

LAX

PROJECT ID:

5289-00-72

COUNTY: VERNON

JANUARY 2018

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 (Includes Erosion Control)
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 = 47

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

**STH 56 - STH 82**

SCOTT HOLLOW CREEK BR B-62-246

**CTH S**

**VERNON COUNTY**

**STRUCTURE**

**AS-BUILT PLAN**

SUPERVISOR: Jim Savoldelli  
PROJECT MANAGER: John Bainter  
PROJECT ENGINEER: Matt Palkowski  
CONTRACTOR: Radtke  
WORK STARTED: 4/18/18  
WORK COMPLETED: 6/12/18

STATE PROJECT

5289-00-72

FEDERAL PROJECT

PROJECT

WISC 2018039

CONTRACT

1

## Subcontractor List

Arbor Green, Inc.  
Augelli Concrete & Excavating, L.L.C.  
Central State Signing Inc.  
Hard Rock Sawing & Drilling Specialist CO.  
Jewell Associates Engineers, Inc.  
Mathy Construction Company  
Wanless Excavating, Inc.



Sheets revised: 11, 25, 27, 32, 33

Sheets added: 33a

STATE PROJECT NUMBER

5289-00-72

### DESIGN DESIGNATION

A.A.D.T. (2018)	= 240
A.A.D.T. (2038)	= 300
D.H.V.	= 86
D.D.	= 50/50
T.	= 5.0%
DESIGN SPEED	= 40 MPH
ESALS	= 22,000

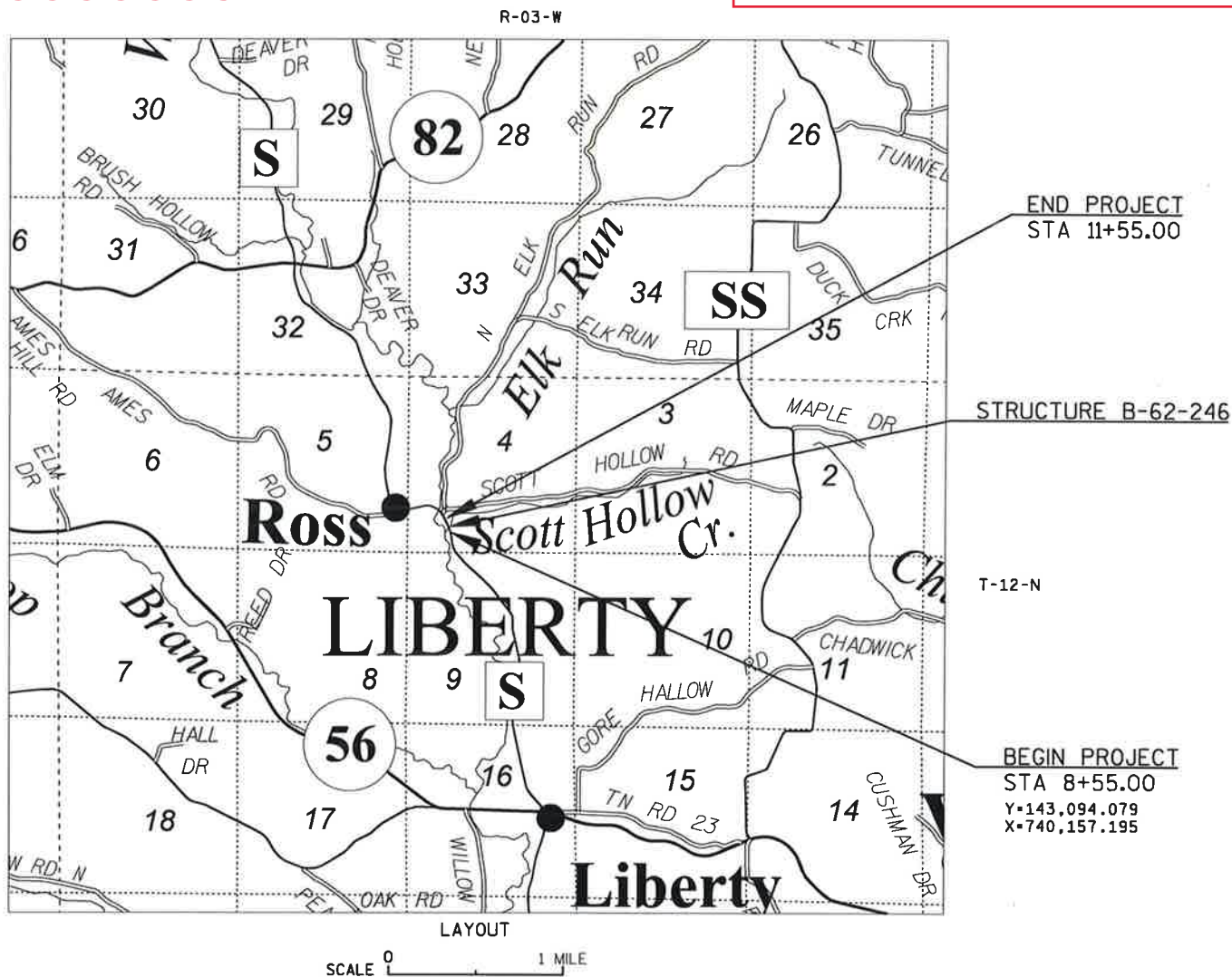
### CONVENTIONAL SYMBOLS

#### PLAN

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

#### PROFILE

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



TOTAL NET LENGTH OF CENTERLINE = 0.057

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

ACCEPTED FOR VERNON COUNTY

DATE: 7-18-17   
(Signature)  
Awy Comm 15510 ncr  
(Title of Official)

ORIGINAL PLANS PREPARED BY

**CORRE**



DATE: 7-20-17  
(Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor   
Designer

Management Consultant

APPROVED FOR THE DEPARTMENT

DATE: 7/27/17   
MANAGEMENT CONSULTANT SIGNATURE

## DESIGN DATA

DESIGN LOADING \_\_\_\_\_ HL-93  
 INVENTORY RATING FACTOR \_\_\_\_\_ 1.08  
 OPERATIONAL RATING FACTOR \_\_\_\_\_ 1.40  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

## MATERIAL PROPERTIES

CONCRETE MASONRY, SLAB \_\_\_\_\_  $f'_c$  = 4,000 psi  
 ALL OTHER \_\_\_\_\_  $f'_c$  = 3,500 psi  
 HIGH STRENGTH BAR STEEL REINFORCEMENT \_\_\_\_\_  $f_y$  = 60,000 psi

## TRAFFIC DATA

ADT (2018) = 240  
 ADT (2038) = 300  
 DESIGN SPEED = 40 MPH

## FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB AND PREBORED A MINIMUM OF 3' INTO BEDROCK OR CONSOLIDATED MATERIAL. ESTIMATED 18' LONG AT THE SOUTH ABUTMENT AND 23' LONG AT THE NORTH ABUTMENT.

PREBORING SHALL BE REQUIRED TO A MINIMUM ELEVATION OF 762.47 (16') AT THE SOUTH ABUTMENT AND TO A MINIMUM ELEVATION OF 757.43 (21') AT THE NORTH ABUTMENT.

