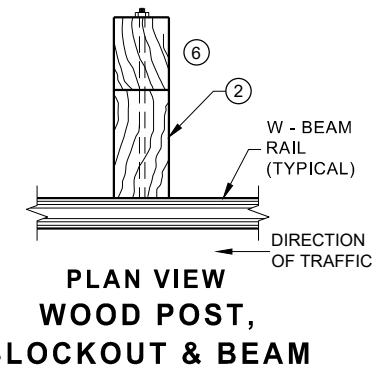
FHWA

- 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 THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



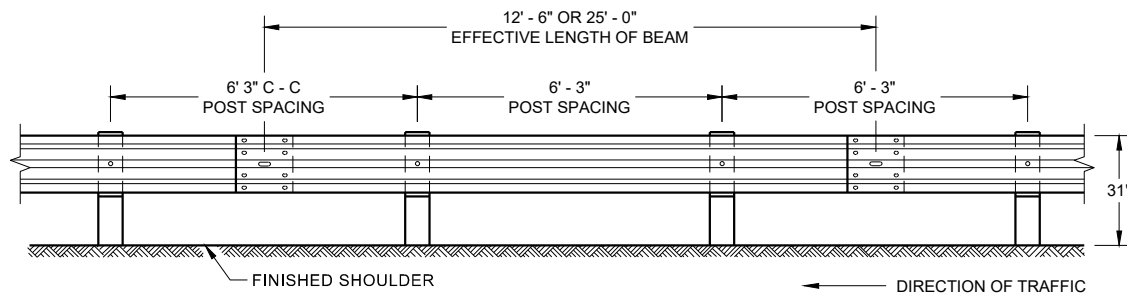
**STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9)**

**WOOD POST (6" X 8") NOMINAL**

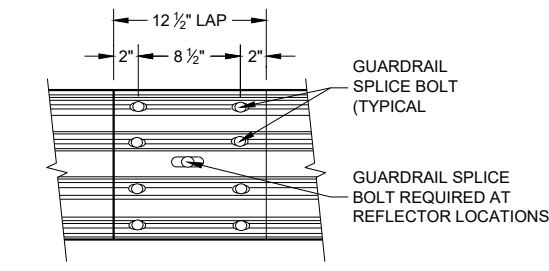


**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



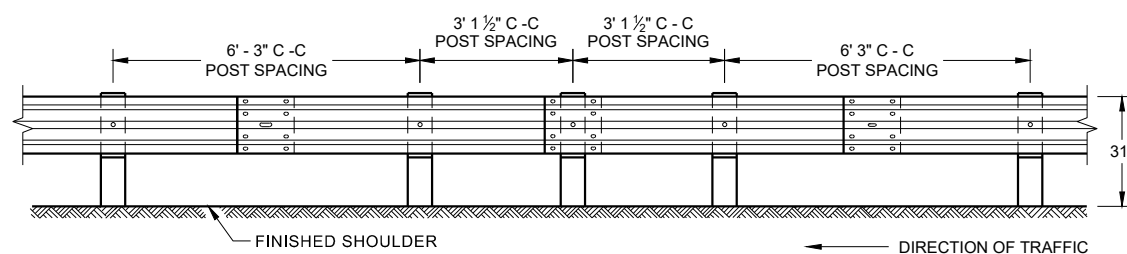
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



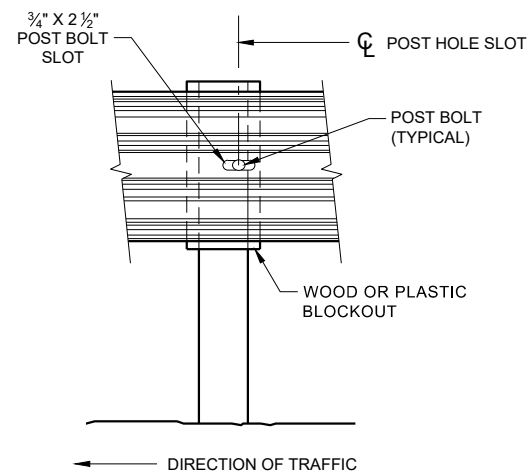
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

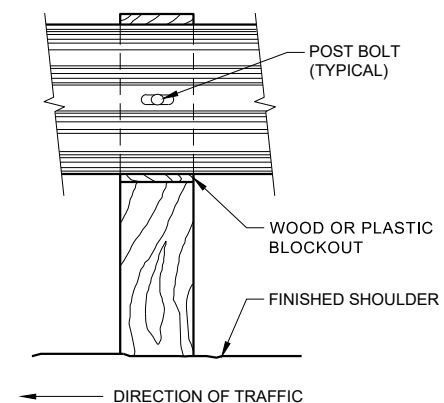
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



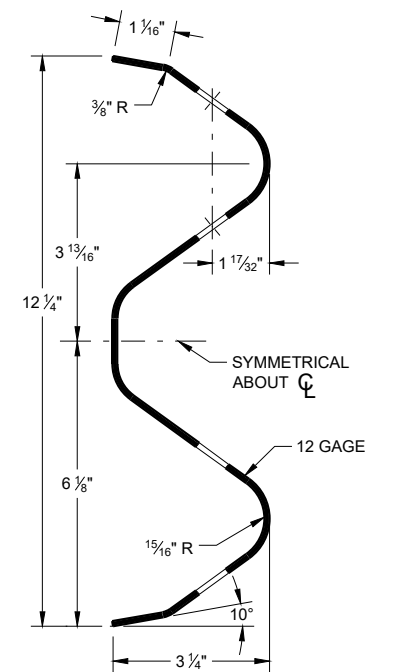
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



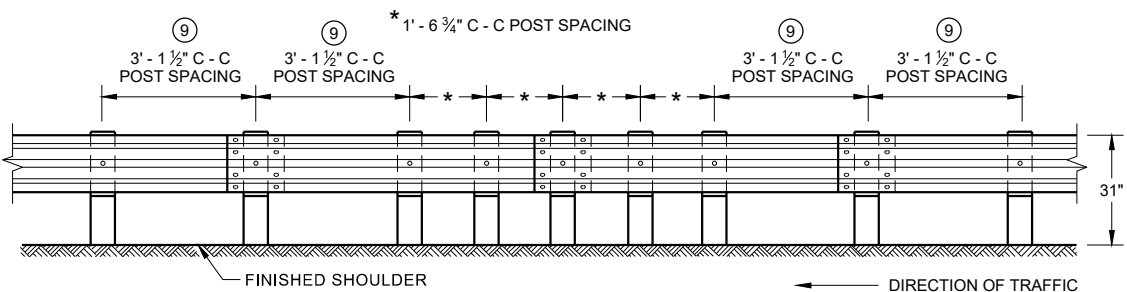
**FRONT VIEW AT STEEL POST**



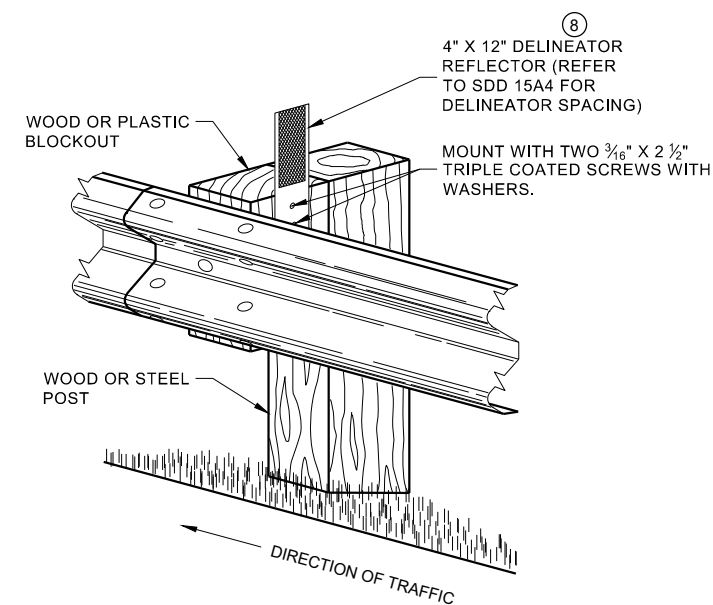
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

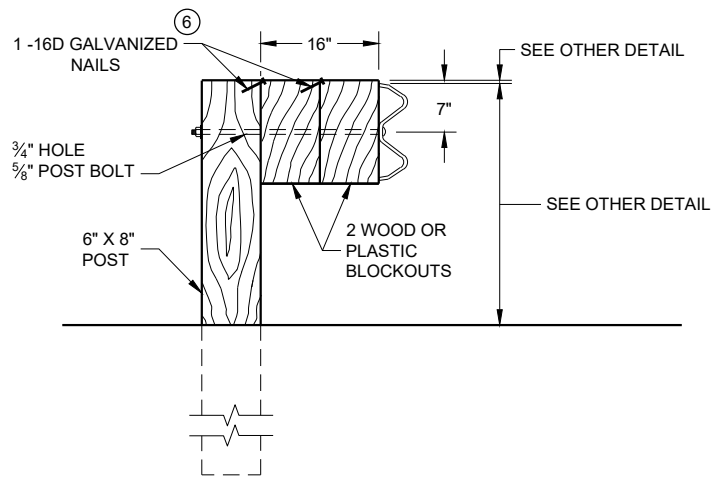
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

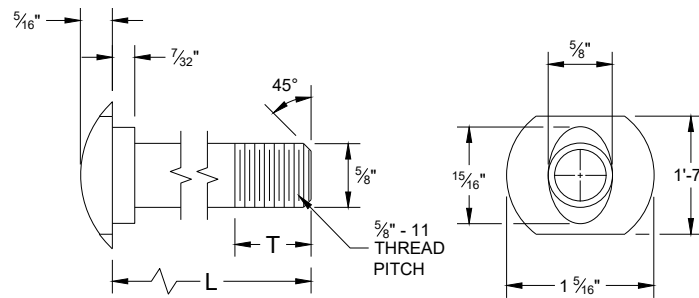


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

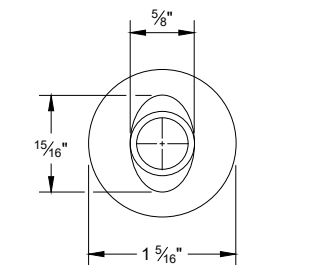
**NOTE:**

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

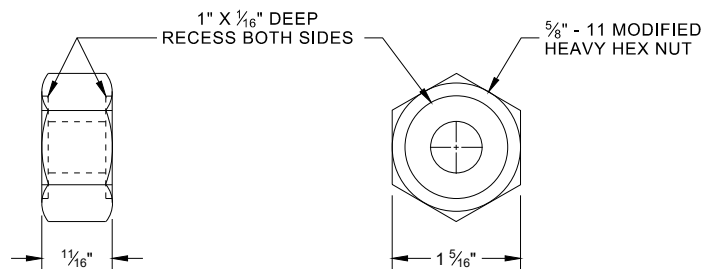


**POST BOLT TABLE**

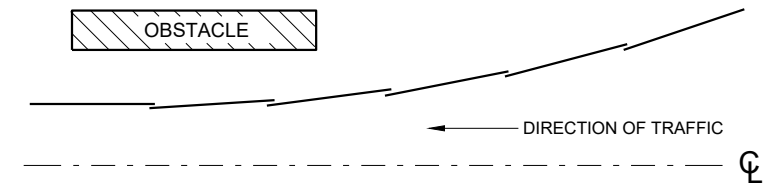
| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |



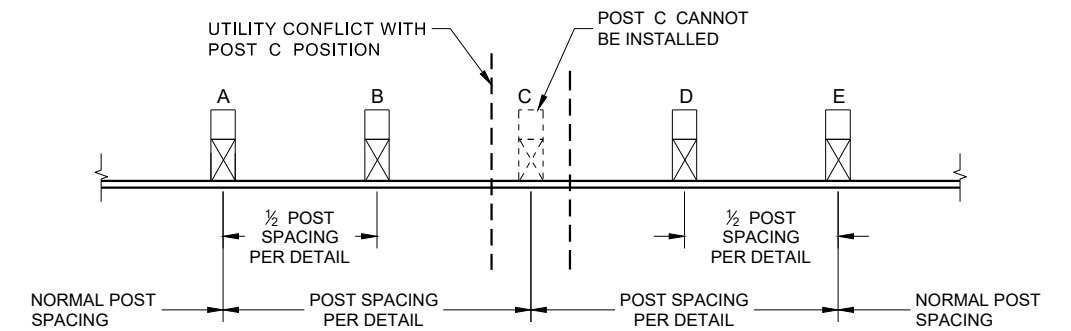
**ALTERNATE BOLT HEAD**



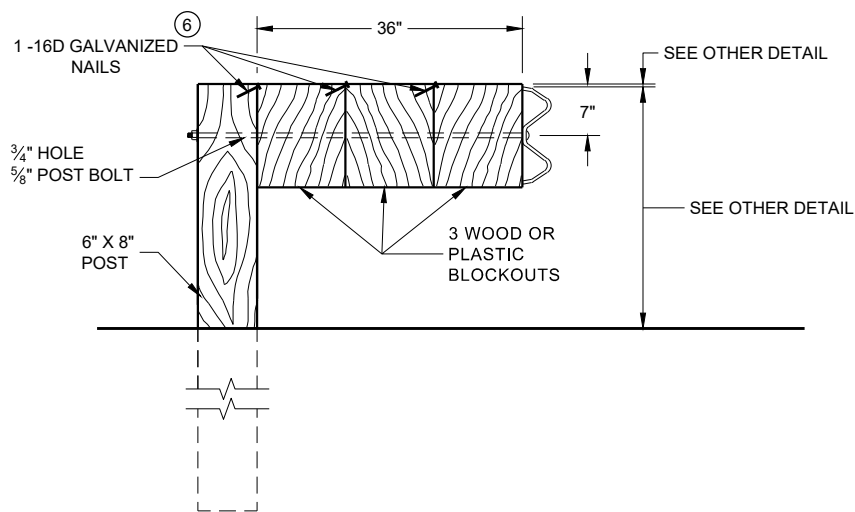
**POST BOLT, SPLICE BOLT AND RECESS NUT**



**PLAN VIEW BEAM LAPPING DETAIL**

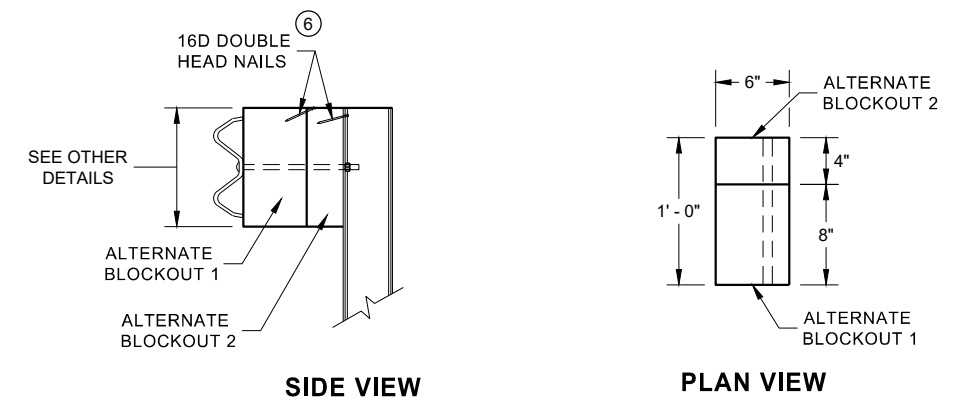


**POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION**



**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.

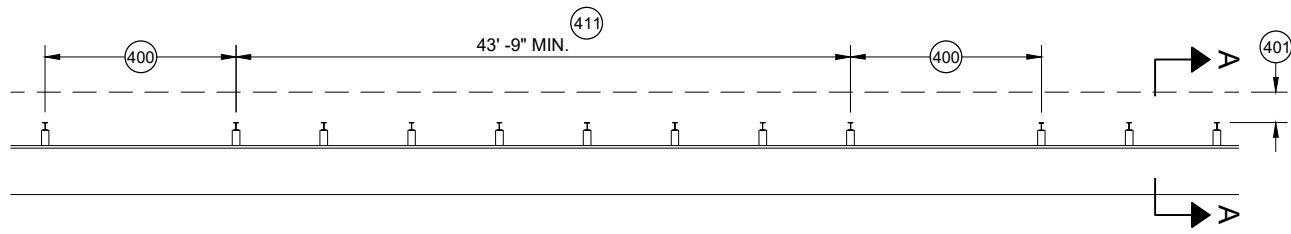


**ALTERNATE WOOD BLOCKOUT DETAIL**

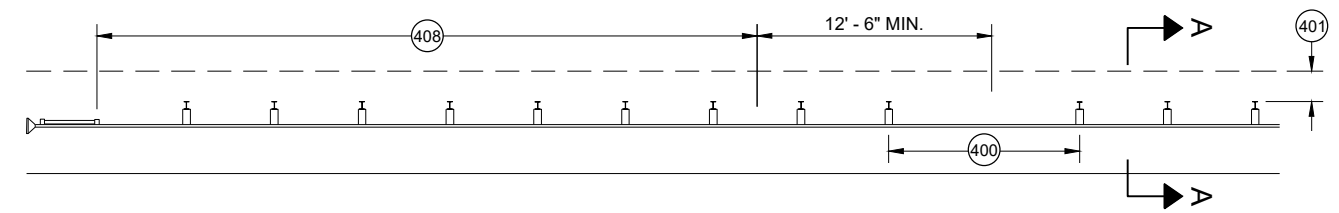
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

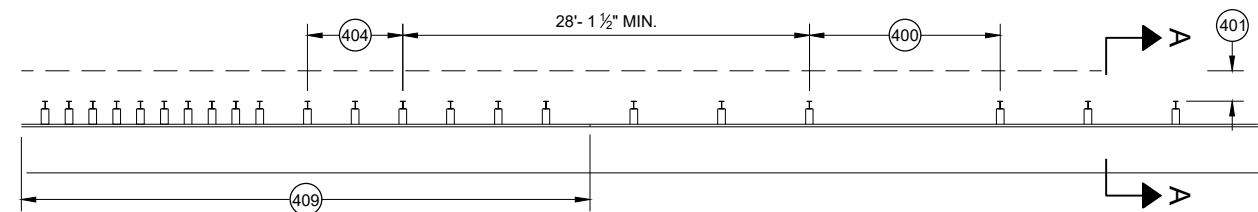
STATE OF WISCONSIN  
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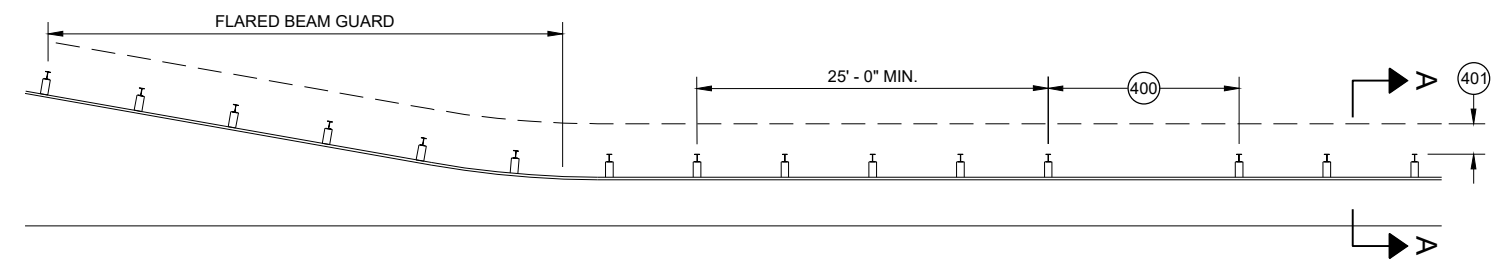
**MISSING POST IN MGS GUARDRAIL**



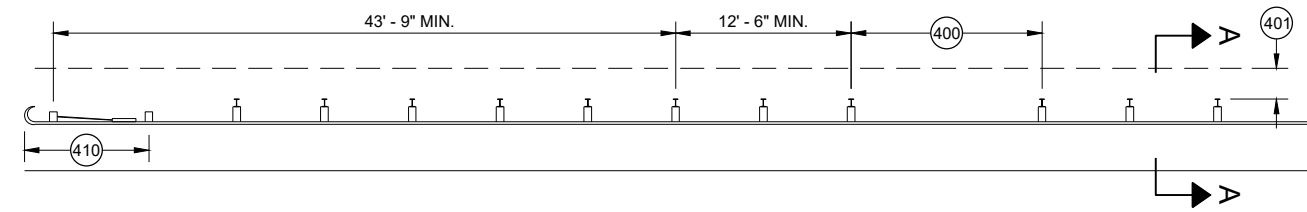
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



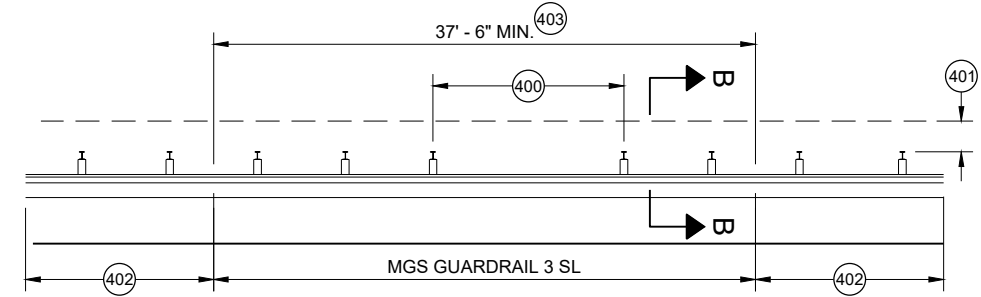
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

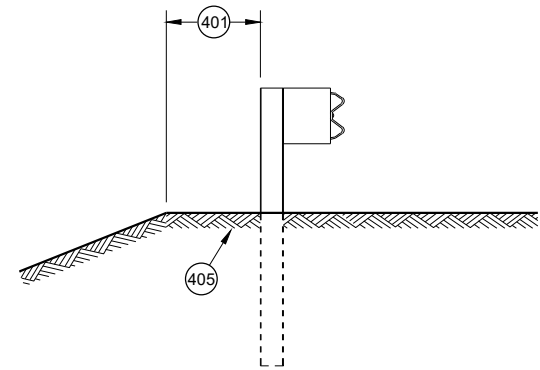


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

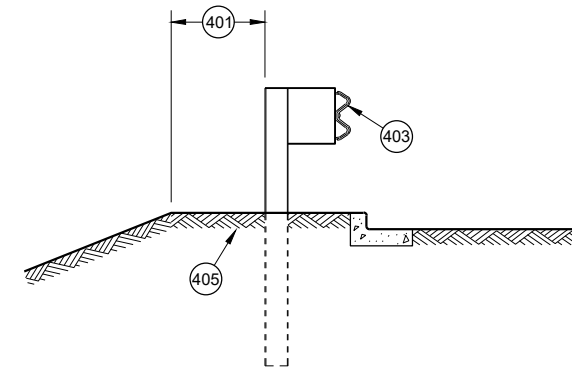


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- ④00 MAX SPAN 12' - 6"
- ④01 2' MIN.
- ④02 MGS GUARDRAIL 3
- ④03 NESTING BEAM GUARD
- ④04 ASYMMETRIC TRANSITION
- ④05 SOIL WELL DRAINED AND COMPACTED
- ④06 SEE OTHER DRAWINGS IN THIS SDD
- ④07 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- ④08 SEE SDD 14B44
- ④09 SEE SDD 14B45
- ④10 SEE SDD 14B47
- ④11 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

|   |   |
|---|---|
| <b>MIDWEST GUARDRAIL SYSTEM<br/>(MGS) GUARDRAIL</b> |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION  |   |
| APPROVED<br>May 2021<br>DATE                        | /S/ Rodney Taylor<br>ROADWAY STANDARDS DEVELOPMENT<br>UNIT SUPERVISOR |
| FHWA  |   |

**GENERAL NOTES**

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

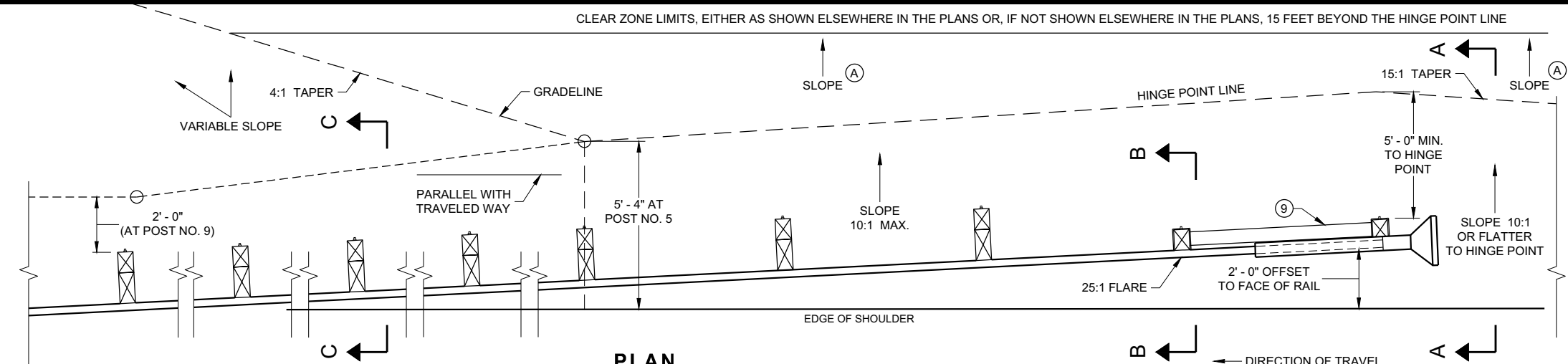
SEE SDD 14B42 FOR MORE INFORMATION.

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

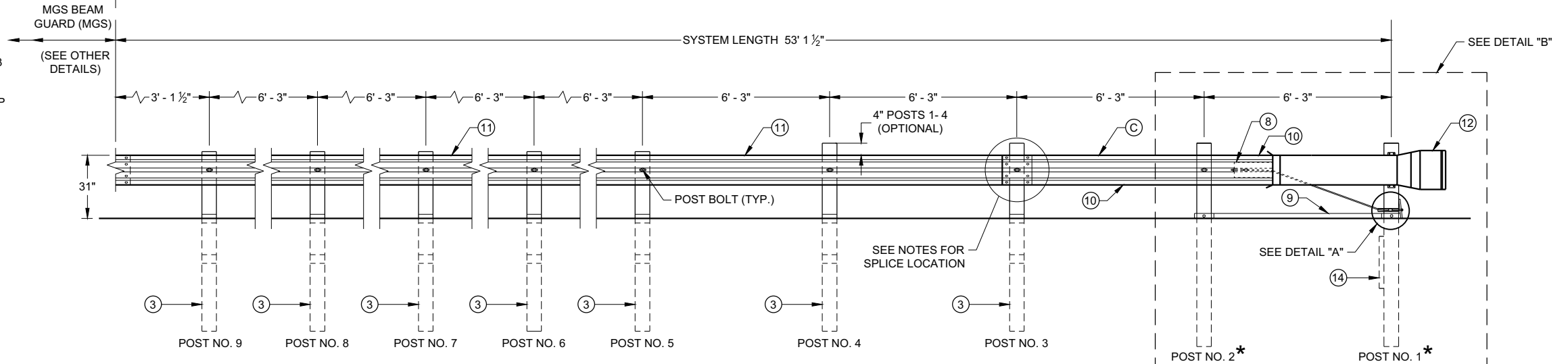
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

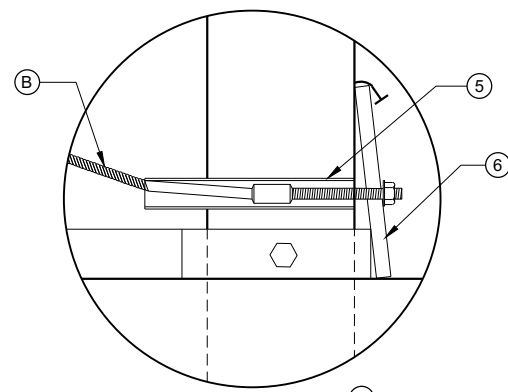
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



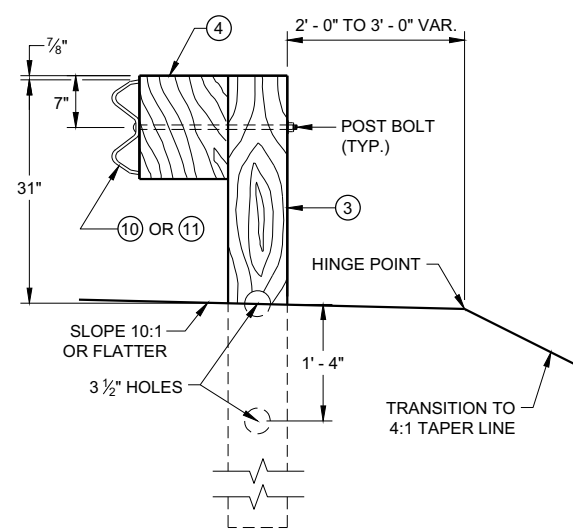
**PLAN**



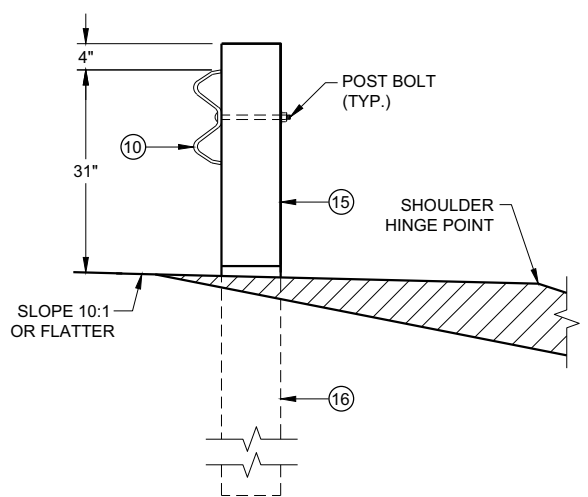
**ELEVATION**



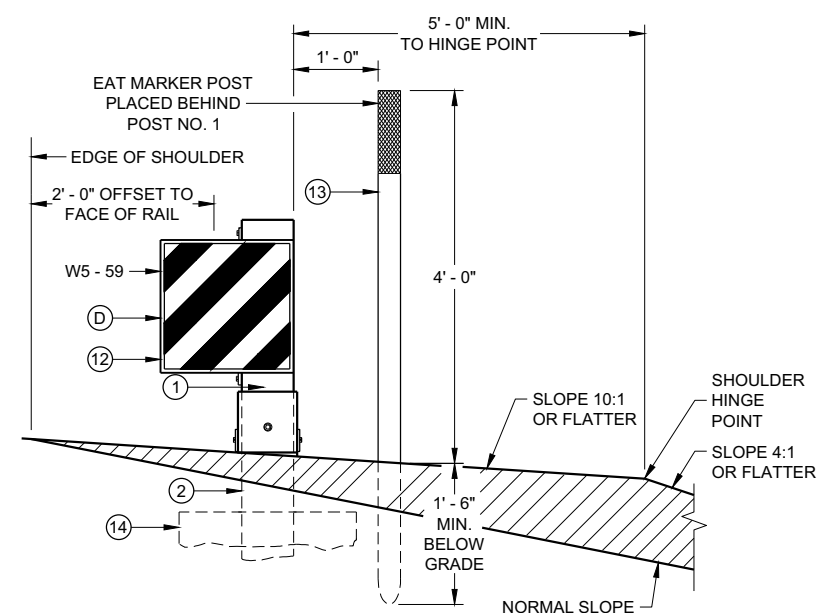
**DETAIL "A"**



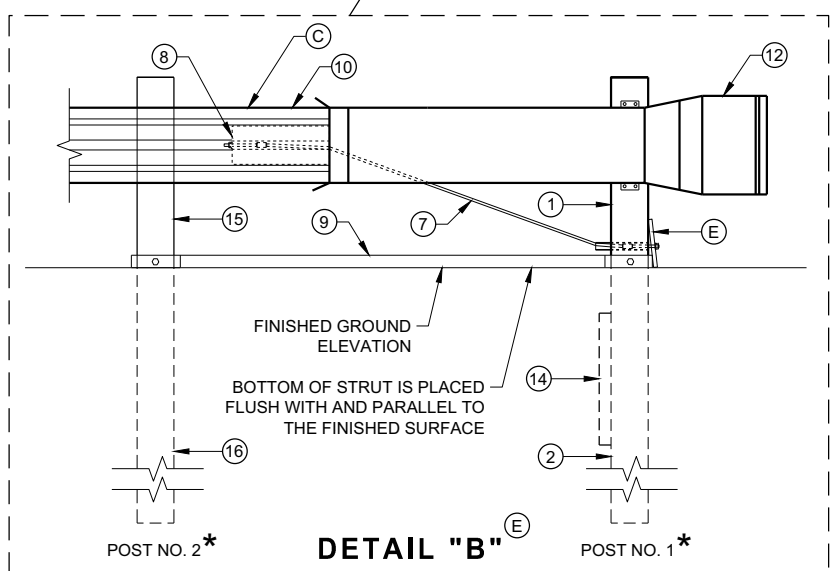
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



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



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



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

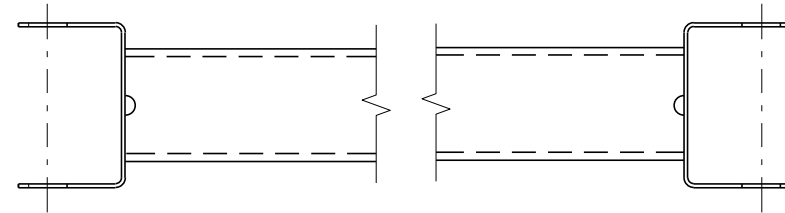
6

SDD 14B44 - 04a

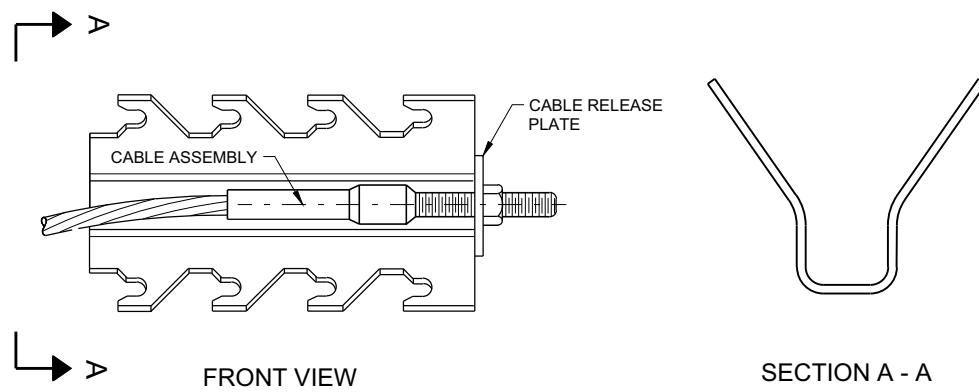
SDD 14B44 - 04a

**BILL OF MATERIALS**

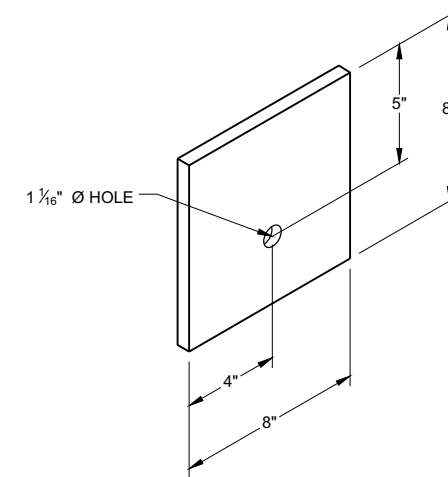
| PART NO. | DESCRIPTION<br>MATERIALS PROVIDED BY MGS EAT MANUFACTURER.<br>SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION. |
|----------|--|
| ①        | UPPER POST NO. 1 6" X 6" TUBE  |
| ②        | LOWER POST NO. 1   |
| ③        | WOOD CRT   |
| ④        | WOOD BLOCKOUT  |
| ⑤        | PIPE SLEEVE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



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

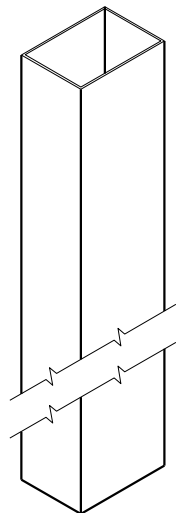
6

SDD 14B44 - 04b

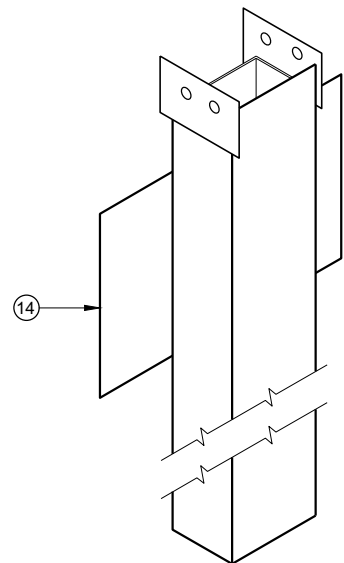
SDD 14B44 - 04b

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

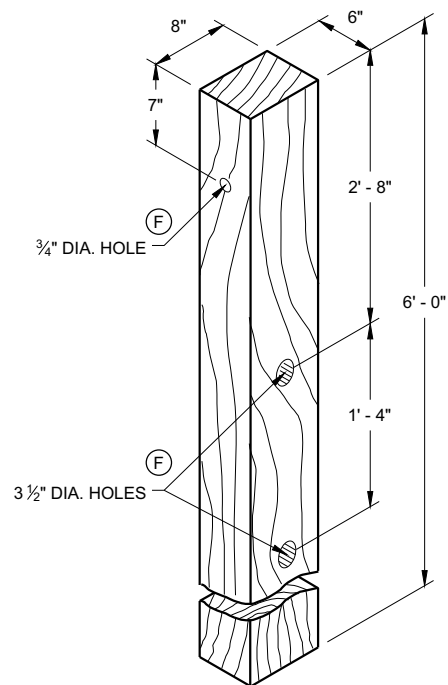
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



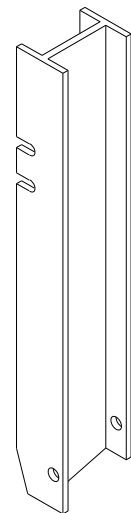
UPPER POST NO. 1 <sup>(1)</sup> (E)



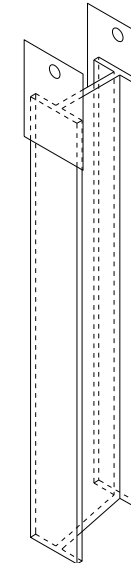
LOWER POST NO. 1 <sup>(2)</sup> (E)



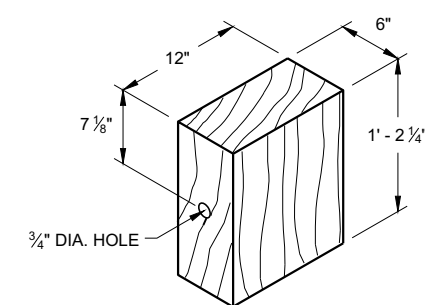
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



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

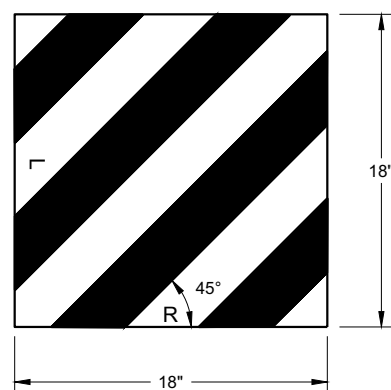


LOWER POST NO. 2 <sup>(16)</sup> (E)



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

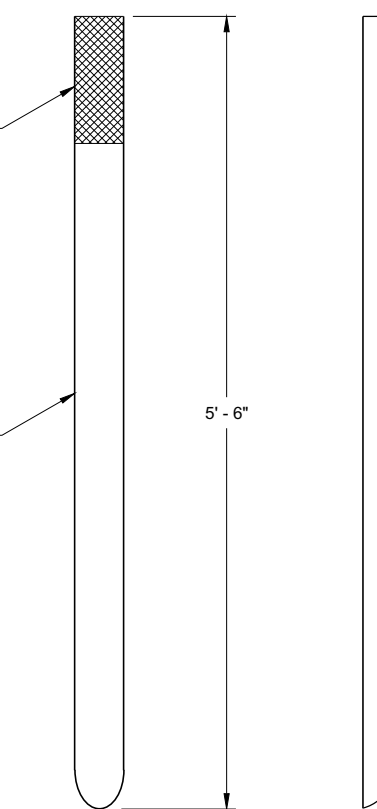
6



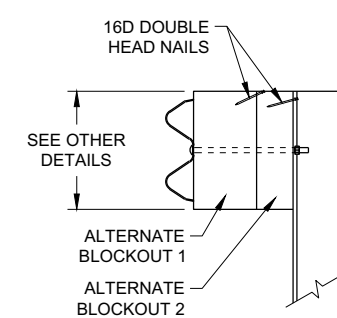
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

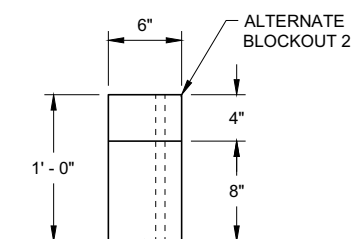
E.A.T. MARKER  
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

SDD 14B44 - 04c

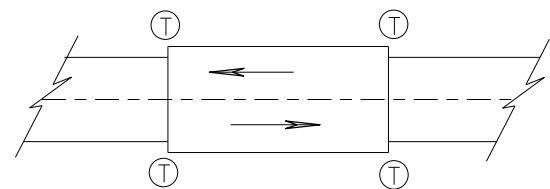
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

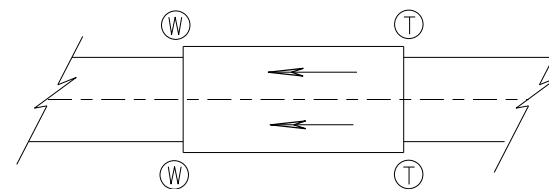
APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA





**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

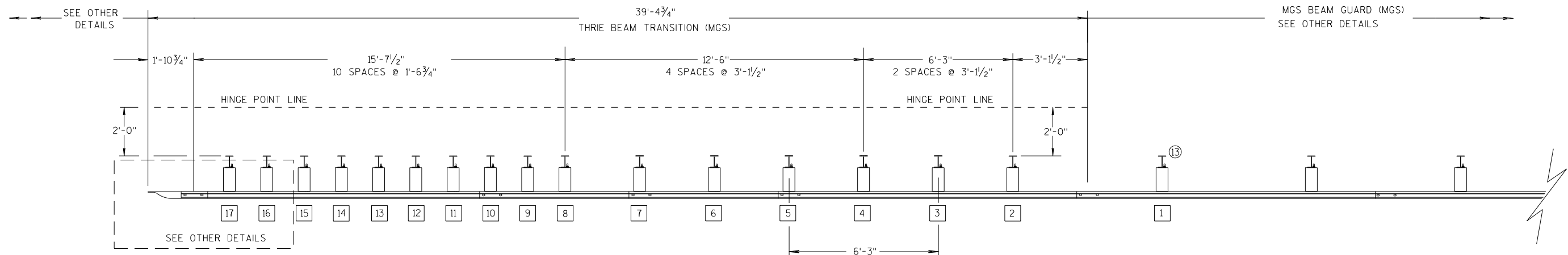
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

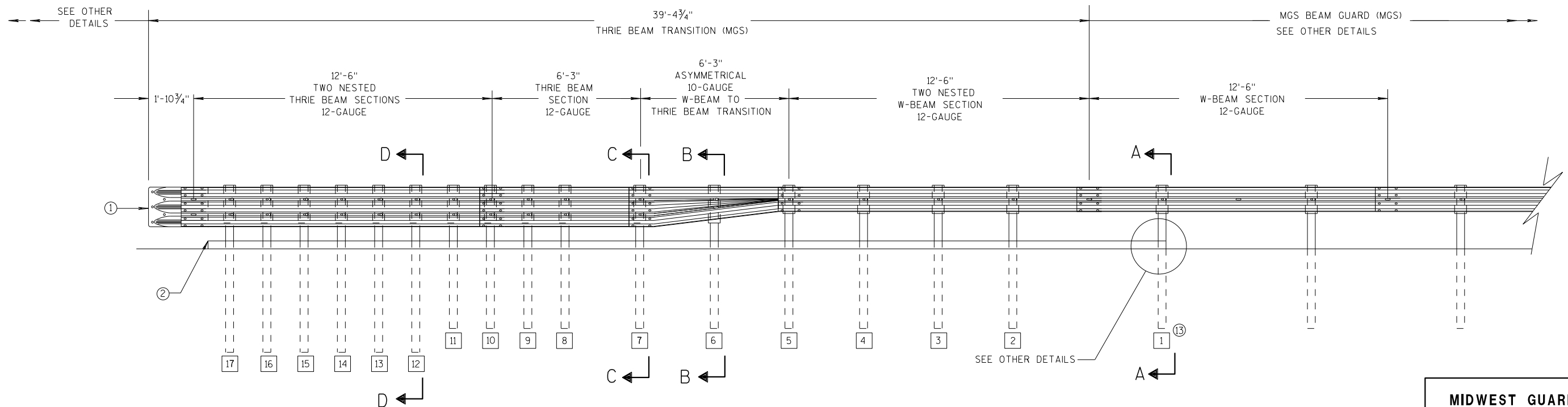
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

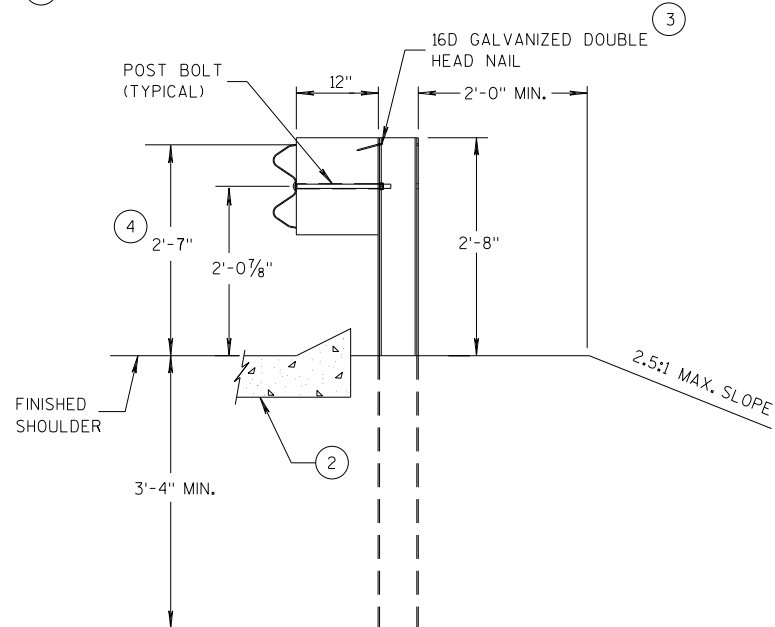
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

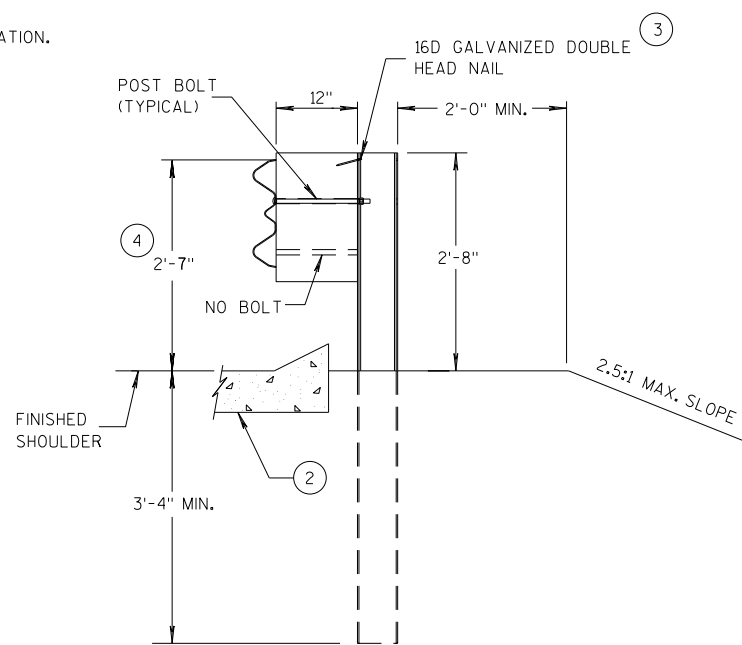
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

