STEEL SHEET PILING NOTES:

ALL ABUTMENT STEEL SHEET PILES SHALL BE TYPE AZ 1.3 OR SMALLER OR EXCEED THE SECTION PROPERTIES IN THE STEEL SHEET MINIMUM SECTION PROPERTIES TABLE. SEE SPECIAL PROVISIONS. ALL ABUTMENT STEEL SHEET PILES SHALL BE WROUGHT SPEC. 3330 GRADE 50. ALL ABUTMENT AND WINGWALL PILES SHALL BE DRIVEN TO ELEVATION 982.0 OR BELOW.

OBTAINED PILE BEARING SHALL BE BASED ON UTILIZING A PILE DRIVING ANALYZER. ALL COSTS ASSOCIATED WITH DETERMINING PILE BEARING SHALL BE INCLUDED IN BID ITEM "PILE ANALYSIS". SEE SPECIAL PROVISIONS.

ALL SURFACES OF SHEET PILING AND STEEL ATTACHMENTS NOT COMPLETELY BURIED (FRONT FACE AND BACK FACE) SHALL BE COATED AFTER FIELD WELDING AND ALL STEEL INSTALLATION IS COMPLETED. WITH POLYAMIDE EPOXY-CONTAINING PAINT TO AN ELEVATION 4'-0" BELOW TOP OF WINGWALL ELEVATION ON 1'-0" BELOW FINISHED GROUND SURFACE. BEAM SEAT PLATES SHALL BE PAINTED. SEE SPECIAL PROVISIONS.

STEEL SHEET PILE MINIMUM SECTION PROPERTIES

<table>
<thead>
<tr>
<th>MOMENT OF INERTA</th>
<th>144.3 in^4/ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION MODULUS</td>
<td>24.3 in^3/ft</td>
</tr>
<tr>
<td>AREA</td>
<td>6.47 in^2/ft</td>
</tr>
<tr>
<td>YIELD STRENGTH</td>
<td>0.378 in</td>
</tr>
</tbody>
</table>

ABUTMENT

COMPUTED PILE LOAD - TONS/PILE

<table>
<thead>
<tr>
<th>BOTH ABUTMENTS</th>
<th>FAC'TED DEAD LOAD + EARTH PRESSURE</th>
<th>14.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FAC'TED LIVE LOAD</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>FAC'TED DESIGN LOAD</td>
<td>32.2</td>
</tr>
</tbody>
</table>
* FACTORED DESIGN LOAD = BASED ON STRENGTH 1 LOAD COMBINATION.

ABUTMENT

REQUIRED NOMINAL PILE BEARING RESISTANCE Rn - TONS/PILE

<table>
<thead>
<tr>
<th>FOG</th>
<th>1.40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rn</td>
<td>53.7</td>
</tr>
</tbody>
</table>

W. PT. "G" - S. ABUT. (STA. 381+66.17)
W. PT. "D" - N. ABUT. (STA. 382+33.83)

W. PT. "Q" - S. ABUT. (STA. 381+66.17)
W. PT. "Q" - N. ABUT. (STA. 382+33.83)

TEST PILE #1 - S. ABUT.
TEST PILE #2 - N. ABUT.

W. PT. "Q" - S. ABUT. (STA. 381+66.17)
W. PT. "Q" - N. ABUT. (STA. 382+33.83)

AZ 12 SHEET PILE PLACING (TPK)

9 SHEETS AT 26'-5" - 19'-9"
8 SHEETS AT 26'-5" - 17'-7 1/2"

"OMEGA 18" CORNER PILE

W. PT. "Q" - S. ABUT. (STA. 381+66.17)
W. PT. "Q" - N. ABUT. (STA. 382+33.83)

ABUT. SEAT PLATE & WINGWALL CHANNEL CAP LAYOUT PLAN

NOTE:
ALL ABUTMENT STEEL (WINGWALL, CHANNEL CAPS, SEAT PLATE, ETC.) SHALL MEET THE REQUIREMENTS OF WROUGHT SPEC. 3330.
FULLY THREADED HOLES FOR 1 7/8" ANCHOR BOLTS

FULLY THREADED HOLES FOR 1" ANCHOR BOLTS

NOTES

ALL RAILING MATERIALS, INCLUDING ALL PLATES AND HARDWARE NOT CAST INTO THE BEAMS OR DECK SLAB, SHALL BE ASTM A500 GRADE B EXCEPT AS NOTED. ALL STRUCTURAL STEEL FOR RAILING SHALL BE ASTM A36. STRUCTURAL TUBES ARE A.S.T.M. A500, GRADE B PER Mn/DOT SPEC. 3361.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

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.