## HYDRAULIC DATA

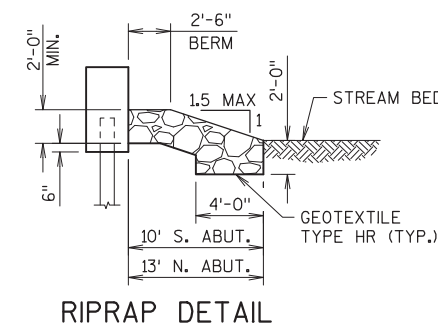
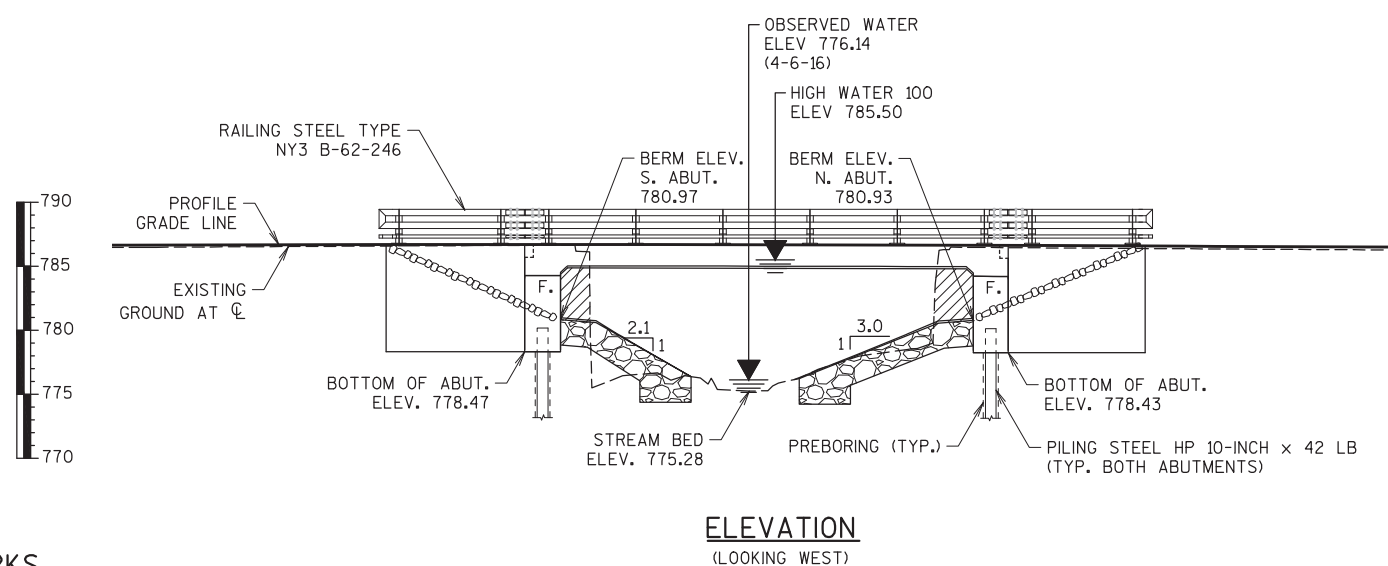
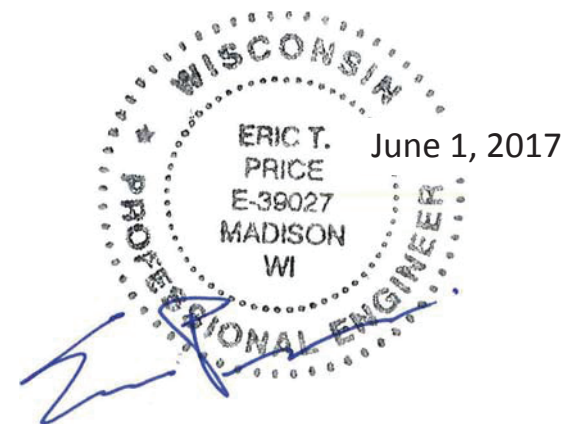
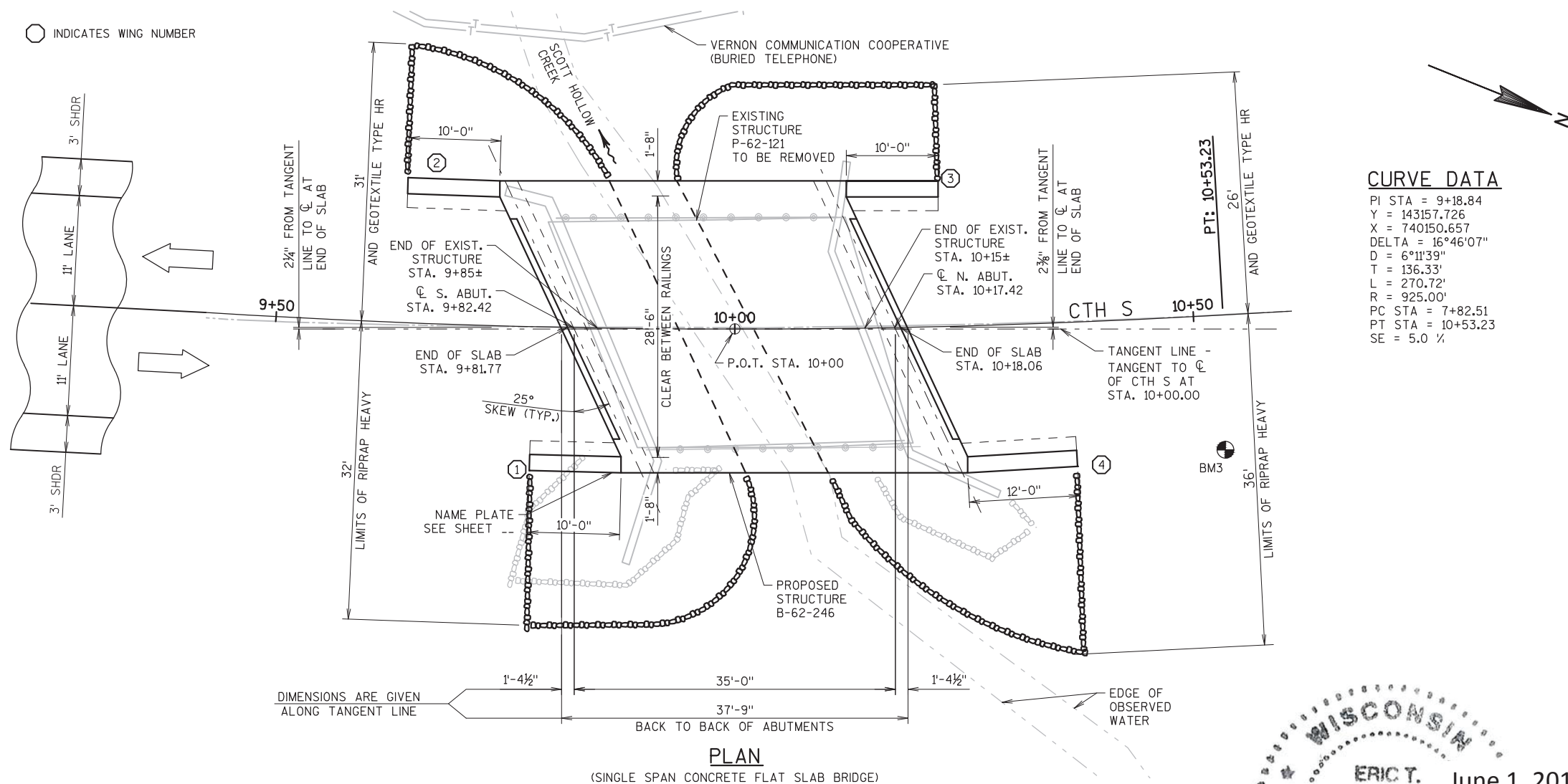
100 YEAR FREQUENCY  
 $Q_{100}$  \_\_\_\_\_ 865 C.F.S.  
 VELOCITY \_\_\_\_\_ 4.2 F.P.S.  
 HIGH WATER  $_{100}$  \_\_\_\_\_ EL. 785.50  
 WATERWAY AREA \_\_\_\_\_ 208 SQ. FT.  
 DRAINAGE AREA \_\_\_\_\_ 1.2 SQ. MI.  
 SCOUR CRITICAL CODE \_\_\_\_\_ 5  
 OVERTOPPING FREQUENCY \_\_\_\_\_ N/A