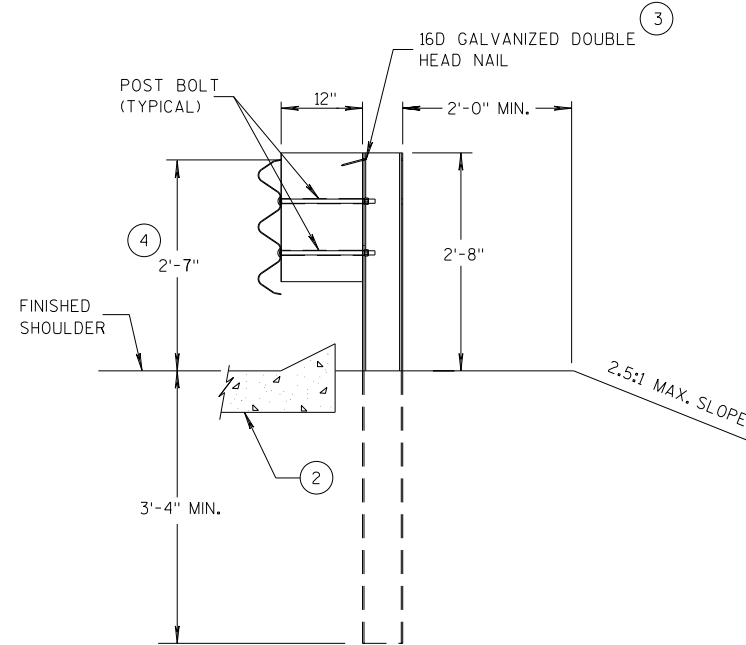
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



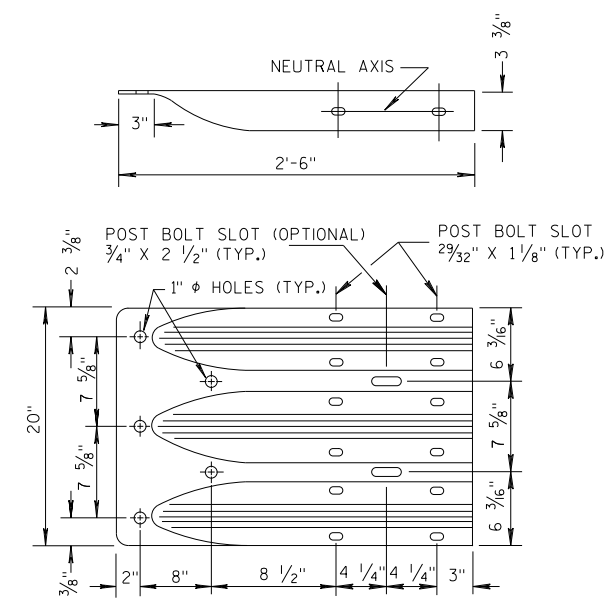
**SECTION A-A  
POSTS 1-5**



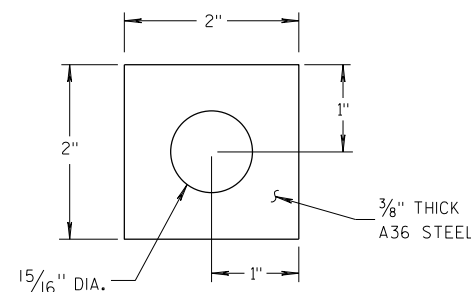
**SECTION B-B  
POST 6**



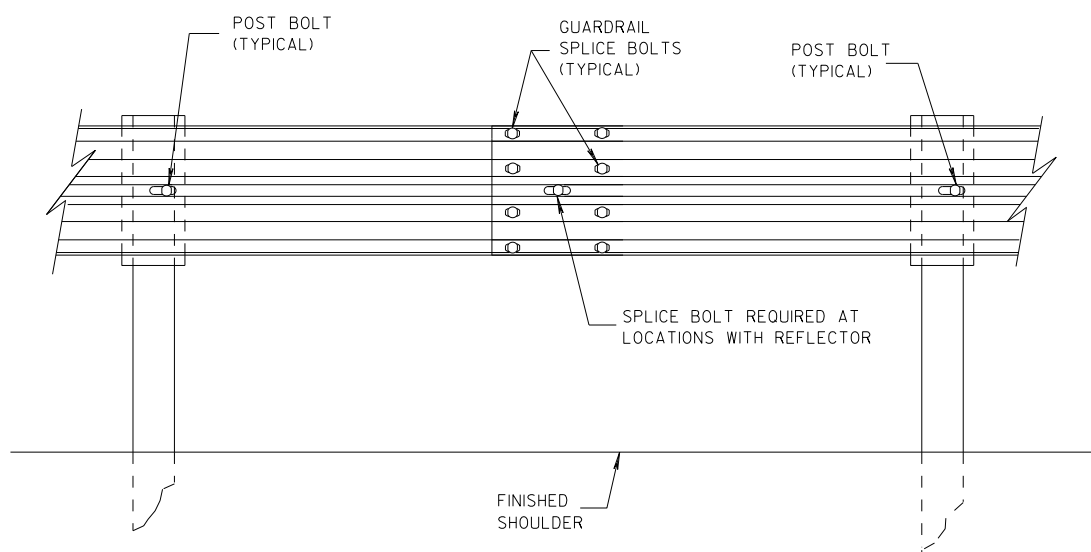
**SECTION C-C  
POSTS 7-11**



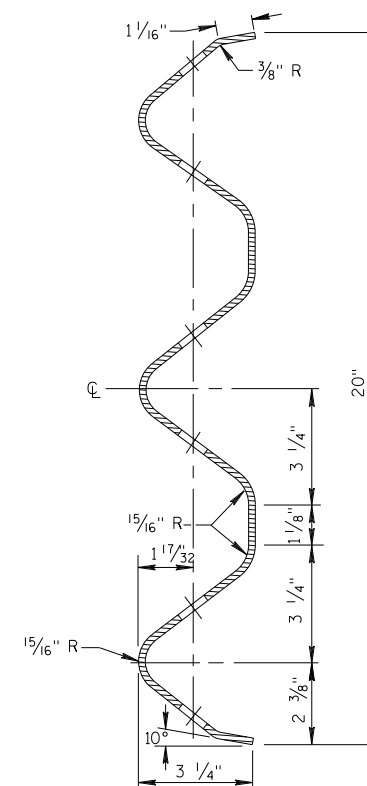
**THRIE BEAM  
TERMINAL CONNECTOR**



**PLATE WASHER DETAIL**



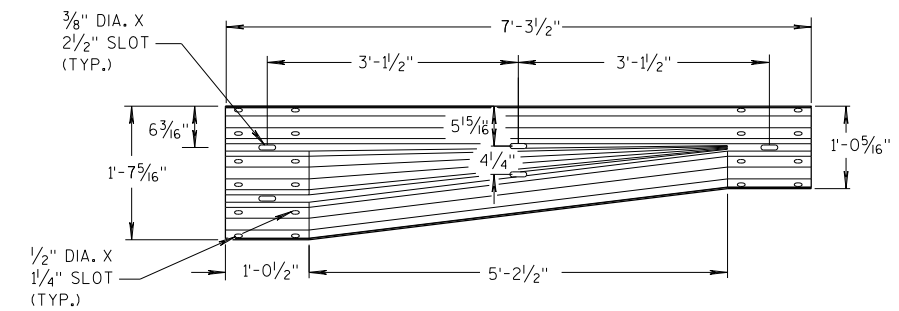
**SPLICE DETAIL**



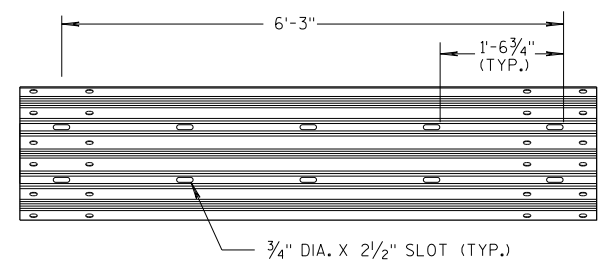
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

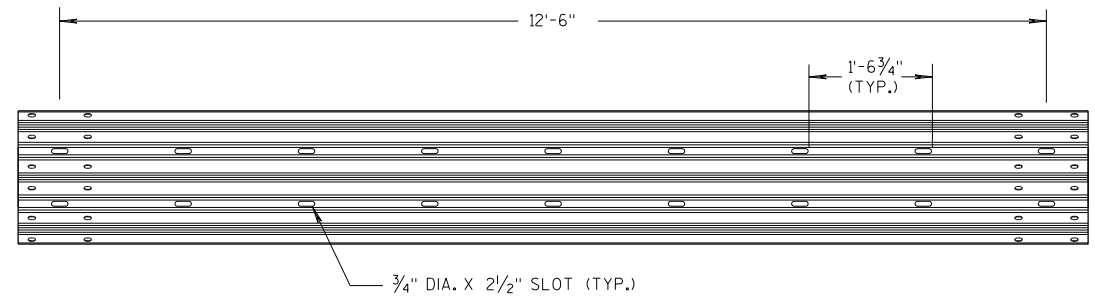
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



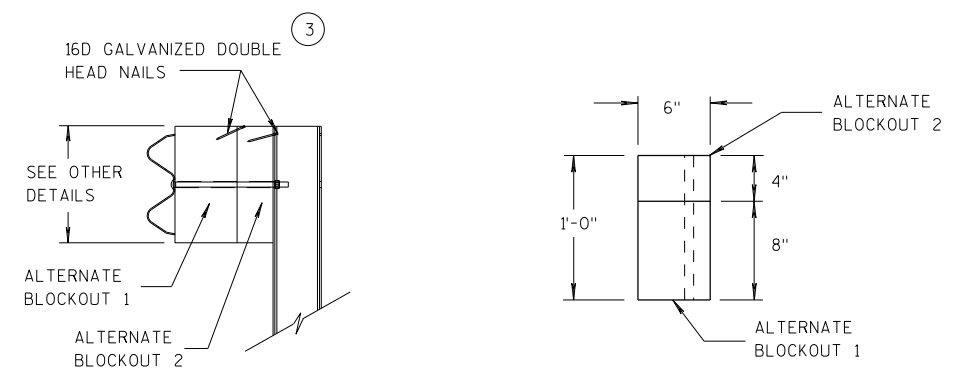
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



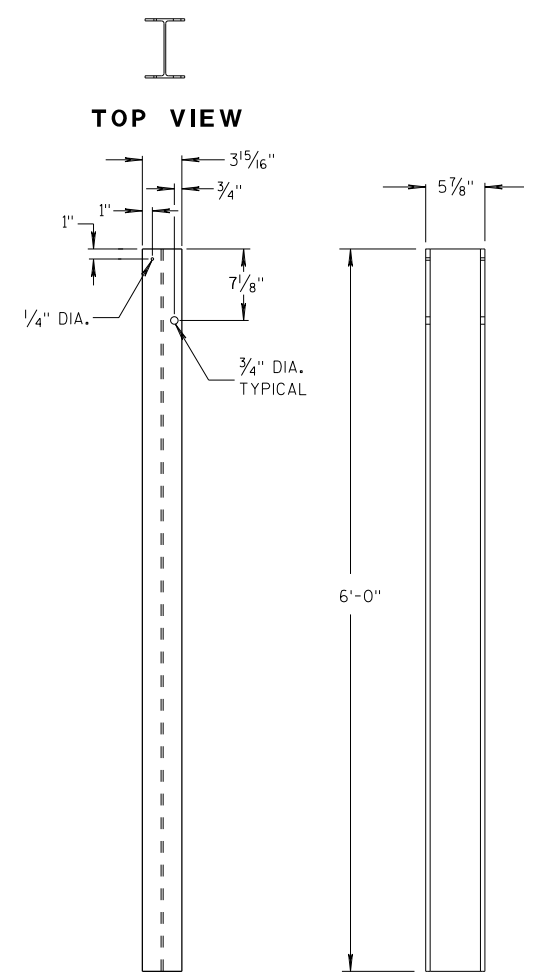
**6'-3\"/>**



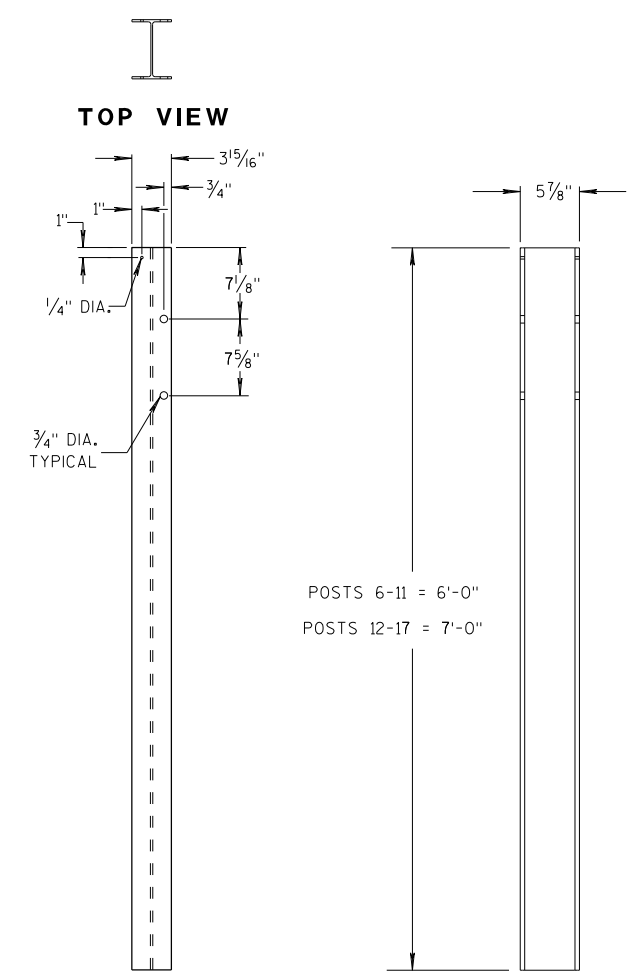
**12'-6\"/>**



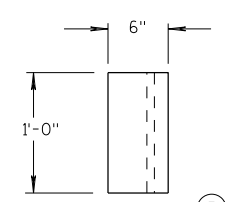
**ALTERNATE WOOD BLOCKOUT DETAIL**



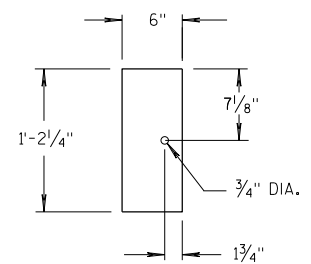
**STEEL POSTS 1-5**



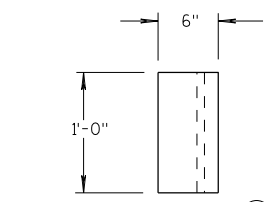
**STEEL POSTS 6-17**



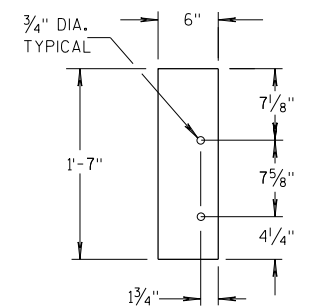
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**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.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

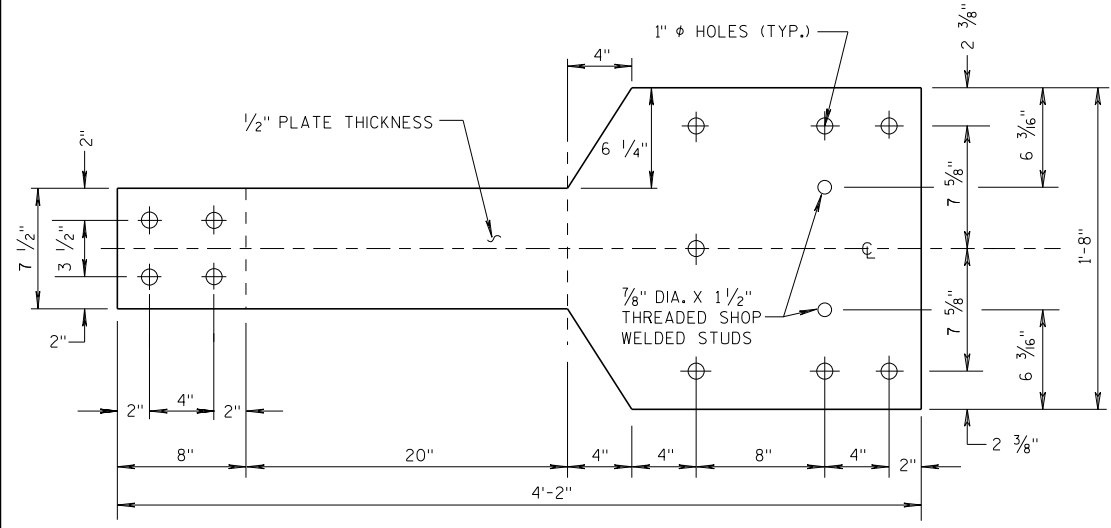
6

S.D.D. 14 B 45-5c

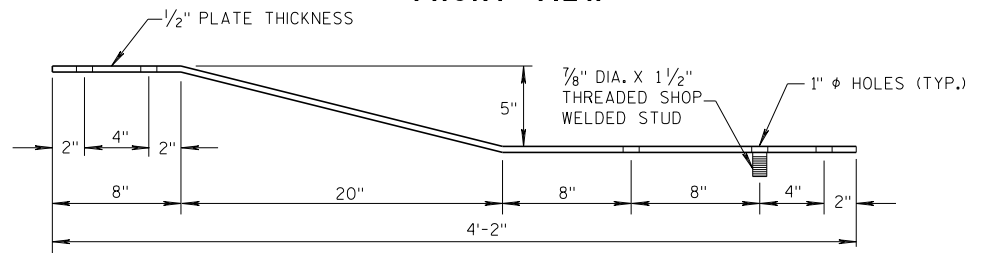
S.D.D. 14 B 45-5c

**GENERAL NOTES**

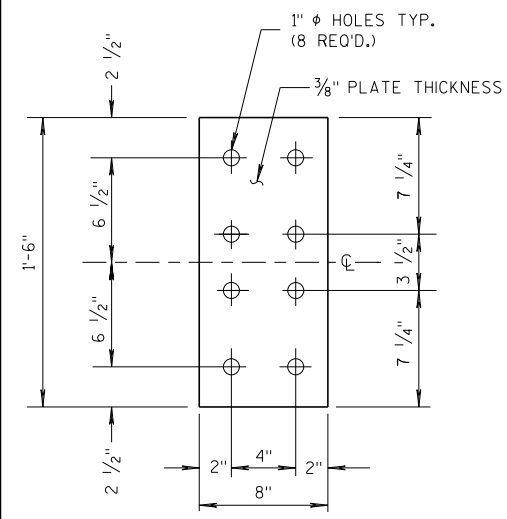
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



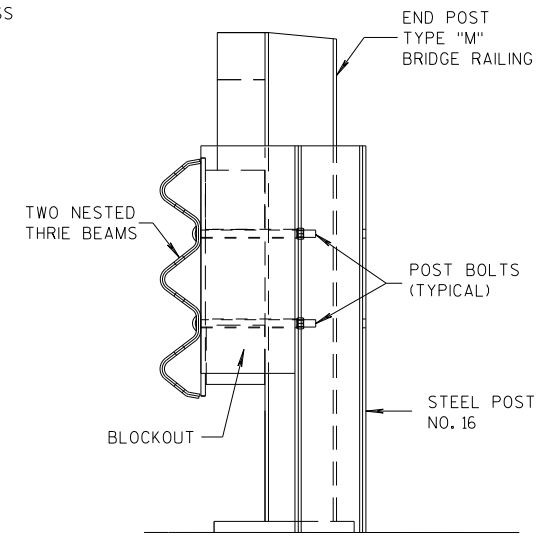
**FRONT VIEW**



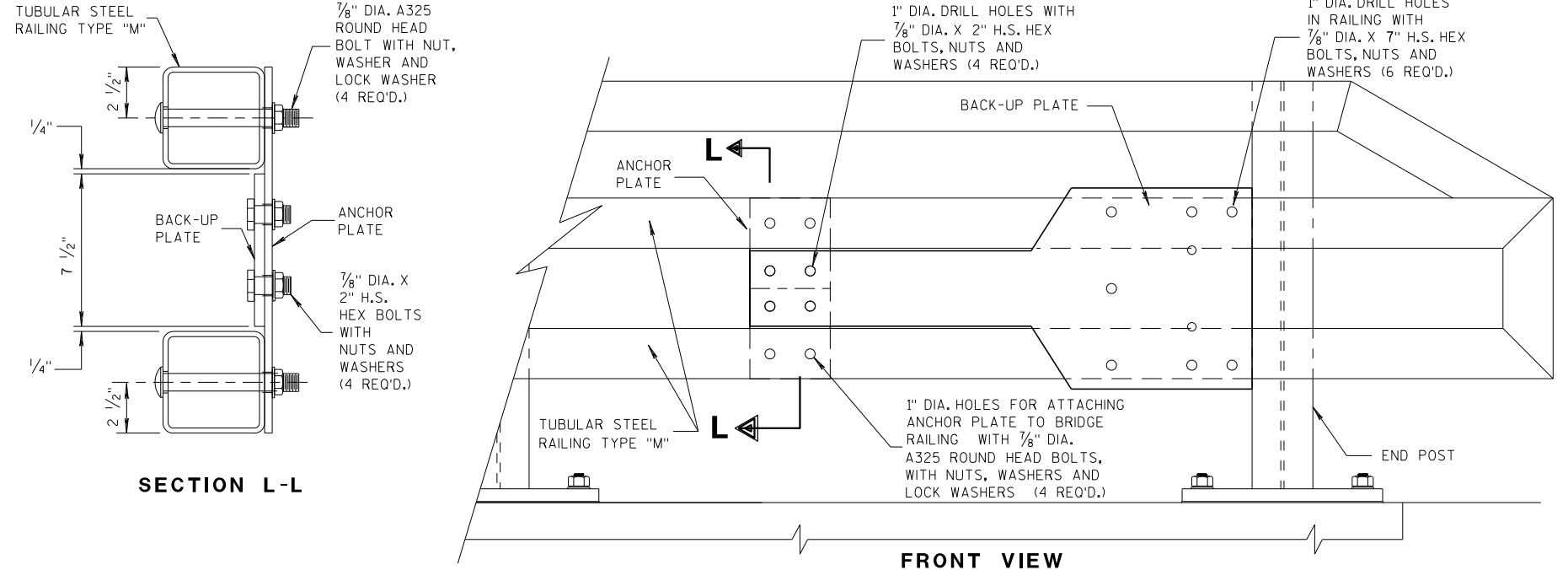
**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**



**FRONT VIEW  
ANCHOR PLATE DETAIL,  
TYPE "M"**



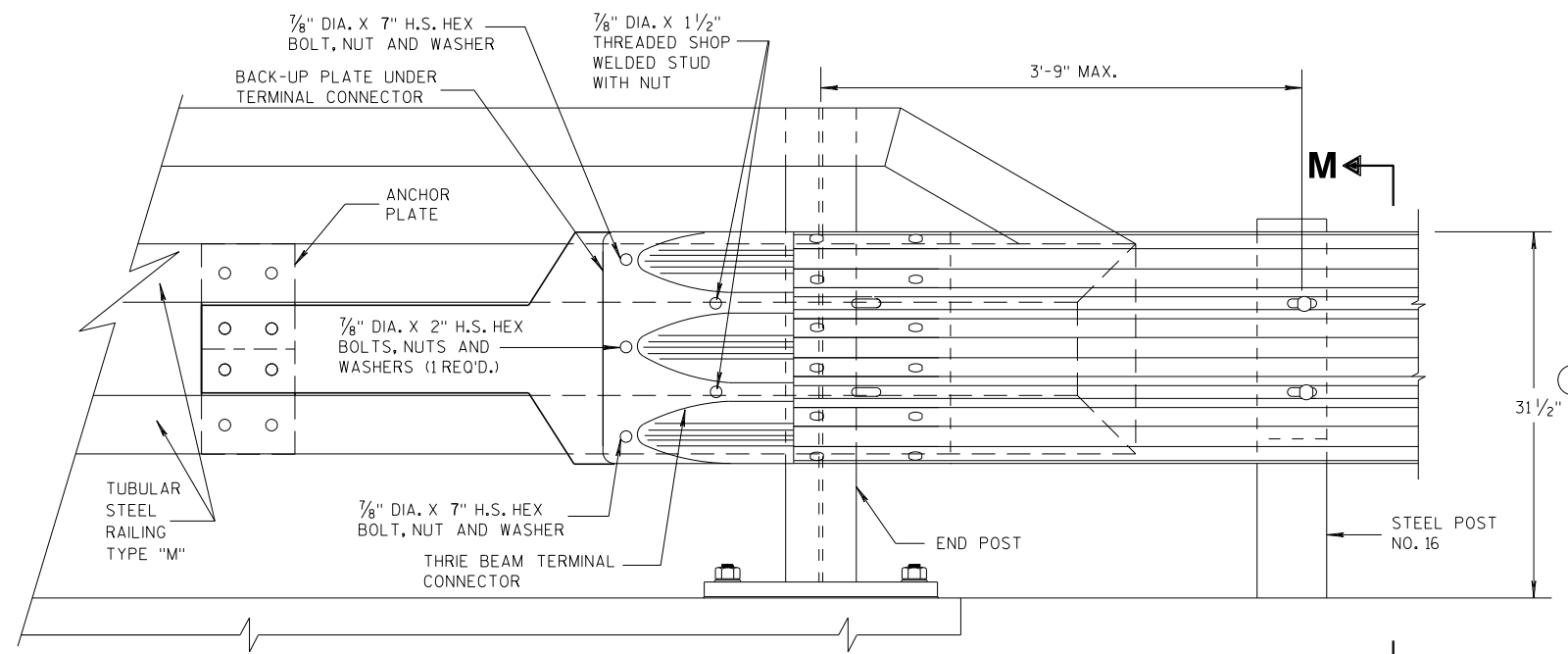
**SECTION M-M**



**SECTION L-L**

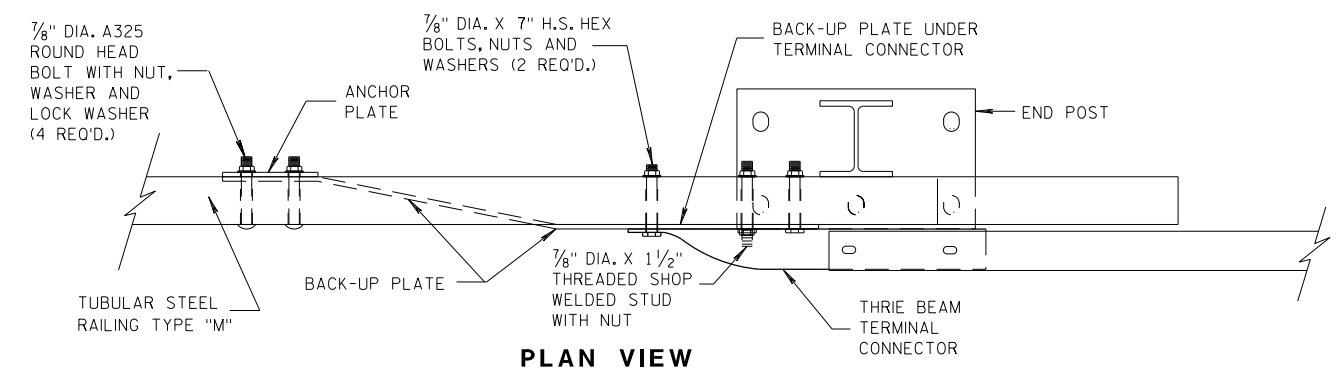
**FRONT VIEW**

**ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"**



**FRONT VIEW**

**M**



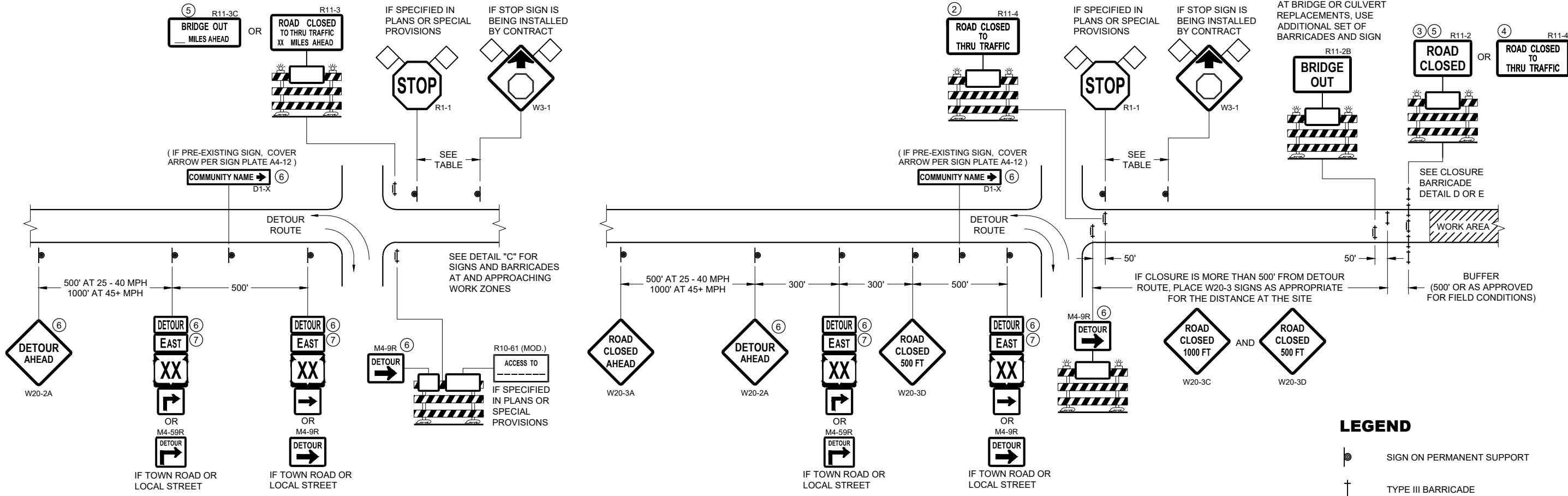
**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

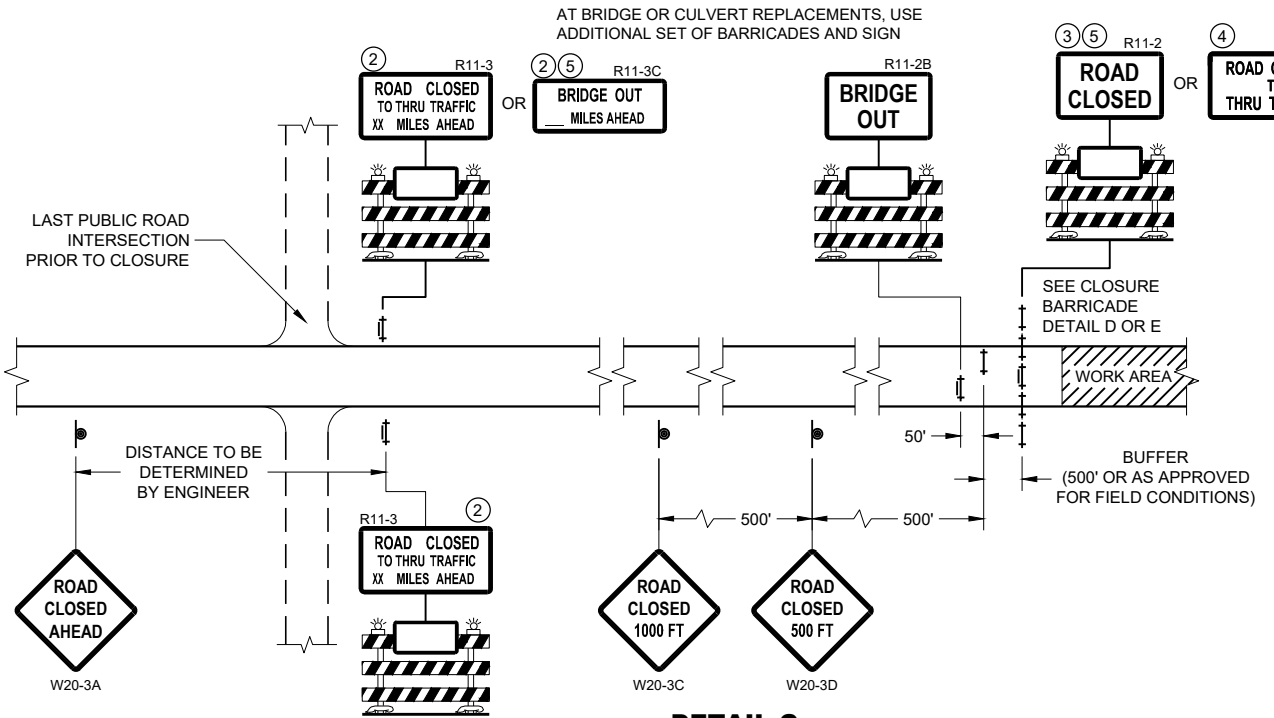
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



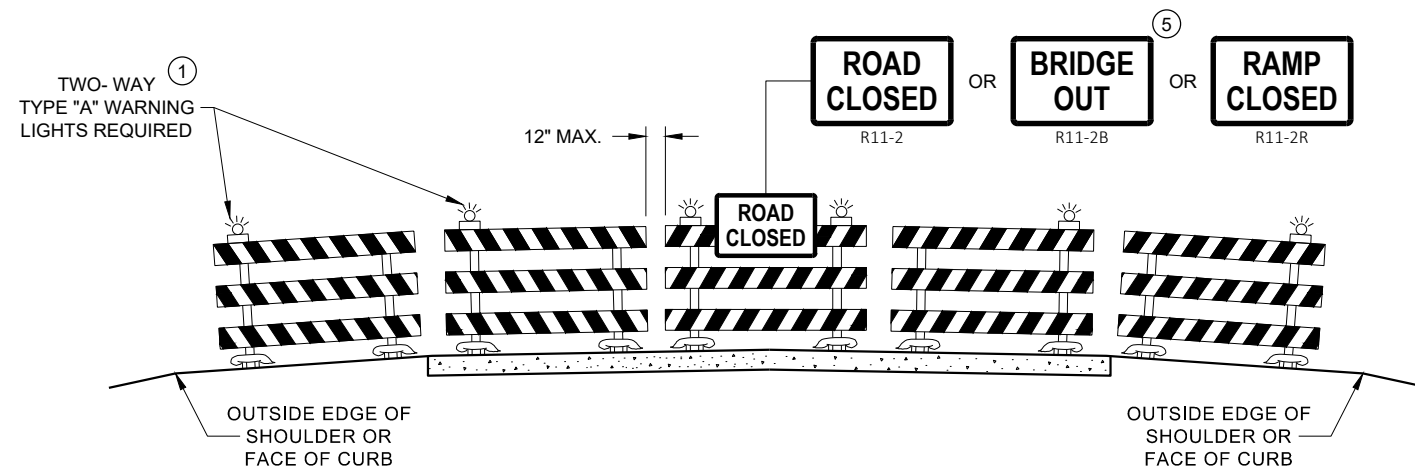
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

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

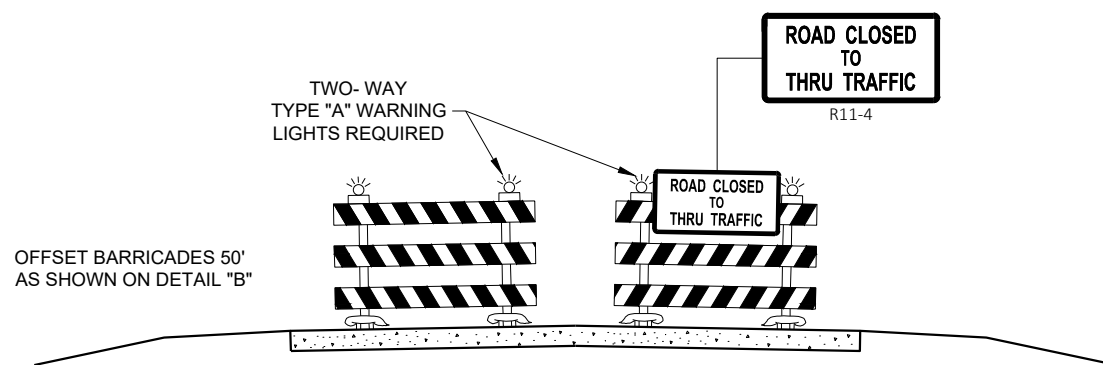
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE DATE WORK ZONE 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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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 SHALL, 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" (36" X 18" 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)
- MO5 - 1 AND MO6 - 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"

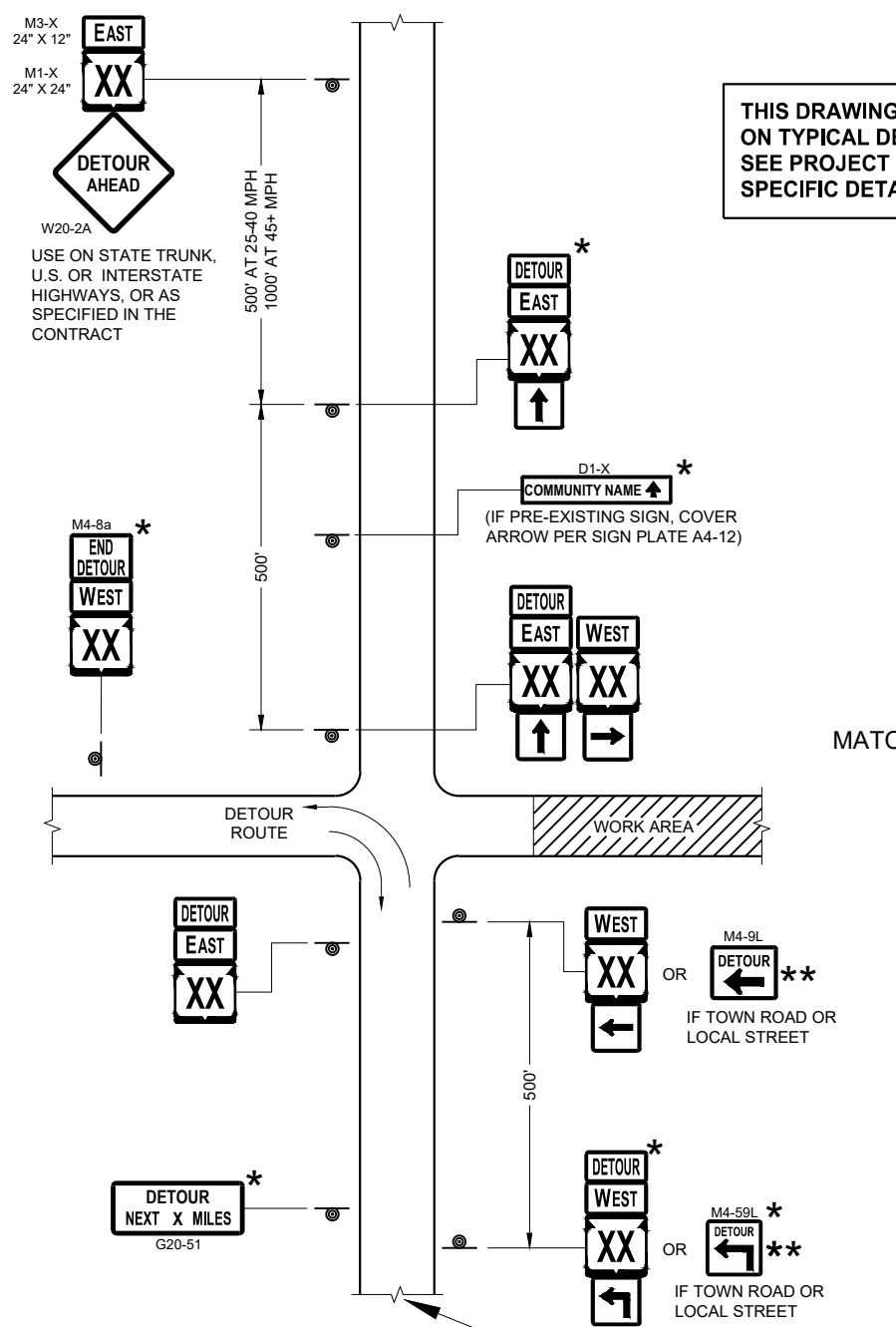
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN 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 ROAD 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  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



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

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

**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.

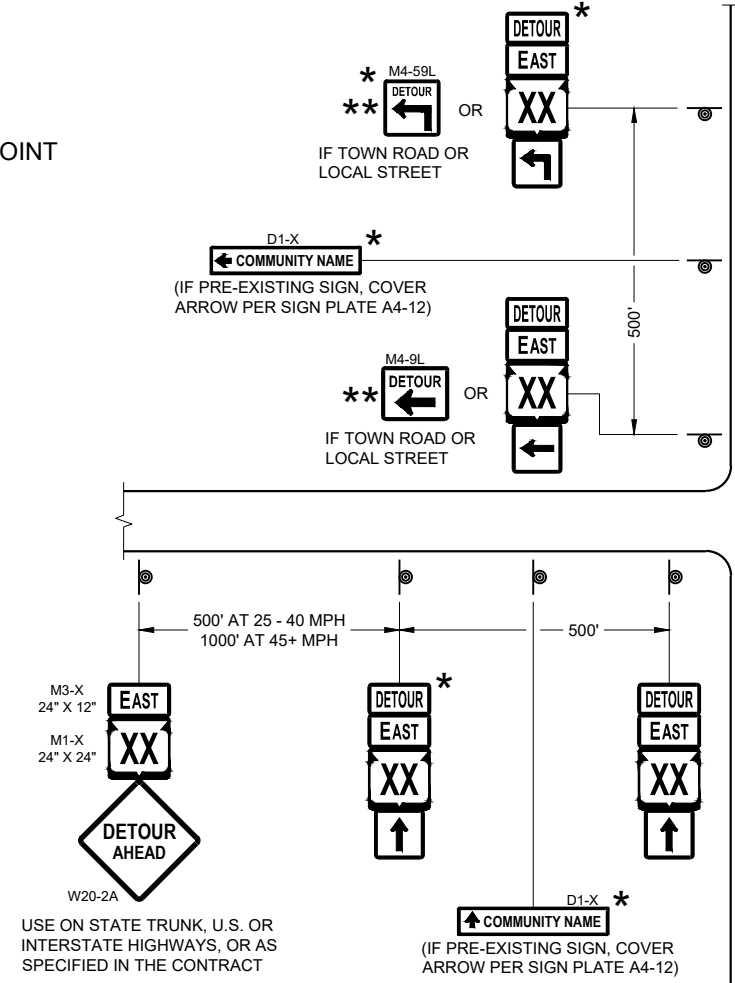
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

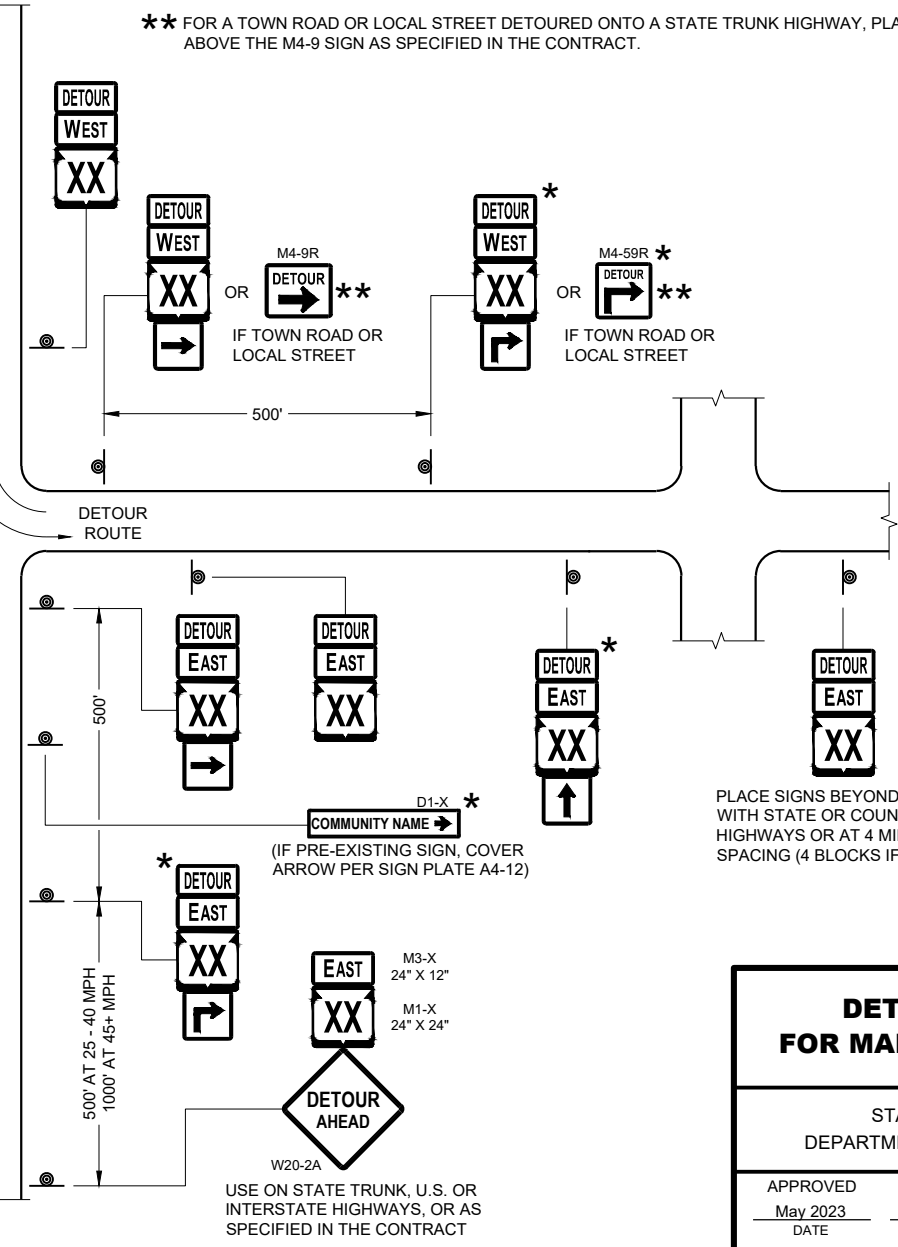
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A 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.