GALVANIZED BOLTS, NUTS, AND WASHERS PER Mn/DOT SPEC. 3392.

ALL STRUCTURAL STEEL MATERIAL CAST INTO THE BEAMS OR DECK SLAB SHALL BE GALVANIZED AFTER FABRICATION PER Mn/DOT SPEC. 3394.

ATTACH RAIL ANCHOR PLATES TO SHEET PILING WITH A SOLID NO. 6 GAUGE COPPER WIRE WITH AN APPROVED TYPE CLAMP OR BRACING.

RAILING SHALL BE GALVANIZED AFTER FABRICATION (SEE SPECIAL PROVISIONS).

GALVANIZED STEEL POST SHIMS (NOT DETAILED) MAY BE USED UNDER POSTS WHERE REQUIRED FOR VERTICAL ALIGNMENT.

FULL BOLT SLOT OPENINGS IN RAILPOST BASE PLATE AND ANY OPENINGS AROUND POST SHIMS AND BASE PLATE WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

① THREAD HOLES FOR 7/8" ANCHOR BOLTS AFTER WELDING 1/2"x2 1/2"x2 1/2" PLATES TO TOP ANCHOR PLATE.
② BOTTOM ANCHOR PLATE IS PRECAST INTO PRESTRESSED CONCRETE BOX GIRDER BY MANUFACTURER.
ELEVATION

SECTION A-A

THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE
07586
YEAR
2008

NAMEPLATE PLACEMENT
(ROUND CONCRETE PIER COLUMNS)

NAMEPLATE NUMBERS
1234567890
3/16" L

NOTES:
NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.
LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A
BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
FURNISH 2 STEEL BOLTS 3/8" DIA. X 3" LONG WITH EACH PLATE.
ALL DIMENSIONS FOR 3/8" HIGH LETTERS AND NUMBERS SHALL BE IN
DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH
LETTERS AND NUMBERS.

SECTION B-B

1/2" OPEN AT TOP

1/2" x 6" HEADED STUDS, AT 8" SPACING WITH ALTERNATE
STAGGER. THE ANCHORAGE SHALL BE CAPABLE OF BEING BENT
COLD BY HAMMERING THROUGH A 30° ANGLE (THE Apex OF
WHICH SHALL BE AT THE FUSION POINT) AFTER WELDING AND
SUBSEQUENTLY STRAIGHTENED TO ITS ORIGINAL POSITION
WITHOUT FRACTURE OF THE WELD OR ANCHORAGE.

NOTES:
PLATED SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN
CUTTER LINES WITH A 1/2" OPEN J OINT AT EACH BREAK
IN COVER PROFILE. MAX. LENGTH 22 FT.
MATERIALS: STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.
GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3304.
SET PLATE TO PROPER GRADE AND COVER.

B101

DETAI L NO.

ADMITTED NOVEMBER 22, 2002

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
BRIDGE NAMEPLATE
( FOR NEW BRIDGES )

REVISION
CERTIFIED BY

SPANISH BAYONET BOLT
5/8"-11 THREAD

STANDARD BOLT
5/8"-11 THREAD

TOP OF CONCRETE
6" X 3/8" PLATE
1/8" RAD.
1/8" RAD.
3/16" RAD.
3/8" RAD.
3/16" RAD.
3/8" RAD.

DETAI L NO.

ADMITTED NOVEMBER 22, 2002

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
PROTECTION PLATE
( FOR END OF SLAB )

REVISION
CERTIFIED BY

SPANISH BAYONET BOLT
5/8"-11 THREAD

STANDARD BOLT
5/8"-11 THREAD

TOP OF CONCRETE
6" X 3/8" PLATE
1/8" RAD.
1/8" RAD.
3/16" RAD.
3/8" RAD.
3/16" RAD.
3/8" RAD.

DETAI L NO.

ADMITTED NOVEMBER 22, 2002

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
MISC. BRIDGE DETAILS

REVISION
CERTIFIED BY

SPANISH BAYONET BOLT
5/8"-11 THREAD

STANDARD BOLT
5/8"-11 THREAD

TOP OF CONCRETE
6" X 3/8" PLATE
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3/8" RAD.