2 YEAR FREQUENCY  
 $Q_2$  \_\_\_\_\_ 90 C.F.S.  
 VELOCITY \_\_\_\_\_ 4.0 F.P.S.  
 HIGH WATER  $_2$  \_\_\_\_\_ EL. 778.57

## LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. TUBULAR STEEL RAILING TYPE NY3
11. END POST FOR RAILING TYPE NY3

○ INDICATES WING NUMBER



## BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	7+98.64	REBAR, 14.93' LT	784.55
2	8+95.27	PK NAIL, 14.01' LT	785.51
3	10+52.65	PK NAIL, 14.68' RT	785.51
4	12+20.40	REBAR, 14.85' RT	787.05

AREA TO EXCAVATE INCLUDED IN "EXCAVATION FOR STRUCTURES BRIDGES B-62-246"

BRIDGE OFFICE CONTACT  
 BILL DREHER, P.E.  
 TELEPHONE: (608) 266-8489

CONSULTANT CONTACT  
 ERIC PRICE, P.E.  
 TELEPHONE: (608) 826-6146

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED			08/28/17
CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-62-246			
CTH S OVER SCOTT HOLLOW CREEK			
COUNTY	TOWN/CITY/VILLAGE		
VERNON	LIBERTY		
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	ERA	DESIGN CK'D, ETP	DRAWN BY PKF
GENERAL PLAN		SHEET 1 OF 11	



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE I, II OR III OR AASHTO DESIGNATION M213.