MATCH POINT



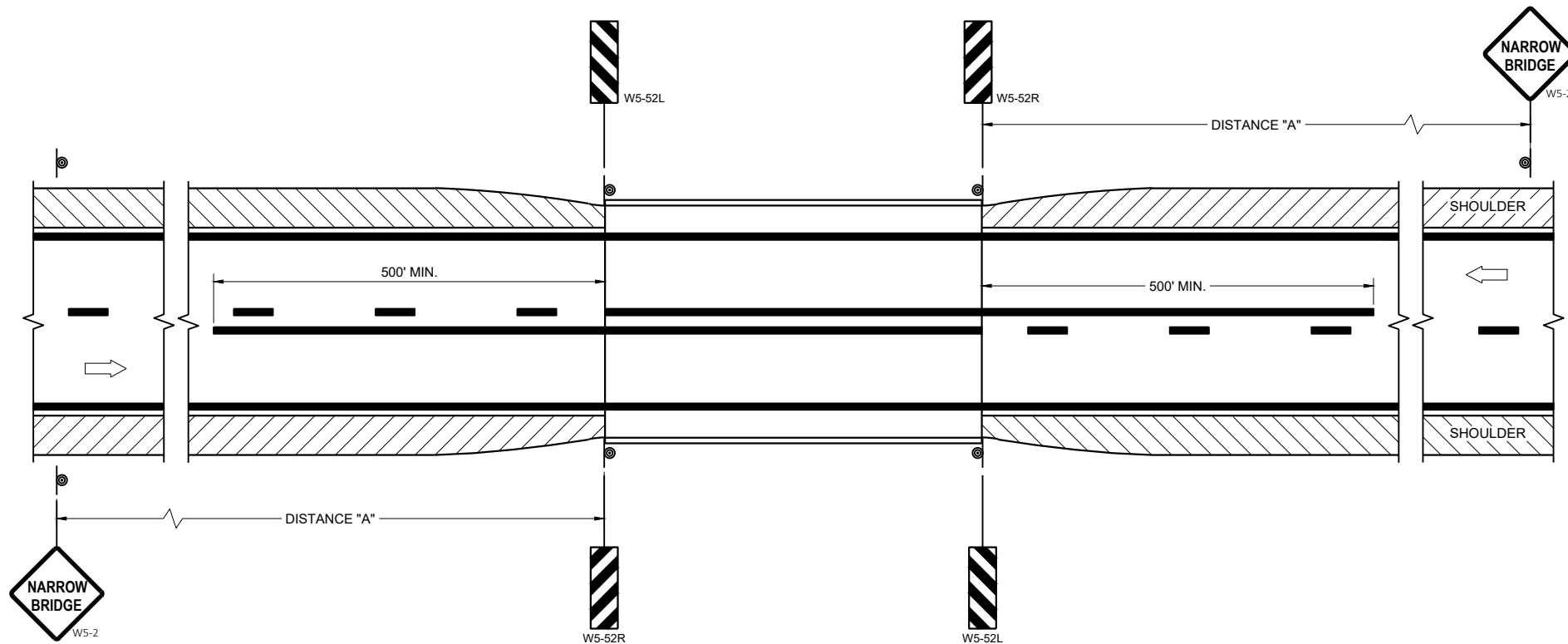
**DETAIL F  
DETOUR SIGNING**



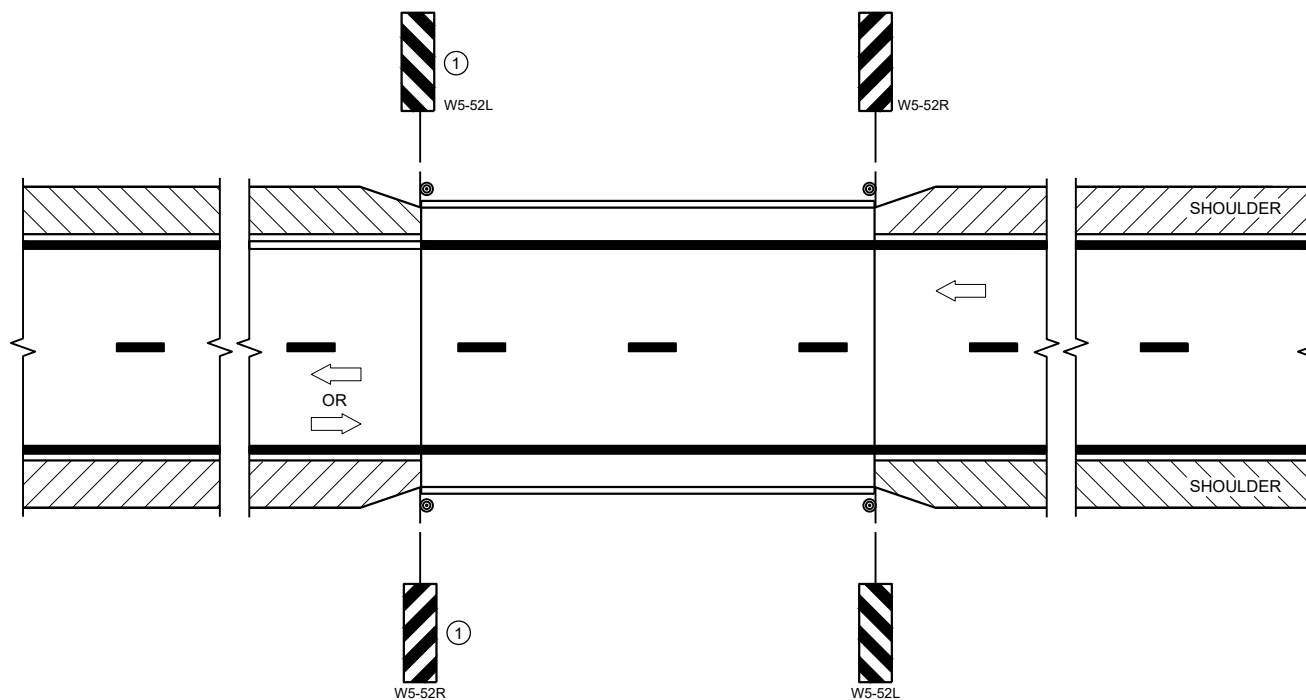
PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA)

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

| <b>DETOUR SIGNING<br/>FOR MAINLINE CLOSURES</b>    |  |
|--|--|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>May 2023<br>DATE                       | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| <small>FHWA</small>                                |  |



**SITUATION 1**  
 WARRANTING CRITERIA:  
 BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



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

**GENERAL NOTES**

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THE 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.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

**DISTANCE TABLE**

| POSTED OR 85TH PERCENTILE SPEED | DISTANCE "A" |
|---------------------------------|--------------|
| 25                              | 150'         |
| 30                              | 200'         |
| 35                              | 250'         |
| 40                              | 300'         |
| 45                              | 400'         |
| 50                              | 550'         |
| 55                              | 700'         |

**SIGNING AND MARKING FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 May 2023 /S/ Jeannie Silver  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 UNIT SUPERVISOR



**GENERAL NOTES**

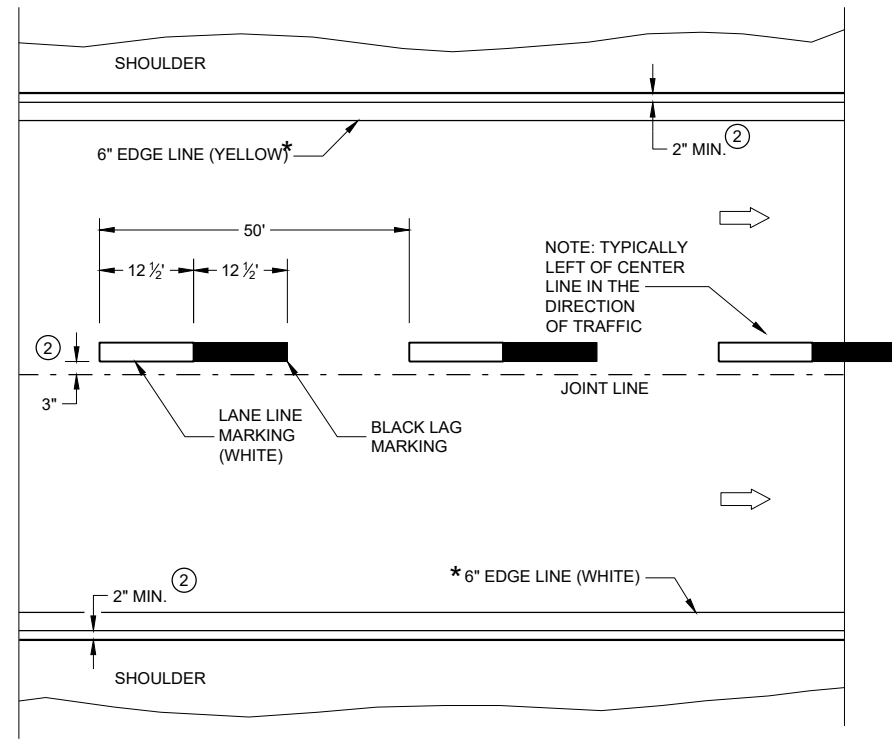
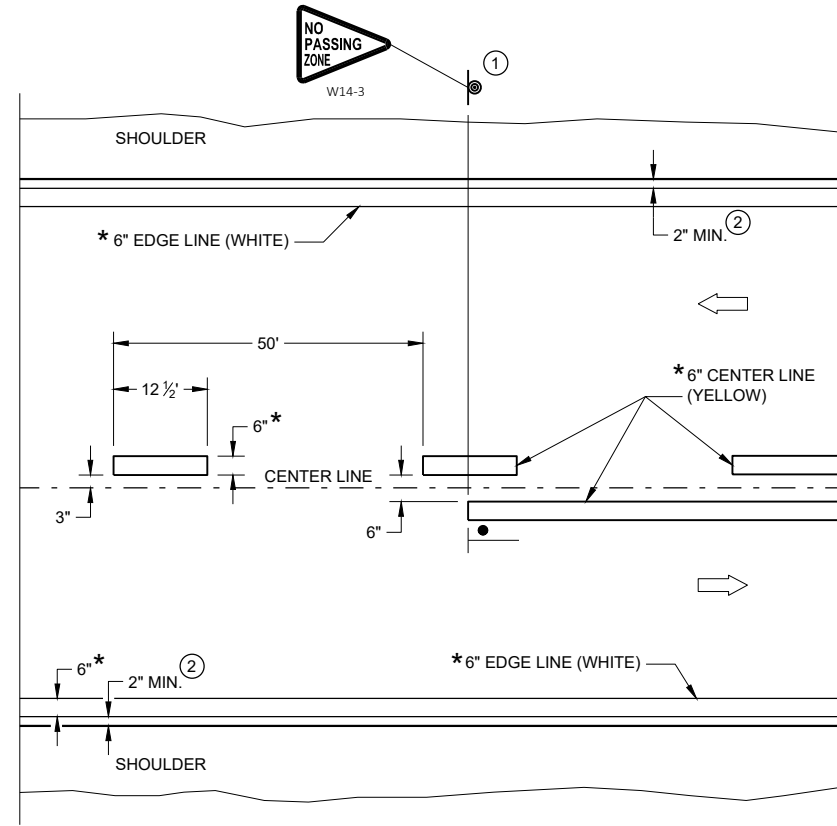
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

**LEGEND**

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**

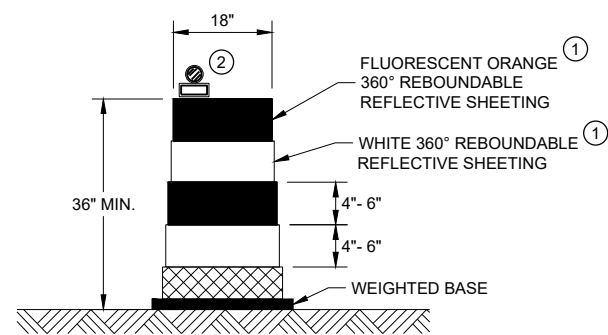
**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**

**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

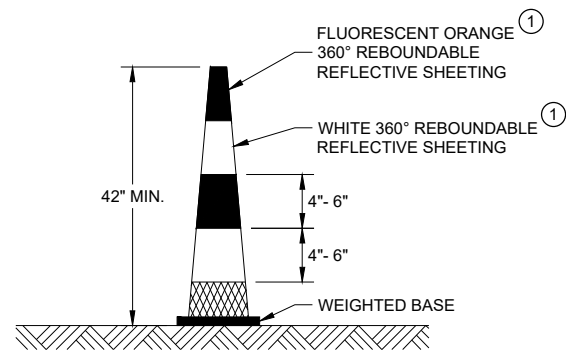
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING ENGINEER



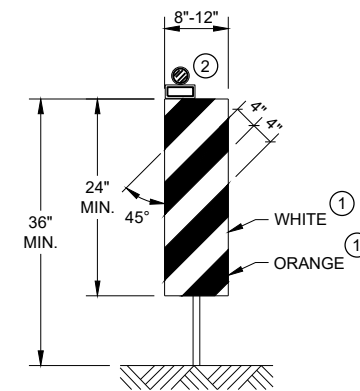
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

DO NOT USE IN TAPERS  
1/2 SPACING OF DRUMS  
BALLAST WIDTHS  
RANGE FROM 14"-20"

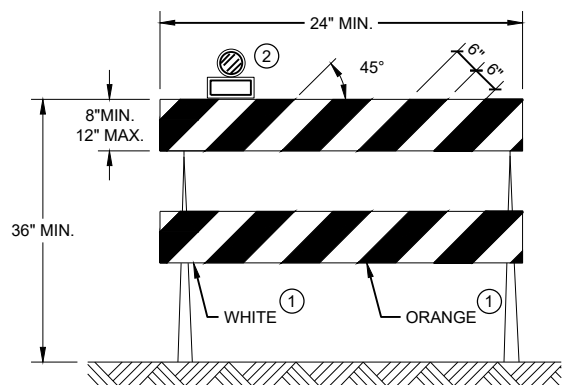


**VERTICAL PANEL**

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

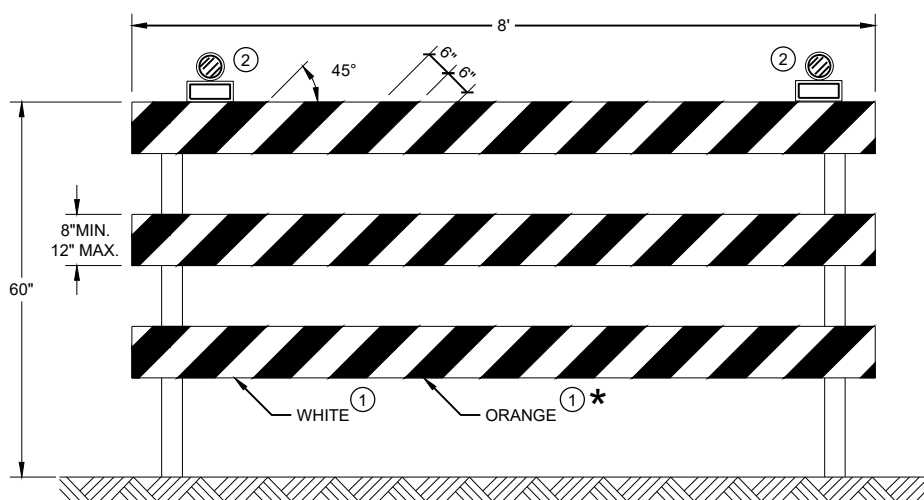
**GENERAL NOTES**

- 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 II BARRICADE**

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



**TYPE III 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.

|  |  |
|--|--|
| <b>CHANNELIZING DEVICES<br/>DRUMS, CONES, BARRICADES<br/>AND VERTICAL PANELS</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                               |  |
| APPROVED<br>November 2022<br>DATE  | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |

NOTES

EXCAVATION AS INDICATED IN THE HATCH AREAS, TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-44-500".

G01 BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED WITH BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-44-500". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

G02 "GEOTEXTILE TYPE DF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.

G03 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET.

G04 NAME PLATE REQUIRED AND BENCH MARK CAP (WHEN SUPPLIED). FOR LOCATION SEE "WEST ABUTMENT WING DETAILS" SHEET.

G05 RIPRAP HEAVY WITH GEOTEXTILE TYPE HR.

G06 FILL VOIDS IN RIPRAP WITH SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR ABOVE Q2 WATER ELEVATION OF 710.12 FT. COST OF SELECT CRUSHED MATERIAL TO BE INCLUDED WITH BID ITEM "SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR".

\* LOCATION OF BEAM GUARD ATTACHMENT

⬡ INDICATES WING NUMBER

DESIGN DATA

LIVE LOAD:

DESIGN LOADING HL-93
INVENTORY RATING FACTOR RF=1.04
OPERATING RATING FACTOR RF=1.35
WISCONSIN STANDARD PERMIT VEHICLE RATING (WIS.-SPV): 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY, DECK & DIAPHRAGMS fc = 4,000 P.S.I.
ALL OTHER fc = 3,500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT fy = 60,000 P.S.I.
36W-INCH PRESTRESSED GIRDERS CONCRETE MASONRY fc = 8,000 P.S.I.
STRANDS - 0.6" DIAMETER WITH AN ULTIMATE TENSILE STRENGTH OF fu = 270,000 P.S.I.

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 82 TONS PER PILE\*\* AT W. ABUT. AND 78 TONS PER PILE\*\* AT E. ABUT. AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 90 FT PILE LENGTHS AT W. ABUT. AND 70 FT PILE LENGTHS AT E. ABUT.

\*\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:

Q100 (THRU BRIDGE) 940 C.F.S.
Q100 (ROAD) N/A
DRAINAGE AREA 3.77 SQ. MI.
BRIDGE WATER AREA 150 SQ. FT.
BRIDGE VELOCITY 6.28 F.P.S.
HIGH WATER100 EL. 713.16 FT.
OVERTOPPING Q FREQ. > 100 YR
SCOUR CRITICAL CODE 5
Q2 ELEVATION 710.00 FT.
Q2 VELOCITY 3.62 F.P.S.

BRIDGE OFFICE CONTACT AARON BONK, P.E. (608) 261-0261
CONSULTANT CONTACT ANDY KNUTSON, P.E., S.E. (608) 588-7866

Table with columns: NO., DATE, REVISION, BY

WESTBROOK Associated Engineers, Inc.
619 EAST HOXIE STREET
P.O. BOX 429
SPRING GREEN, WI 53588
PHONE (608) 588-7866
FAX (608) 588-7954

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
ACCEPTED [Signature] SDR 02/05/24
CHIEF STRUCTURES DESIGN ENGINEER DATE

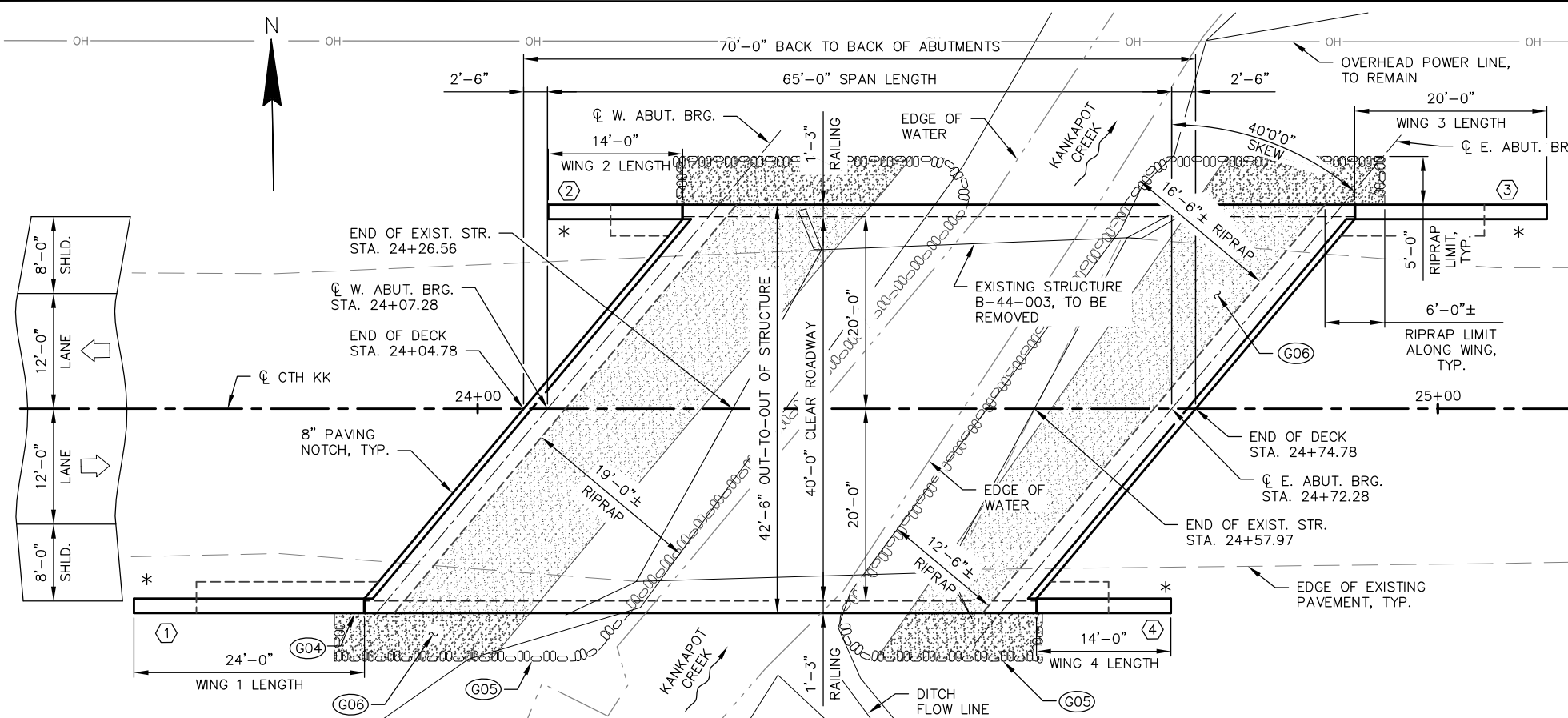
STRUCTURE B-44-500

CTH KK OVER KANKAPOT CREEK
COUNTY OUTAGAMIE TOWN/CITY/VILLAGE BUCHANAN

DESIGN SPEC. AASHTO LRFD DESIGN SPEC.
DESIGNED BY JDO DESIGN CK'D. CDS DRAWN BY JDO PLANS CK'D. ACK

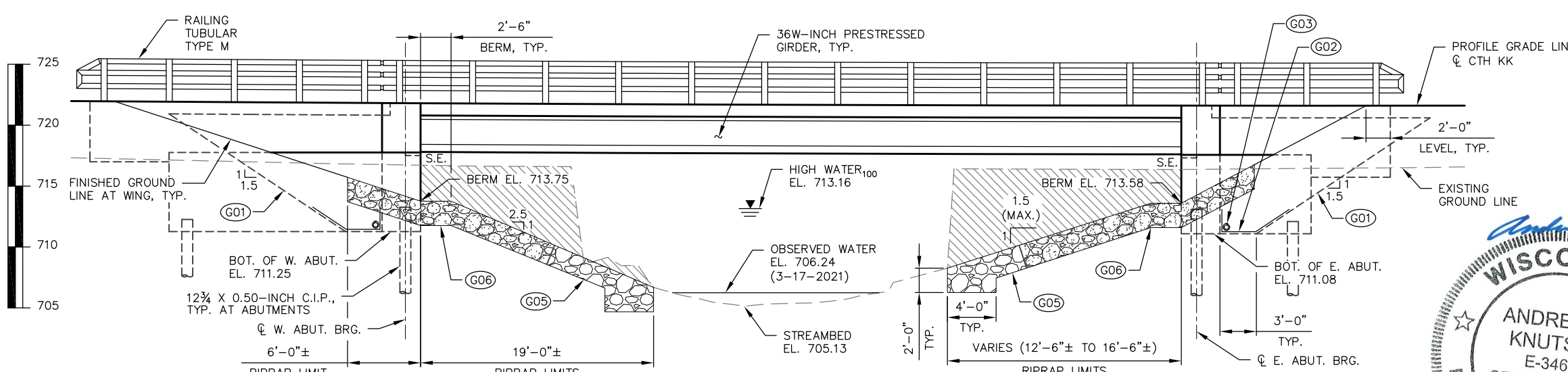
GENERAL PLAN

SHEET 1 OF 21



PLAN B-44-500

(SINGLE SPAN 36W-INCH PRESTRESSED GIRDER BRIDGE)



ELEVATION

(THRU KANKAPOT CREEK, LOOKING NORTH)

BENCH MARKS

Table with columns: NO., STATION/OFFSET, DESCRIPTION, ELEVATION

HORIZONTAL DATUM AND ADJUSTMENT: NAD 83 (2011)
VERTICAL DATUM AND ADJUSTMENT: NAVD 88 (2012)
COORDINATE REFERENCE SYSTEM: WISCRS OUTAGAMIE CO.

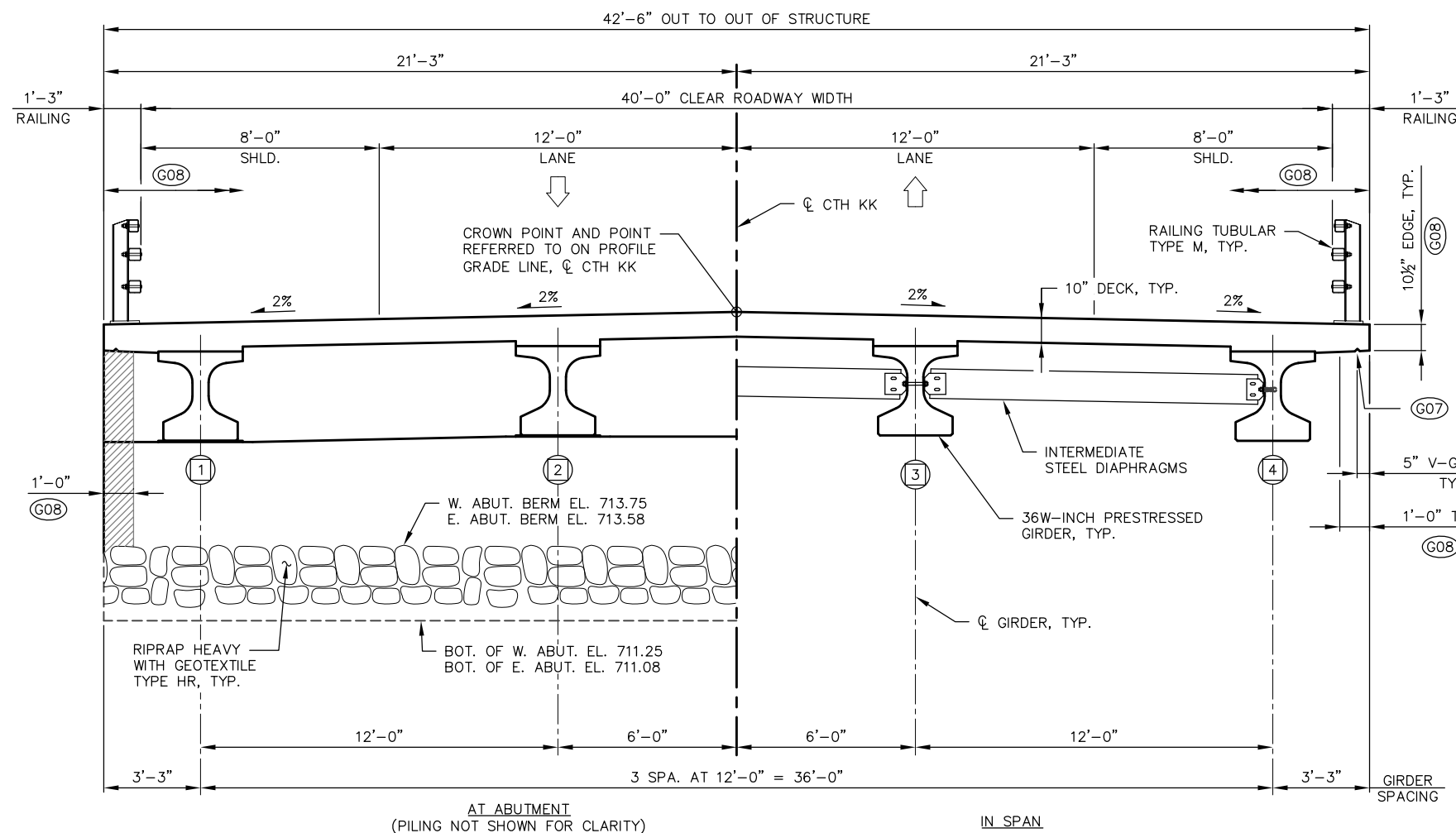
TRAFFIC DATA:

CTH KK
A.A.D.T. (2024) 5,600
A.A.D.T. (2044) 6,000
DESIGN SPEED 60 M.P.H.

LIST OF DRAWINGS

- 1. GENERAL PLAN
2. CROSS SECTION, GENERAL NOTES & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. WEST ABUTMENT WING DETAILS
7. WEST ABUTMENT REINFORCEMENT
8. EAST ABUTMENT
9. EAST ABUTMENT DETAILS
10. EAST ABUTMENT WING DETAILS
11. EAST ABUTMENT REINFORCEMENT
12. BEAM SEAT DETAILS
13. 36W-INCH PRESTRESSED GIRDER
14. 36W-INCH PRESTRESSED GIRDER DETAILS
15. INTERMEDIATE STEEL DIAPHRAGM
16. SUPERSTRUCTURE PLAN
17. SUPERSTRUCTURE SECTION
18. ABUTMENT DIAPHRAGM
19. SUPERSTRUCTURE REINFORCEMENT
20. RAILING TUBULAR TYPE M
21. ALTERNATE CONSTRUCTION JOINT





**CROSS SECTION THRU ROADWAY**  
(LOOKING EAST)

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

AT THE BACK FACE OF THE ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCLUDED WITH BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-44-500".

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE ABUTMENTS.

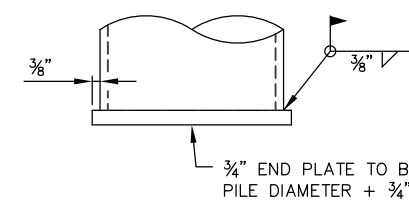
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE "GENERAL PLAN" SHEET AND ABUTMENT SHEETS.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE "36W-INCH PRESTRESSED GIRDER DETAILS" SHEET.

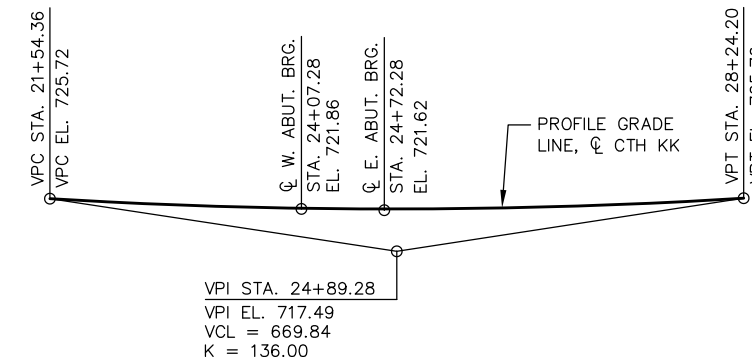
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE SUPERSTRUCTURE DECK PER THE STANDARD SPECIFICATION. SEE "CROSS SECTION THRU ROADWAY", THIS SHEET FOR "PROTECTIVE SURFACE TREATMENT" LIMITS.

THE EXISTING STRUCTURE (B-44-003) IS A SINGLE SPAN STEEL GIRDER CONCRETE DECK STRUCTURE WITH AN OVERALL LENGTH OF 27.8-FT AND A CLEAR ROADWAY WIDTH OF 31.8-FT TO BE REMOVED. SUPERSTRUCTURE AND ABUTMENTS SHALL BE REMOVED IN ACCORDANCE WITH THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-44-003".



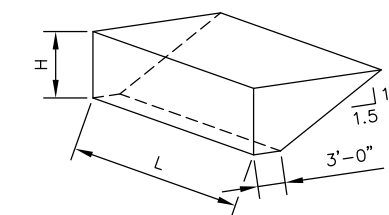
**END PLATE DETAIL FOR CIP PILING**



**PROFILE GRADE LINE, CTH KK**

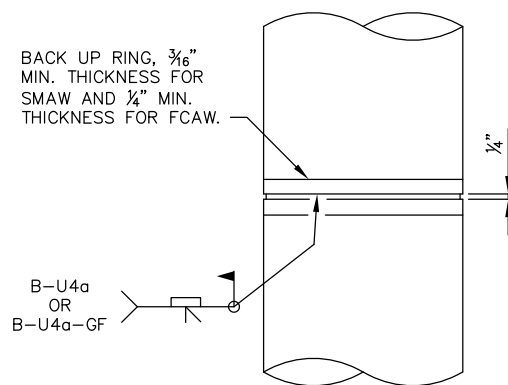
**LEGEND**

- (G07) 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM. V-GROOVE ARE REQUIRED.
- (G08) COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS. PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO ENTIRE EXPOSED TOP OF DECK, INCLUDING THE DECK EDGES AND 1'-0" UNDER THE DECK, THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE FRONT FACE OF THE ABUTMENTS TO 1'-0" PAST THE EDGE OF DECK.
- (#) INDICATES GIRDER LINE DESIGNATION



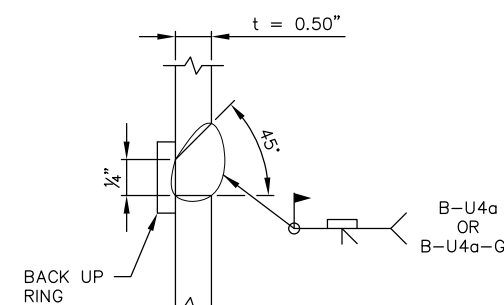
**ABUTMENT BACKFILL DIAGRAM**

L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)  
 H = AVERAGE ABUTMENT FILL HEIGHT (FT)  
 EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)  
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$   
 $V_{CY} = V_{CF}(EF)/27$   
 $V_{TON} = V_{CY}(2.0)$



**CAST-IN-PLACE 'PIPE PILE'**

NOTE: CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION.



**C.I.P. PILE WELD DETAIL**

**TOTAL ESTIMATED QUANTITIES**

| ITEM NO.       | BID ITEMS  | UNIT | W. ABUT. | E. ABUT. | SUPER. | TOTALS      |
|----------------|--|------|----------|----------|--------|-------------|
| 203.0260       | REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-44-003 | EACH | ---      | ---      | ---    | 1           |
| 206.1001       | EXCAVATION FOR STRUCTURES BRIDGES B-44-500               | EACH | ---      | ---      | ---    | 1           |
| 210.1500       | BACKFILL STRUCTURE TYPE A                                | TON  | 390      | ---      | 380    | 770         |
| 502.0100       | CONCRETE MASONRY BRIDGES                                 | CY   | 68.9     | 64.3     | 139.5  | 273         |
| 502.3200       | PROTECTIVE SURFACE TREATMENT                             | SY   | 22       | 19       | 377    | 418         |
| 503.0137       | PRESTRESSED GIRDER TYPE I 36W-INCH                       | LF   | ---      | ---      | 264    | 264         |
| 505.0400       | BAR STEEL REINFORCEMENT HS STRUCTURES                    | LB   | 5,460    | 5,190    | ---    | 10,650      |
| 505.0600       | BAR STEEL REINFORCEMENT HS COATED STRUCTURES             | LB   | 2,880    | 2,490    | 22,070 | 27,440      |
| 506.2605       | BEARING PADS ELASTOMERIC NON-LAMINATED                   | EACH | 4        | 4        | ---    | 8           |
| 506.4000       | STEEL DIAPHRAGMS B-44-500                                | EACH | ---      | ---      | 3      | 3           |
| 513.4061       | RAILING TUBULAR TYPE M                                   | LF   | 41       | 37       | 140    | 218         |
| 516.0500       | RUBBERIZED MEMBRANE WATERPROOFING                        | SY   | 16       | 15       | ---    | 31          |
| 550.2128       | PILING CIP CONCRETE 12 3/4 X 0.50-INCH                   | LF   | 1,620    | 1,330    | ---    | 2,950       |
| 606.0300       | RIPRAP HEAVY   | CY   | 117      | 84       | ---    | 201         |
| 612.0406       | PIPE UNDERDRAIN WRAPPED 6-INCH                           | LF   | 125      | 120      | ---    | 245         |
| 645.0111       | GEOTEXTILE TYPE DF SCHEDULE A                            | SY   | 44       | 44       | ---    | 88          |
| 645.0120       | GEOTEXTILE TYPE HR                                       | SY   | 193      | 152      | ---    | 345         |
| SPV.0195.01    | SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR              | TON  | 46       | 36       | ---    | 82          |
| (NON-BID ITEM) | FILLER   | SIZE | ---      | ---      | ---    | 1/2" & 3/4" |

| NO.  | DATE | REVISION        | BY            |
|--|------|-----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |               |
| <b>STRUCTURE B-44-500</b>                          |      |                 |               |
| DRAWN BY: JDO                                      |      | PLANS OK'D: ACK |               |
| <b>CROSS SECTION, GENERAL NOTES AND QUANTITIES</b> |      |                 | SHEET 2 OF 21 |

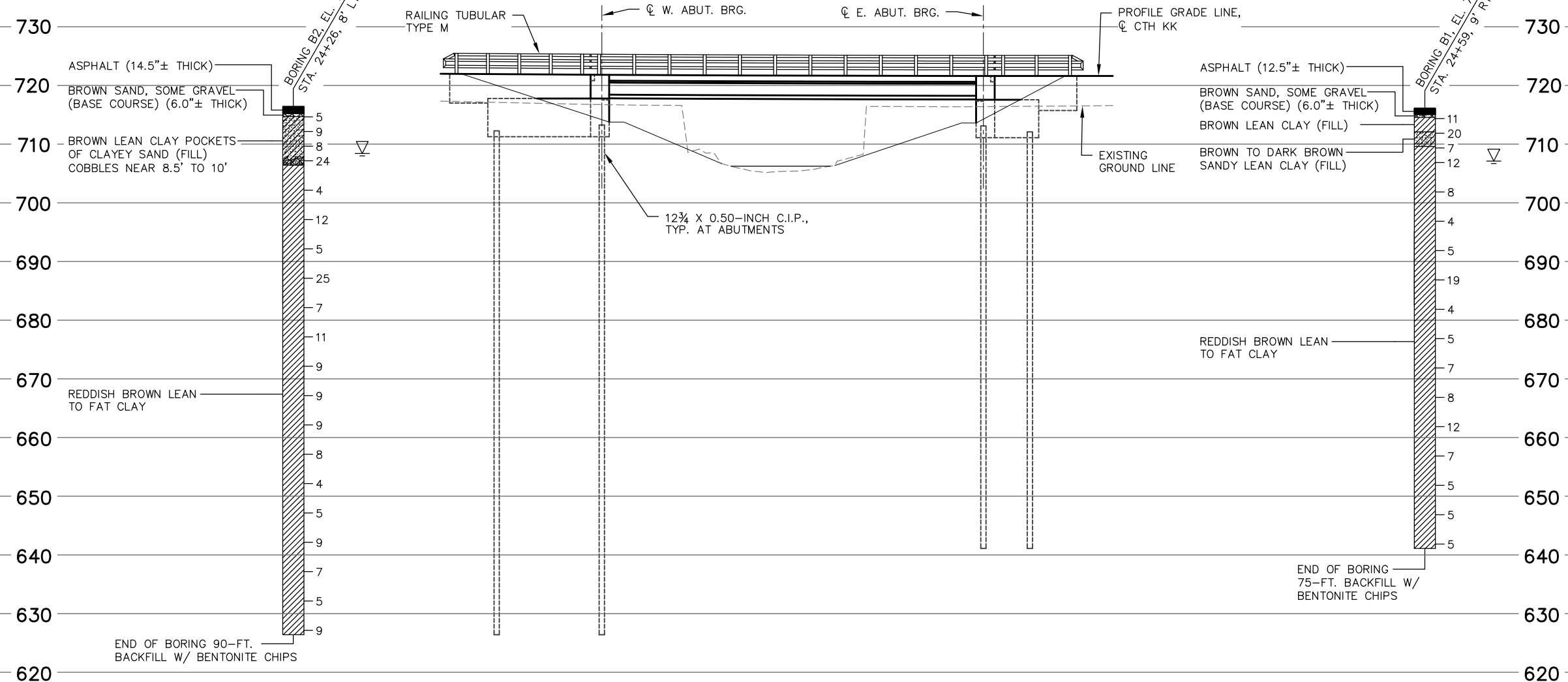
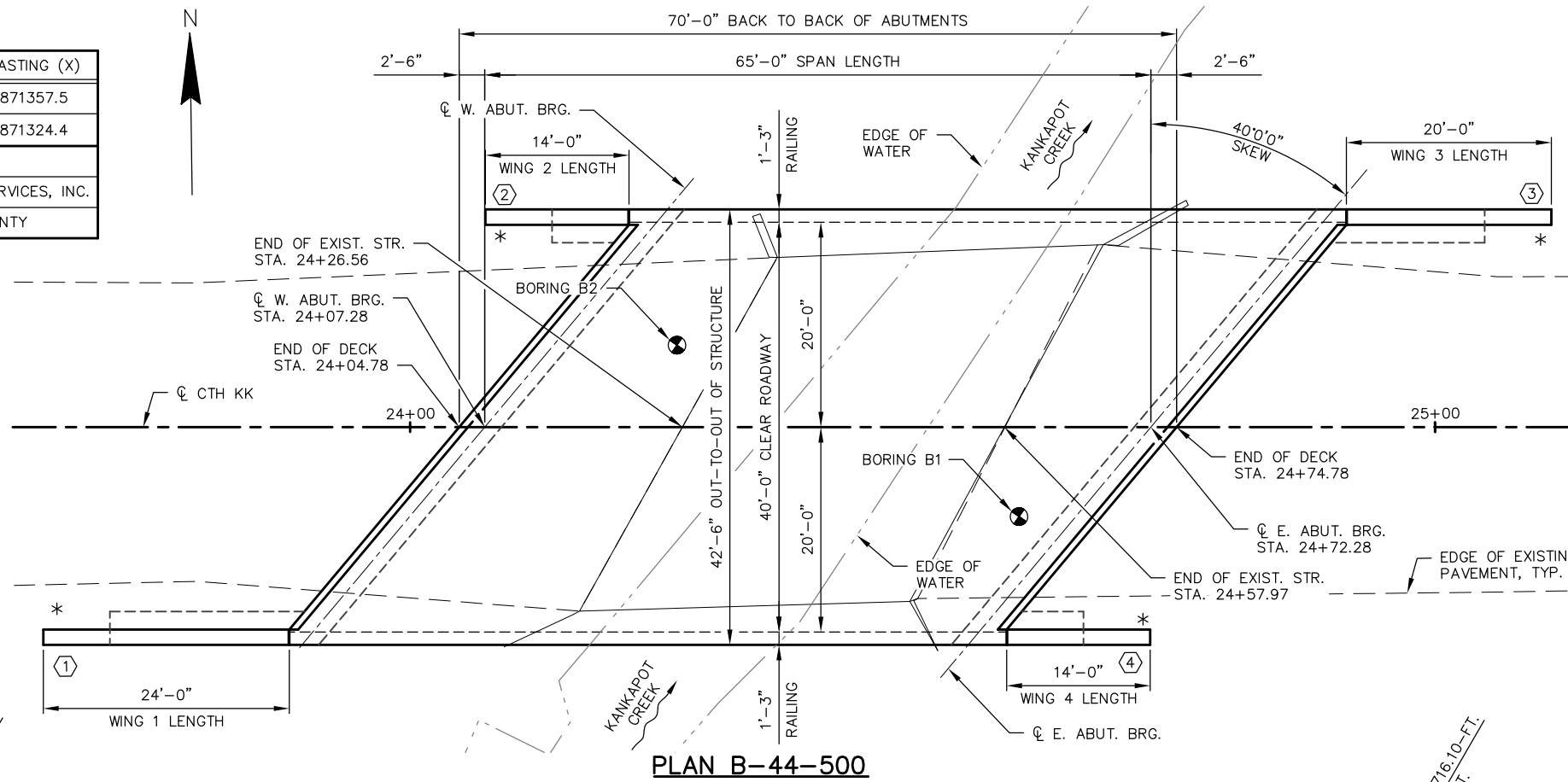
**B-44-500 BORINGS**

| BORING #  | DATE COMPLETED | NORTHING (Y) | EASTING (X) |
|-----------|----------------|--------------|-------------|
| BORING B1 | 3/17/2021      | 555348.6     | 871357.5    |
| BORING B2 | 3/18/2021      | 555365.8     | 871324.4    |

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.  
 SUBSURFACE INVESTIGATION REPORT: NUMMELIN TESTING SERVICES, INC.  
 ALL COORDINATES REFERENCED TO WISCRS, OUTAGAMIE COUNTY

**NOTES**

- ⊙ INDICATES WING NUMBER
- \* LOCATION OF BEAM GUARD ATTACHMENT



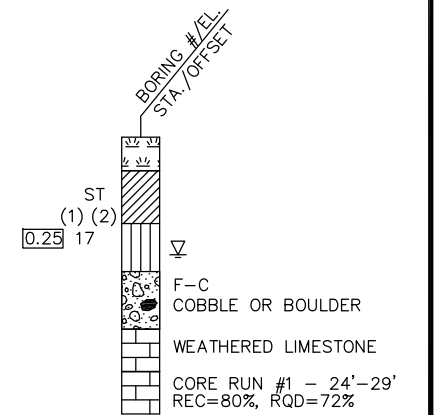
STATE PROJECT NUMBER

**4494-07-71**

**MATERIAL SYMBOLS**

|                     |           |                   |
|---------------------|-----------|-------------------|
| ASPHALT             | TOPSOIL   | PEAT              |
| CONCRETE            | FILL      | GRAVEL            |
| SAND                | CLAY      | SILT              |
| BOULDERS OR COBBLES | LIMESTONE | BEDROCK (UNKNOWN) |
| SHALE               | SANDSTONE | IGNEOUS/META      |

**LEGEND OF BORING**



- (1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
- (2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

**GROUND WATER ELEVATION**

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▼ AFTER DRILLING

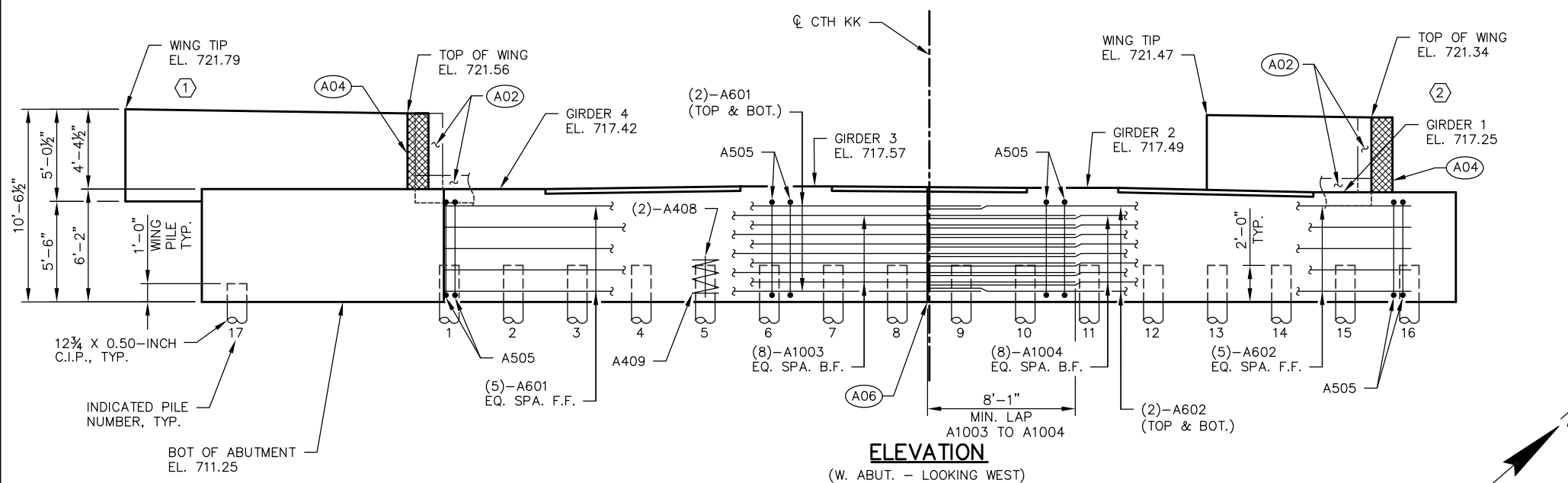
**ABBREVIATIONS**

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

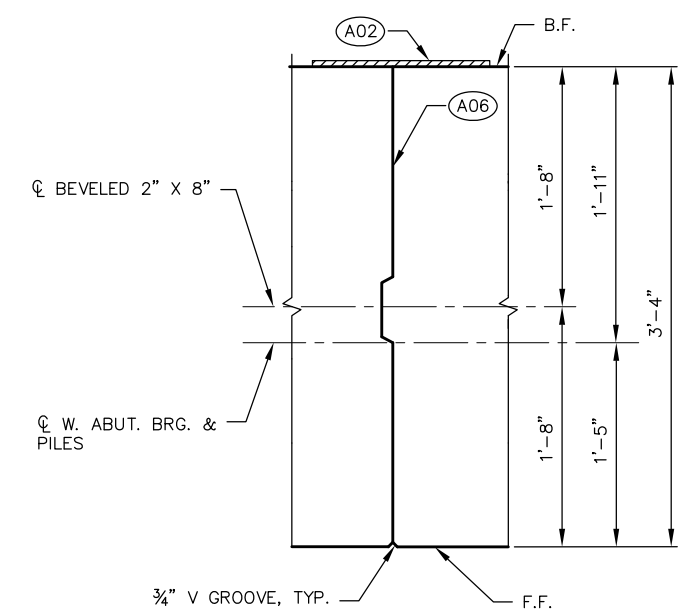
**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

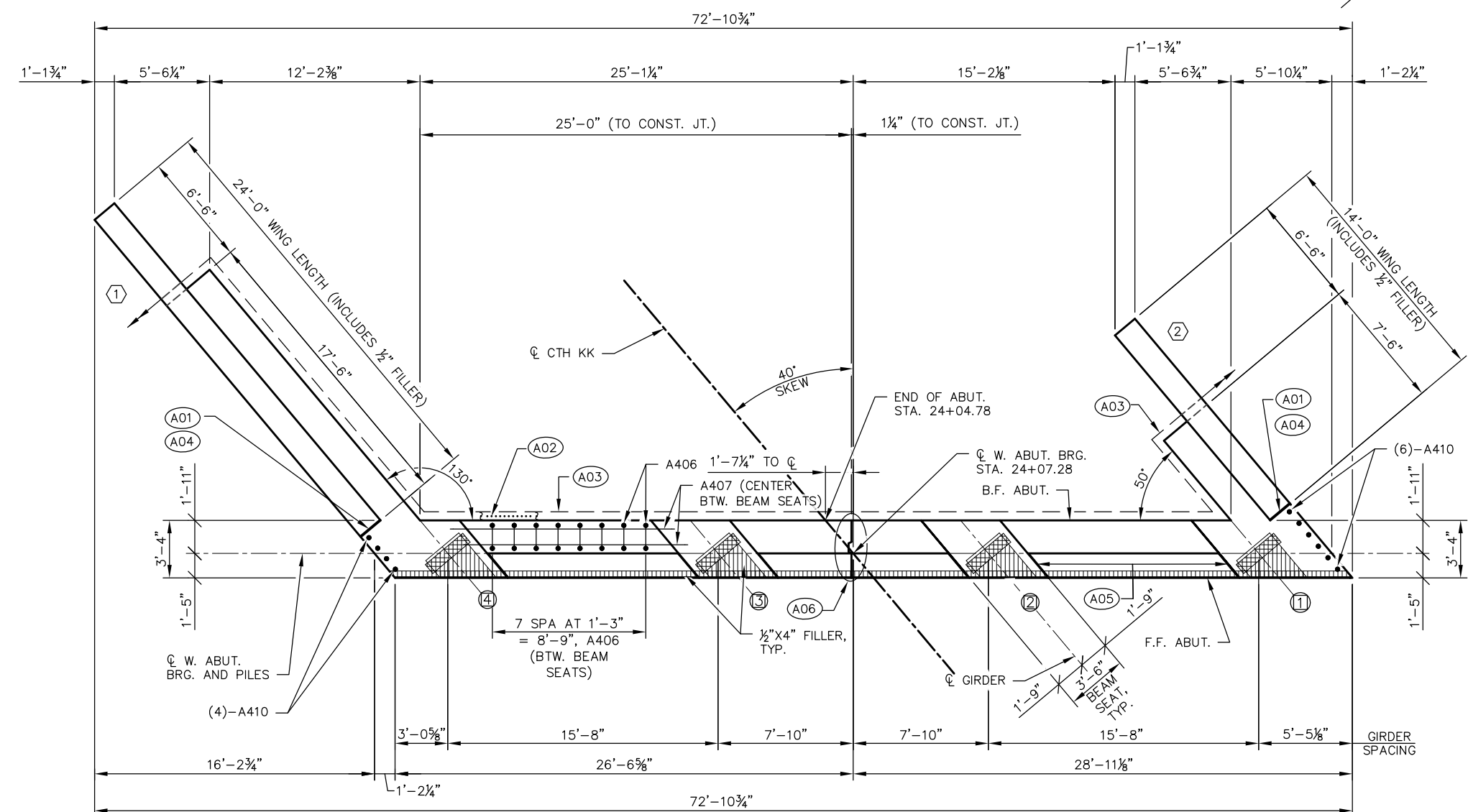
| NO.  | DATE | REVISION       | BY            |
|--|------|----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |               |
| <b>STRUCTURE B-44-500</b>                          |      |                |               |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |               |
| <b>SUBSURFACE EXPLORATION</b>                      |      |                | SHEET 3 OF 21 |



**ELEVATION**  
(W. ABUT. - LOOKING WEST)



**DETAIL A**  
(CONSTRUCTION JT. DETAIL)



**PLAN**

**NOTES**

- FOR TYPICAL SECTION THROUGH ABUTMENT BODY AND PILE LAYOUT SEE "WEST ABUTMENT DETAILS" SHEET.
- WEST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 82 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 90 FT PILE LENGTHS AT THE WEST ABUTMENT.
- SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.
- (A01) 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A02) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- (A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".
- (A04) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH.
- (A05) 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER, TYP.
- (A06) VERTICAL CONST. JT. KEYWAY FORMED BY BEVELED 2"x8". RUN BAR STELL THRU JT. SEE "DETAIL A" ON THIS SHEET. FOR OPTIONAL DETAILS SEE "ALTERNATIVE CONSTRUCTION JOINT" SHEET.