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6" X 3/8" PLATE
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1/8" RAD.
3/16" RAD.
3/8" RAD.
3/16" RAD.
3/8" RAD.
SECTION AT ABUTMENT

SEE PLAN AT MINIMUM FOR DRAIN ROUTE DETAILS

WEST

ELEVATION AT BACK FACE OF ABUTMENT

E ROADWAY

CAP END

E EAST

PLAN AT ABUTMENT

WEST

45° ELBOW

45° ELBOW

E EAST

NOTES:

ALL PIPE SHALL BE PER MV/DOT SPEC. 3245.

1. 4" NON-METAL THERMOPLASTIC PERFORATED PIPE. SLOPE PIPE TO DRAIN.

2. WRAP PIPE WITH GEOTEXTILE AS PER MV/DOT SPEC. 3733.

3. BACKFILL WITH FINE AGGREGATE, MV/DOT SPEC. 3149, MODIFIED TO 0-3" PASSING A NO. 200 SIEVE.

4. PRECAST CONCRETE HEADDOWN WITH A RIDGED SCREEN ON THE END. SEE STANDARD PLATE 3131 FOR DETAILS.

5. 1/8" PER FT. MINIMUM SLOPE.

DRAINAGE SYSTEM, TYPE SPECIAL

CERTIFIED BY

MISC. BRIDGE DETAILS

BRIDGE NO.
07586
HORIZONTAL CURVE DATA
P.L. STA. 381+14.88
P.L. STA. 381+66.17
PL = 382.15
R = 572.86'
L = 894.15'
Delta = 10'00"00' L.T.

LINES OF RANDOM RIPPAB AS SHOWN ARE APPROXIMATE ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

1.2 UPSTREAM & 1.25 DOWNSTREAM
2. BRIDGE CONTRACTOR SHALL EXCAVATE AND FILL TO THESE LINES FOR APPROX. 50' LT. & FT. OF E. ROADWAY THEN TAPER AT A 1:2 SLOPE TO NATURAL CHANNEL SLOPES. INCLUDED IN PRICE BID FOR "SLOPE PREPARATION.
3. 1/2 GRANULAR FILTER IS INCLUDED IN PRICE BID FOR RANDOM RIPPAB CLS. APPROX. QUANTITY = 75 Cu. YD.
4. PLACEMENT BETWEEN MINIMUM ENDS WITH 1:1.5 BACKSLOPE, DIMENSIONS AND SLOPES ARE MEASURED PERPENDICULAR TO THE BACK OF THE ABUTMENT. SEE SHEET 5 FOR REQUIREMENTS.
5. A SHORTENED VERSION OF THE BORING LOG DESCRIPTION IS GIVEN IN THE PLANS. THE COMPLETE GEOTECHNICAL EXPLORATION REPORT AND BORING LOGS ARE AVAILABLE FOR INSPECTION IN THE COUNTY ENGINEER'S OFFICE.
KEYNOTES:
1. PROTRUSIONS CAUSED BY WELDING OR GAIWHELNING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAMS, SPICE TUBES AND FILL PLATES.
2. 3/4" DIA. FULLY THREADED BOLTS, 5 1/2" LONG @ 4" X 4" TUBES & 7 1/2" LONG @ 8" X 8" TUBES (FROM AXES TYPE 1 OR 3, OR AXU TYPE 3) WITH TWO FLAT WASHERS AND A HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE DAMAGED AS DIRECTED BY THE ENGINEER IN THE FIELD. FOUR BOLTS AT EACH PLATE.
3. FABRICATOR TO FIELD VERIFY ANGLE DIMENSION.
4. MILG 5 1/8" X 5 1/8" X 5/16" PLATE WITH END OF 5/5/5/16" TUBE AND GRIND SMOOTH.
5. 3x31/4" TUBE TO 5x5/5/16" TUBE.
KEYNOTES:
1. Protrusions caused by welding or galvanizing are not permitted on the adjoining surfaces of the box beam rails, splice tubes, and fill plates.
2. 3/4" dia. x 8 1/2" long bolts (A572 TYPE 1 OR 3, OR A449 TYPE 1) with two flat washers, one lock washer and a heavy hex nut on each bolt. Two bolts at each splice.
3. Fabricator to field verify angle dimension.
4. 3/4" dia. anchor bolt with hardened washer & hex nut. Two anchor bolts at each concrete anchor block.
5. Minimum concrete anchor block reinforcement shall consist of no. 10 bars at 12" maximum spacing on all faces.

ANCHOR BOLT DETAIL

ANCHOR BLOCK DETAIL

WEID DETAIL FOR SPlice TUBE