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 IN THE ABUTMENT DETAILS.

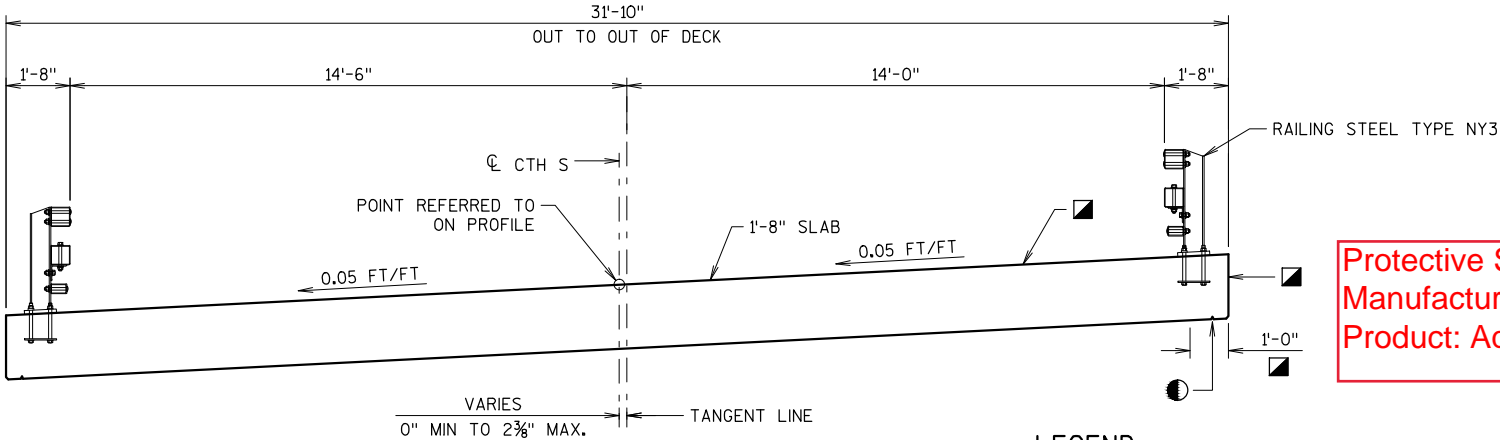
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

THE EXISTING STRUCTURE P-62-121, TO BE REMOVED, IS A SINGLE SPAN STEEL DECK GIRDER, 30 FT. LONG WITH A 24.0 FT. CLEAR ROADWAY WIDTH.

AT THE BACKFACE OF 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.

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

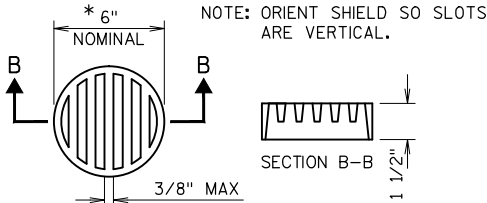
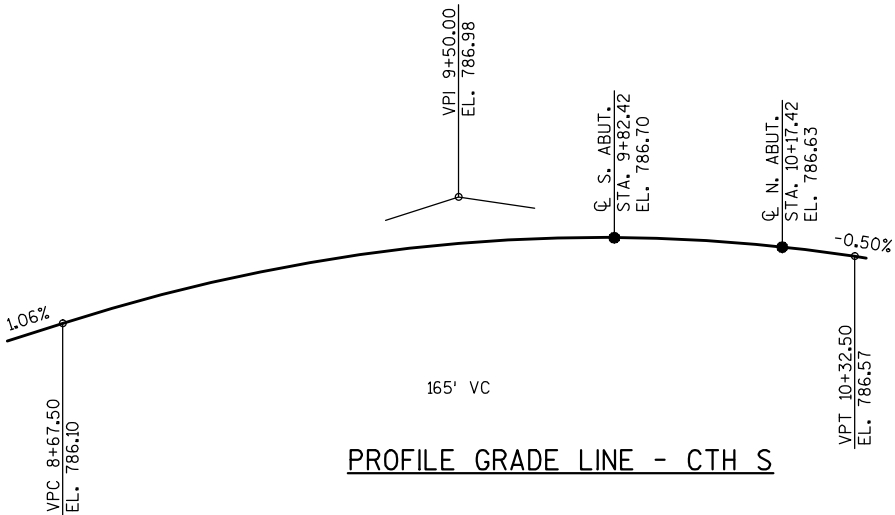