- INDICATES WING NUMBER
- INDICATES GIRDER LINE NUMBER
- INDICATES CONTINUATION

F.F. - FRONT FACE  
B.F. - BACK FACE

| NO.  | DATE | REVISION       | BY            |
|--|------|----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |               |
| <b>STRUCTURE B-44-500</b>                          |      |                |               |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |               |
| <b>WEST ABUTMENT</b>                               |      |                | SHEET 4 OF 21 |

**NOTES**

WEST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 82 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 90 FT PILE LENGTHS AT THE WEST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

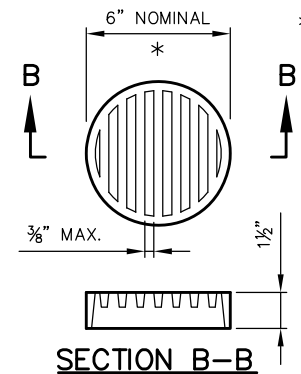
**(A02)** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

**(A03)** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED THIS SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

**(A06)** VERTICAL CONST. JT. KEYWAY FORMED BY BEVELED 2"x8". RUN BAR STEEL THRU JT. SEE "DETAIL A" ON "WEST ABUTMENT" SHEET. FOR OPTIONAL DETAILS SEE "ALTERNATIVE CONSTRUCTION JOINT" SHEET.

⬡ INDICATES WING NUMBER

F.F. - FRONT FACE  
B.F. - BACK FACE

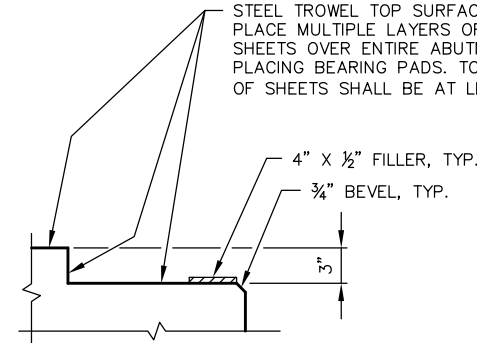


**RODENT SHIELD DETAIL**

\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

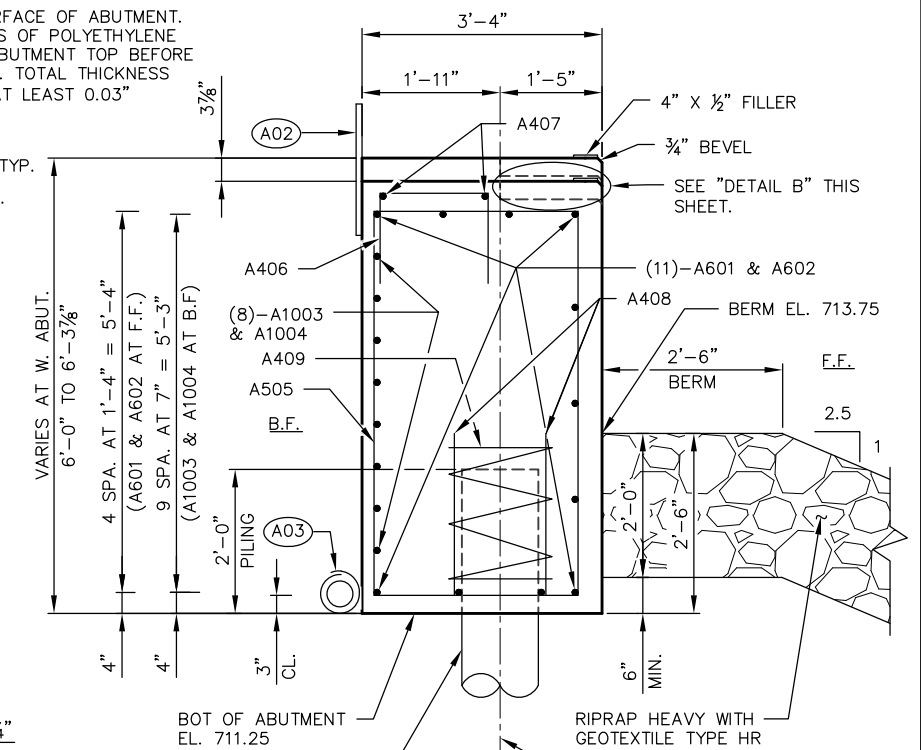
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



**DETAIL B**

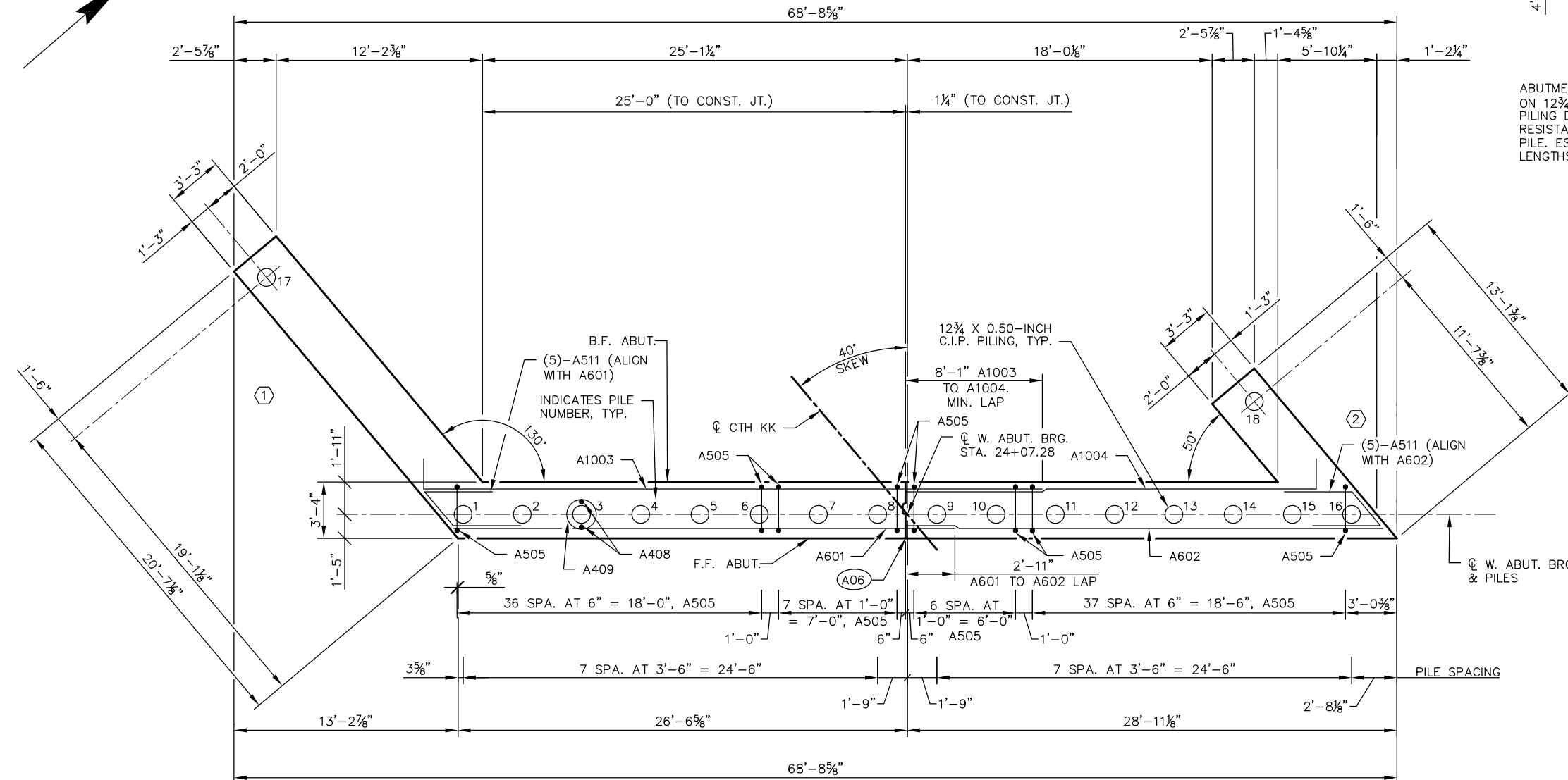
STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

4" X 1/2" FILLER, TYP.  
3/4" BEVEL, TYP.



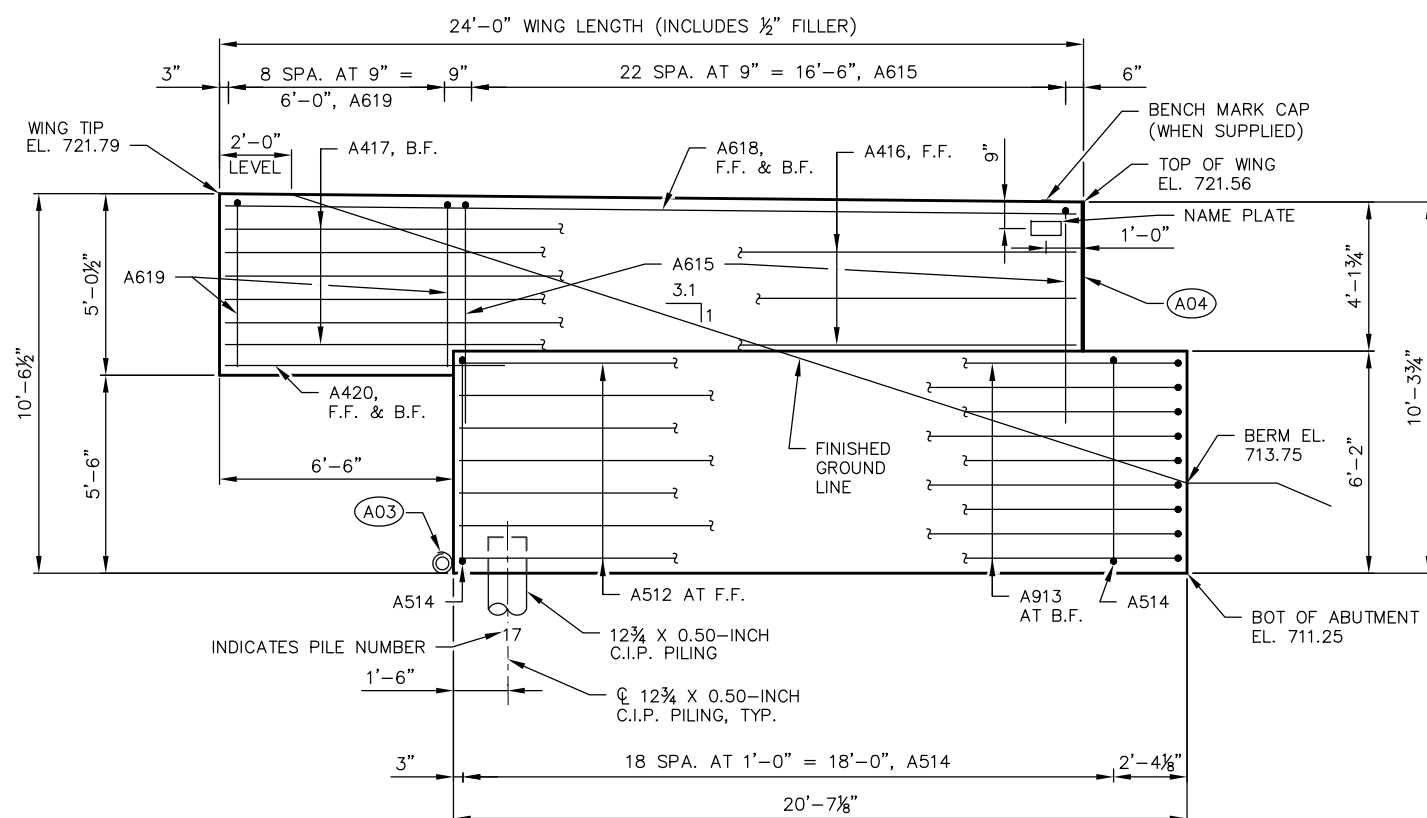
**TYPICAL SECTION THRU WEST ABUTMENT**

ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED RESISTANCE OF 82 TONS PER PILE. ESTIMATED 90 FT. PILE LENGTHS AT THE W. ABUT.

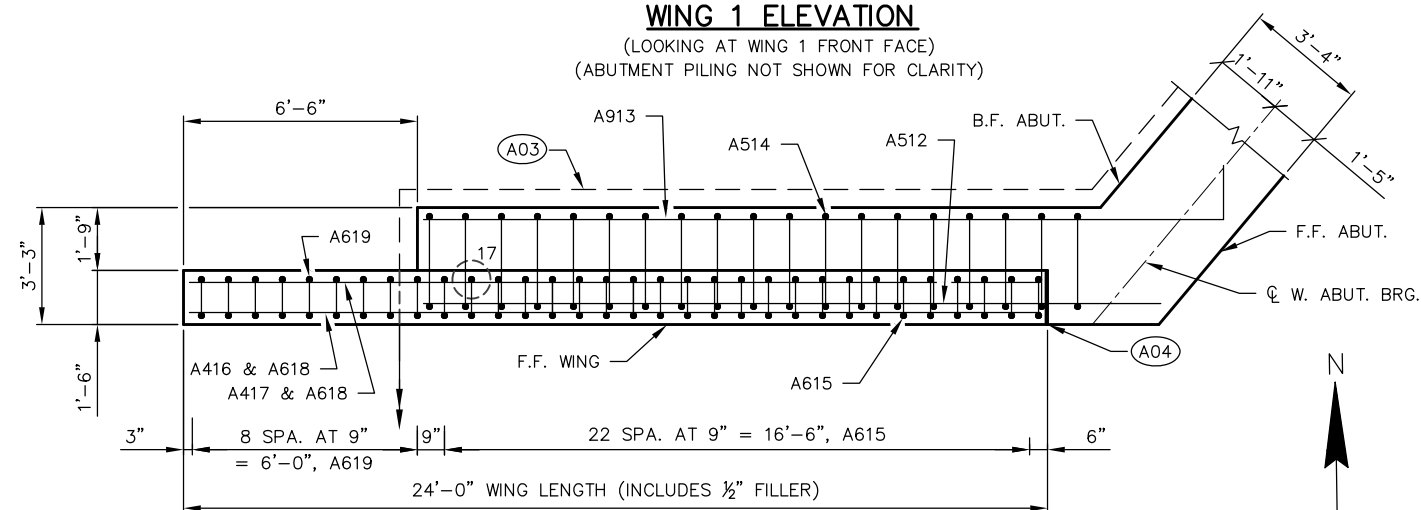


**PILE LAYOUT**

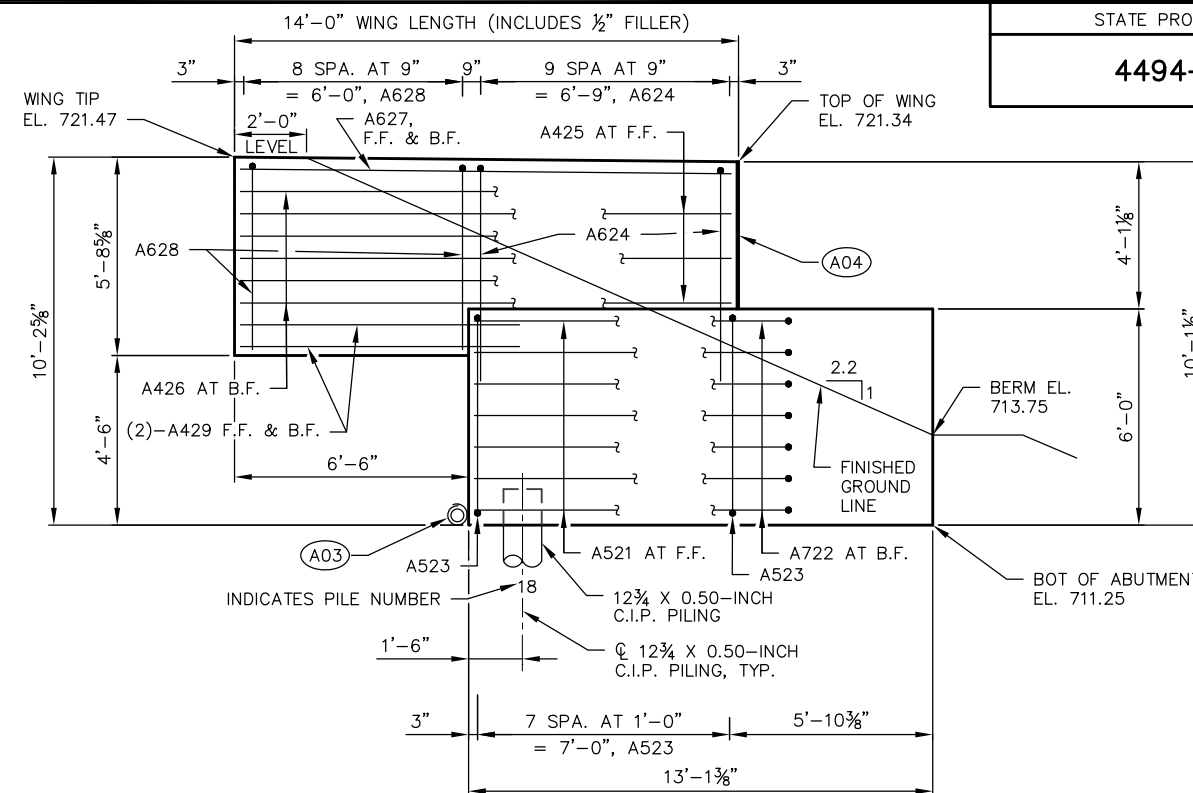
|   |      |            |               |
|---|------|------------|---------------|
| NO.   | DATE | REVISION   | BY            |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION |      |            |               |
| STRUCTURE B-44-500                              |      |            |               |
| DRAWN BY  | JDO  | PLANS OK'D | ACK           |
| WEST ABUTMENT DETAILS                           |      |            | SHEET 5 OF 21 |



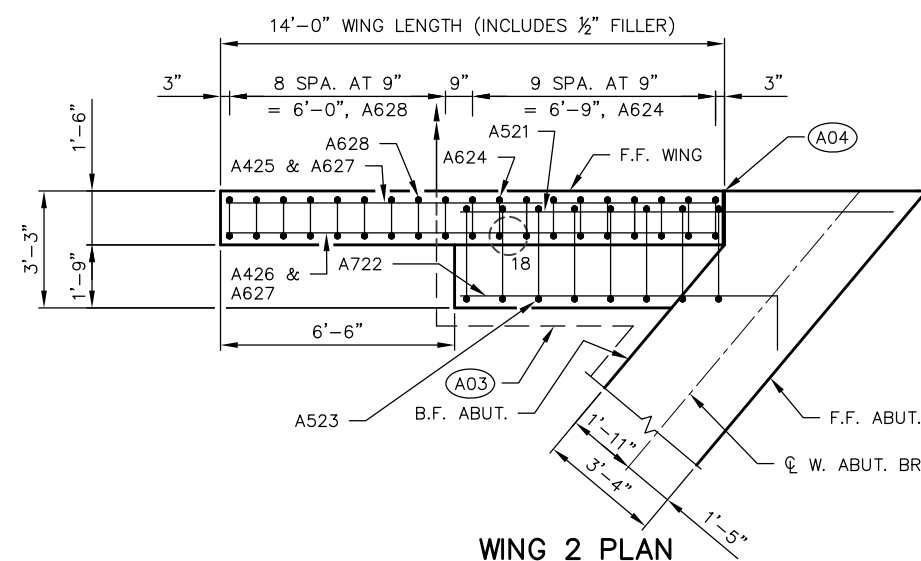
**WING 1 ELEVATION**  
(LOOKING AT WING 1 FRONT FACE)  
(ABUTMENT PILING NOT SHOWN FOR CLARITY)



**WING 1 PLAN**



**WING 2 ELEVATION**  
(LOOKING AT WING 2 BACK FACE)  
(ABUTMENT PILING NOT SHOWN FOR CLARITY)



**WING 2 PLAN**

**NOTES**

SEE "WEST ABUTMENT REINFORCEMENT" SHEET FOR WING 1 AND WING 2 SECTION.

WEST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 82 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 90 FT PILE LENGTHS AT THE WEST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

(A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

(A04) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH.

F.F. - FRONT FACE  
B.F. - BACK FACE

| NO.  | DATE | REVISION        | BY            |
|--|------|-----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |               |
| <b>STRUCTURE B-44-500</b>                          |      |                 |               |
| DRAWN BY: JDO                                      |      | PLANS OK'D: ACK |               |
| <b>WEST ABUTMENT<br/>WING DETAILS</b>              |      |                 | SHEET 6 OF 21 |



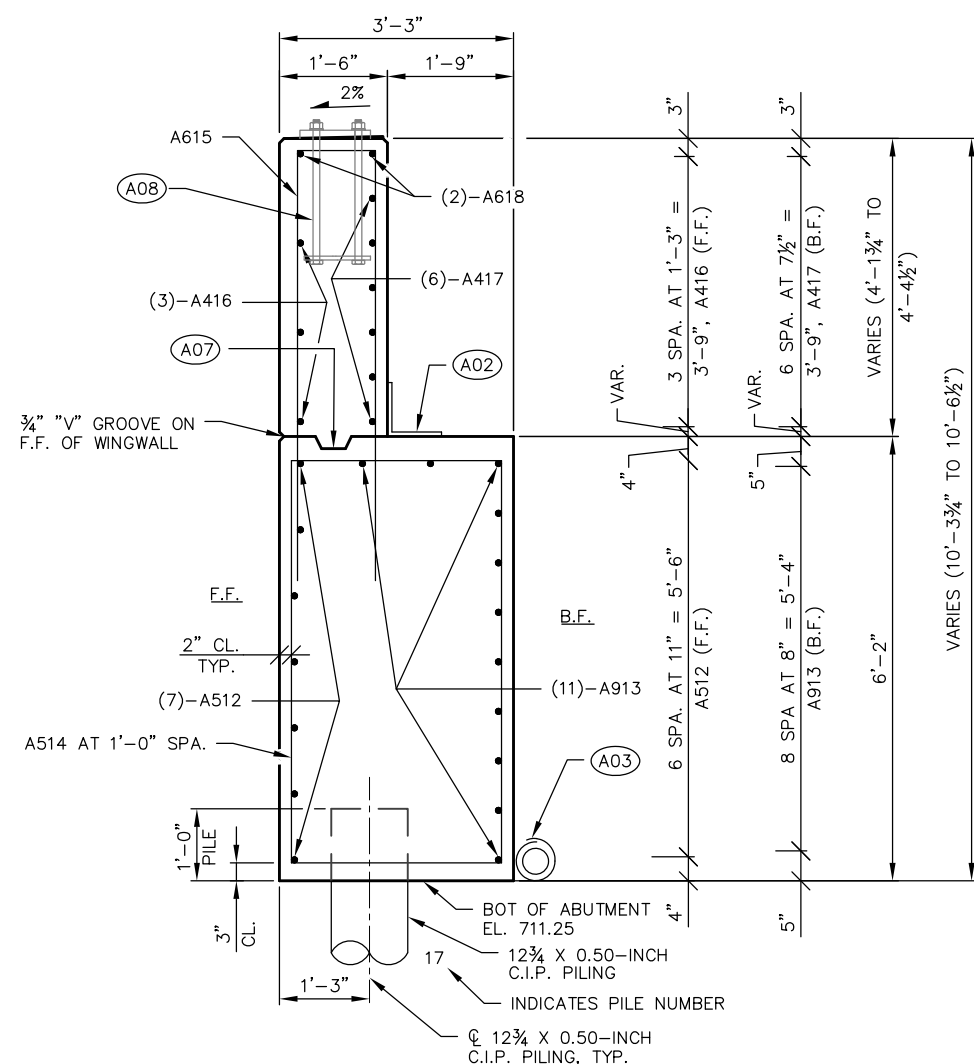
COATED = 2,880 LBS.  
UNCOATED = 5,460 LBS.

**BILL OF BARS  
WEST ABUTMENT**

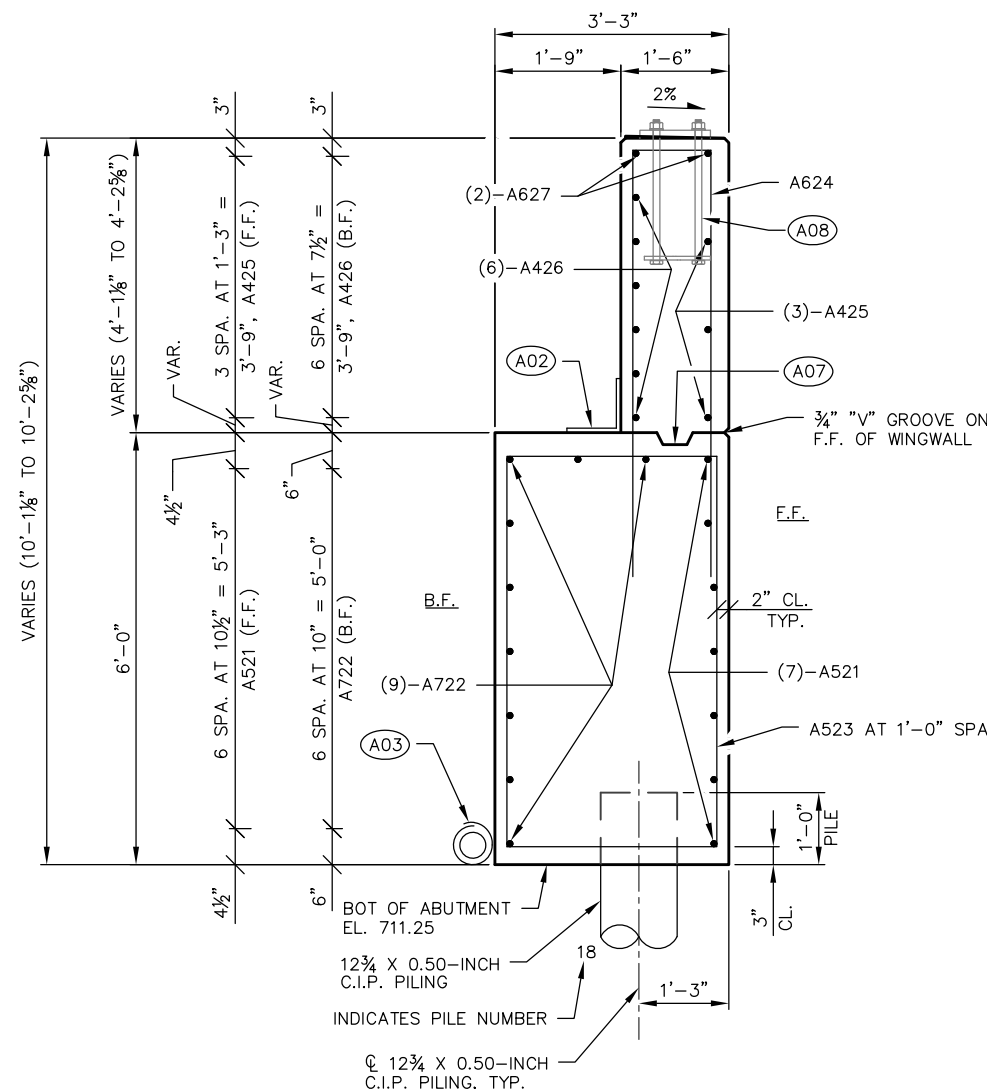
| MARK  | NUMBER |          | LENGTH  | BENT | BAR SERIES | LOCATION                  |
|-------|--------|----------|---------|------|------------|---------------------------|
|       | COATED | UNCOATED |         |      |            |                           |
| A601  |        | 11       | 29'-5"  |      |            | BODY - F.F. - NEAR WING 1 |
| A602  |        | 11       | 28'-7"  |      |            | BODY - F.F. - NEAR WING 2 |
| A1003 |        | 8        | 37'-11" | X    |            | BODY - B.F. - NEAR WING 1 |
| A1004 |        | 8        | 26'-2"  | X    |            | BODY - B.F. - NEAR WING 2 |
| A505  |        | 90       | 17'-4"  | X    |            | BODY - STIRRUP            |
| A406  |        | 24       | 4'-7"   | X    |            | BODY - TOP STIRRUP        |
| A407  |        | 6        | 13'-2"  |      |            | BODY - TOP                |
| A408  |        | 36       | 2'-3"   |      |            | BODY - PILE               |
| A409  |        | 18       | 28'-0"  | X    |            | BODY - PILE STIRRUP       |
| A410  |        | 10       | 5'-4"   |      |            | BODY - OUTSIDE F.F.       |
| A511  |        | 10       | 10'-7"  | X    |            | BODY - OUTSIDE STIRRUP    |
| A512  |        | 7        | 16'-5"  |      |            | WING 1 - F.F.             |
| A913  |        | 11       | 17'-9"  | X    |            | WING 1 - B.F.             |
| A514  |        | 19       | 17'-8"  | X    |            | WING 1 - STIRRUP          |
| A615  |        | 23       | 13'-4"  | X    |            | WING 1 - TOP STIRRUP      |
| A416  |        | 3        | 23'-7"  |      |            | WING 1 - TOP F.F.         |
| A417  |        | 6        | 23'-7"  |      |            | WING 1 - TOP B.F.         |
| A618  |        | 2        | 23'-7"  |      |            | WING 1 - TOP              |
| A619  |        | 9        | 9'-10"  | X    |            | WING 1 - END STIRRUP      |
| A420  |        | 2        | 7'-9"   |      |            | WING 1 - BOTTOM           |
| A521  |        | 7        | 12'-5"  |      |            | WING 2 - F.F.             |
| A722  |        | 9        | 11'-0"  | X    |            | WING 2 - B.F.             |
| A523  |        | 8        | 17'-4"  | X    |            | WING 2 - STIRRUP          |
| A624  |        | 10       | 12'-10" | X    |            | WING 2 - TOP STIRRUP      |
| A425  |        | 3        | 13'-7"  |      |            | WING 2 - TOP F.F.         |
| A426  |        | 6        | 13'-7"  |      |            | WING 2 - TOP B.F.         |
| A627  |        | 2        | 13'-7"  |      |            | WING 2 - TOP              |
| A628  |        | 9        | 11'-2"  | X    |            | WING 2 - END STIRRUP      |
| A429  |        | 4        | 7'-9"   |      |            | WING 2 - BOTTOM           |

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.



**WING 1 SECTION**



**WING 2 SECTION**

**NOTES**

WEST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 82 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 90 FT. PILE LENGTHS AT THE WEST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

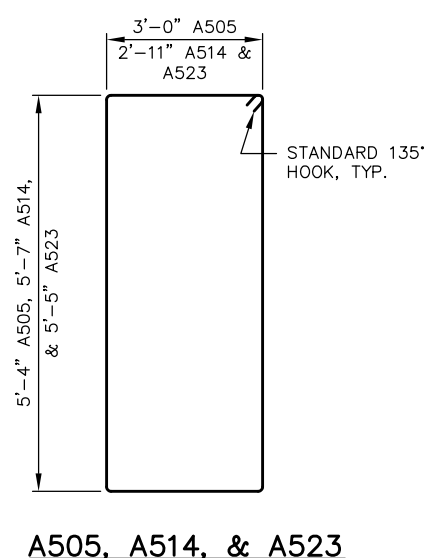
(A02) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

(A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

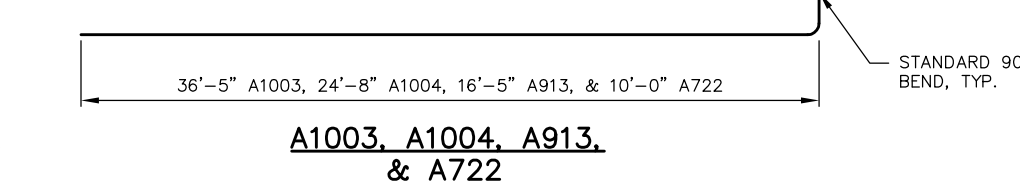
(A07) OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.

(A08) SEE "RAILING TABULAR TYPE M" SHEET FOR DETAILS.

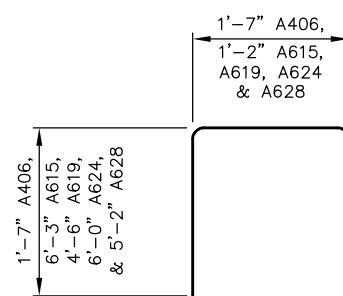
F.F. - FRONT FACE  
B.F. - BACK FACE



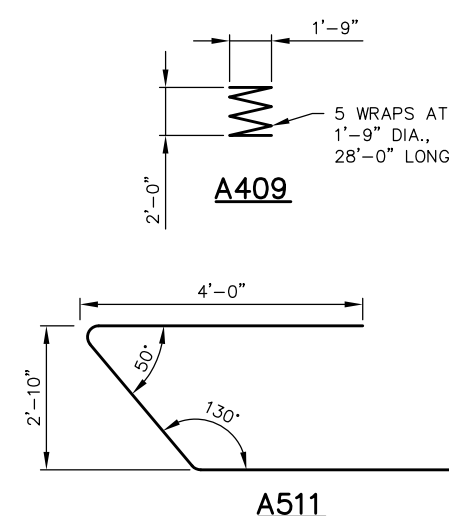
**A505, A514, & A523**



**A1003, A1004, A913, & A722**

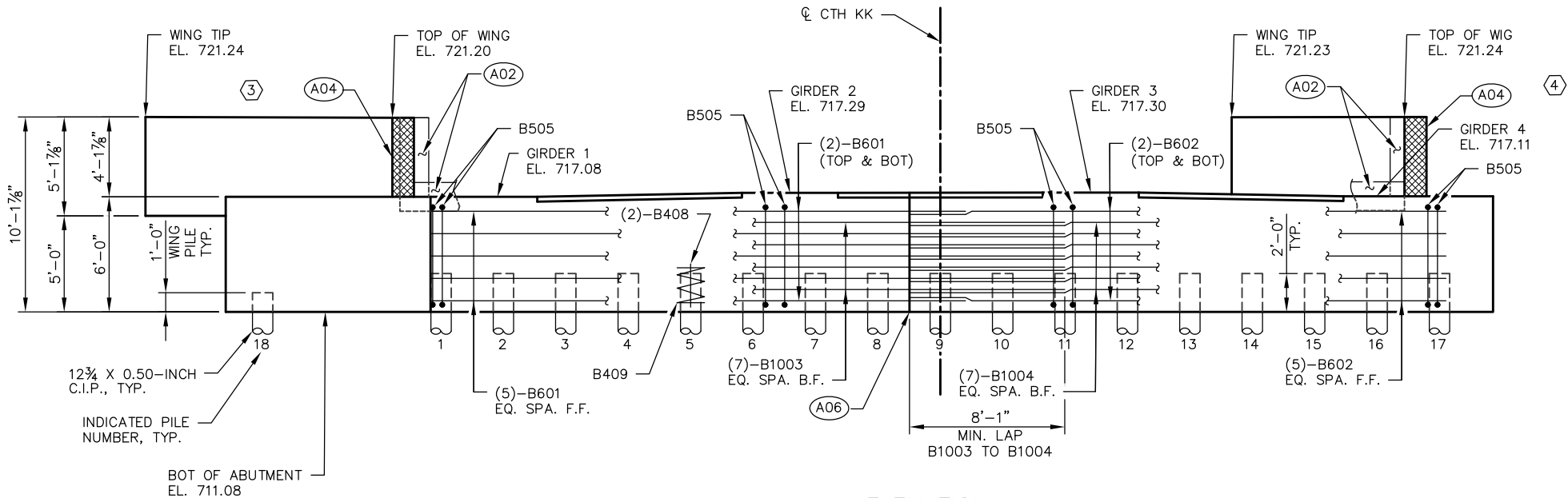


**A406, A615, A619, A624, & A628**

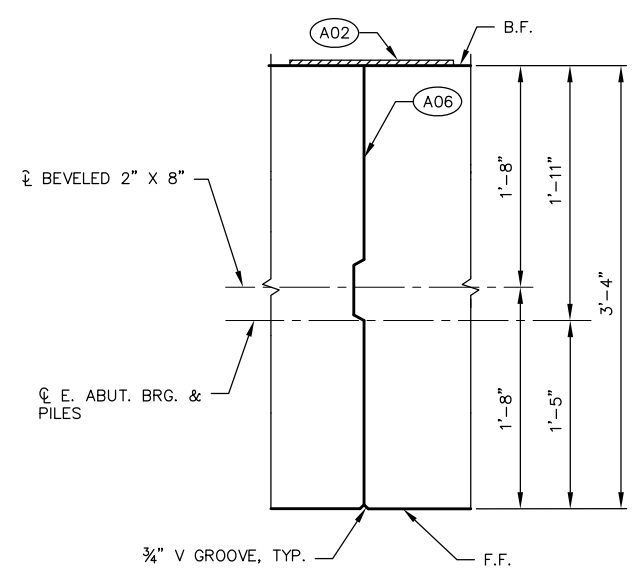


**A511**

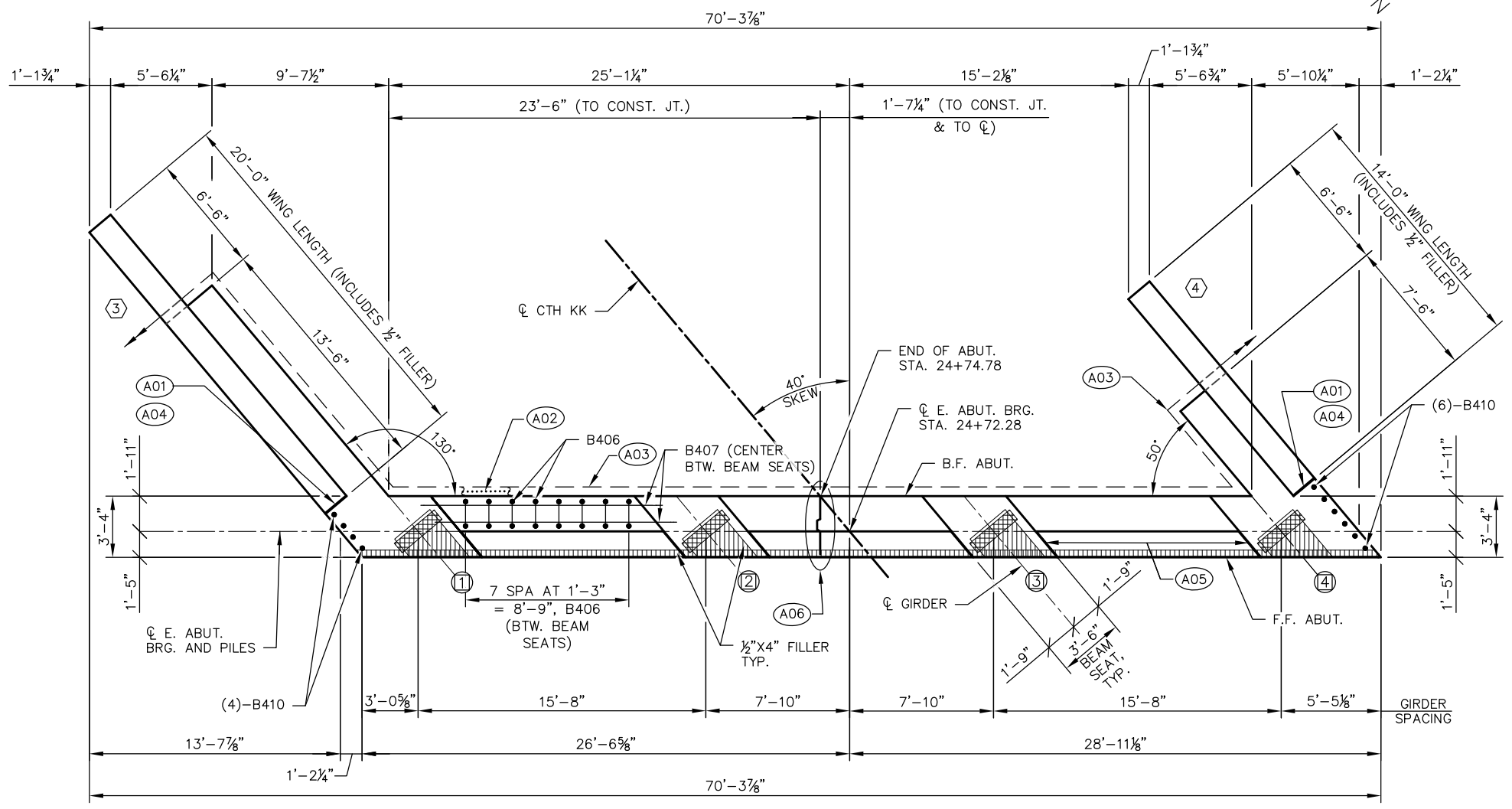
| NO.  | DATE | REVISION       | BY            |
|--|------|----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |               |
| <b>STRUCTURE B-44-500</b>                          |      |                |               |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |               |
| <b>WEST ABUTMENT REINFORCEMENT</b>                 |      |                | SHEET 7 OF 21 |



**ELEVATION**  
(E. ABUT. - LOOKING EAST)



**DETAIL C**  
(CONSTRUCTION JT. DETAIL)



**PLAN**

**NOTES**

- FOR TYPICAL SECTION THROUGH ABUTMENT BODY AND PILE LAYOUT SEE "EAST ABUTMENT DETAILS" SHEET.
- EAST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 78 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE EAST ABUTMENT.
- SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR PILE SPLICE DETAILS.
- (A01) 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A02) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- (A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".
- (A04) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING FILLER INCLUDED IN WING LENGTH.
- (A05) 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER, TYP.
- (A06) VERTICAL CONST. JT. KEYWAY FORMED BY BEVELED 2"x8". RUN BAR STEEL THRU JT. SEE "DETAIL C" ON THIS SHEET. FOR OPTIONAL DETAILS SEE "ALTERNATIVE CONSTRUCTION JOINT" SHEET.
- INDICATES WING NUMBER
- INDICATES GIRDER LINE NUMBER
- INDICATES CONTINUATION

F.F. - FRONT FACE  
B.F. - BACK FACE

| NO.  | DATE | REVISION       | BY            |
|--|------|----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |               |
| <b>STRUCTURE B-44-500</b>                          |      |                |               |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |               |
| <b>EAST ABUTMENT</b>                               |      |                | SHEET 8 OF 21 |

**NOTES**

EAST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 78 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE EAST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR PILE SPICE DETAILS.

(A02) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

(A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

(A06) VERTICAL CONST. JT. KEYWAY FORMED BY BEVELED 2"X8". RUN BAR STEEL THRU JT. SEE "DETAIL C" ON "EAST ABUTMENT" SHEET. FOR OPTIONAL DETAILS SEE "ALTERNATIVE CONSTRUCTION JOINT" SHEET.

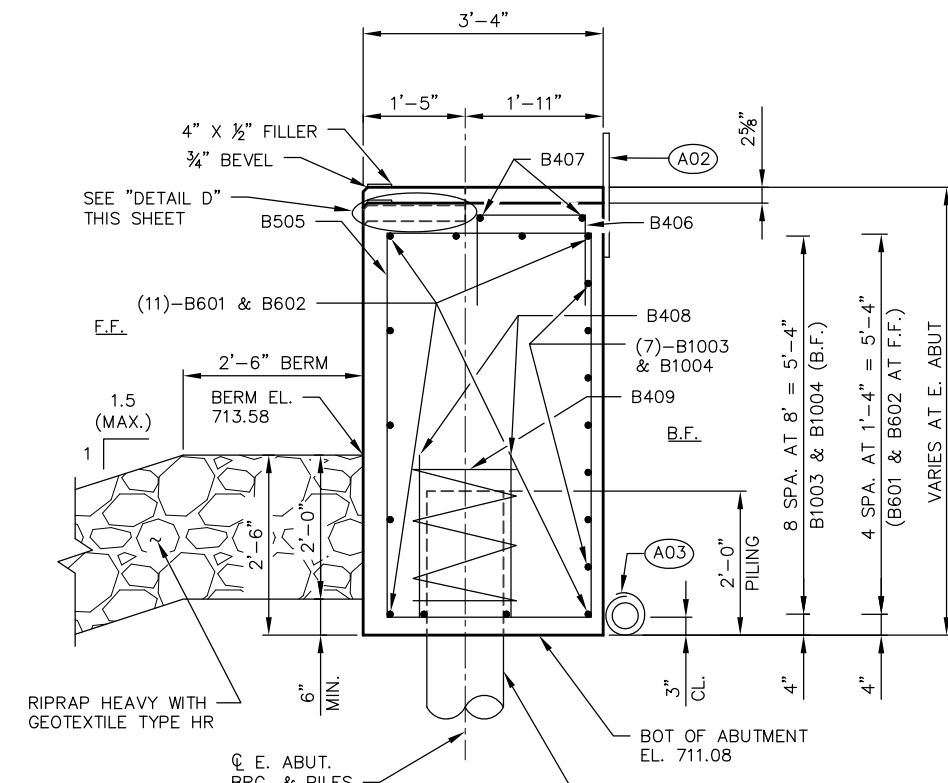
INDICATES WING NUMBER

F.F. - FRONT FACE  
B.F. - BACK FACE

STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

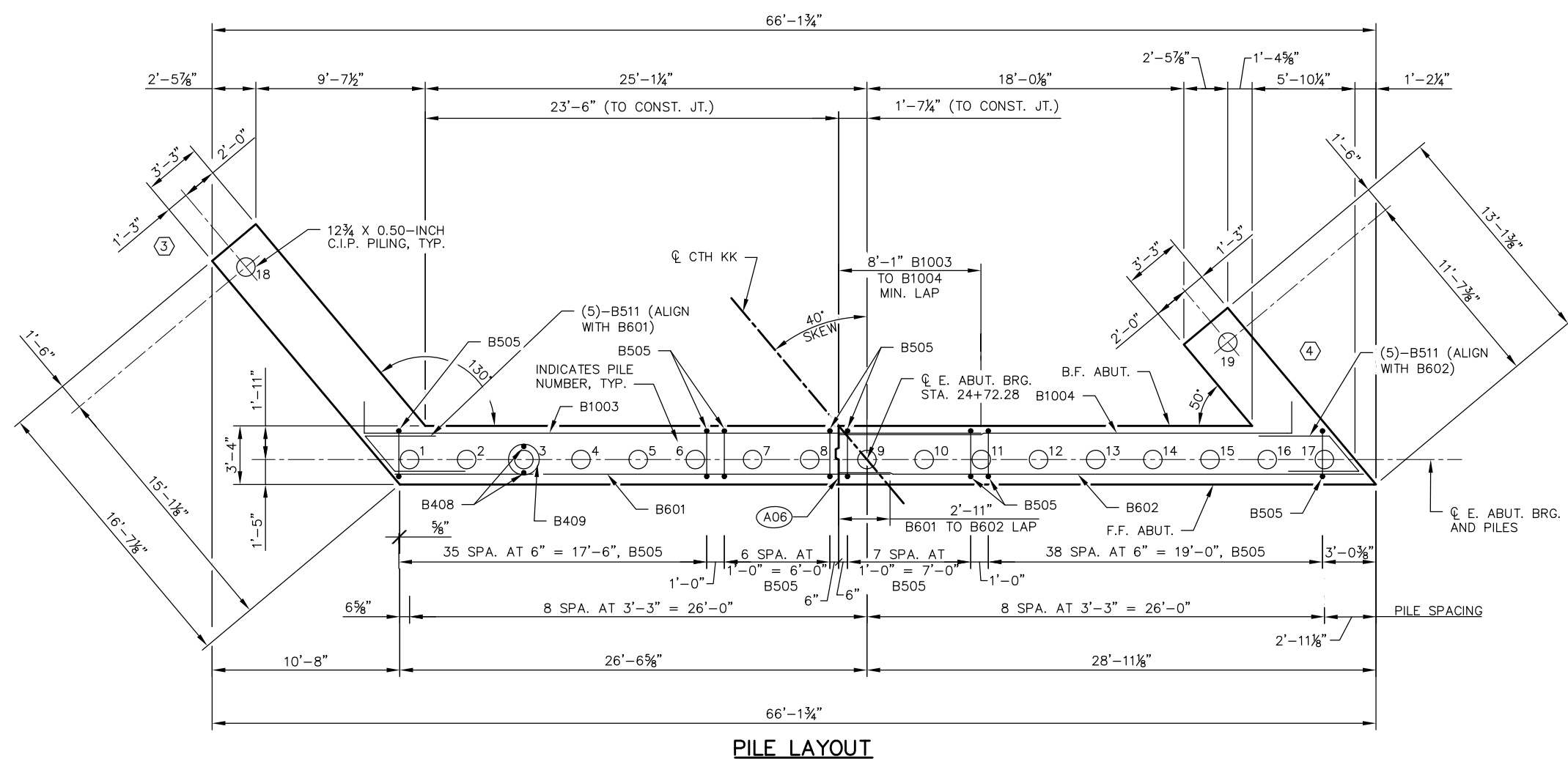
1/2" X 4" FILLER, TYP.  
3/4" BEVEL, TYP.

**DETAIL D**



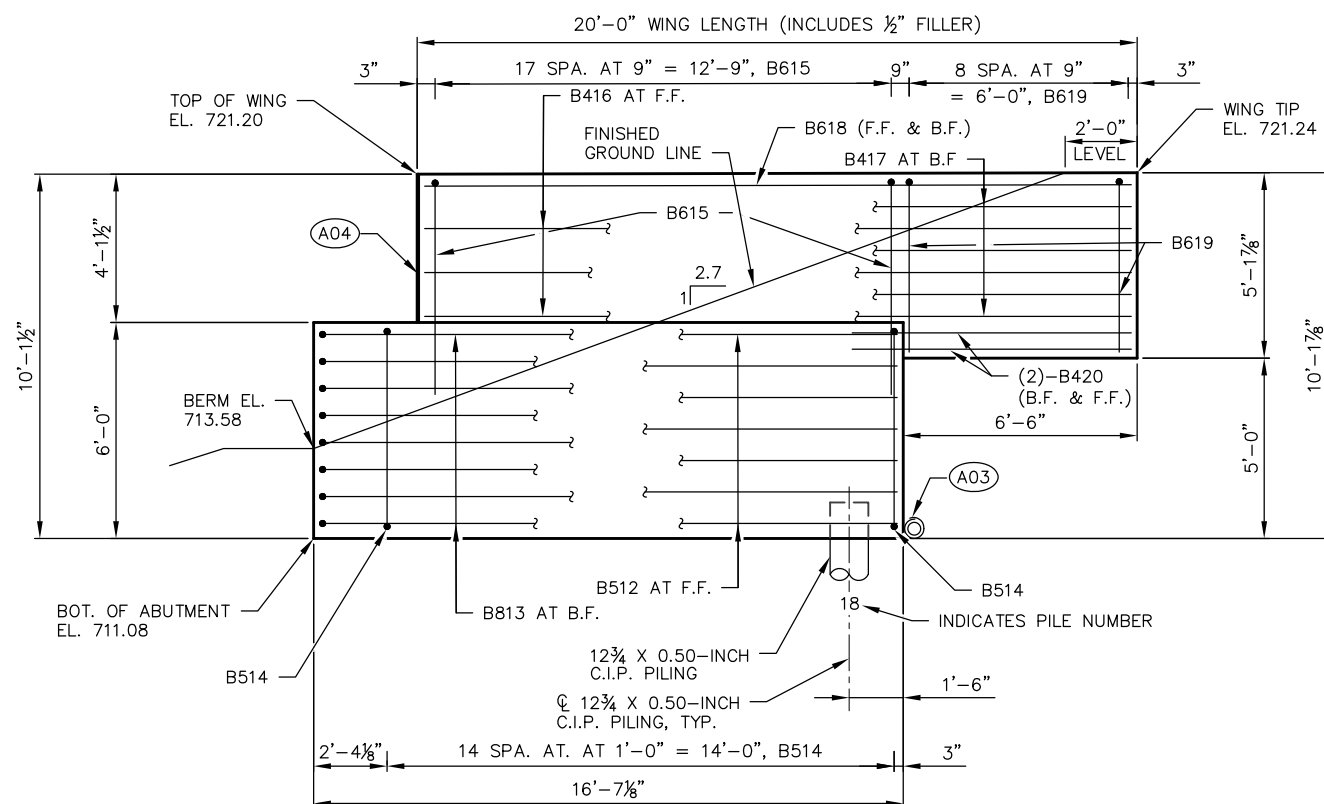
ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED RESISTANCE OF 78 TONS PER PILE. ESTIMATED 70 FT. PILE LENGTHS AT THE E. ABUT.

**TYPICAL SECTION THRU EAST ABUTMENT**

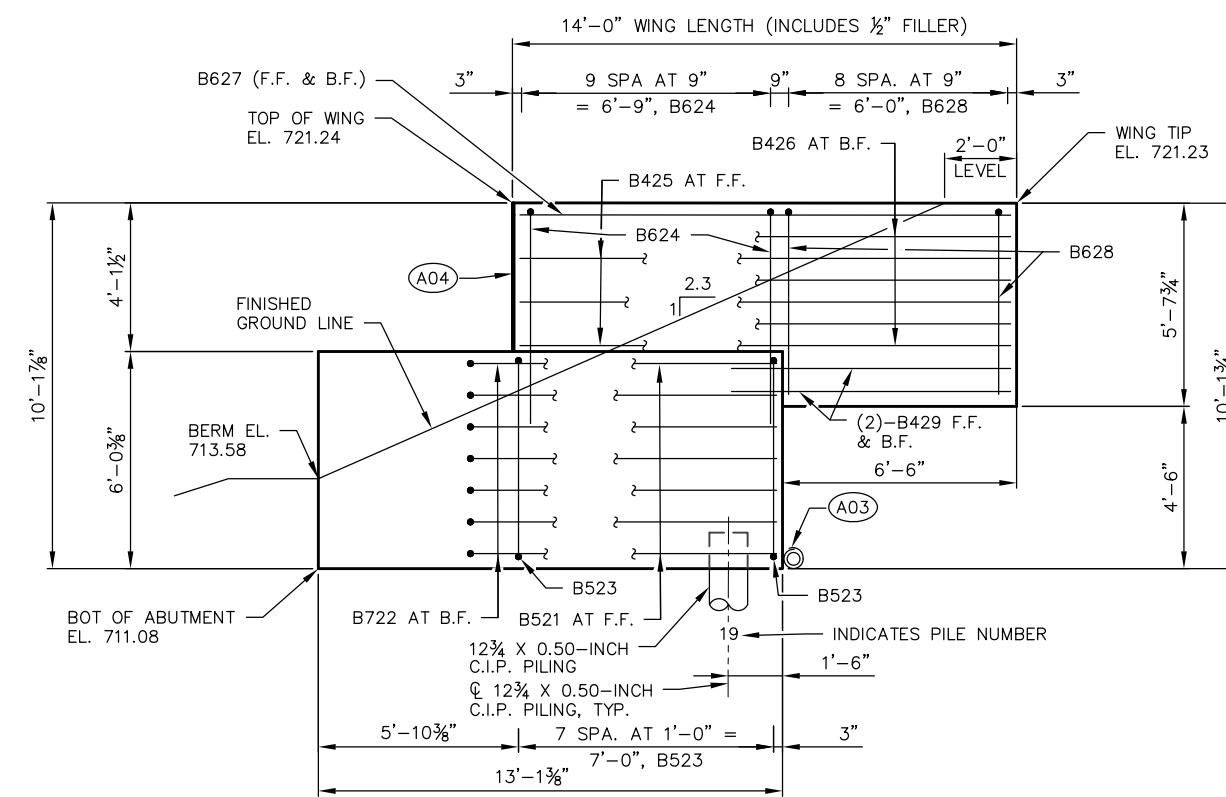


**PILE LAYOUT**

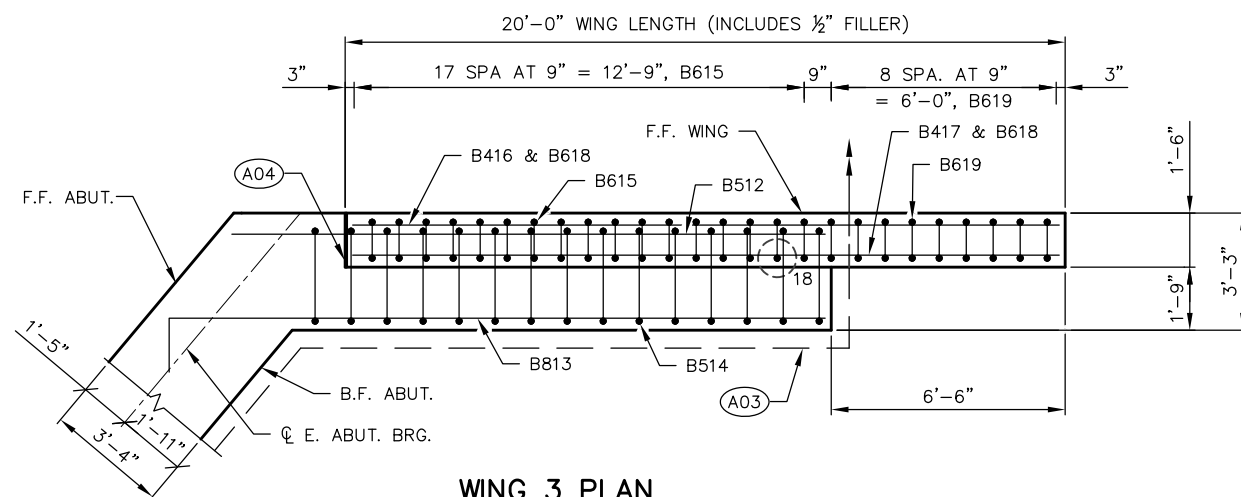
| NO.  | DATE | REVISION       | BY            |
|--|------|----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |               |
| <b>STRUCTURE B-44-500</b>                          |      |                |               |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |               |
| <b>EAST ABUTMENT DETAILS</b>                       |      |                | SHEET 9 OF 21 |



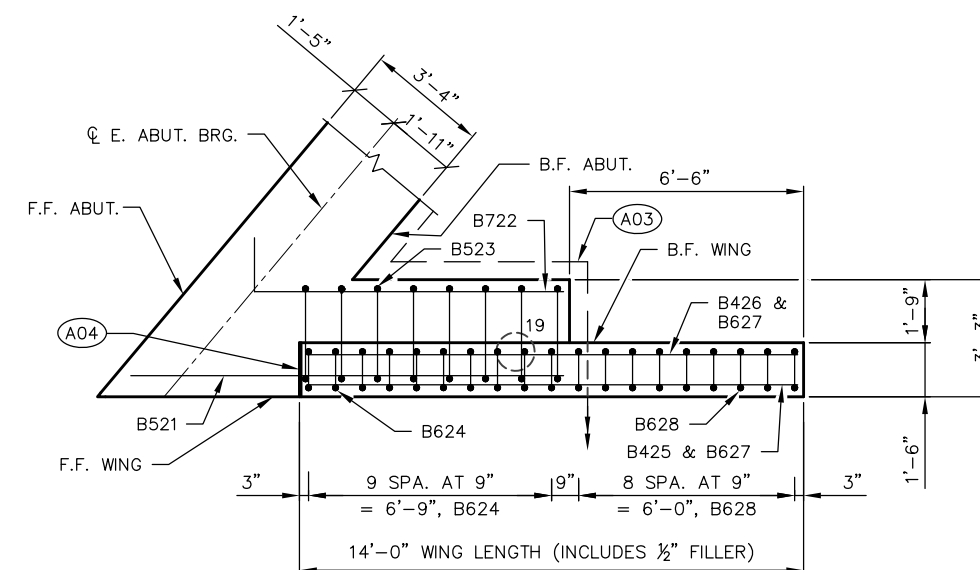
**WING 3 ELEVATION**  
(LOOKING AT WING 3 BACK FACE)  
(ABUTMENT PILING NOT SHOWN FOR CLARITY)



**WING 4 ELEVATION**  
(LOOKING AT WING 4 FRONT FACE)  
(ABUTMENT PILING NOT SHOWN FOR CLARITY)



**WING 3 PLAN**



**WING 4 PLAN**

**NOTES**

SEE "EAST ABUTMENT REINFORCEMENT" SHEET FOR WING 3 AND WING 4 SECTION.

EAST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 78 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE EAST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

(A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

(A04) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH.

F.F. - FRONT FACE  
B.F. - BACK FACE

|  |      |                 |                |
|--|------|-----------------|----------------|
| NO.  | DATE | REVISION        | BY             |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                |
| <b>STRUCTURE B-44-500</b>                          |      |                 |                |
| DRAWN BY: JDO                                      |      | PLANS OK'D: ACK |                |
| <b>EAST ABUTMENT<br/>WING DETAILS</b>              |      |                 | SHEET 10 OF 21 |

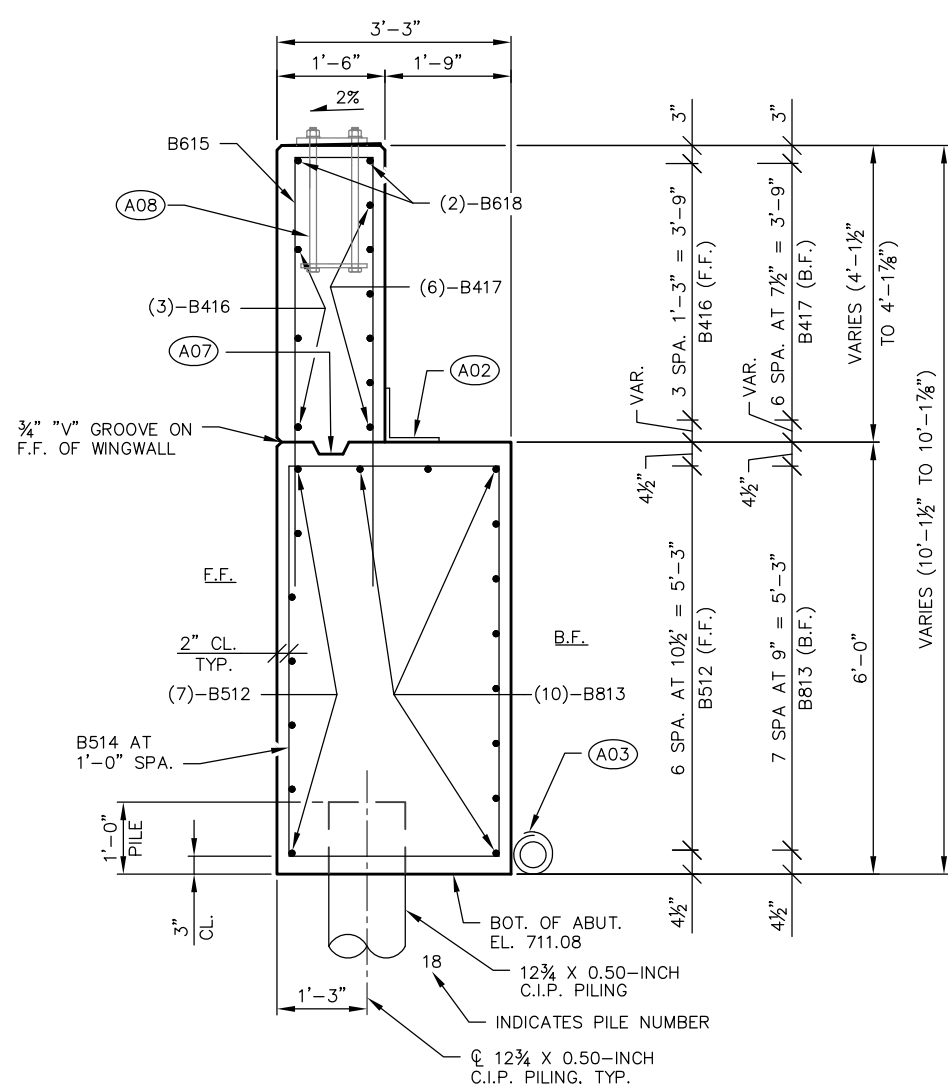
COATED = 2,490 LBS.  
UNCOATED = 5,190 LBS.

**BILL OF BARS  
EAST ABUTMENT**

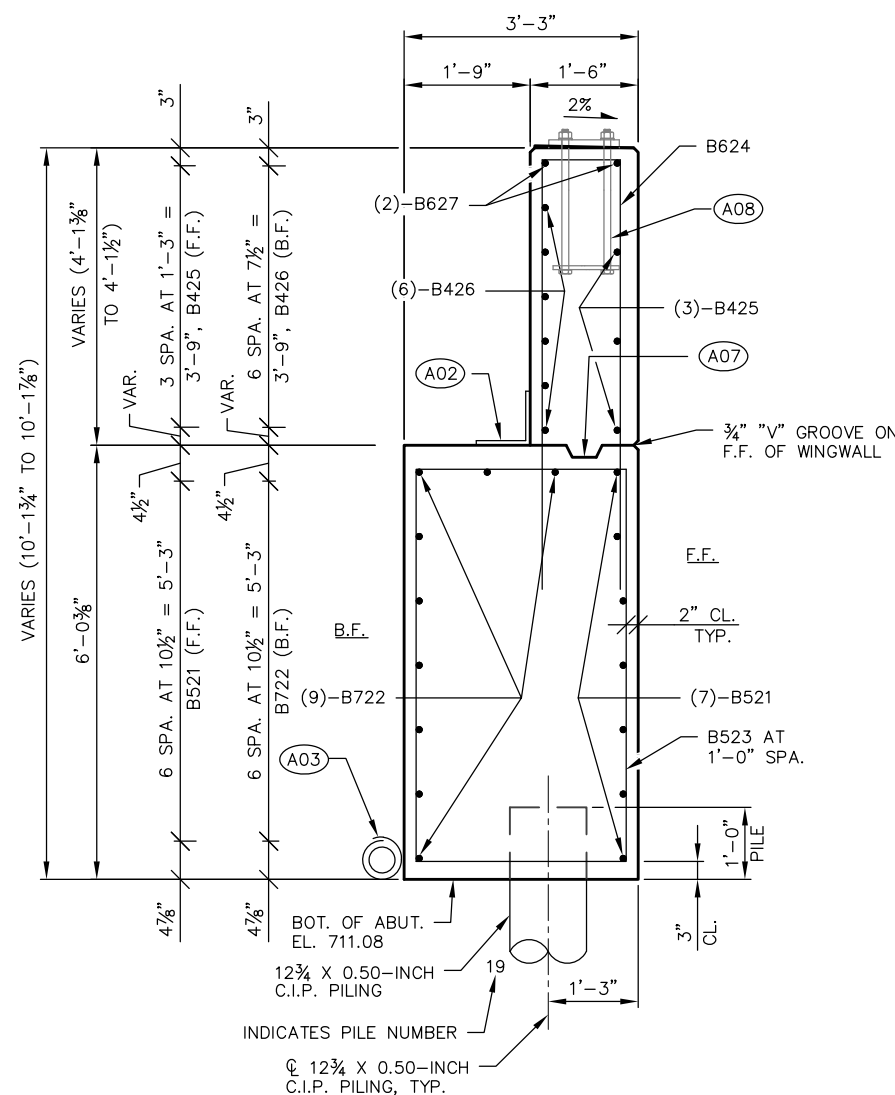
| MARK  | NUMBER |          | LENGTH  | BENT | BAR SERIES | LOCATION                  |
|-------|--------|----------|---------|------|------------|---------------------------|
|       | COATED | UNCOATED |         |      |            |                           |
| B601  |        | 11       | 27'-10" |      |            | BODY - F.F. - NEAR WING 3 |
| B602  |        | 11       | 30'-1"  |      |            | BODY - F.F. - NEAR WING 4 |
| B1003 |        | 7        | 36'-6"  | X    |            | BODY - B.F. - NEAR WING 3 |
| B1004 |        | 7        | 27'-3"  | X    |            | BODY - B.F. - NEAR WING 4 |
| B505  |        | 90       | 17'-4"  | X    |            | BODY - STIRRUP            |
| B406  |        | 24       | 4'-7"   | X    |            | BODY - TOP STIRRUP        |
| B407  |        | 6        | 13'-2"  |      |            | BODY - TOP                |
| B408  |        | 38       | 2'-3"   |      |            | BODY - PILE               |
| B409  |        | 19       | 28'-0"  | X    |            | BODY - PILE STIRRUP       |
| B410  |        | 10       | 5'-4"   |      |            | BODY - OUTSIDE F.F.       |
| B511  |        | 10       | 10'-7"  | X    |            | BODY - OUTSIDE STIRRUP    |
| B512  |        | 7        | 16'-5"  |      |            | WING 3 - F.F.             |
| B813  |        | 10       | 18'-2"  | X    |            | WING 3 - B.F.             |
| B514  |        | 15       | 17'-4"  | X    |            | WING 3 - STIRRUP          |
| B615  |        | 18       | 12'-10" | X    |            | WING 3 - TOP STIRRUP      |
| B416  |        | 3        | 19'-7"  |      |            | WING 3 - TOP F.F.         |
| B417  |        | 6        | 19'-7"  |      |            | WING 3 - TOP B.F.         |
| B618  |        | 2        | 19'-7"  |      |            | WING 3 - TOP              |
| B619  |        | 9        | 10'-2"  | X    |            | WING 3 - END STIRRUP      |
| B420  |        | 4        | 7'-9"   |      |            | WING 3 - BOTTOM           |
| B521  |        | 7        | 12'-5"  |      |            | WING 4 - F.F.             |
| B722  |        | 9        | 11'-0"  | X    |            | WING 4 - B.F.             |
| B523  |        | 8        | 17'-4"  | X    |            | WING 4 - STIRRUP          |
| B624  |        | 10       | 12'-10" | X    |            | WING 4 - TOP STIRRUP      |
| B425  |        | 3        | 13'-7"  |      |            | WING 4 - TOP F.F.         |
| B426  |        | 6        | 13'-7"  |      |            | WING 4 - TOP B.F.         |
| B627  |        | 2        | 13'-7"  |      |            | WING 4 - TOP              |
| B628  |        | 9        | 11'-2"  | X    |            | WING 4 - END STIRRUP      |
| B429  |        | 4        | 7'-9"   |      |            | WING 4 - BOTTOM           |

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.



**WING 3 SECTION**



**WING 4 SECTION**

**NOTES**

EAST ABUTMENT TO BE SUPPORTED ON 12 3/4 X 0.50-INCH C.I.P. PILING DRIVEN TO A REQUIRED RESISTANCE OF 78 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE EAST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES AND QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

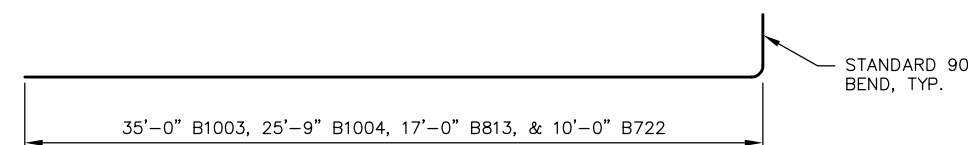
(A02) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

(A03) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "WEST ABUTMENT DETAILS" SHEET. RODENT SHIELD IS INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

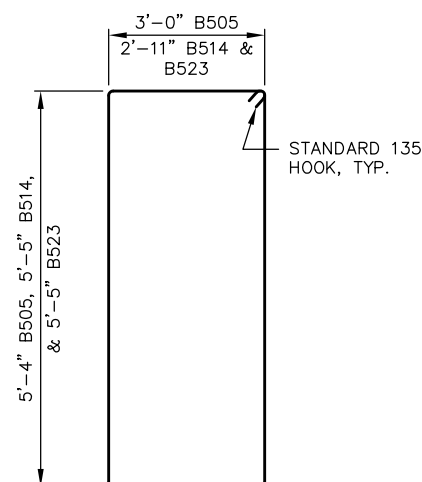
(A07) OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.

(A08) SEE "RAILING TABULAR TYPE M" SHEET FOR DETAILS.

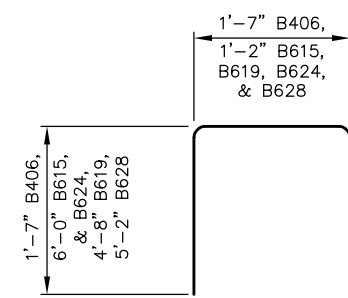
F.F. - FRONT FACE  
B.F. - BACK FACE



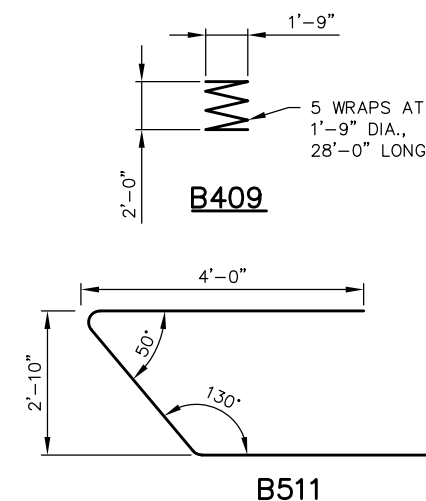
**B1003, B1004, B813,  
& B722**



**B505, B514, & B523**

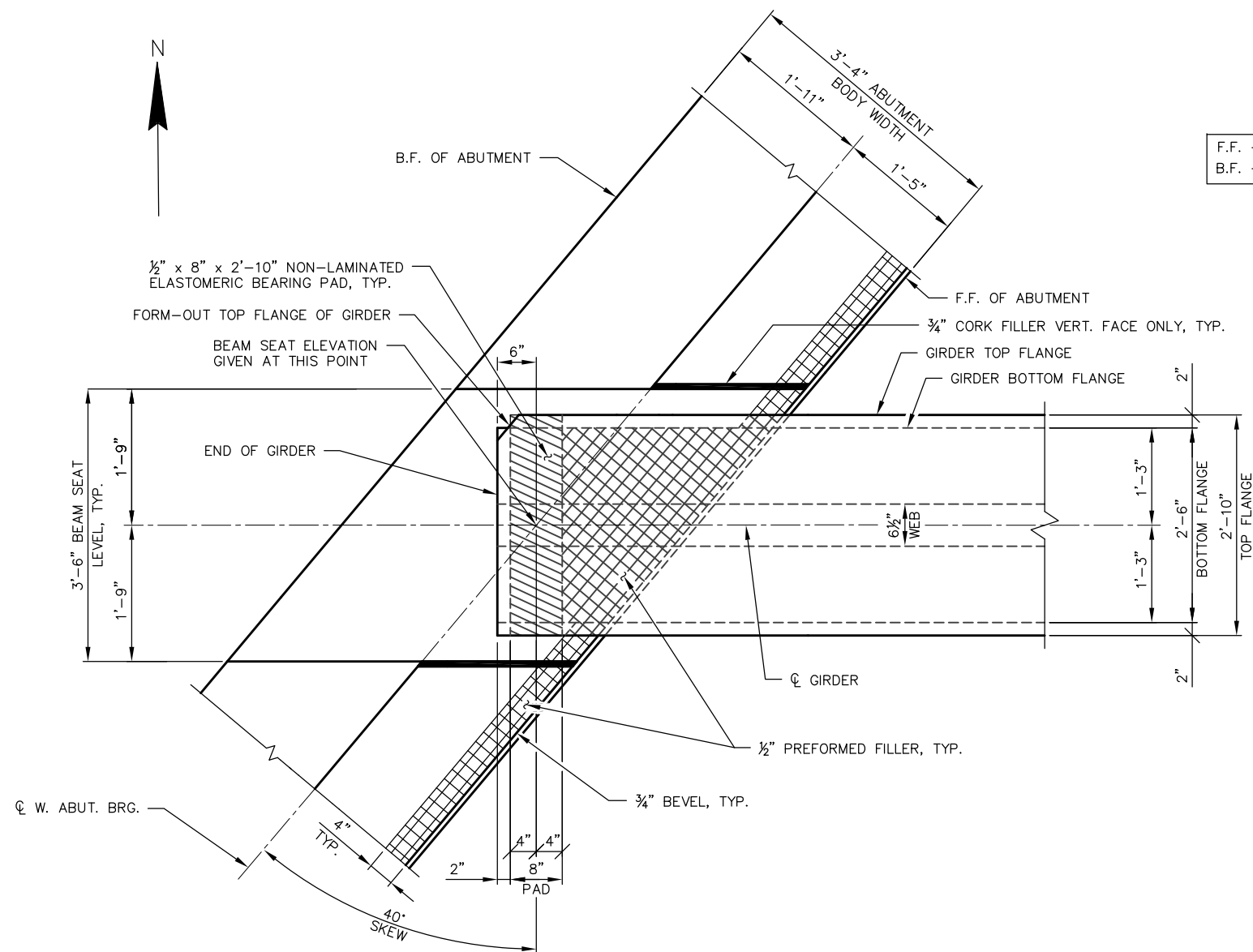


**B406, B615, B619,  
B624 & B628**



**B511**

| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| EAST ABUTMENT REINFORCEMENT                        |      |                | SHEET 11 OF 21 |



F.F. - FRONT FACE  
B.F. - BACK FACE

**ABUTMENT BEAM SEAT DETAIL**  
(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

**TOP OF DECK ELEVATIONS**

|              | CL W. ABUT. BRG. | 0.1    | 0.2    | 0.3    | 0.4    | 0.5    | 0.6    | 0.7    | 0.8    | 0.9    | CL E. ABUT. BRG. |
|--------------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|
| N. DECK EDGE | 721.34           | 721.31 | 721.29 | 721.27 | 721.25 | 721.23 | 721.22 | 721.21 | 721.20 | 721.20 | 721.20           |
| GIRDER 1     | 721.42           | 721.39 | 721.36 | 721.33 | 721.31 | 721.30 | 721.28 | 721.27 | 721.26 | 721.26 | 721.26           |
| GIRDER 2     | 721.71           | 721.67 | 721.64 | 721.61 | 721.59 | 721.57 | 721.55 | 721.53 | 721.52 | 721.51 | 721.50           |
| CROWN POINT  | 721.86           | 721.82 | 721.79 | 721.75 | 721.73 | 721.70 | 721.68 | 721.66 | 721.65 | 721.63 | 721.62           |
| GIRDER 3     | 721.77           | 721.73 | 721.69 | 721.66 | 721.63 | 721.60 | 721.58 | 721.56 | 721.54 | 721.52 | 721.51           |
| GIRDER 4     | 721.60           | 721.55 | 721.51 | 721.47 | 721.44 | 721.40 | 721.38 | 721.35 | 721.33 | 721.31 | 721.29           |
| S. DECK EDGE | 721.56           | 721.51 | 721.47 | 721.43 | 721.39 | 721.36 | 721.33 | 721.30 | 721.28 | 721.26 | 721.24           |

| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>BEAM SEAT<br/>DETAILS</b>                       |      |                | SHEET 12 OF 21 |

**GIRDER NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

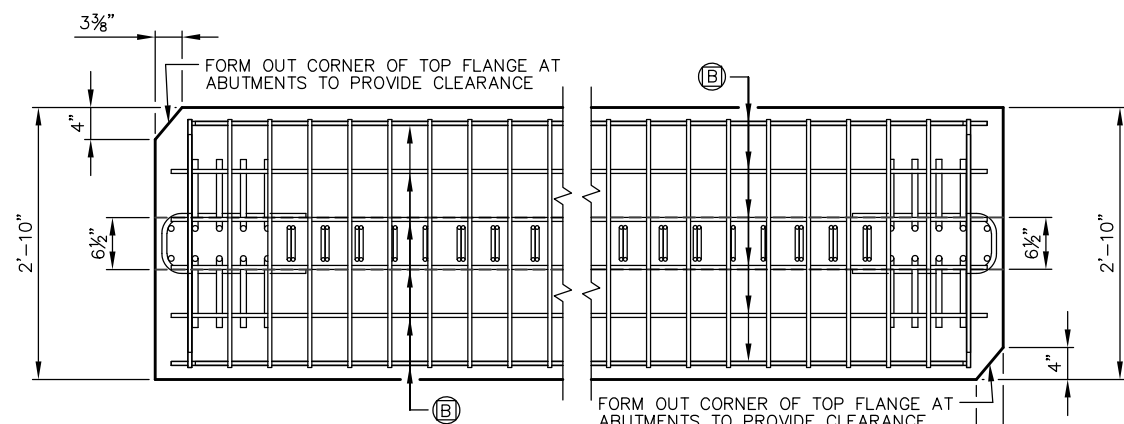
FOR DIAPHRAGM INSERT & CONNECTION DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGM" SHEET.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

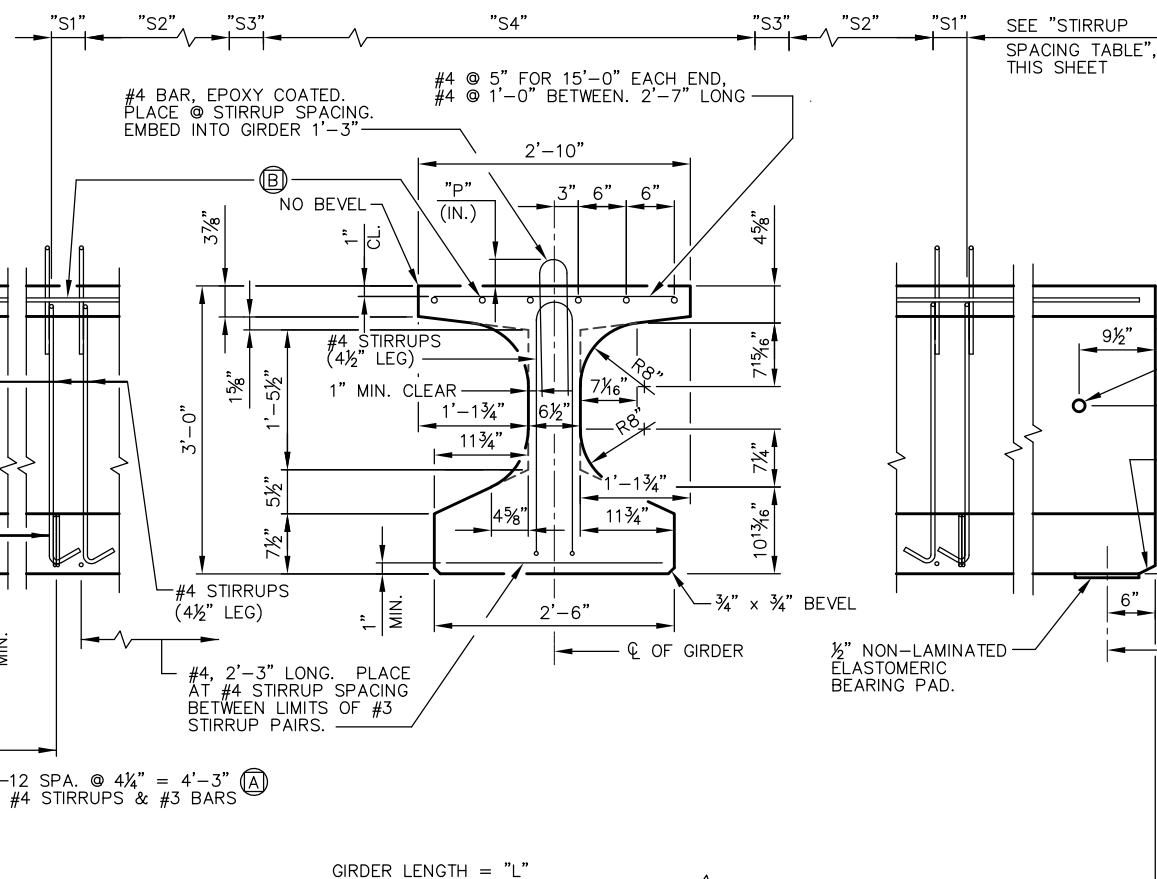
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE 0.6" DIA. - 7 - WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

| SPAN | GIRDER | GIRDER LENGTH "L" | "S1"   | "S2"                   | "S3"  | "S4"                      |
|------|--------|-------------------|--------|------------------------|-------|---------------------------|
| 1    | 1-4    | 66'-0"            | 8 1/2" | 7 SPA. AT 10" = 5'-10" | 1'-0" | 36 SPA. AT 1'-0" = 36'-0" |



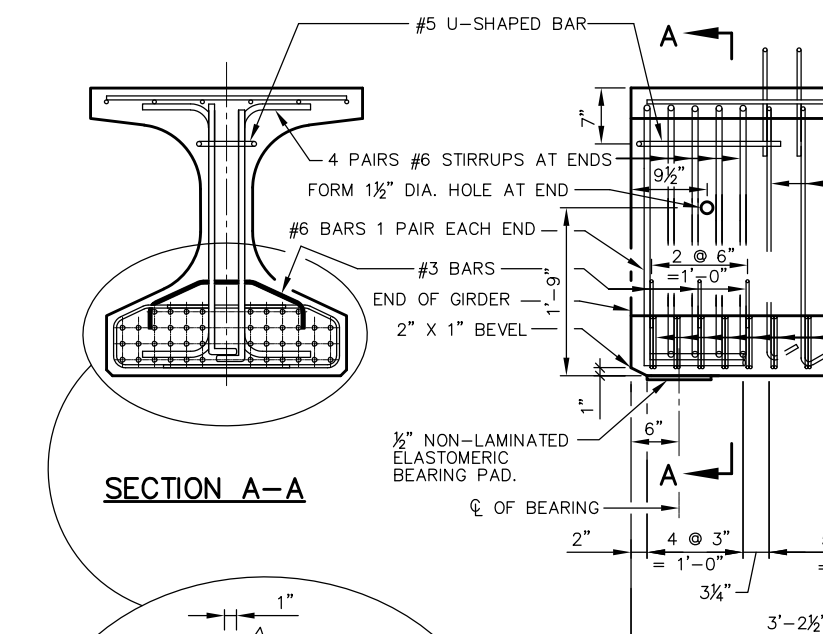
**TOP FLANGE**



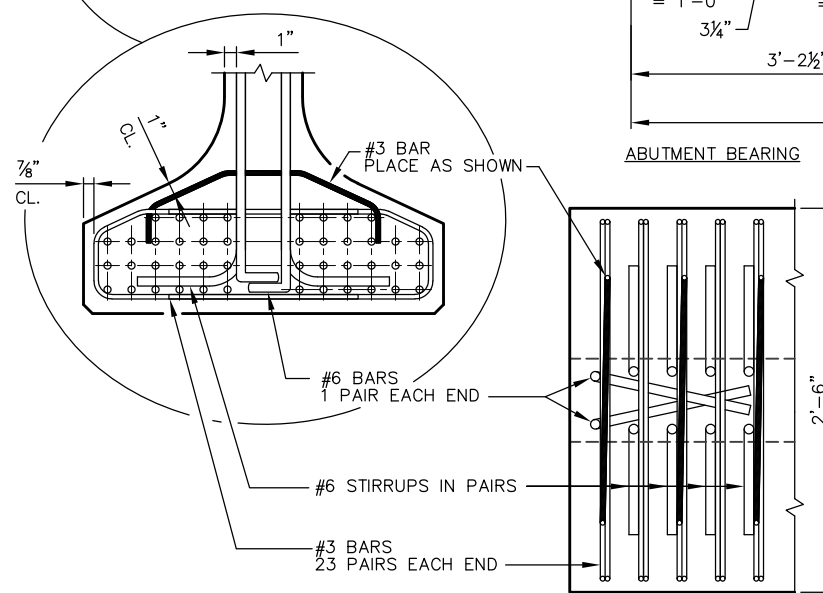
**SIDE VIEW & TYPICAL SECTION IN SPAN**

(A) DETAIL TYP. AT EACH END

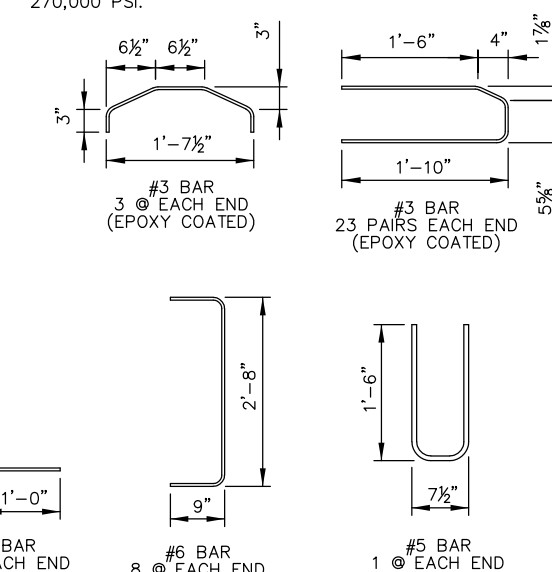
(B) (6) - #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"



**SECTION A-A**



**BOTTOM FLANGE**



| SPAN | GIRDER | GIRDER LENGTH "L" | DEAD LOAD DEFLECTION (IN.) |      |      |      |      |      |      |      |      |                      | CONC. STRGTH. f'c (psi) | "P" 1st 1/2 OF GIRDER | "P" MID 1/2 OF GIRDER | "P" END 1/2 OF GIRDER | DIA. OF STRAND (IN.) | DRAPED PATTERN |          |    |    | UNDRAPED PATTERN |                      |              |
|------|--------|-------------------|----------------------------|------|------|------|------|------|------|------|------|----------------------|-------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------|----------|----|----|------------------|----------------------|--------------|
|      |        |                   | 1/10                       | 2/10 | 3/10 | 4/10 | 5/10 | 6/10 | 7/10 | 8/10 | 9/10 | TOTAL NO. OF STRANDS |                         |                       |                       |                       |                      | f'ci (psi) *   | (IN.) ** |    |    |                  | TOTAL NO. OF STRANDS | f'ci (psi) * |
|      |        |                   |                            |      |      |      |      |      |      |      |      |                      |                         |                       |                       |                       | "A" "B" "C"          |                |          |    |    |                  |                      |              |
| 1    | 1 & 4  | 66'-0"            | 0.3                        | 0.5  | 0.7  | 0.8  | 0.8  | 0.8  | 0.7  | 0.5  | 0.3  | 8,000                | 7.5"                    | 6.5"                  | 7.5"                  | 0.6                   | 26                   | 6,800          | 32       | 11 | 14 | 4                | ---                  | ---          |
| 1    | 2 & 3  | 66'-0"            | 0.3                        | 0.6  | 0.8  | 1.0  | 1.0  | 1.0  | 0.8  | 0.6  | 0.3  | 8,000                | 8.0"                    | 6.5"                  | 8.0"                  | 0.6                   | 26                   | 6,800          | 32       | 11 | 14 | 4                | ---                  | ---          |

\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE

\*\* SEE "36W-INCH PRESTRESSED GIRDER DETAILS" SHEET FOR LOCATION OF DRAPED STRANDS "A", "B", & "C".

| NO. | DATE | REVISION | BY |
|-----|------|----------|----|
|     |      |          |    |

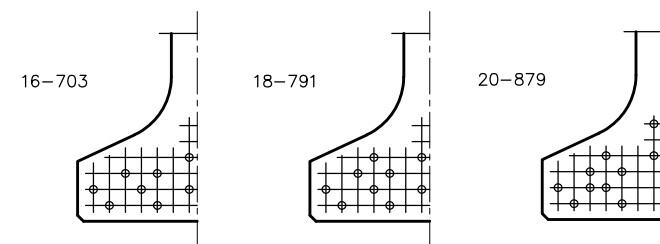
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-44-500**

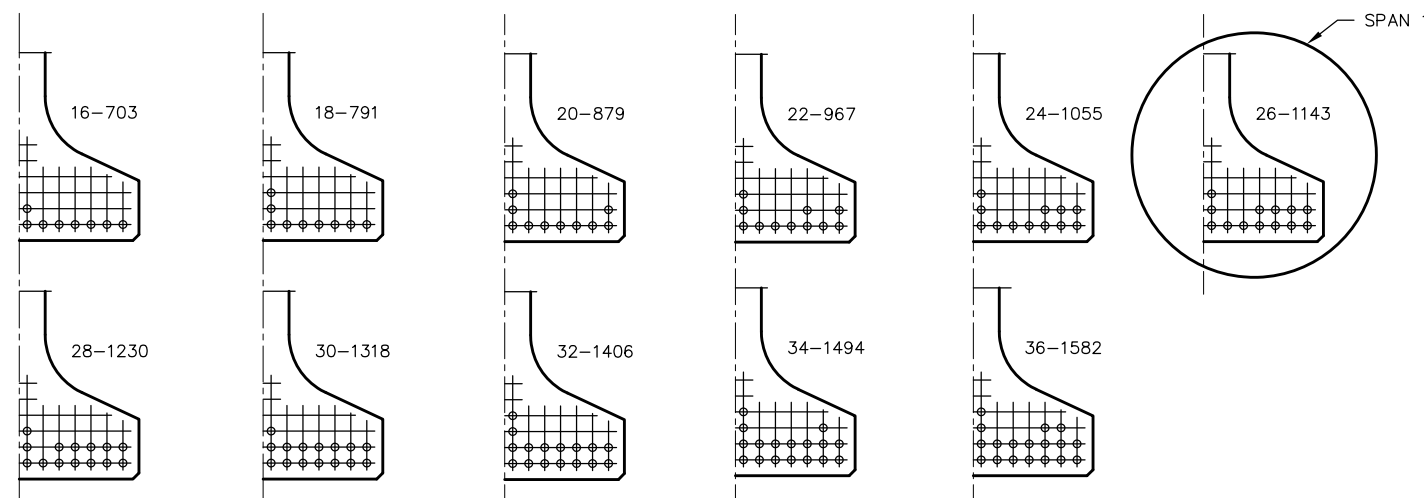
DRAWN BY: JDO PLANS OK'D: ACK

**36W-INCH  
PRESTRESSED  
GIRDER**

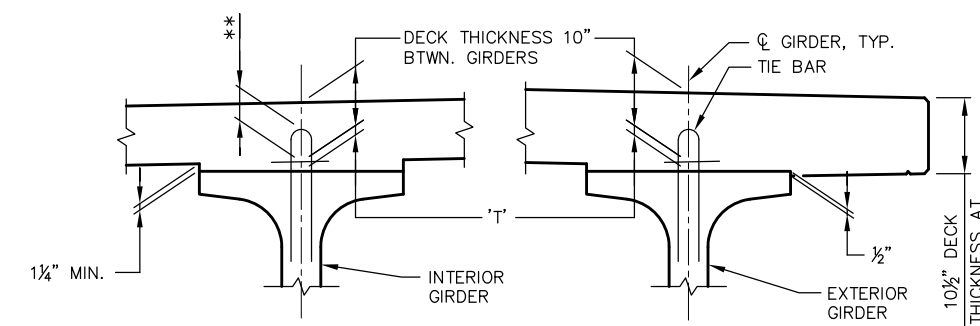
SHEET 13 OF 21



**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF 0.6" DIA. STRANDS**



**ARRANGEMENT AT  $\bar{C}$  SPAN - FOR GIRDERS WITH DRAPED 0.6" DIA. STRANDS**



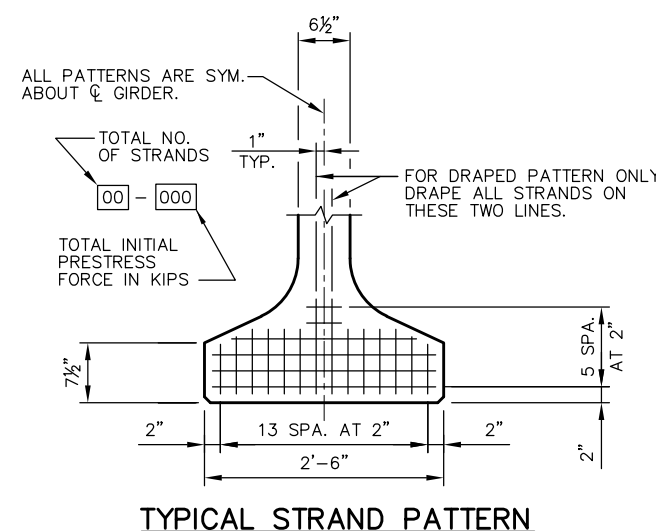
**DECK HAUNCH DETAIL**

IF 1 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 DECK 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.

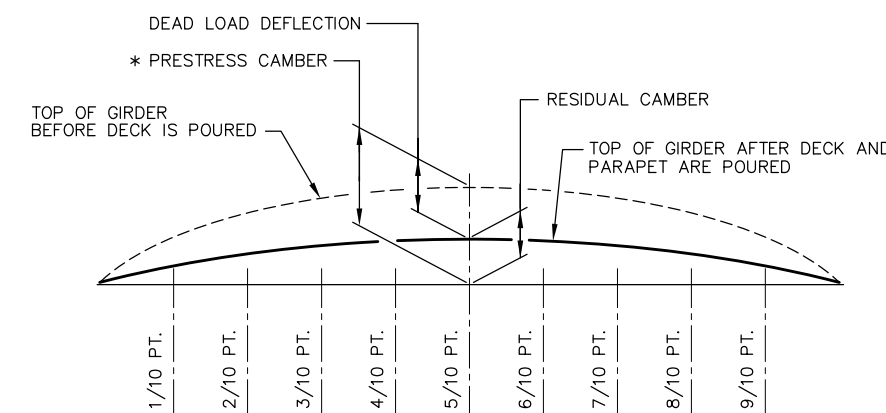
TO DETERMINE 'T', ELEVATIONS OF TOP OF GIRDERS AT  $\bar{C}$  OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEVATION AT FINAL GRADE (SEE "BEAM SEAT DETAILS" SHEET)
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2.7" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

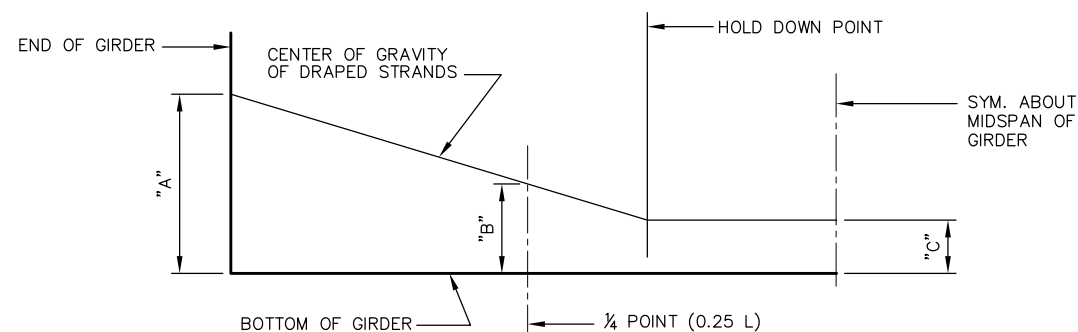


**TYPICAL STRAND PATTERN**



**DEAD LOAD DEFLECTION AND CAMBER DIAGRAM**

(SEE GIRDER DATA TABLE ON "36W-INCH PRESTRESSED GIRDER" SHEET)



**DRAPED STRAND PROFILE**

(SEE GIRDER DATA TABLE ON "36W-INCH PRESTRESSED GIRDER" SHEET)

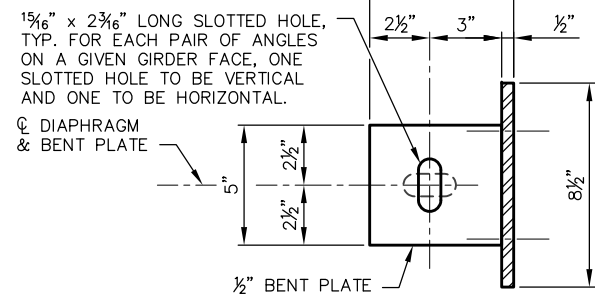
\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

| SPAN | CAMBER (IN.)* |
|------|---------------|
| 1    | 2.2           |

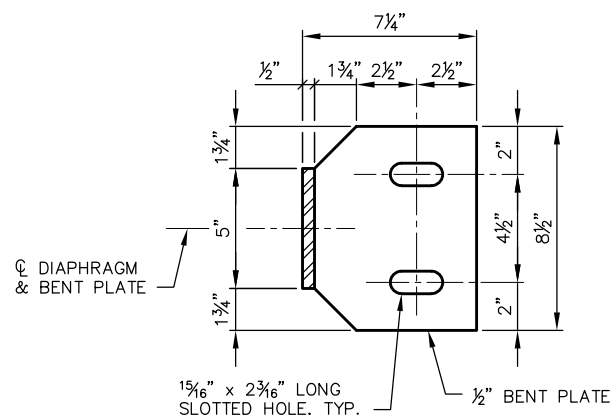
THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.  
 THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

|  |      |                |                |
|--|------|----------------|----------------|
| NO.  | DATE | REVISION       | BY             |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>36W-INCH<br/>PRESTRESSED<br/>GIRDER DETAILS</b> |      |                | SHEET 14 OF 21 |

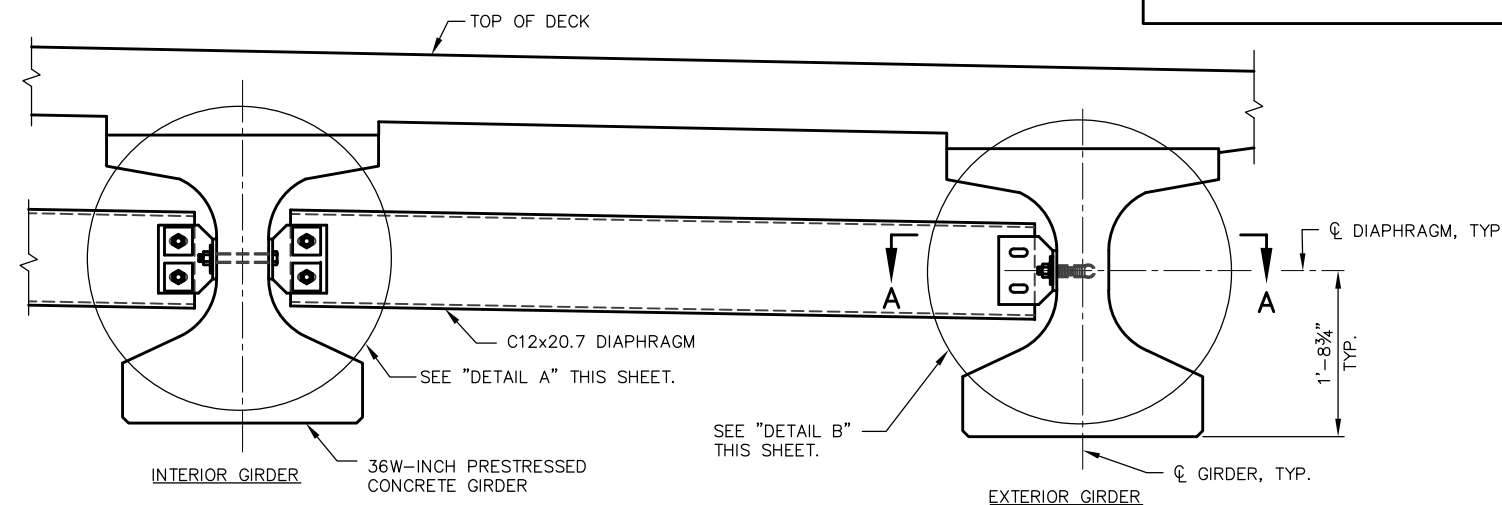




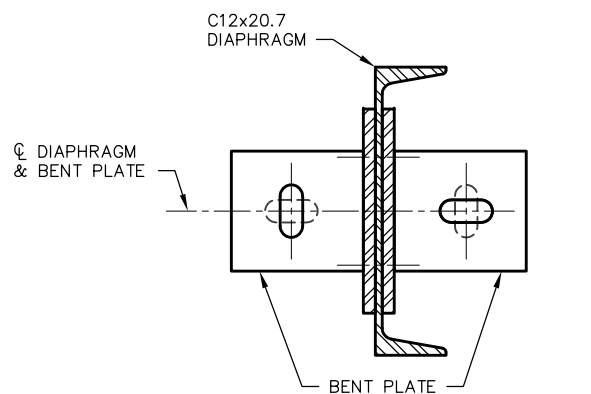
**BENT PLATE AT GIRDER FACE**



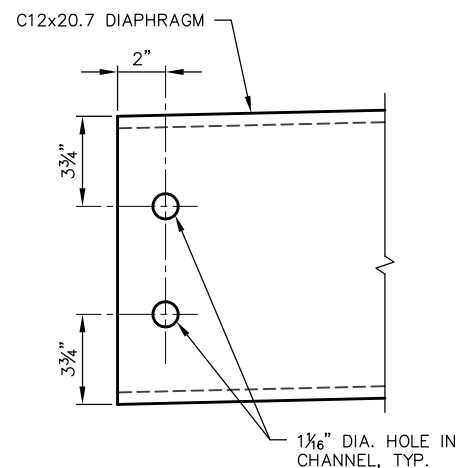
**BENT PLATE AT DIAPHRAGM FACE**



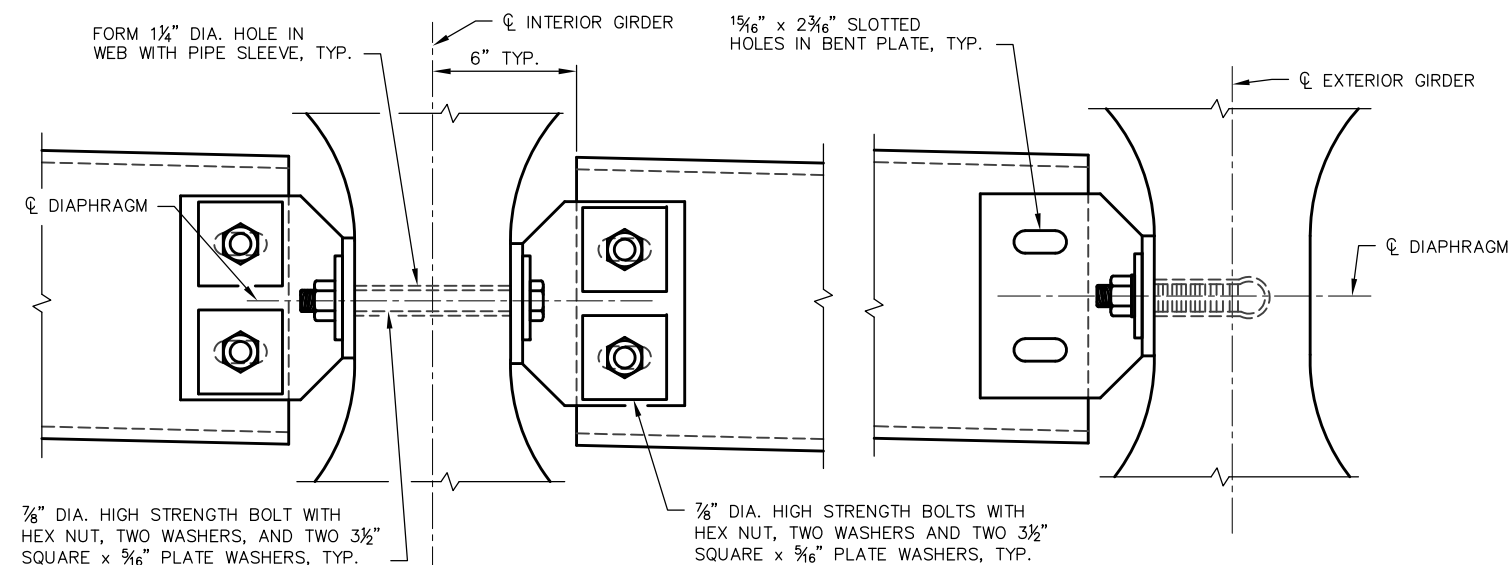
**PART TRANSVERSE SECTION AT DIAPHRAGM**



**BENT PLATE ATTACHMENT TO CHANNEL**

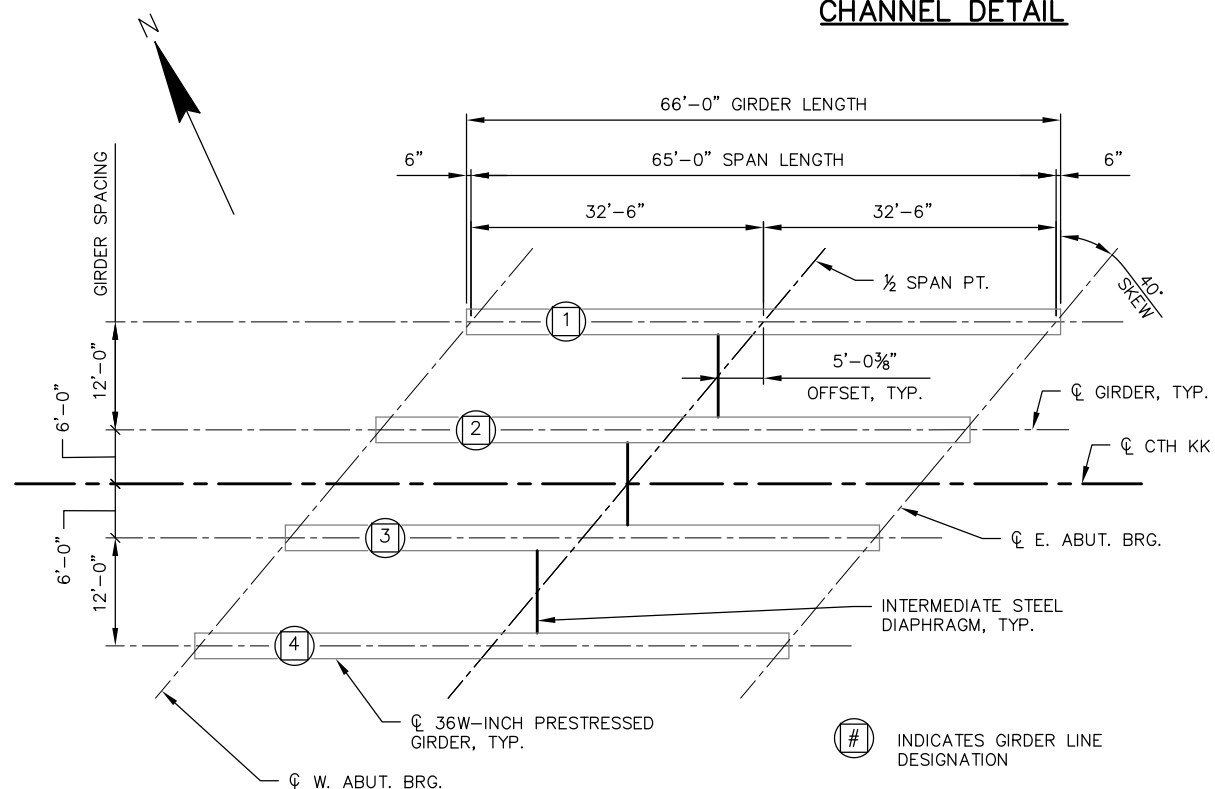


**CHANNEL DETAIL**

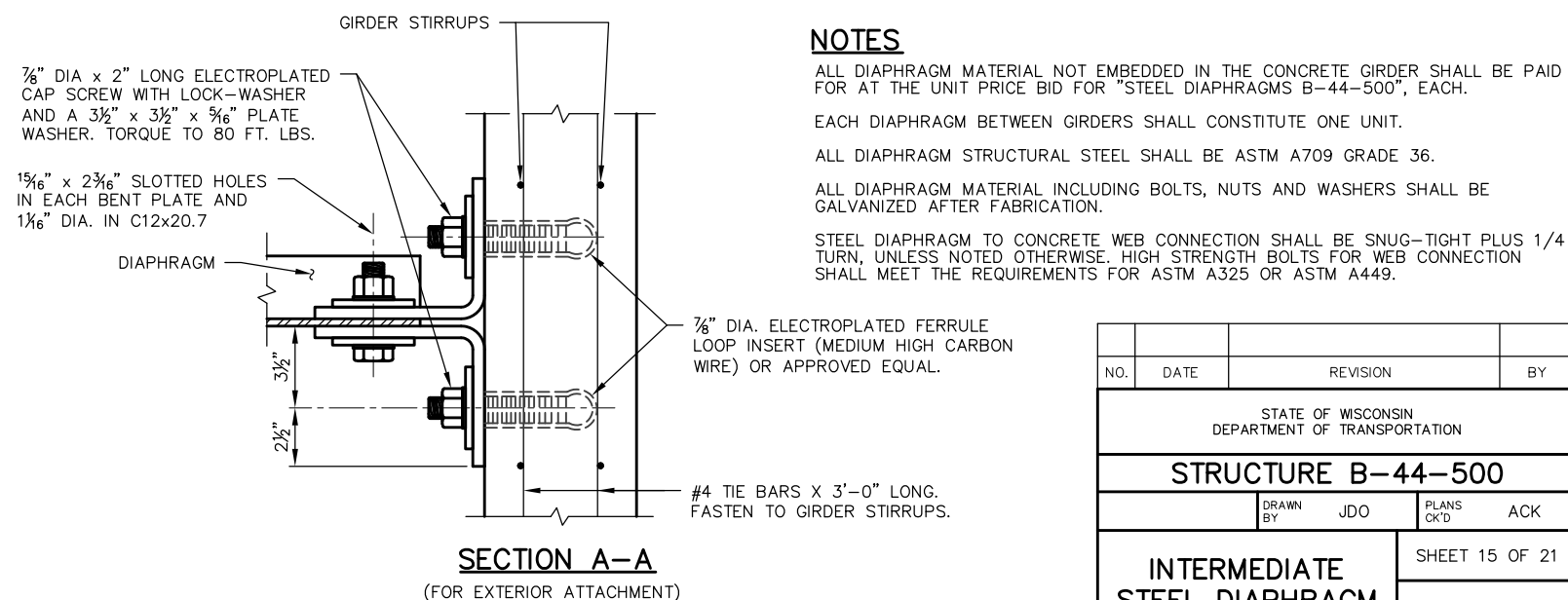


**DETAIL A**

**DETAIL B**



**STEEL DIAPHRAGM LAYOUT PLAN**



**SECTION A-A (FOR EXTERIOR ATTACHMENT)**

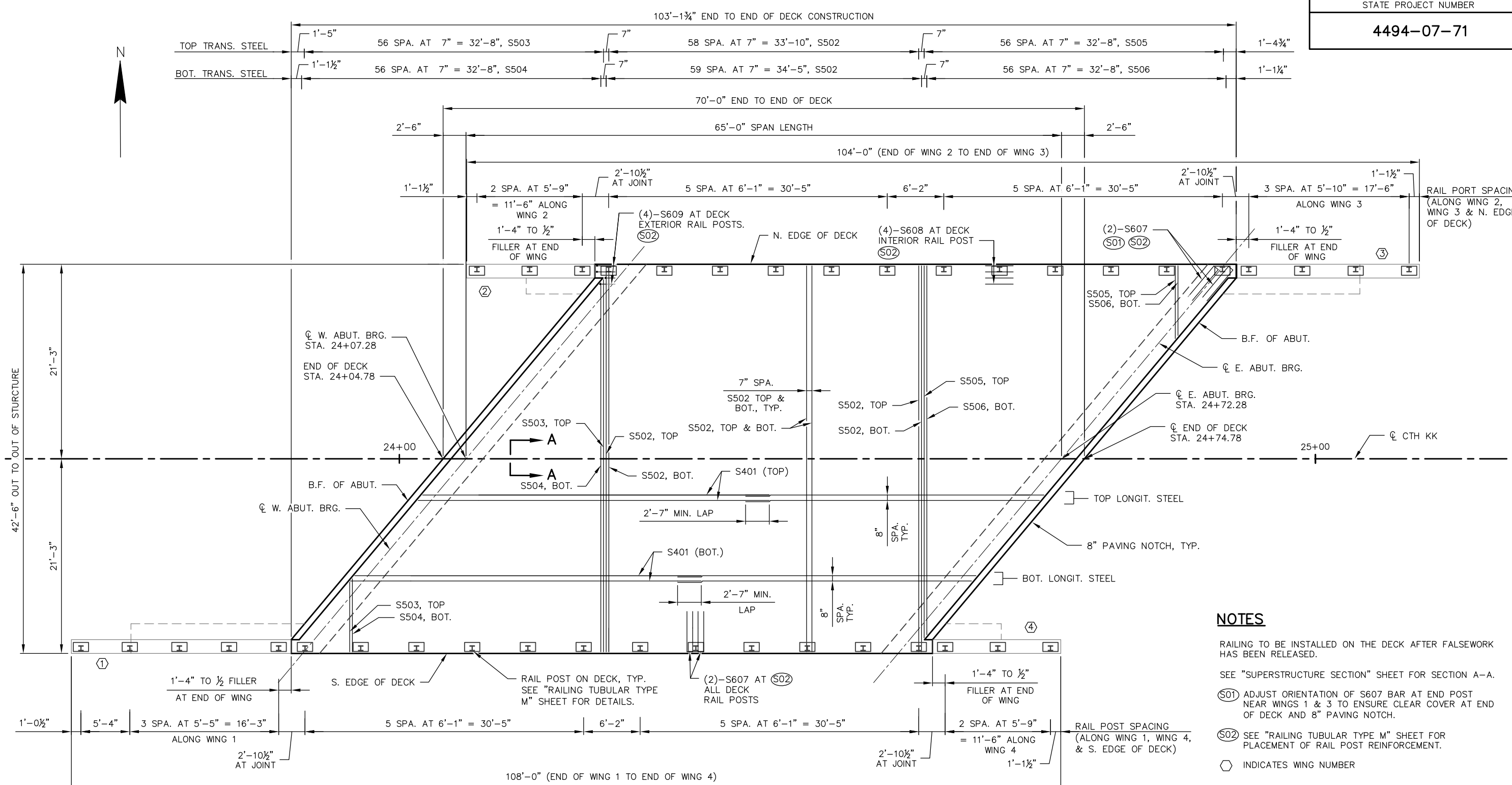
**NOTES**

- ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-44-500", 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.

| NO.  | DATE | REVISION        | BY             |
|--|------|-----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                |
| <b>STRUCTURE B-44-500</b>                          |      |                 |                |
| DRAWN BY: JDO                                      |      | PLANS OK'D: ACK |                |
| <b>INTERMEDIATE STEEL DIAPHRAGM</b>                |      |                 | SHEET 15 OF 21 |

8

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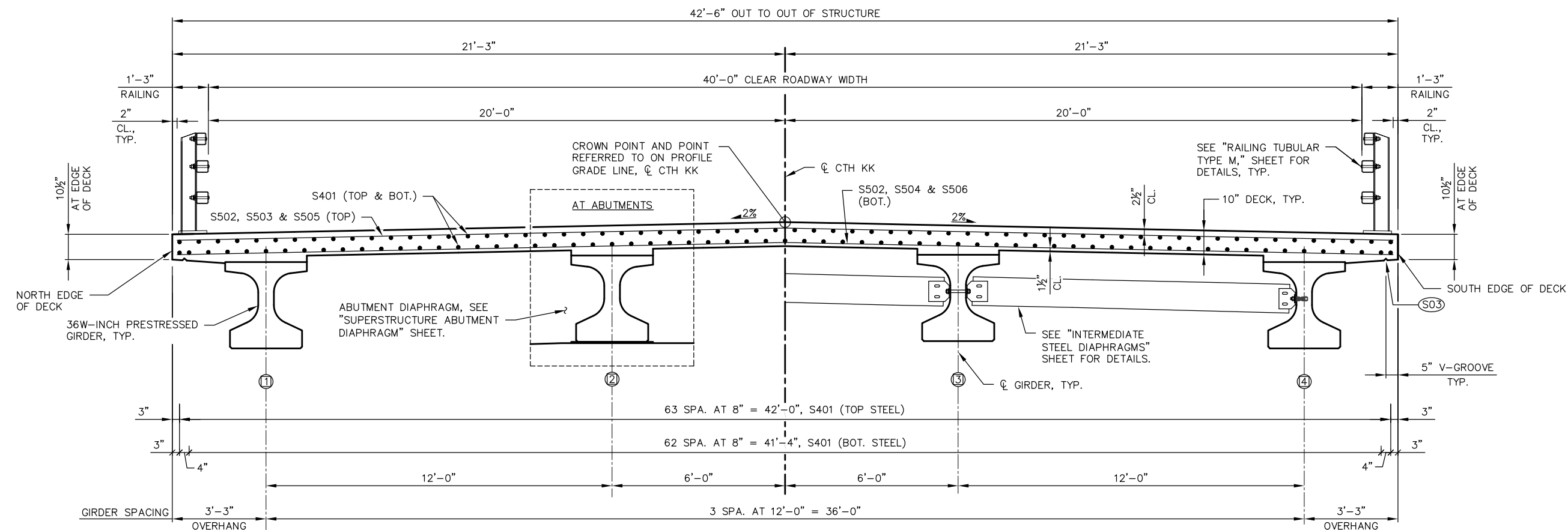


- NOTES**
- RAILING TO BE INSTALLED ON THE DECK AFTER FALSEWORK HAS BEEN RELEASED.
  - SEE "SUPERSTRUCTURE SECTION" SHEET FOR SECTION A-A.
  - (S01) ADJUST ORIENTATION OF S607 BAR AT END POST NEAR WINGS 1 & 3 TO ENSURE CLEAR COVER AT END OF DECK AND 8" PAVING NOTCH.
  - (S02) SEE "RAILING TUBULAR TYPE M" SHEET FOR PLACEMENT OF RAIL POST REINFORCEMENT.
  - Ⓛ INDICATES WING NUMBER
- F.F. - FRONT FACE  
B.F. - BACK FACE

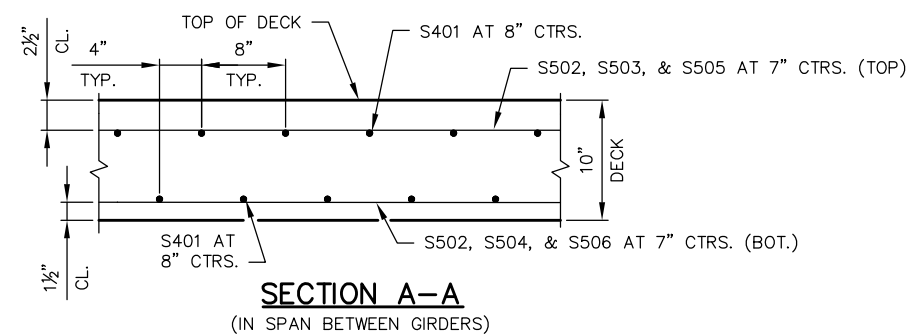
**DECK PLAN SHOWING BAR REINFORCEMENT**

| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>SUPERSTRUCTURE PLAN</b>                         |      |                | SHEET 16 OF 21 |

FILE: B440500\_16\_19\_super.dwg PLOT SCALE:



**CROSS SECTION THRU ROADWAY**  
(LOOKING EAST)



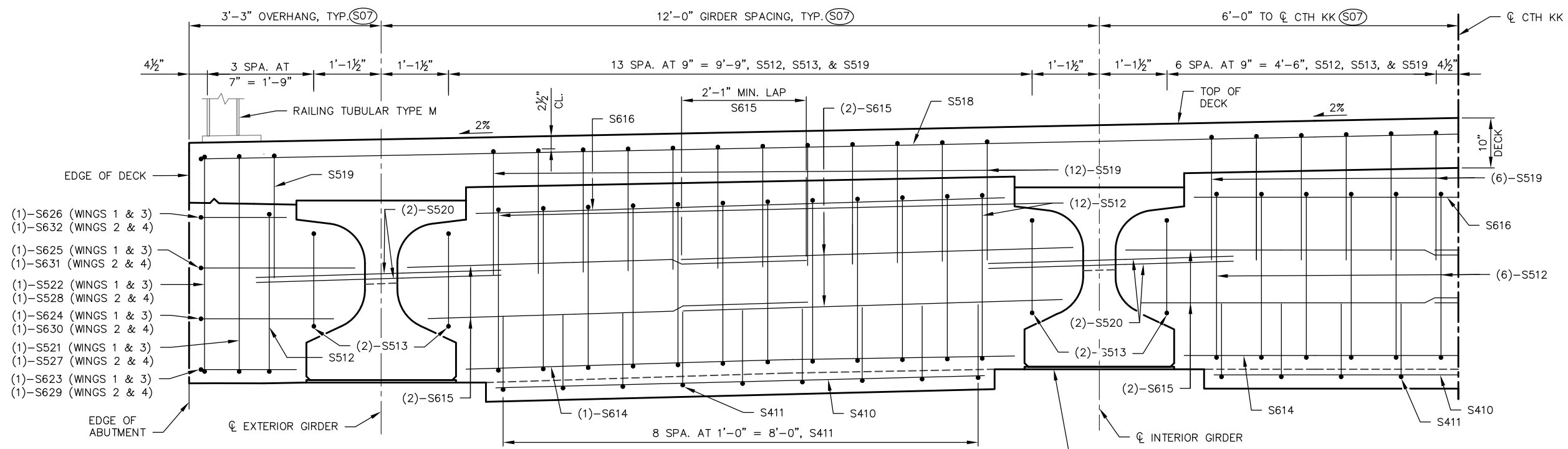
**NOTES**

- Ⓢ03 3/4" V-GROOVE, EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM. V-GROOVES ARE REQUIRED.
- Ⓢ INDICATES GIRDER LINE DESIGNATION

| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>SUPERSTRUCTURE SECTION</b>                      |      |                | SHEET 17 OF 21 |

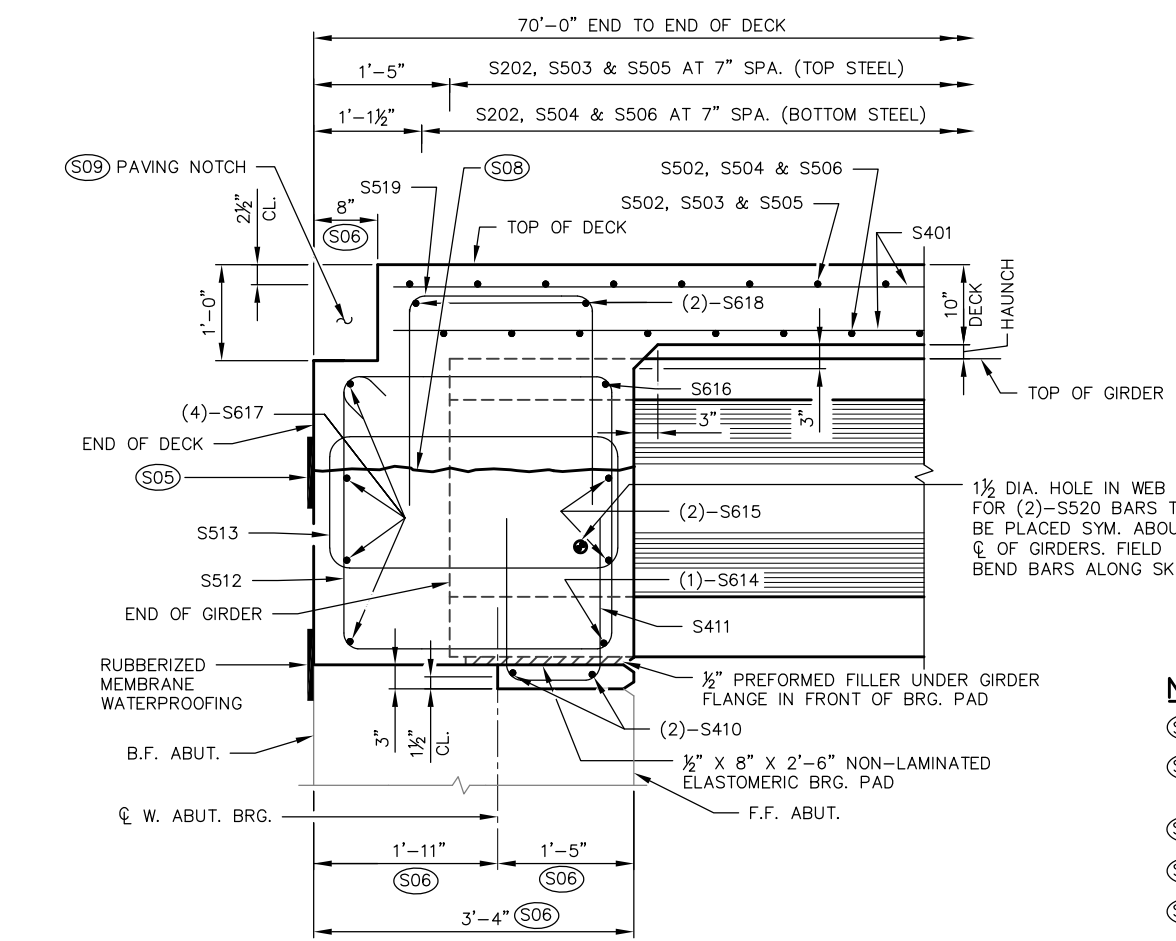
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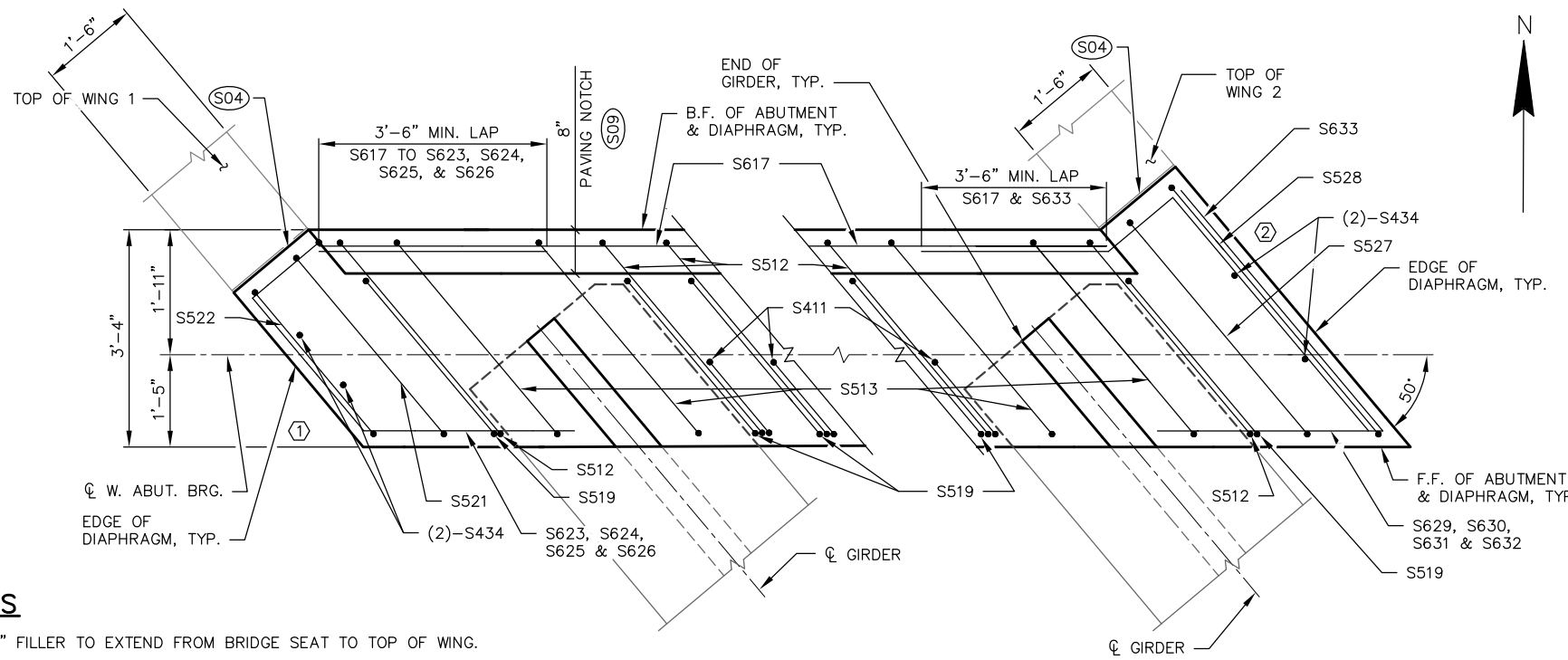
**DIAPHRAGM REINFORCEMENT AT ABUTMENT**

(WEST ABUTMENT SHOWN, LOOKING WEST. EAST ABUTMENT SIMILAR)  
(DECK & ABUTMENT STEEL NOT SHOWN FOR CLARITY)



**SECTION THRU DIAPHRAGM AT ABUTMENT**

(WEST ABUTMENT SHOWN, LOOKING NORTH. EAST ABUTMENT SIMILAR)



**PLAN VIEW OF DIAPHRAGM AT WINGS**

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

**NOTES**

- (S04) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- (S05) RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCLUDED WITH BID ITEM "CONCRETE MASONRY BRIDGES.")
- (S06) DIMENSION IS TAKEN NORMAL TO CL ABUTMENT.
- (S07) DIMENSION IS TAKEN NORMAL TO CL GIRDER.
- (S08) OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- (S09) APPLY PROTECTIVE SURFACE TREATMENT TO PAVING NOTCH.
- ⊠ INDICATES WING NUMBER

F.F. - FRONT FACE  
B.F. - BACK FACE

| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>SUPERSTRUCTURE ABUTMENT DIAPHRAGM</b>           |      |                | SHEET 18 OF 21 |

8

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FILE: B440500\_16\_19\_super.dwg  
PLOT SCALE:

**BILL OF BARS  
SUPERSTRUCTURE**

COATED = 22,070 LBS.

| MARK | NUMBER |          | LENGTH  | BENT | BAR SERIES | LOCATION  |
|------|--------|----------|---------|------|------------|---|
|      | COATED | UNCOATED |         |      |            |   |
| S401 | 258    |          | 35'-3"  |      |            | DECK - TOP & BOT. LONGIT.                           |
| S502 | 119    |          | 42'-2"  |      |            | DECK - TOP & BOT. TRANS.                            |
| S503 | 57     |          | 21'-2"  | ▲    |            | DECK - TOP WEST END TRANS.                          |
| S504 | 57     |          | 20'-10" | ▲    |            | DECK - BOT. WEST END TRANS.                         |
| S505 | 57     |          | 21'-2"  | ▲    |            | DECK - TOP EAST END TRANS.                          |
| S506 | 57     |          | 20'-10" | ▲    |            | DECK - BOT. EAST END TRANS.                         |
| S607 | 48     |          | 12'-0"  | X    |            | DECK - TOP AT RAIL POSTS TRANS.                     |
| S608 | 80     |          | 6'-0"   |      |            | DECK - TOP AT INTERIOR RAIL POST LONGIT.            |
| S609 | 16     |          | 4'-8"   | X    |            | DECK - TOP AT EXTERIOR RAIL POSTS LONGIT.           |
| S410 | 12     |          | 10'-5"  |      |            | ABUT. - DIAPHRAGM BOT. - BTW. BEAM SEATS HORIZ.     |
| S411 | 54     |          | 3'-9"   | X    |            | ABUT. - DIAPHRAGM - STIRRUP - BTW. BEAM SEATS VERT. |
| S512 | 76     |          | 13'-10" | X    |            | ABUT. - DIAPHRAGM - STIRRUP VERT.                   |
| S513 | 16     |          | 11'-6"  | X    |            | ABUT. - DIAPHRAGM - STIRRUP - NEXT TO GIRDERS VERT. |
| S614 | 6      |          | 11'-11" |      |            | ABUT. - DIAPHRAGM AT F.F. BOTTOM HORIZ.             |
| S615 | 24     |          | 8'-4"   |      |            | ABUT. - DIAPHRAGM AT F.F. HORIZ.                    |
| S616 | 6      |          | 11'-6"  |      |            | ABUT. - DIAPHRAGM AT F.F. (TOP) HORIZ.              |
| S617 | 8      |          | 51'-6"  |      |            | ABUT. - DIAPHRAGM AT B.F. HORIZ.                    |
| S618 | 4      |          | 55'-0"  |      |            | ABUT. - DIAPHRAGM AT TOP HORIZ.                     |
| S519 | 76     |          | 6'-9"   | X    |            | ABUT. - DIAPHRAGM AT TOP - STIRRUP VERT.            |
| S520 | 16     |          | 6'-0"   |      |            | ABUT. - DIAPHRAGM THRU GIRDER HORIZ.                |
| S521 | 2      |          | 15'-0"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 - STIRRUP VERT.    |
| S522 | 2      |          | 13'-0"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 - STIRRUP VERT.    |
| S623 | 2      |          | 9'-1"   | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 HORIZ.             |
| S624 | 2      |          | 9'-11"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 HORIZ.             |
| S625 | 2      |          | 10'-1"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 HORIZ.             |
| S626 | 2      |          | 8'-10"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 1 & 3 HORIZ.             |
| S527 | 2      |          | 16'-4"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 - STIRRUP VERT.    |
| S528 | 2      |          | 17'-10" | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 - STIRRUP VERT.    |
| S629 | 2      |          | 6'-10"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 HORIZ.             |
| S630 | 2      |          | 7'-8"   | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 HORIZ.             |
| S631 | 2      |          | 7'-10"  | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 HORIZ.             |
| S632 | 2      |          | 6'-7"   | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 HORIZ.             |
| S633 | 8      |          | 9'-8"   | X    |            | ABUT. - DIAPHRAGM AT WINGS 2 & 4 HORIZ.             |
| S434 | 4      |          | 3'-7"   |      |            | ABUT. - DIAPHRAGM AT ALL WINGS VERT.                |

**BAR BEND DIMENSIONS**

| MARK | "A"    |
|------|--------|
| S623 | 2'-2"  |
| S624 | 3'-0"  |
| S625 | 3'-2"  |
| S626 | 1'-11" |

| MARK | "B"    |
|------|--------|
| S629 | 2'-2"  |
| S630 | 3'-0"  |
| S631 | 3'-2"  |
| S632 | 1'-11" |

| MARK | "C"   | "D"    |
|------|-------|--------|
| S512 | 2'-9" | 3'-10" |
| S513 | 1'-7" | 3'-10" |
| S521 | 3'-7" | 3'-7"  |
| S522 | 3'-7" | 2'-11" |
| S527 | 3'-7" | 4'-3"  |
| S528 | 3'-7" | 5'-0"  |

| MARK | "E"   | "F"   |
|------|-------|-------|
| S411 | 1'-5" | 1'-3" |
| S519 | 2'-0" | 3'-0" |

THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

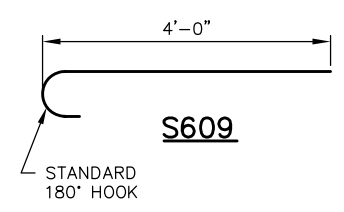
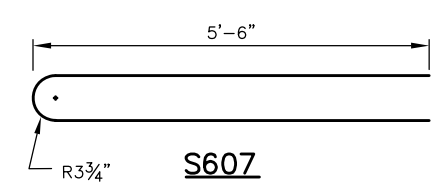
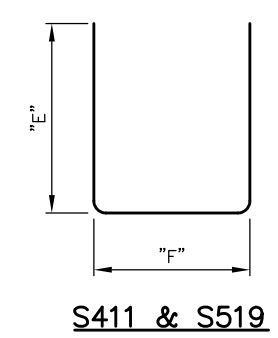
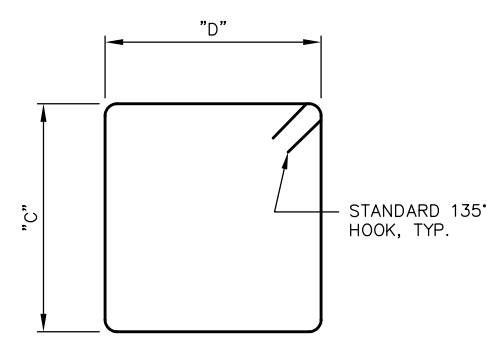
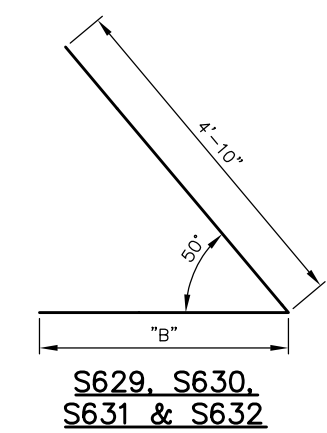
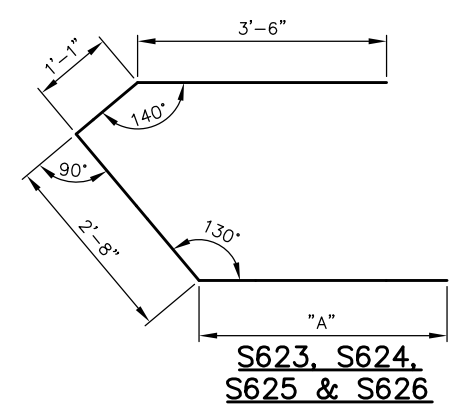
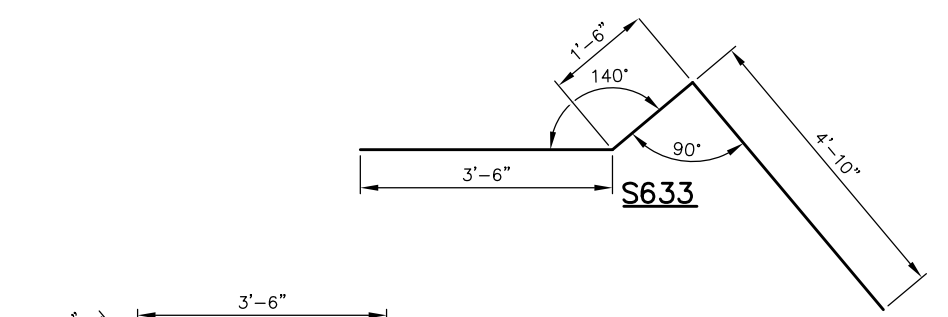
ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

▲ LENGTH SHOWN FOR BARS IN SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

**BAR SERIES TABLE**

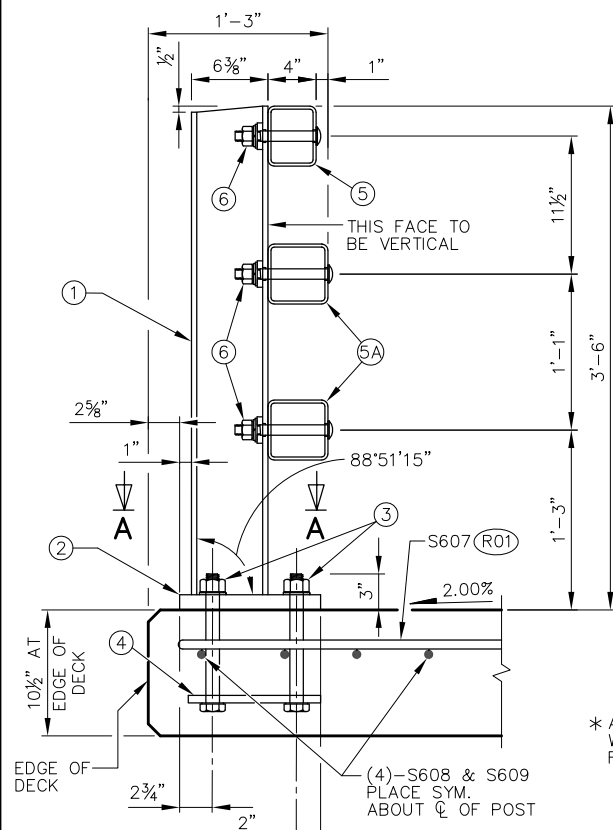
| MARK | NO. REQ'D      | LENGTH          |
|------|----------------|-----------------|
| S503 | 1 SERIES OF 57 | 1'-8" TO 40'-7" |
| S504 | 1 SERIES OF 57 | 1'-4" TO 40'-3" |
| S505 | 1 SERIES OF 57 | 1'-8" TO 40'-7" |
| S506 | 1 SERIES OF 57 | 1'-4" TO 40'-3" |

BUNDLE AND TAG EACH SERIES SEPARATELY.

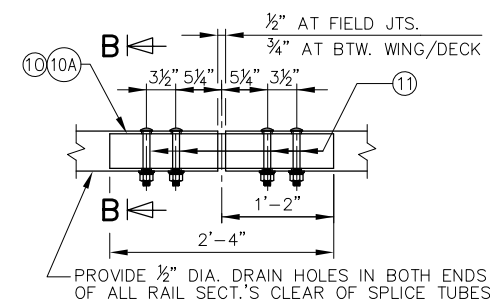


F.F. - FRONT FACE  
B.F. - BACK FACE

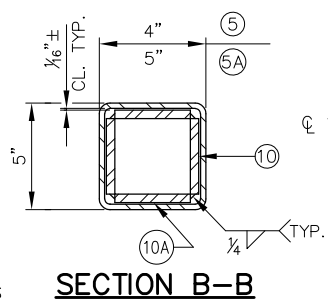
| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>SUPERSTRUCTURE REINFORCEMENT</b>                |      |                | SHEET 19 OF 21 |



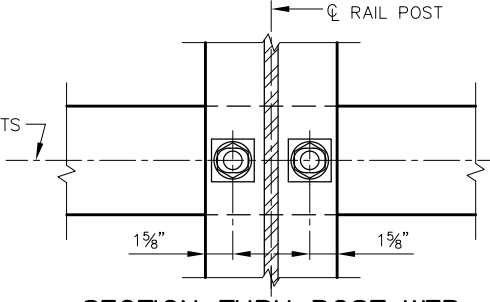
SECTION THRU RAILING ON DECK



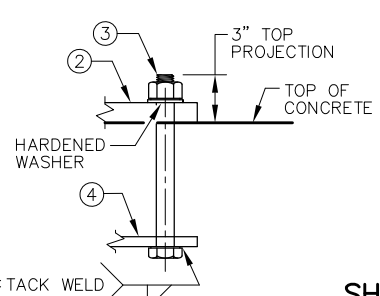
FIELD ERECTION JOINT DETAIL



SECTION B-B

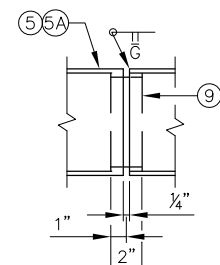


SECTION THRU POST WEB



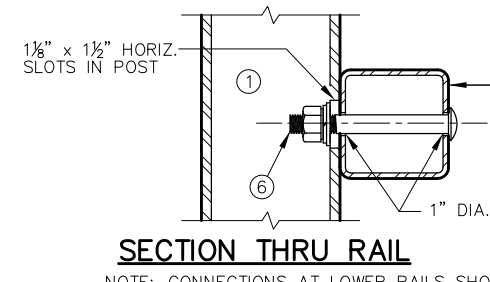
ANCHOR BOLTS

\* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.



SHOP RAIL SPLICE DETAIL

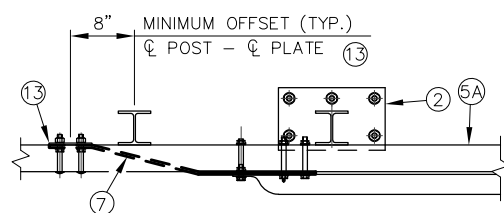
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



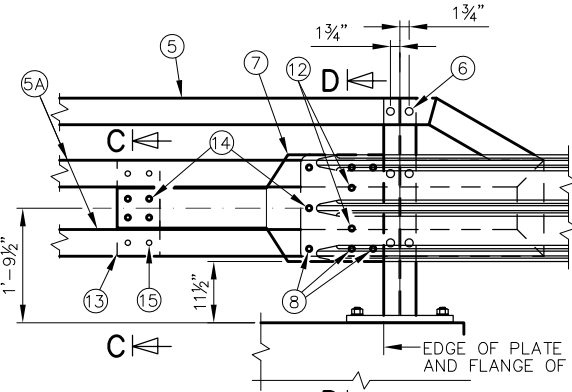
SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

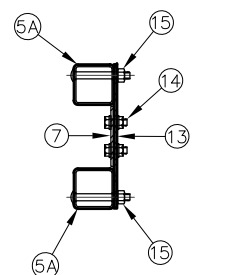
TYPICAL RAIL TO POST CONNECTIONS



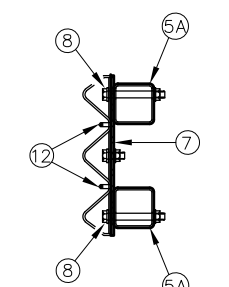
TOP VIEW AT END POST  
(THREE BEAM RAIL ATTACHMENT)



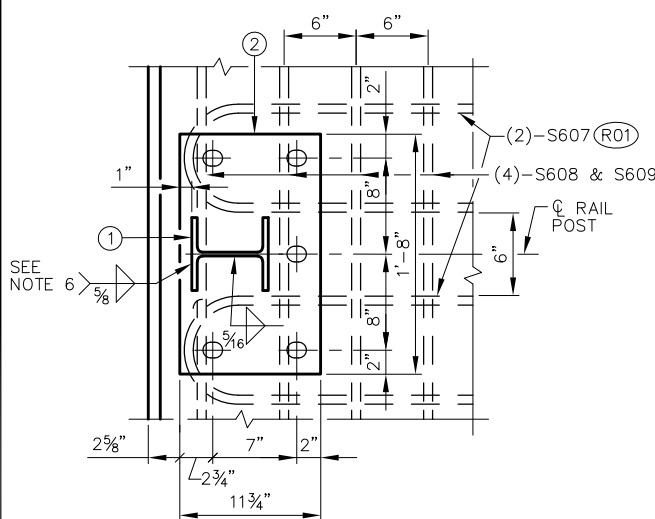
DETAIL AT END POST  
(THREE BEAM RAIL ATTACHMENT)



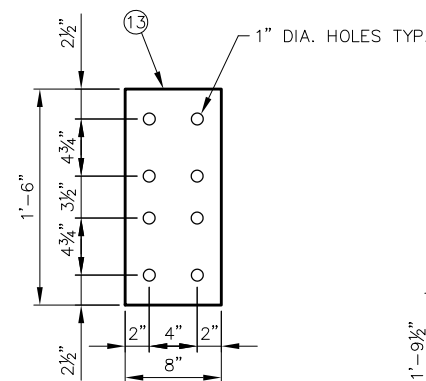
SECTION C-C



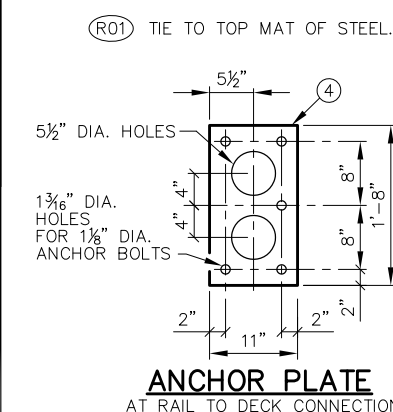
SECTION D-D



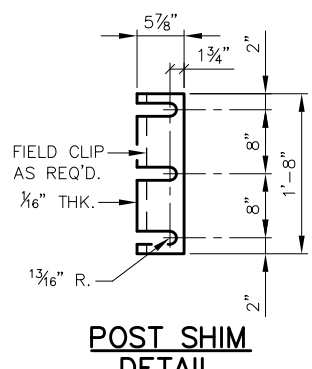
SECTION A-A



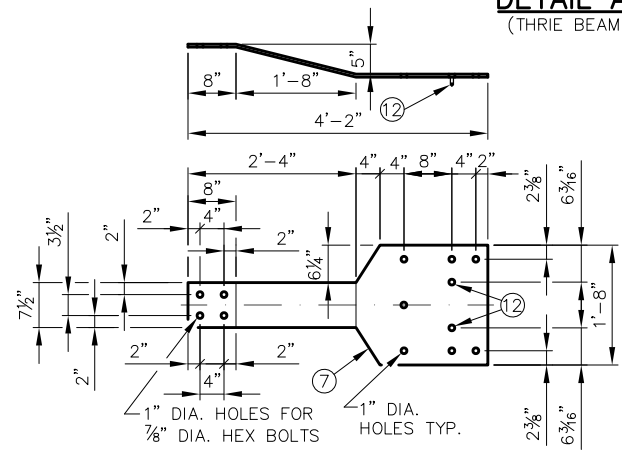
ANCHOR PLATE  
AT BEAM GUARD ATTACHMENT



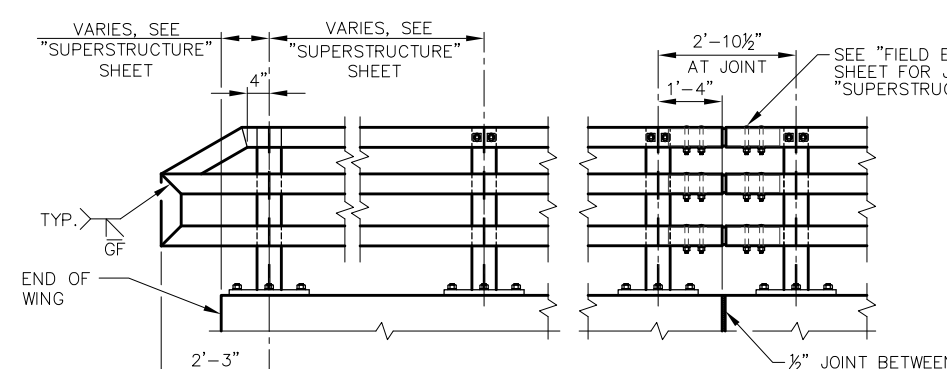
ANCHOR PLATE  
AT RAIL TO DECK CONNECTION



POST SHIM  
DETAIL



BACK-UP PLATE DETAIL  
AT BEAM GUARD ATTACHMENTS



PART ELEVATION OF RAILING

**LEGEND**

- ① W6 x 25 WITH 1 1/8" x 1 1/2" HORIZONTAL SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1 1/4" x 11 3/4" x 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE DECK SUPERSTRUCTURES WHERE THE DECK THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 3/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5, 3/8" x 3 3/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER. USE 1 5/16" x 1 1/4" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND 1 5/16" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1 5/16" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

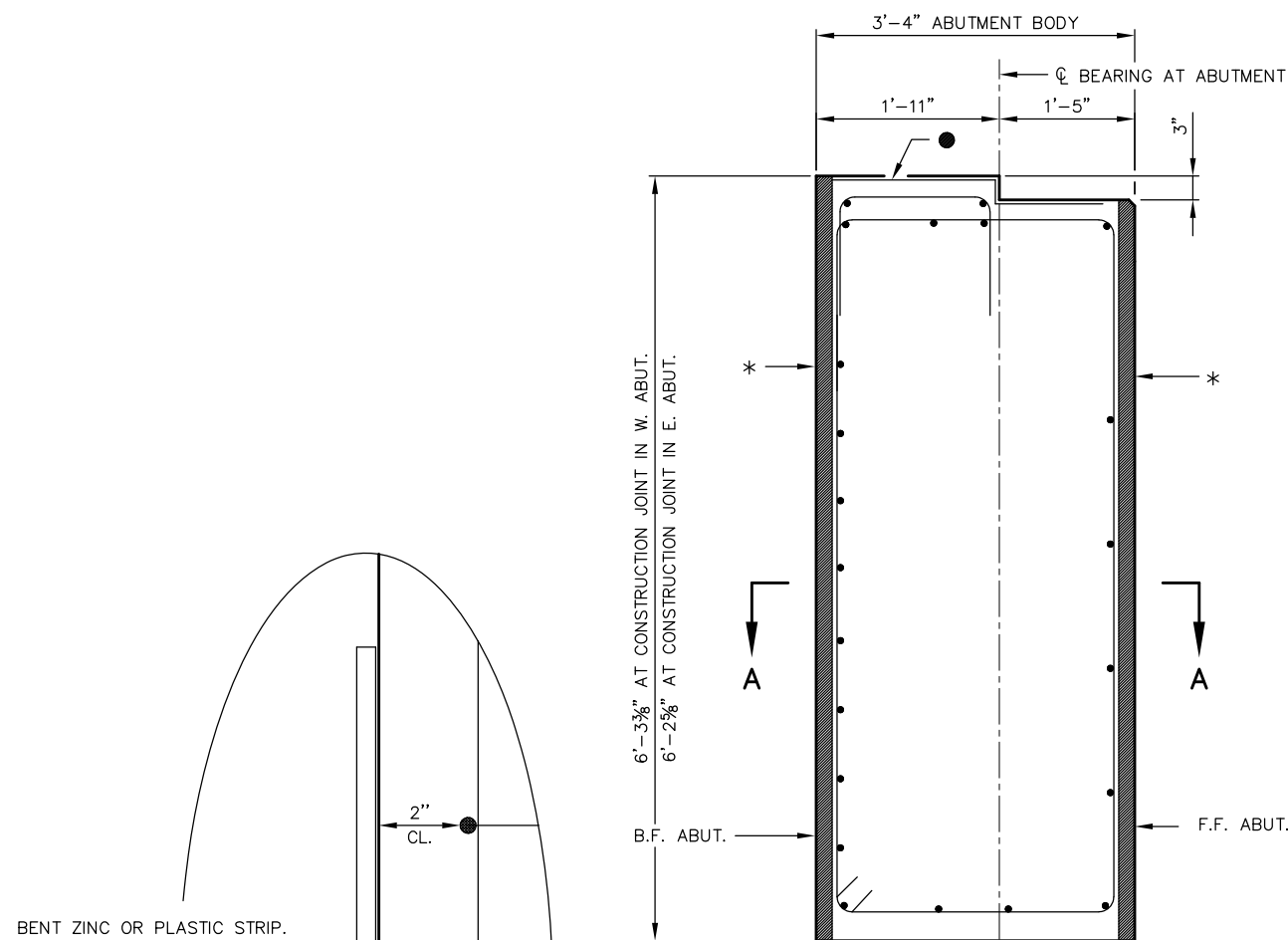
**NOTES**

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

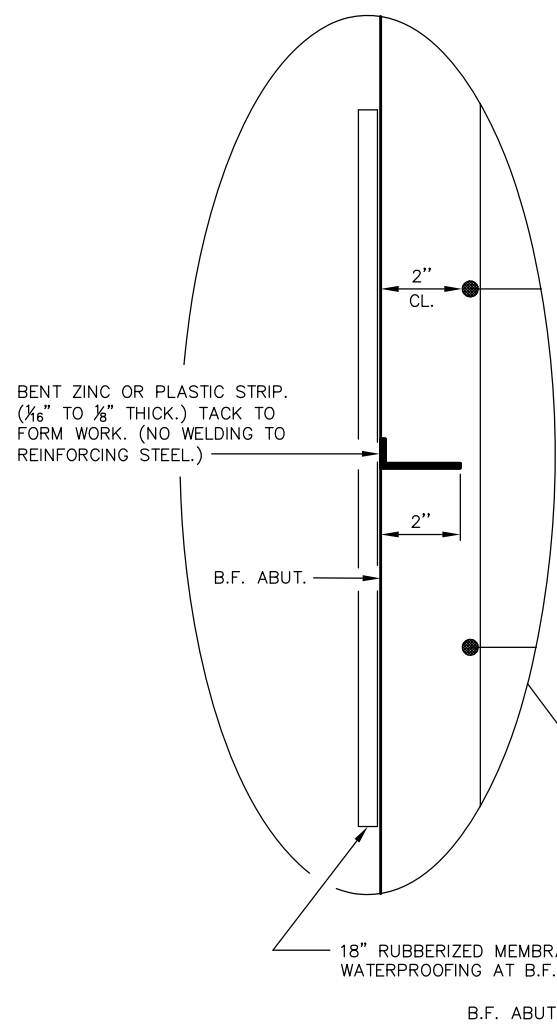
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| NO.  | DATE | REVISION       | BY             |
|--|------|----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                |
| <b>STRUCTURE B-44-500</b>                          |      |                |                |
| DRAWN BY JDO                                       |      | PLANS OK'D ACK |                |
| <b>RAILING TUBULAR TYPE M</b>                      |      |                | SHEET 20 OF 21 |



SECTION THRU ABUTMENT BODY



SECTION A-A

ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

**NOTES**

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING THE CONSTRUCTION JOINT IS NOT ALLOWED.

● USE A JOINT TOOL TO CONSTRUCT A CONSTRUCTION JOINT APPROXIMATELY 1/2" DEEP.

\* BENT ZINC OR PLASTIC STRIP.

F.F. - FRONT FACE  
B.F. - BACK FACE

8

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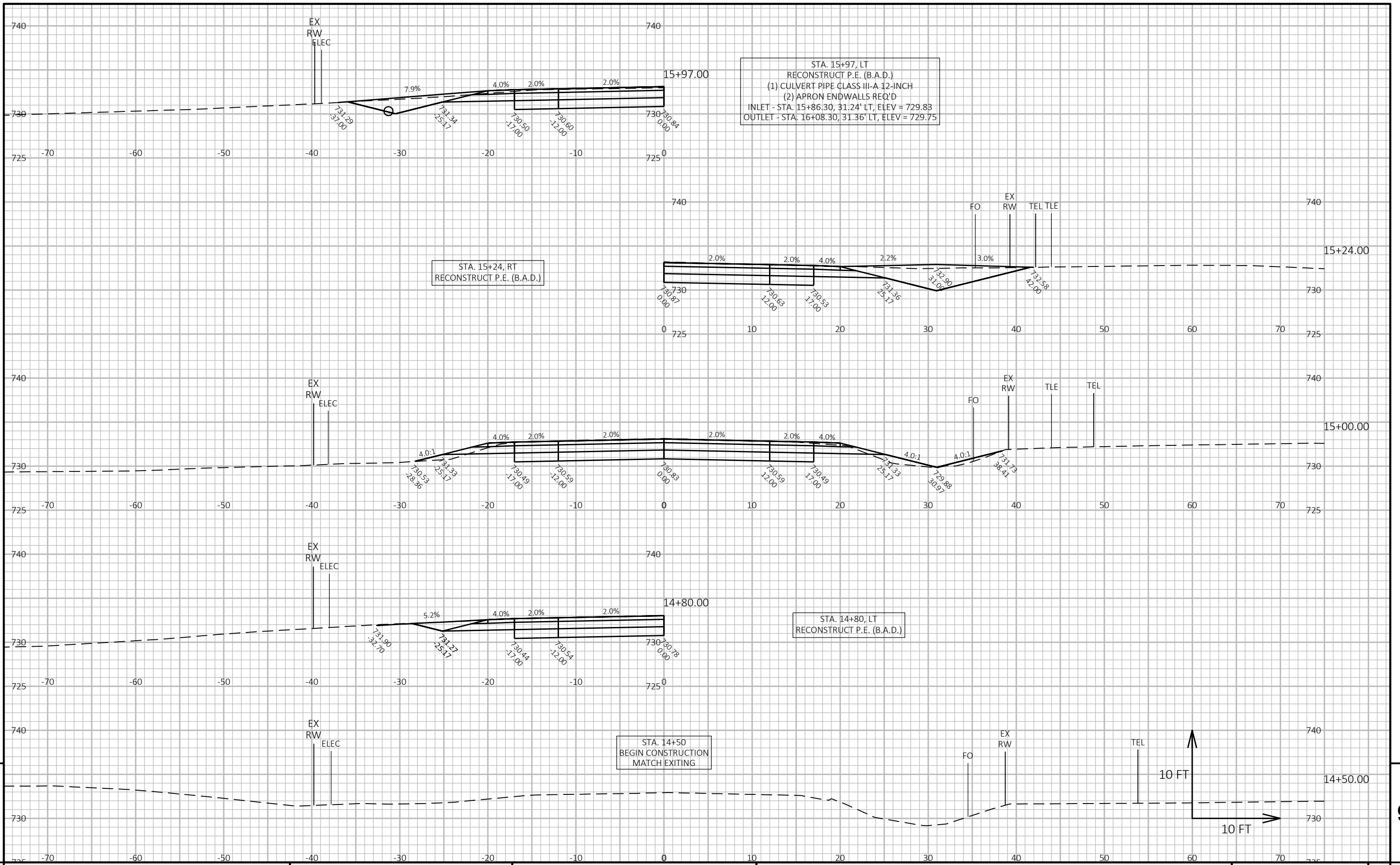
|  |      |            |                |
|--|------|------------|----------------|
| NO.  | DATE | REVISION   | BY             |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |            |                |
| <b>STRUCTURE B-44-500</b>                          |      |            |                |
| DRAWN BY   | JDO  | PLANS OK'D | ACK            |
| <b>ALTERNATE CONSTRUCTION JOINT</b>                |      |            | SHEET 21 OF 21 |

| STATION             | DISTANCE | AREA (SF)         |                                     |        | INCREMENTAL VOL (CY) (UNADJUSTED) |                                     |       | CUMULATIVE VOL (CY) |               |               |
|---------------------|----------|-------------------|-------------------------------------|--------|-----------------------------------|-------------------------------------|-------|---------------------|---------------|---------------|
|                     |          | CUT               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL   | CUT                               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL  | CUT                 | EXPANDED FILL | MASS ORDINATE |
|                     |          |                   |                                     |        |                                   |                                     |       |                     |               |               |
| 14+50.00            | 0.00     | 89.79             | 32.50                               | 5.32   | 0                                 | 0                                   | 0     | 0                   | 0             | 0             |
| 14+80.00            | 30.00    | 99.44             | 32.50                               | 5.36   | 105                               | 36                                  | 6     | 105                 | 8             | 62            |
| 15+00.00            | 20.00    | 93.39             | 32.50                               | 6.82   | 71                                | 24                                  | 5     | 176                 | 14            | 107           |
| 15+24.00            | 24.00    | 119.15            | 32.50                               | 16.73  | 94                                | 29                                  | 10    | 270                 | 26            | 155           |
| 15+97.00            | 73.00    | 99.75             | 32.50                               | 9.31   | 296                               | 88                                  | 35    | 566                 | 70            | 319           |
| 16+00.00            | 3.00     | 99.26             | 32.50                               | 9.46   | 11                                | 4                                   | 1     | 577                 | 71            | 325           |
| 17+00.00            | 100.00   | 88.88             | 32.50                               | 33.29  | 348                               | 120                                 | 79    | 925                 | 170           | 454           |
| 18+00.00            | 100.00   | 109.98            | 32.50                               | 26.58  | 368                               | 120                                 | 111   | 1,293               | 309           | 563           |
| 19+00.00            | 100.00   | 131.80            | 32.50                               | 18.05  | 448                               | 120                                 | 83    | 1,741               | 413           | 788           |
| 20+00.00            | 100.00   | 152.15            | 32.50                               | 7.79   | 526                               | 120                                 | 48    | 2,267               | 473           | 1,134         |
| 20+27.00            | 27.00    | 206.02            | 32.50                               | 5.68   | 179                               | 32                                  | 7     | 2,446               | 481           | 1,272         |
| 21+00.00            | 73.00    | 202.34            | 32.50                               | 5.79   | 552                               | 88                                  | 15    | 2,998               | 500           | 1,717         |
| 21+55.25            | 55.25    | 227.25            | 32.50                               | 7.12   | 440                               | 67                                  | 13    | 3,438               | 516           | 2,074         |
| 21+78.85            | 23.60    | 266.52            | 32.50                               | 9.34   | 216                               | 28                                  | 7     | 3,654               | 525           | 2,253         |
| 22+00.00            | 21.15    | 273.34            | 32.50                               | 15.12  | 211                               | 25                                  | 10    | 3,865               | 538           | 2,427         |
| 22+74.32            | 74.32    | 32.22             | 32.50                               | 279.90 | 421                               | 89                                  | 337   | 4,286               | 959           | 2,337         |
| 22+99.31            | 24.99    | 7.73              | 32.50                               | 268.96 | 18                                | 30                                  | 231   | 4,304               | 1,248         | 2,037         |
| 23+00.00            | 0.69     | 7.06              | 32.50                               | 269.55 | 0                                 | 1                                   | 7     | 4,304               | 1,256         | 2,027         |
| 23+01.00            | 1.00     | 6.09              | 32.50                               | 270.44 | 0                                 | 1                                   | 10    | 4,304               | 1,269         | 2,013         |
| 23+17.47            | 16.47    | 0.00              | 32.50                               | 246.29 | 2                                 | 20                                  | 158   | 4,306               | 1,466         | 1,798         |
| 23+24.29            | 6.82     | 0.00              | 32.50                               | 205.31 | 0                                 | 8                                   | 57    | 4,306               | 1,538         | 1,719         |
| 23+42.45            | 18.16    | 0.00              | 32.50                               | 335.60 | 0                                 | 22                                  | 182   | 4,306               | 1,765         | 1,469         |
| 23+64.22            | 21.77    | 0.00              | 32.50                               | 236.06 | 0                                 | 26                                  | 230   | 4,306               | 2,053         | 1,156         |
| 23+67.43            | 3.21     | 0.00              | 32.50                               | 234.68 | 0                                 | 4                                   | 28    | 4,306               | 2,088         | 1,117         |
| 23+79.73            | 12.30    | 0.00              | 32.50                               | 241.71 | 0                                 | 15                                  | 109   | 4,306               | 2,224         | 965           |
| 24+00.00            | 20.27    | 0.00              | 33.58                               | 209.82 | 0                                 | 25                                  | 169   | 4,306               | 2,435         | 729           |
| 24+04.80            | 4.80     | 0.00              | 34.67                               | 197.30 | 0                                 | 6                                   | 36    | 4,306               | 2,480         | 678           |
| 24+07.37            | 2.57     | 0.00              | 34.67                               | 48.19  | 0                                 | 3                                   | 12    | 4,306               | 2,495         | 660           |
| 24+21.33            | 13.96    | 0.00              | 27.08                               | 1.17   | 0                                 | 16                                  | 13    | 4,306               | 2,511         | 628           |
| STRUCTURE B-44-0500 |          |                   |                                     |        |                                   |                                     |       |                     |               |               |
|                     |          | DIVISION 1 TOTALS |                                     |        | 4,306                             | 1,167                               | 2,009 |                     |               |               |

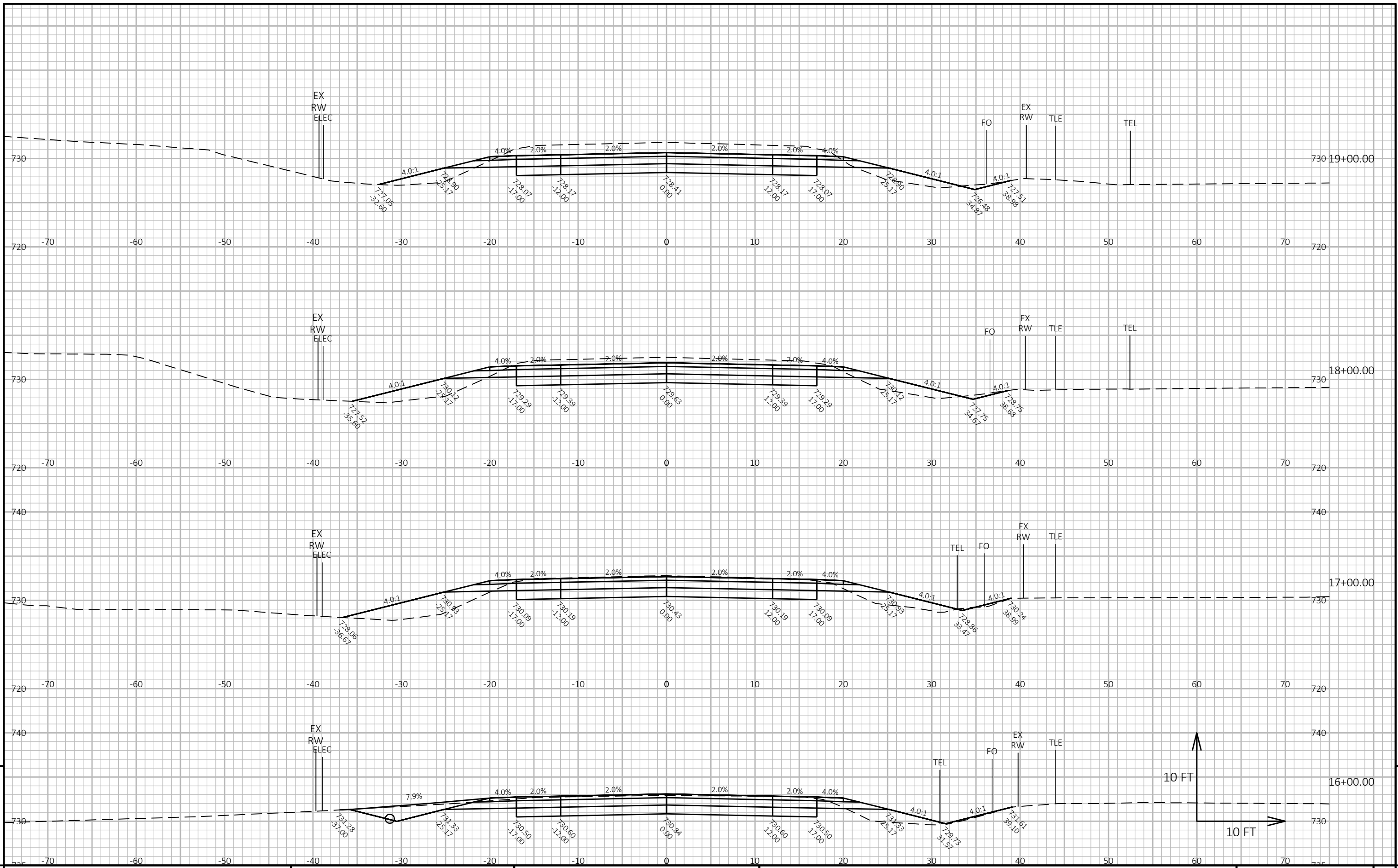
| STATION  | DISTANCE | AREA (SF)         |                                     |        | INCREMENTAL VOL (CY) (UNADJUSTED) |                                     |       | CUMULATIVE VOL (CY) |               |               |
|----------|----------|-------------------|-------------------------------------|--------|-----------------------------------|-------------------------------------|-------|---------------------|---------------|---------------|
|          |          | CUT               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL   | CUT                               | SALVAGED/UNUSABLE PAVEMENT MATERIAL | FILL  | CUT                 | EXPANDED FILL | MASS ORDINATE |
|          |          |                   |                                     |        |                                   |                                     |       |                     |               |               |
| 24+58.23 | 0.00     | 0.00              | 17.33                               | 0.00   | 0                                 | 0                                   | 0     | 0                   | 0             | 0             |
| 24+72.23 | 14.00    | 0.00              | 35.75                               | 51.74  | 0                                 | 14                                  | 13    | 0                   | 16            | -30           |
| 24+74.80 | 2.57     | 0.00              | 35.75                               | 201.99 | 0                                 | 3                                   | 12    | 0                   | 31            | -48           |
| 25+00.00 | 25.20    | 0.00              | 33.58                               | 256.83 | 0                                 | 32                                  | 214   | 0                   | 299           | -348          |
| 25+11.37 | 11.37    | 0.00              | 33.58                               | 258.71 | 0                                 | 14                                  | 109   | 0                   | 435           | -498          |
| 25+12.16 | 0.79     | 0.00              | 33.58                               | 410.80 | 0                                 | 1                                   | 10    | 0                   | 448           | -512          |
| 25+37.14 | 24.98    | 0.00              | 32.50                               | 418.21 | 0                                 | 31                                  | 383   | 0                   | 926           | -1,021        |
| 25+51.14 | 14.00    | 0.00              | 32.50                               | 421.32 | 0                                 | 17                                  | 218   | 0                   | 1,199         | -1,311        |
| 25+62.13 | 10.99    | 0.00              | 32.50                               | 432.56 | 0                                 | 13                                  | 174   | 0                   | 1,416         | -1,541        |
| 25+76.12 | 13.99    | 0.00              | 32.50                               | 361.50 | 0                                 | 17                                  | 206   | 0                   | 1,674         | -1,816        |
| 25+79.00 | 2.88     | 0.00              | 32.50                               | 362.11 | 0                                 | 3                                   | 39    | 0                   | 1,723         | 1,868         |
| 26+00.00 | 21.00    | 0.00              | 32.50                               | 430.11 | 0                                 | 25                                  | 308   | 0                   | 2,108         | -2,278        |
| 26+01.10 | 1.10     | 0.00              | 32.50                               | 429.40 | 0                                 | 1                                   | 18    | 0                   | 2,130         | -2,301        |
| 27+00.00 | 98.90    | 0.00              | 32.50                               | 271.23 | 0                                 | 119                                 | 1,283 | 0                   | 3,734         | -4,024        |
| 27+05.84 | 5.84     | 0.00              | 32.50                               | 255.80 | 0                                 | 7                                   | 57    | 0                   | 3,805         | -4,102        |
| 27+20.16 | 14.32    | 0.00              | 32.50                               | 239.58 | 0                                 | 17                                  | 131   | 0                   | 3,969         | -4,283        |
| 28+00.00 | 79.84    | 56.96             | 32.50                               | 173.99 | 84                                | 96                                  | 611   | 84                  | 4,733         | -5,059        |
| 29+00.00 | 100.00   | 96.01             | 32.50                               | 15.98  | 283                               | 120                                 | 352   | 367                 | 5,173         | -5,336        |
| 29+13.00 | 13.00    | 119.05            | 32.50                               | 7.45   | 52                                | 16                                  | 6     | 419                 | 5,180         | -5,307        |
| 29+88.00 | 75.00    | 143.33            | 32.50                               | 6.51   | 364                               | 90                                  | 19    | 783                 | 5,204         | 5,057         |
| 30+00.00 | 12.00    | 144.00            | 32.50                               | 4.73   | 64                                | 14                                  | 2     | 847                 | 5,206         | -5,009        |
| 30+91.00 | 91.00    | 185.20            | 32.50                               | 0.23   | 555                               | 110                                 | 8     | 1,407               | 5,216         | -4,574        |
| 31+00.00 | 9.00     | 185.35            | 32.50                               | 0.16   | 62                                | 11                                  | 0     | 1,464               | 5,216         | -4,523        |
| 32+00.00 | 100.00   | 197.88            | 32.50                               | 0.06   | 710                               | 120                                 | 0     | 2,174               | 5,216         | -3,933        |
| 33+00.00 | 100.00   | 190.47            | 32.50                               | 0.49   | 719                               | 120                                 | 1     | 2,893               | 5,218         | -3,336        |
| 34+00.00 | 100.00   | 117.10            | 32.50                               | 7.71   | 570                               | 120                                 | 15    | 3,463               | 5,236         | -2,904        |
| 34+71.00 | 71.00    | 125.76            | 32.50                               | 7.77   | 319                               | 85                                  | 20    | 3,782               | 5,261         | 2,695         |
| 35+00.00 | 29.00    | 94.28             | 32.50                               | 18.42  | 118                               | 35                                  | 14    | 3,900               | 5,279         | -2,630        |
| 35+55.00 | 55.00    | 105.65            | 32.50                               | 18.03  | 204                               | 66                                  | 37    | 4,104               | 5,325         | -2,538        |
| 36+00.00 | 45.00    | 83.70             | 32.50                               | 36.41  | 158                               | 54                                  | 45    | 4,262               | 5,381         | -2,490        |
| 36+50.00 | 50.00    | 81.31             | 32.50                               | 26.26  | 153                               | 60                                  | 58    | 4,415               | 5,454         | -2,470        |
|          |          | DIVISION 2 TOTALS |                                     |        | 4,415                             | 1,431                               | 4,363 |                     |               |               |

| NOTES:                                  |  |
|---|--|
| 1 - CUT                                 | CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL                     |
| 2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL | THIS DOES NOT SHOW UP IN CROSS SECTIONS                              |
| 3 - FILL                                | DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME                        |
| 8 - MASS ORDINATE                       | {(CUT) - (FILL*FILL FACTOR) - (SALVAGED/UNUSABLE PAVEMENT MATERIAL)} |





PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET 9



PROJECT NO: 4494-07-71

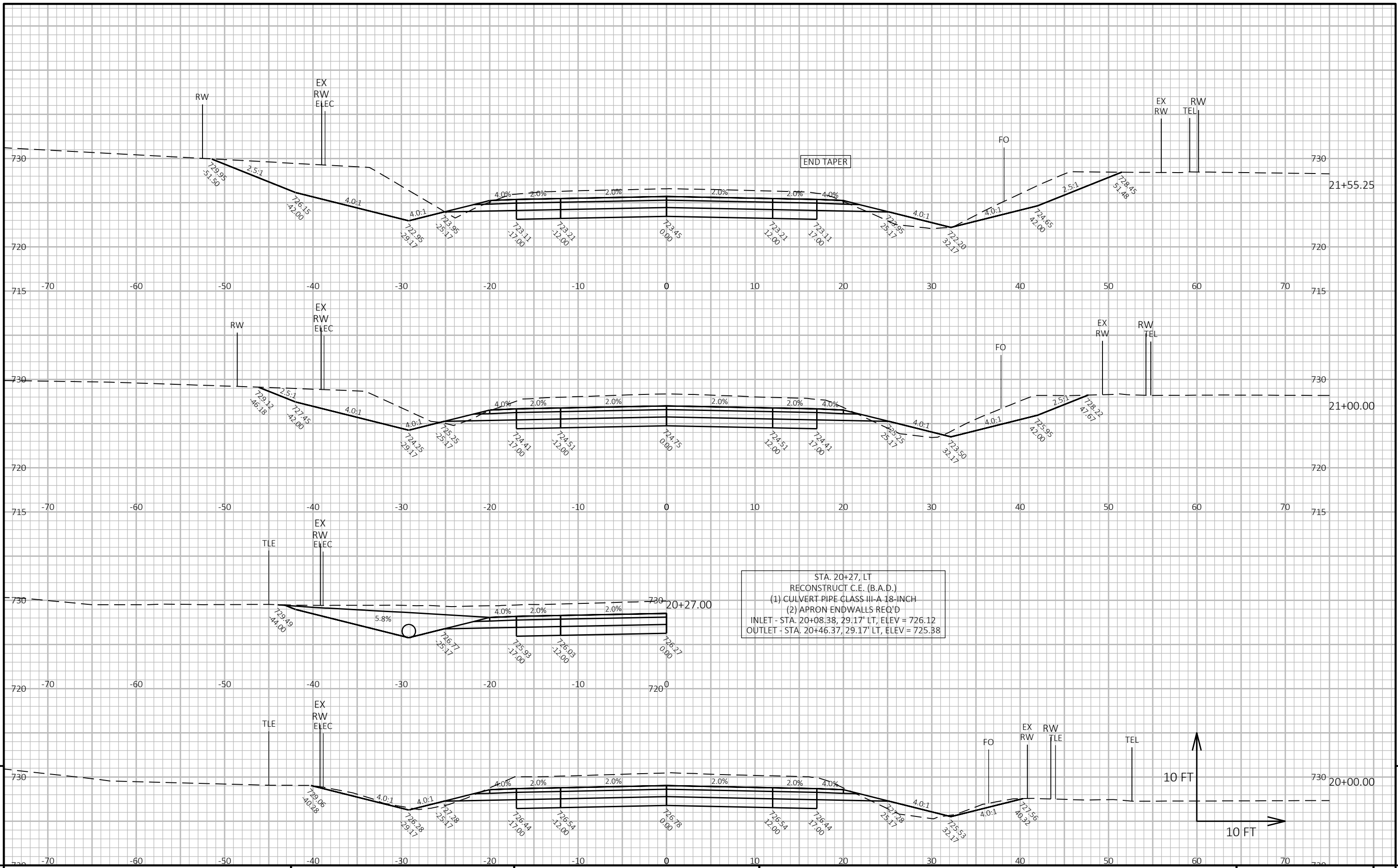
HWY: CTH KK

COUNTY: OUTAGAMIE

CROSS SECTIONS:

SHEET

E



STA. 20+27, LT  
 RECONSTRUCT C.E. (B.A.D.)  
 (1) CULVERT PIPE CLASS III-A 18-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 20+08.38, 29.17' LT, ELEV = 726.12  
 OUTLET - STA. 20+46.37, 29.17' LT, ELEV = 725.88

PROJECT NO: 4494-07-71

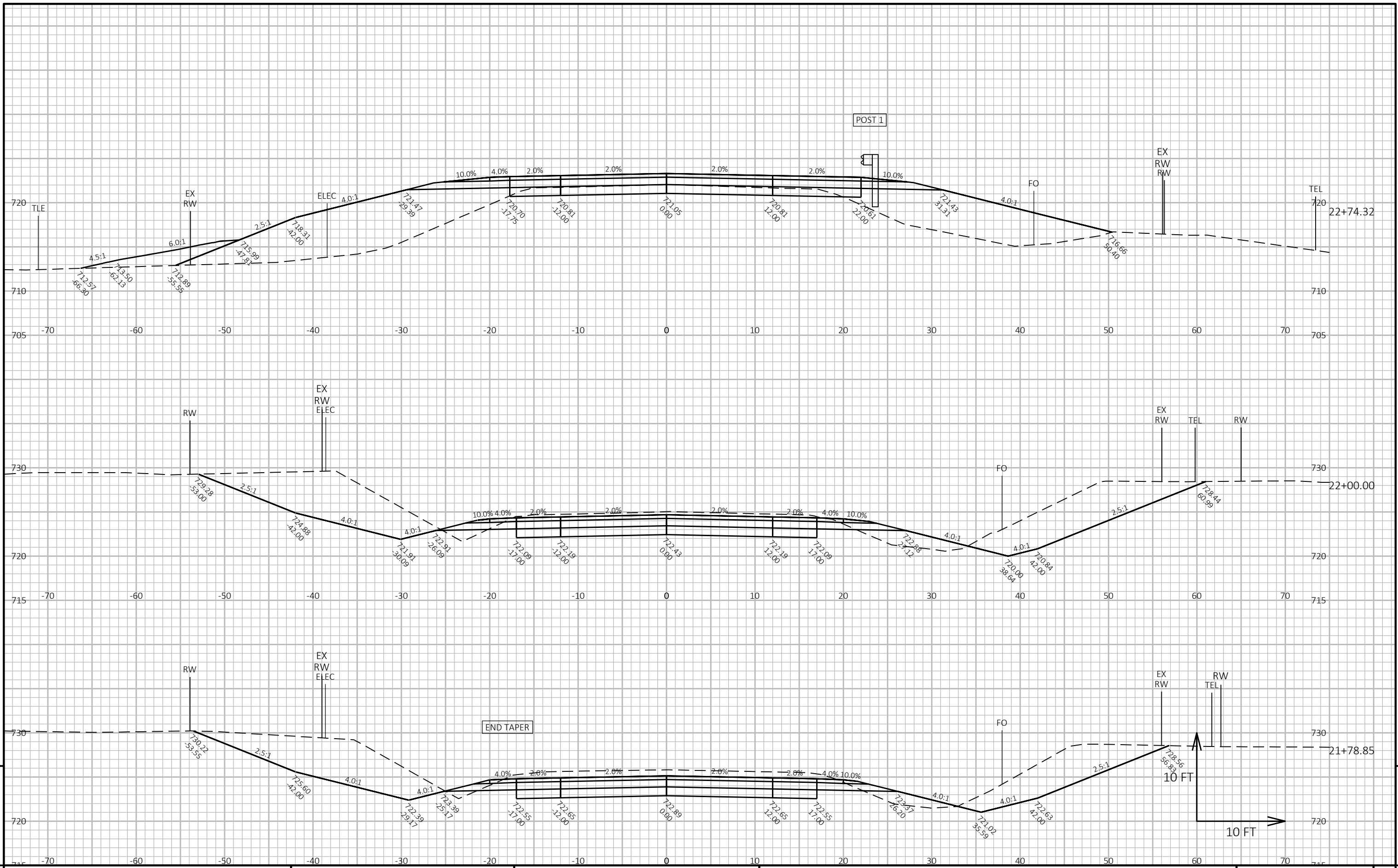
HWY: CTH KK

COUNTY: OUTAGAMIE

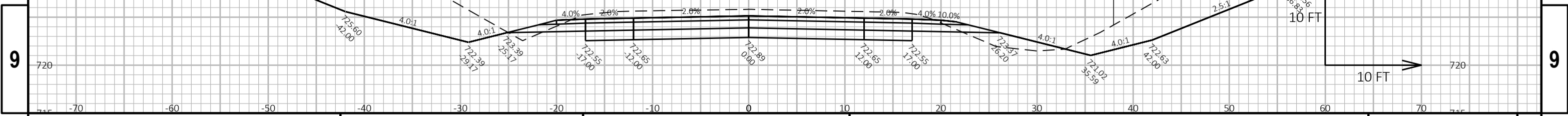
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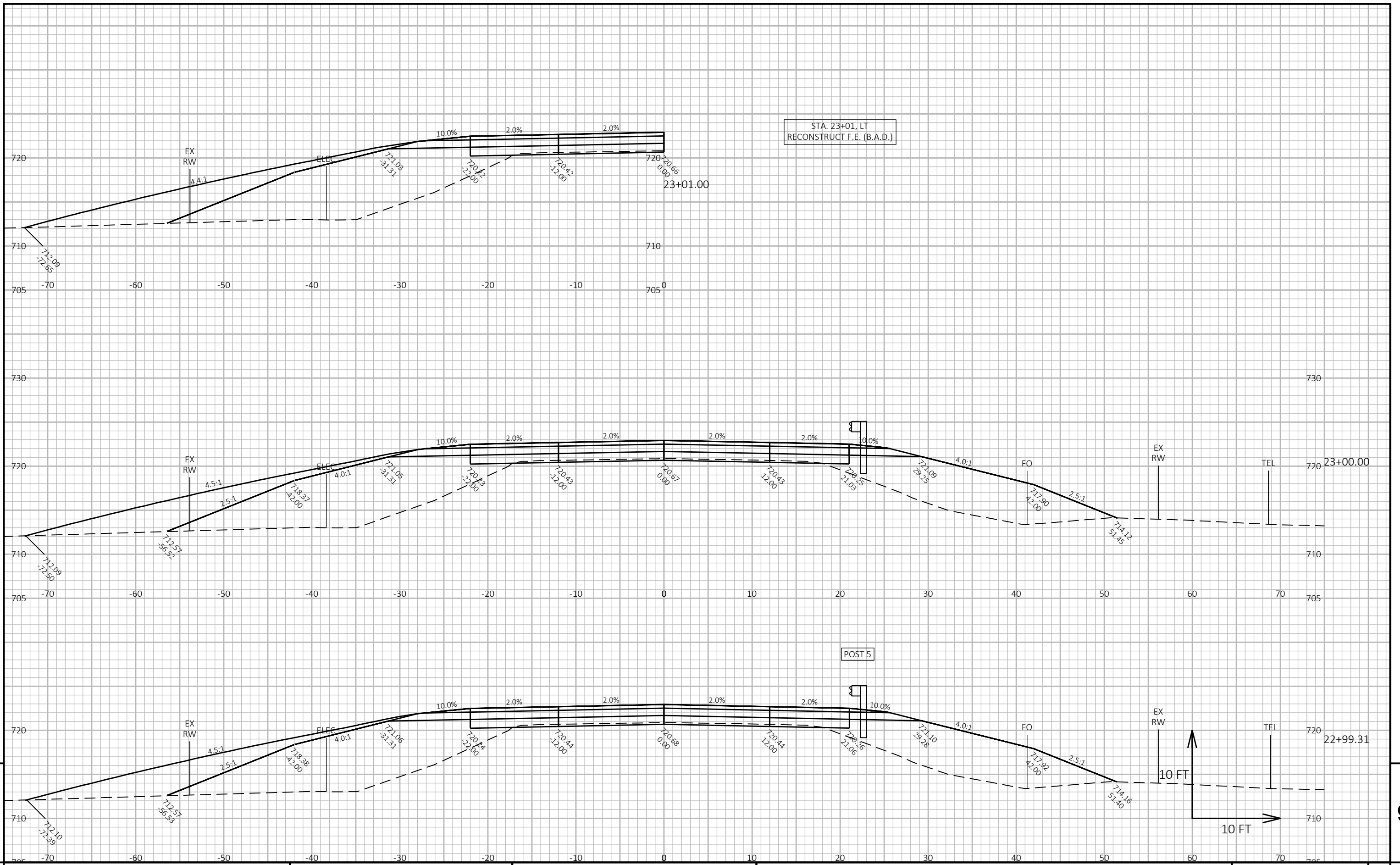
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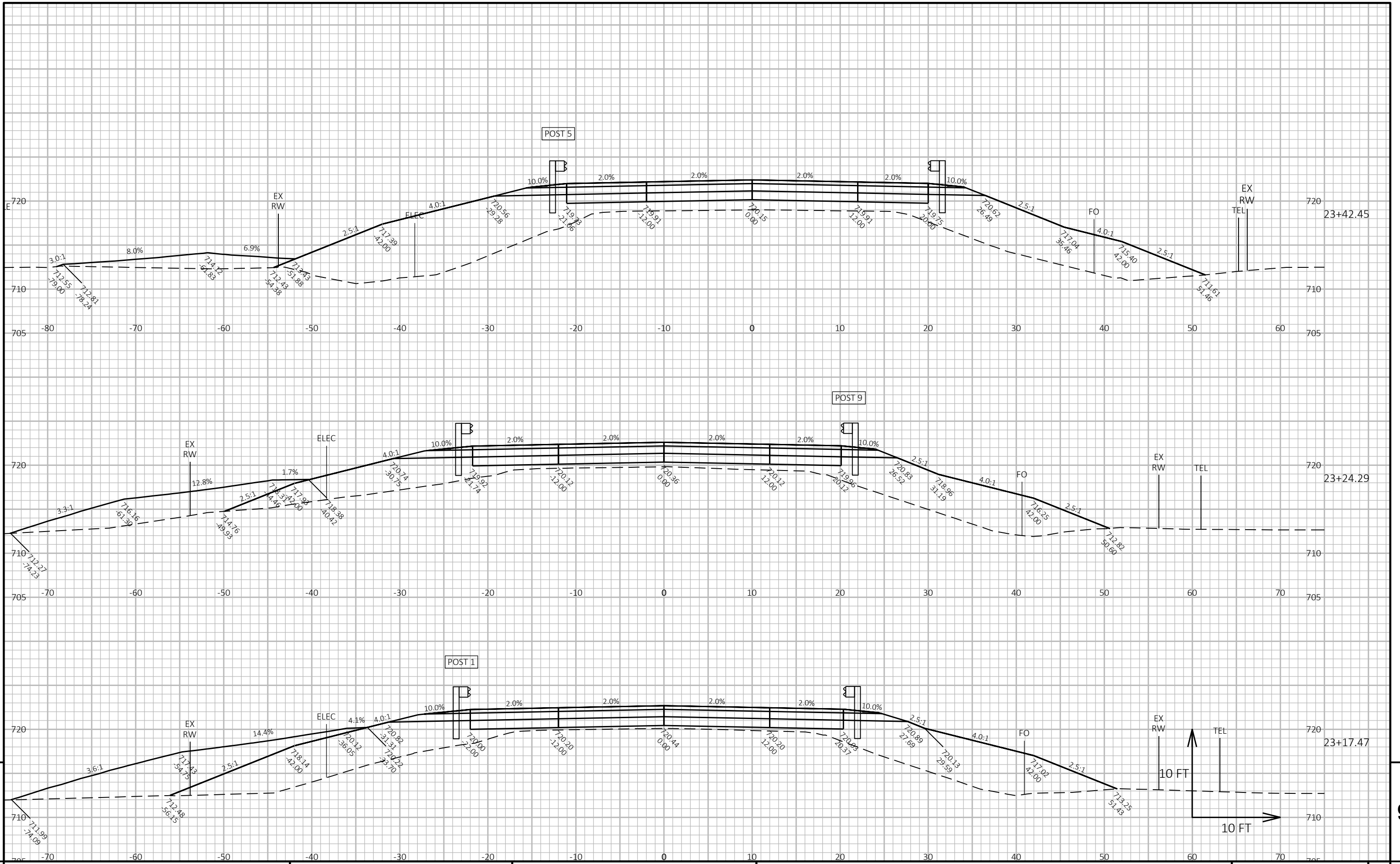


|                        |             |                   |                 |       |
|------------------------|-------------|-------------------|-----------------|-------|
| PROJECT NO: 4494-07-71 | HWY: CTH KK | COUNTY: OUTAGAMIE | CROSS SECTIONS: | SHEET |
|------------------------|-------------|-------------------|-----------------|-------|





PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET      E



PROJECT NO: 4494-07-71

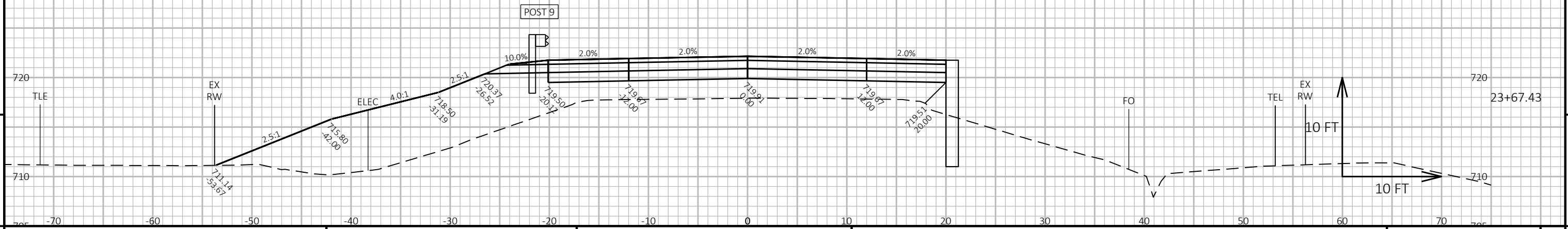
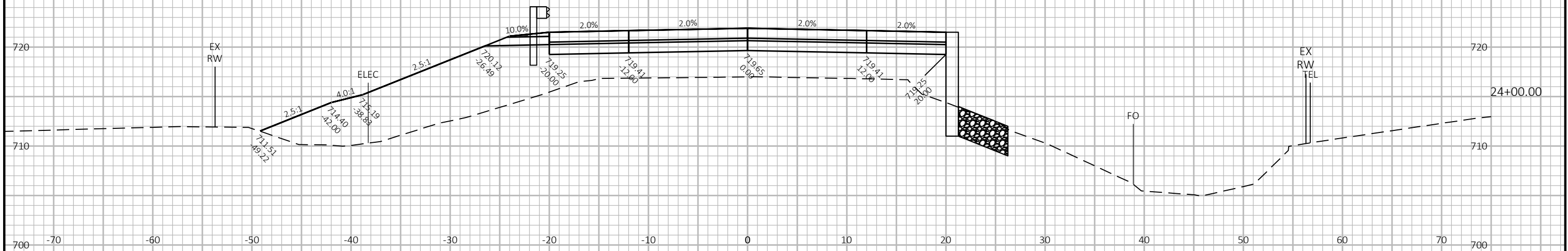
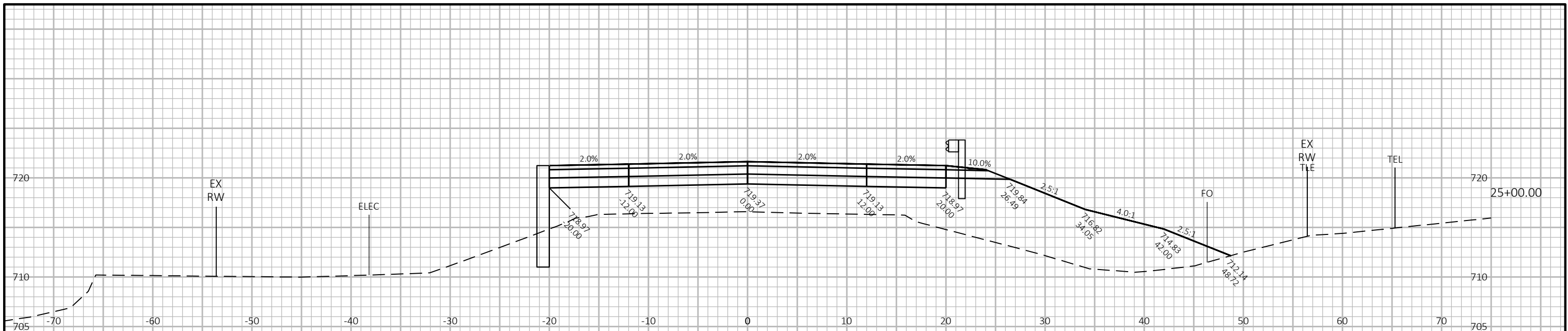
HWY: CTH KK

COUNTY: OUTAGAMIE

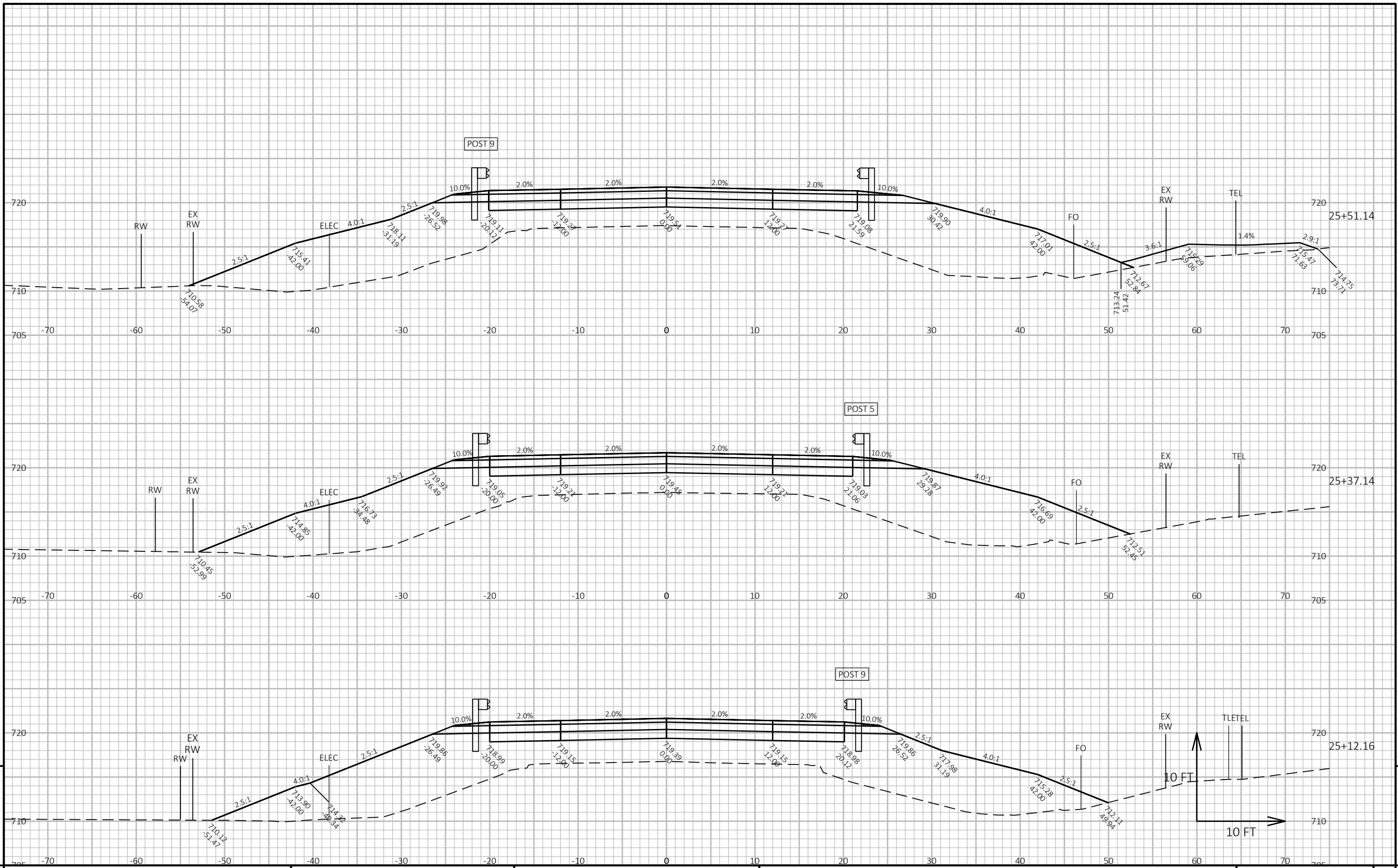
CROSS SECTIONS:

SHEET

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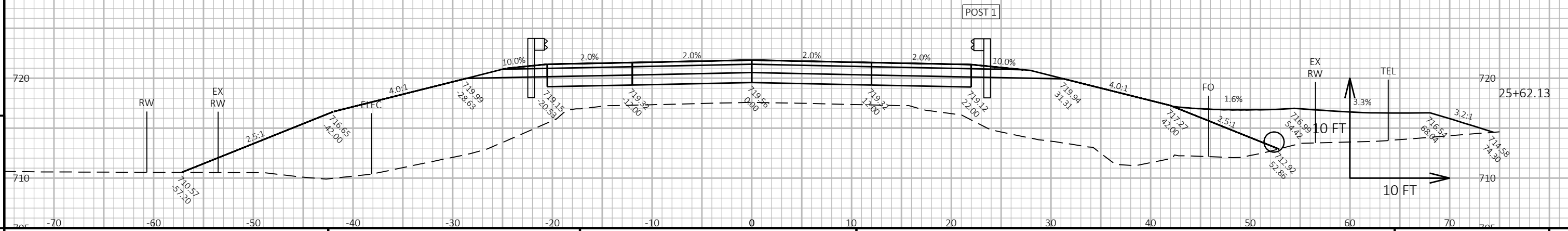
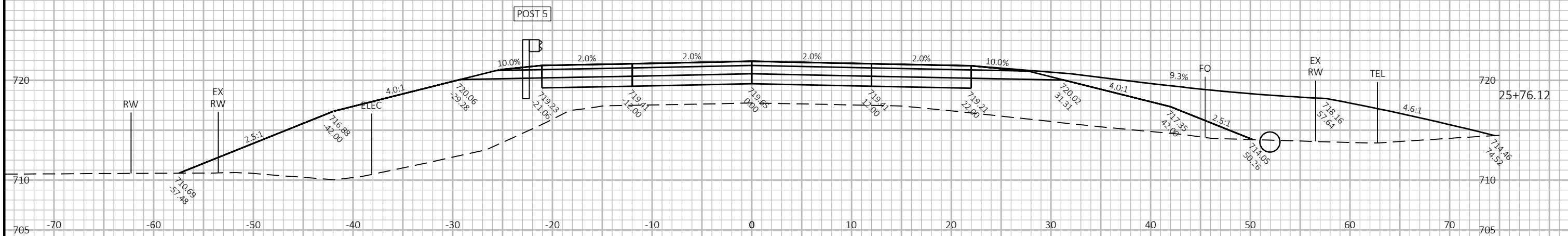
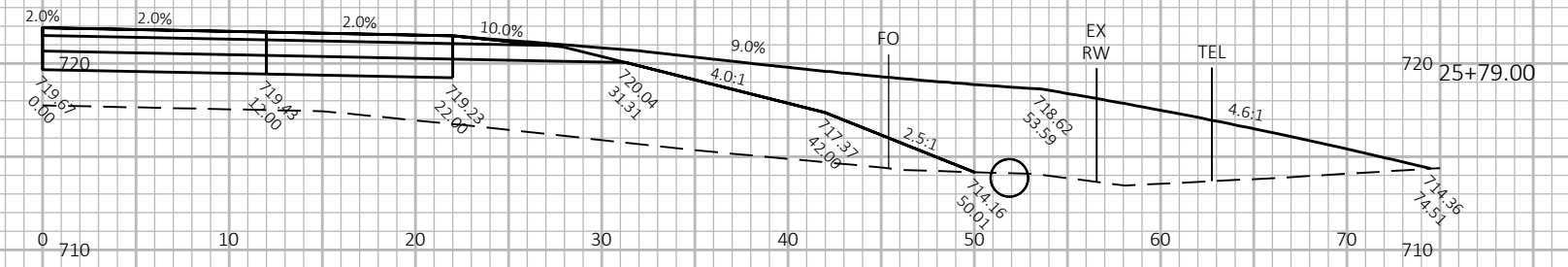
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET 9



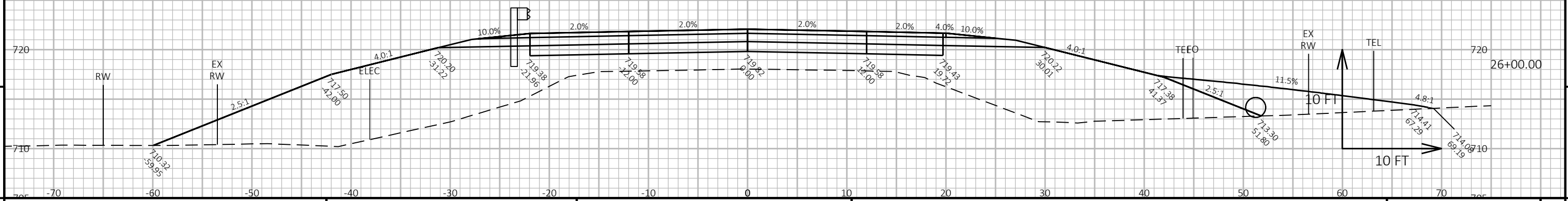
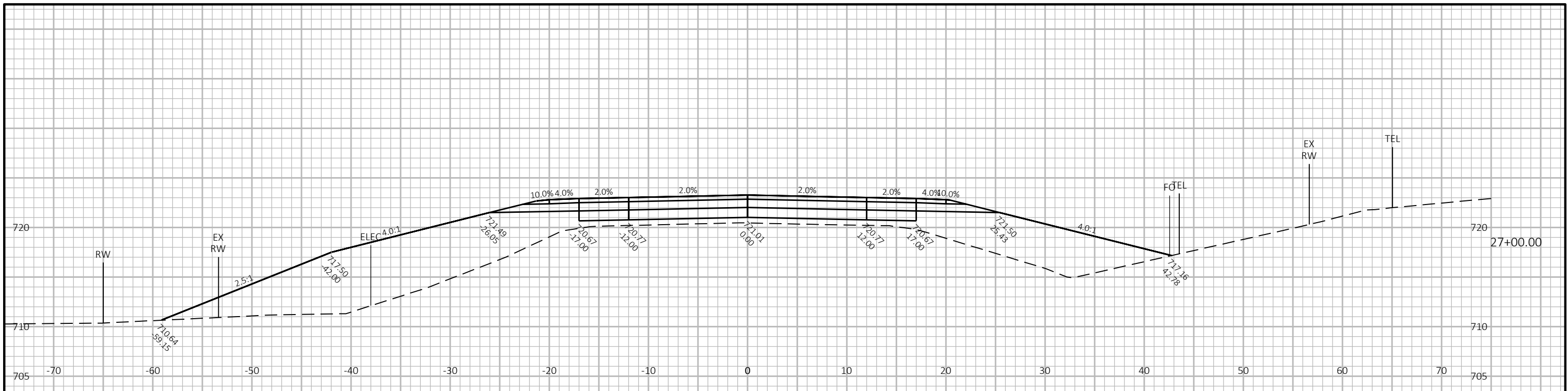
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET      E



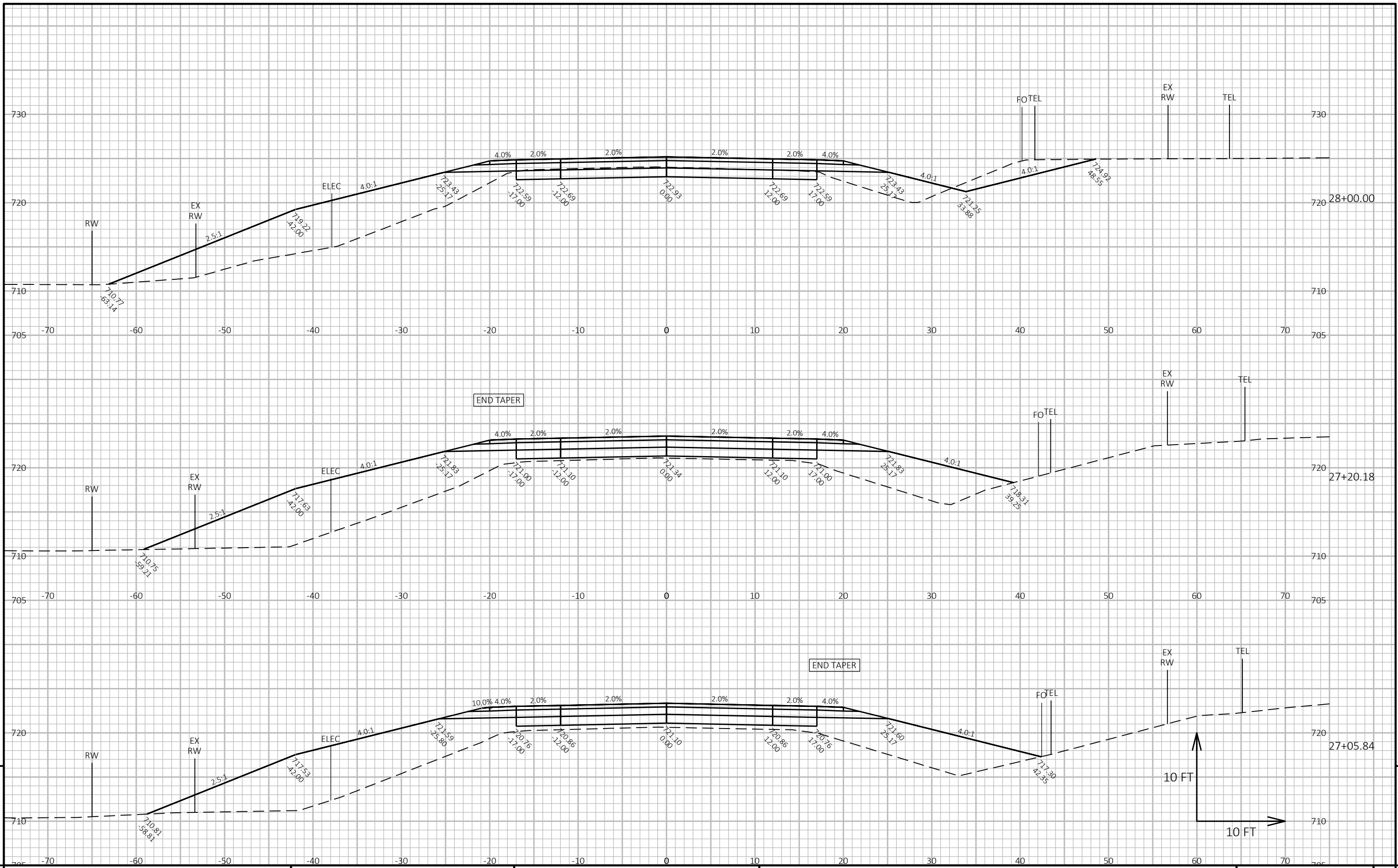
STA. 25+79, RT  
 RECONSTRUCT F.E. (B.A.D.)  
 (1) CULVERT PIPE CLASS III-A 24-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 26+06.54, 51.05' RT, ELEV = 713.25  
 OUTLET - STA. 25+54.57, 52.60' RT, ELEV = 712.49



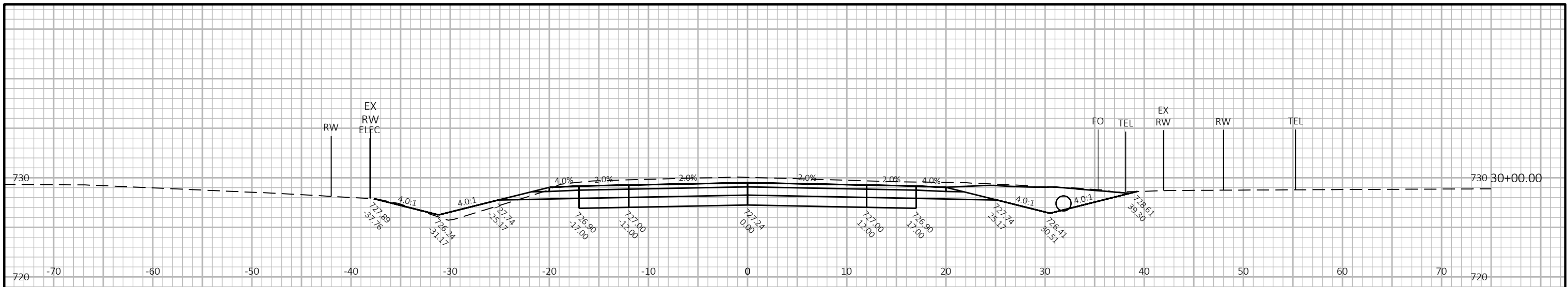
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET 9



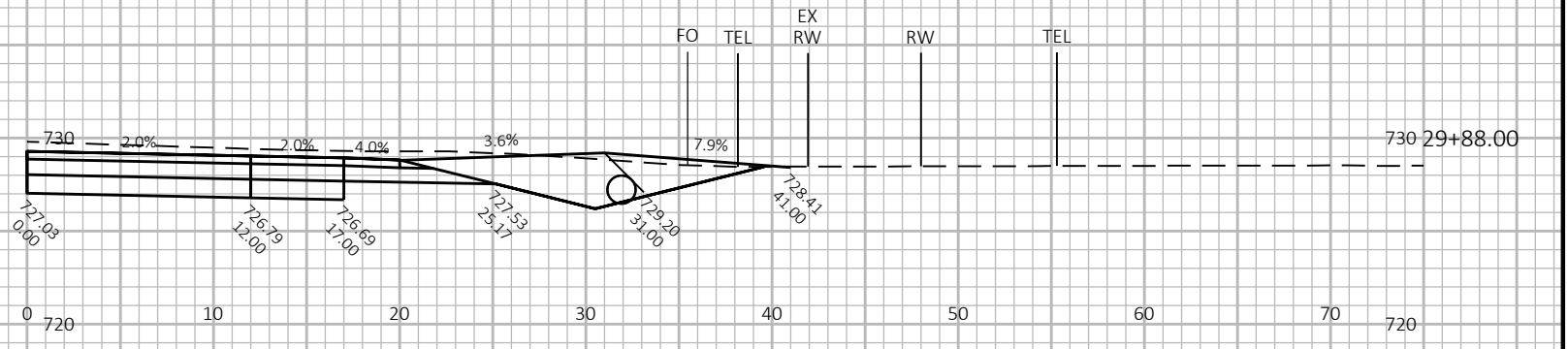
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET      E



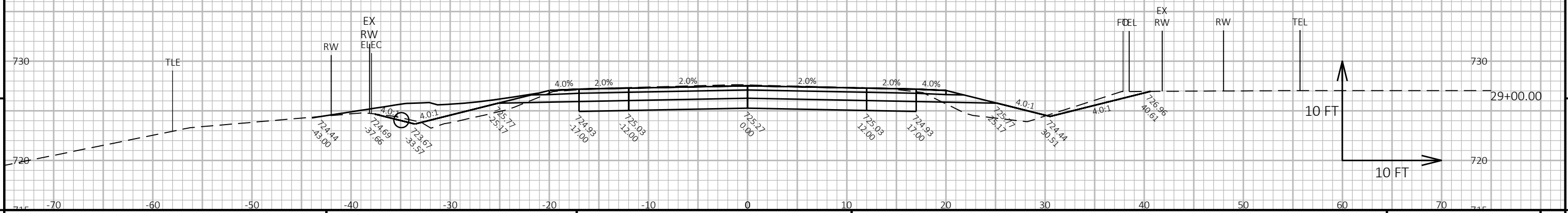
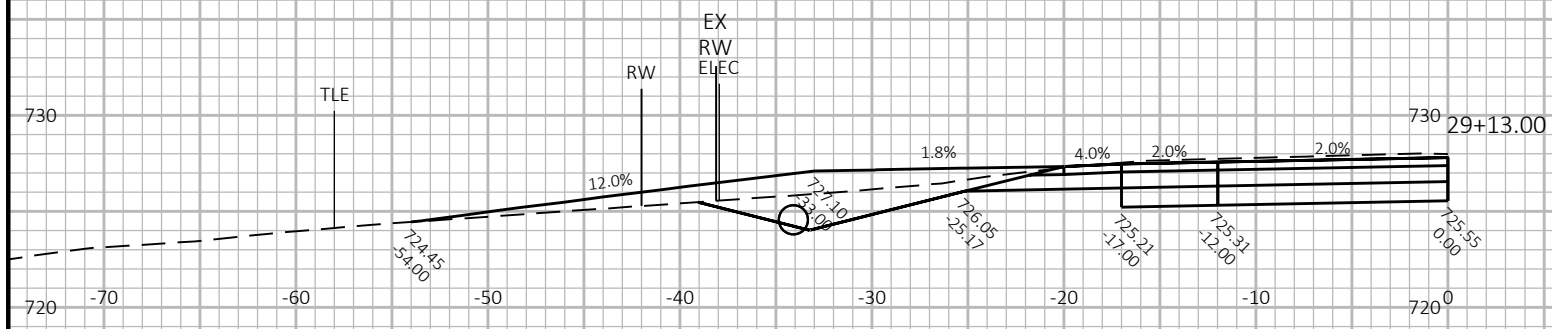
PROJECT NO: 4494-07-71      HWY: CTH KK      COUNTY: OUTAGAMIE      CROSS SECTIONS:      SHEET 9

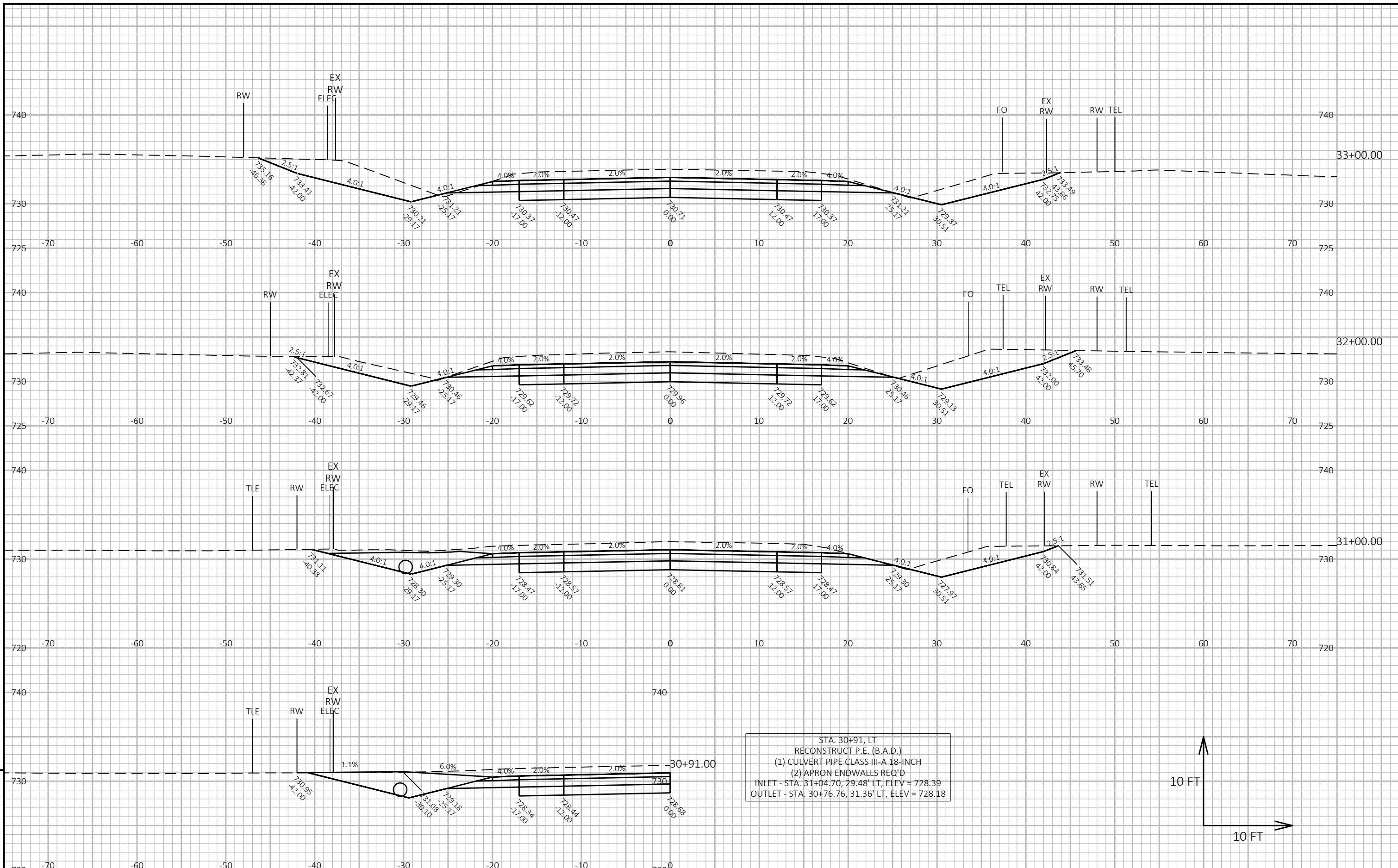


STA. 29+88, RT  
 RECONSTRUCT F.E. (B.A.D.)  
 (1) CULVERT PIPE CLASS III-A 18-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 30+04.57, 31.84' RT, ELEV = 726.71  
 OUTLET - STA. 29+70.57, 31.96' RT, ELEV = 726.20



STA. 29+13, LT  
 RECONSTRUCT P.E. (B.A.D.)  
 (1) CULVERT PIPE CLASS III-A 18-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 29+28.07, 33.14' LT, ELEV = 724.36  
 OUTLET - STA. 28+92.17, 35.45' LT, ELEV = 723.02





PROJECT NO: 4494-07-71

HWY: CTH KK

COUNTY: OUTAGAMIE

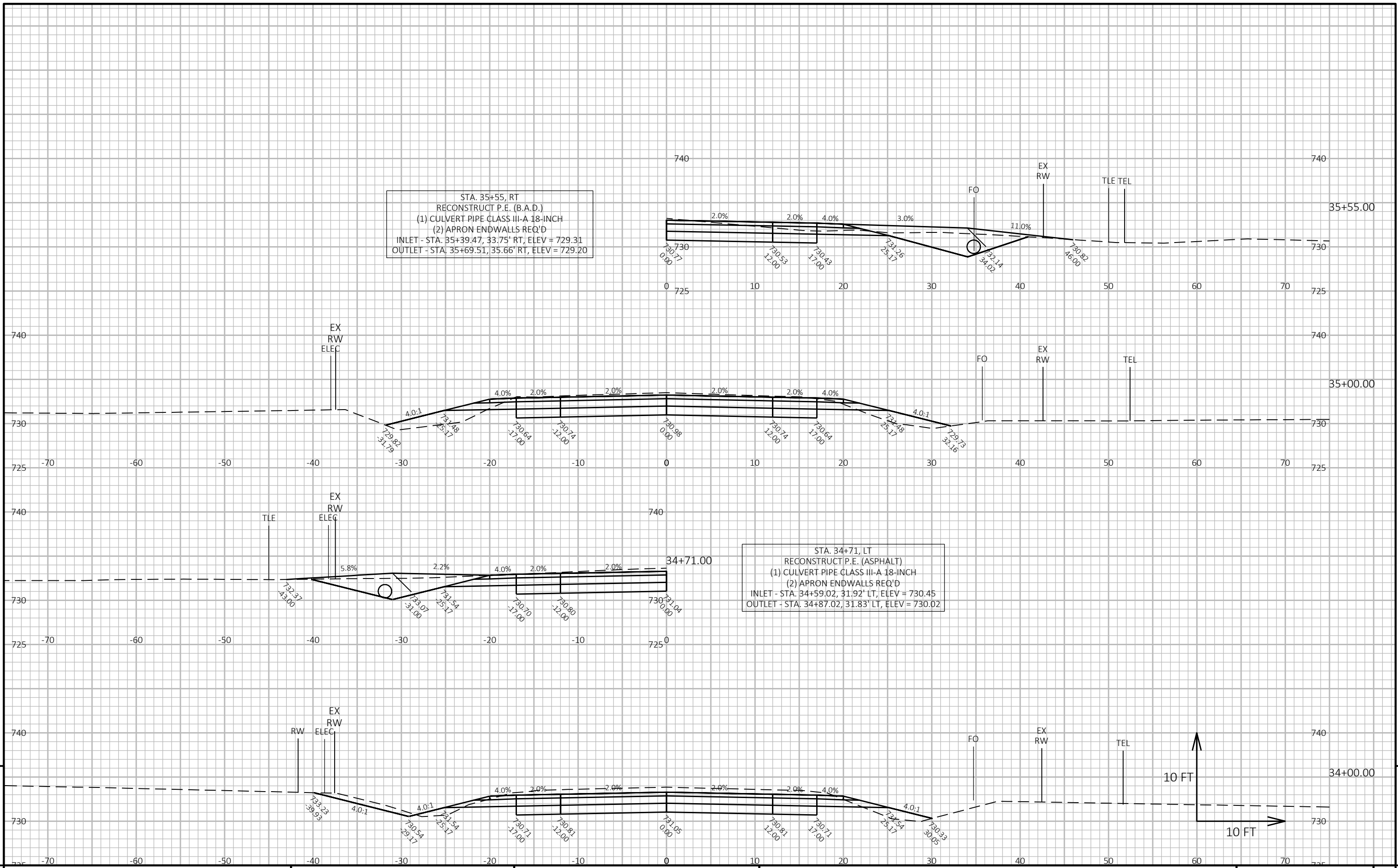
CROSS SECTIONS:

SHEET

E

STA. 35+55, RT  
 RECONSTRUCT P.E. (B.A.D.)  
 (1) CULVERT PIPE CLASS III-A 18-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 35+39.47, 33.75' RT, ELEV = 729.31  
 OUTLET - STA. 35+69.51, 35.66' RT, ELEV = 729.20

STA. 34+71, LT  
 RECONSTRUCT P.E. (ASPHALT)  
 (1) CULVERT PIPE CLASS III-A 18-INCH  
 (2) APRON ENDWALLS REQ'D  
 INLET - STA. 34+59.02, 31.92' LT, ELEV = 730.45  
 OUTLET - STA. 34+87.02, 31.83' LT, ELEV = 730.02



PROJECT NO: 4494-07-71

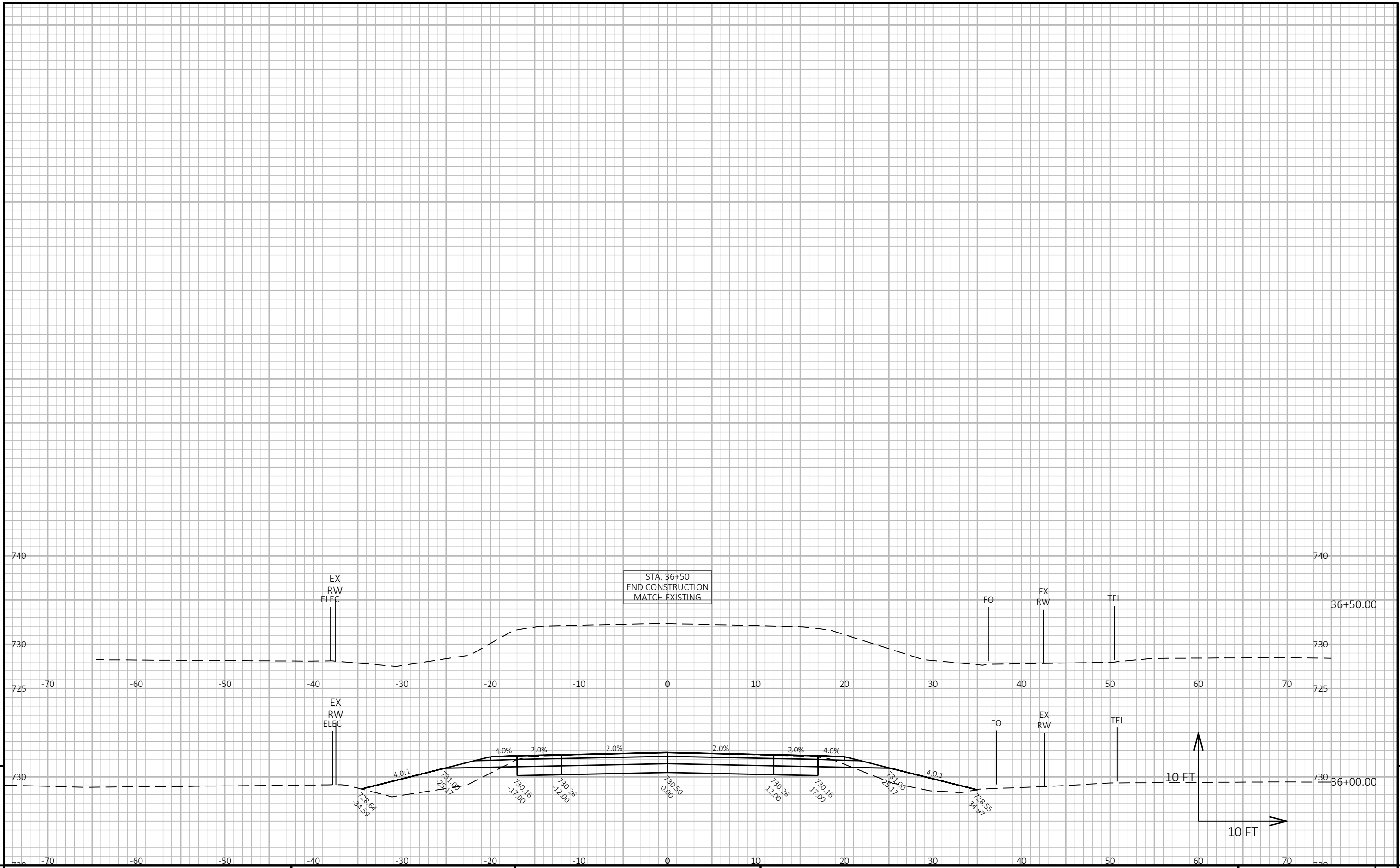
HWY: CTH KK

COUNTY: OUTAGAMIE

CROSS SECTIONS:

SHEET

E



9

9

|                        |             |                   |                 |       |   |
|------------------------|-------------|-------------------|-----------------|-------|---|
| PROJECT NO: 4494-07-71 | HWY: CTH KK | COUNTY: OUTAGAMIE | CROSS SECTIONS: | SHEET | E |
|------------------------|-------------|-------------------|-----------------|-------|---|

FILE NAME : G:\00-PROJECT FILES\2022\22318 CTH KK, OUTAGAMIE CTY, 4494-07-70\0-CAD\SHEETS\090201\_XS.DWG PLOT DATE : 1/19/2024 3:11 PM PLOT BY : ERIK MEYER PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



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

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