CROSS SECTION THRU BRIDGE  
(LOOKING NORTH)

LEGEND

- 3/4" V-GROOVE REQ'D. EXTEND TO 6" FROM F.F. OF ABUT. DIAPH.
- COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.

Protective Surface Treatment  
Manufacturer: Chemmasters  
Product: Aquinil Plus 40

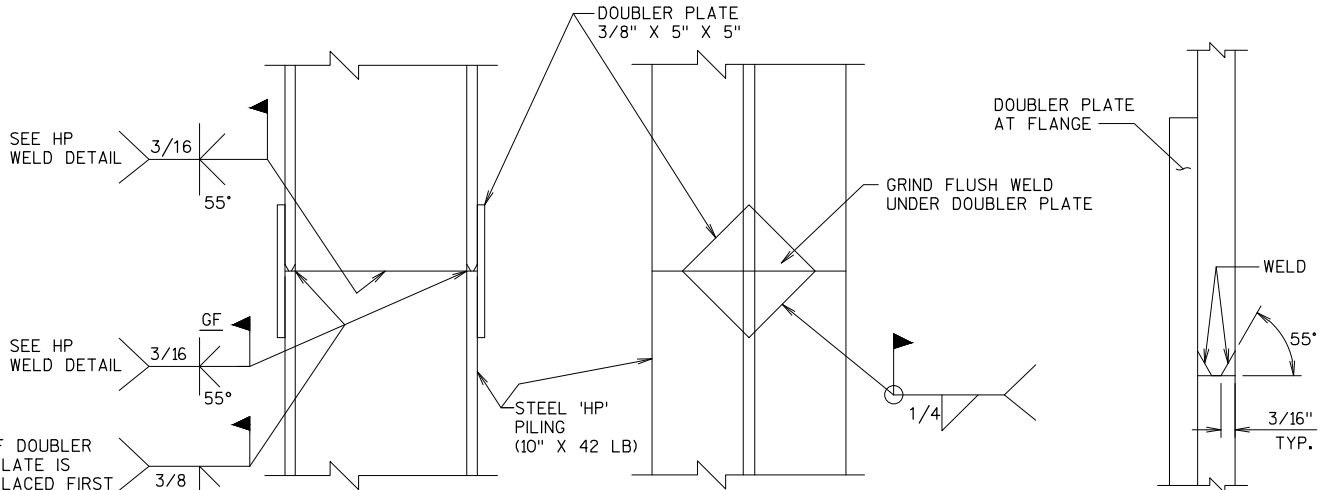


\* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

RODENT SHIELD DETAIL

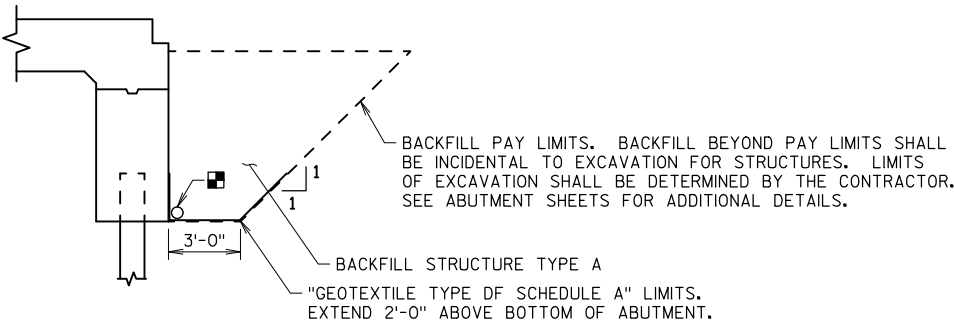
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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 OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



STEEL 'HP' PILING

PILE SPICE DETAILS



STRUCTURE BACKFILL LIMITS

- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

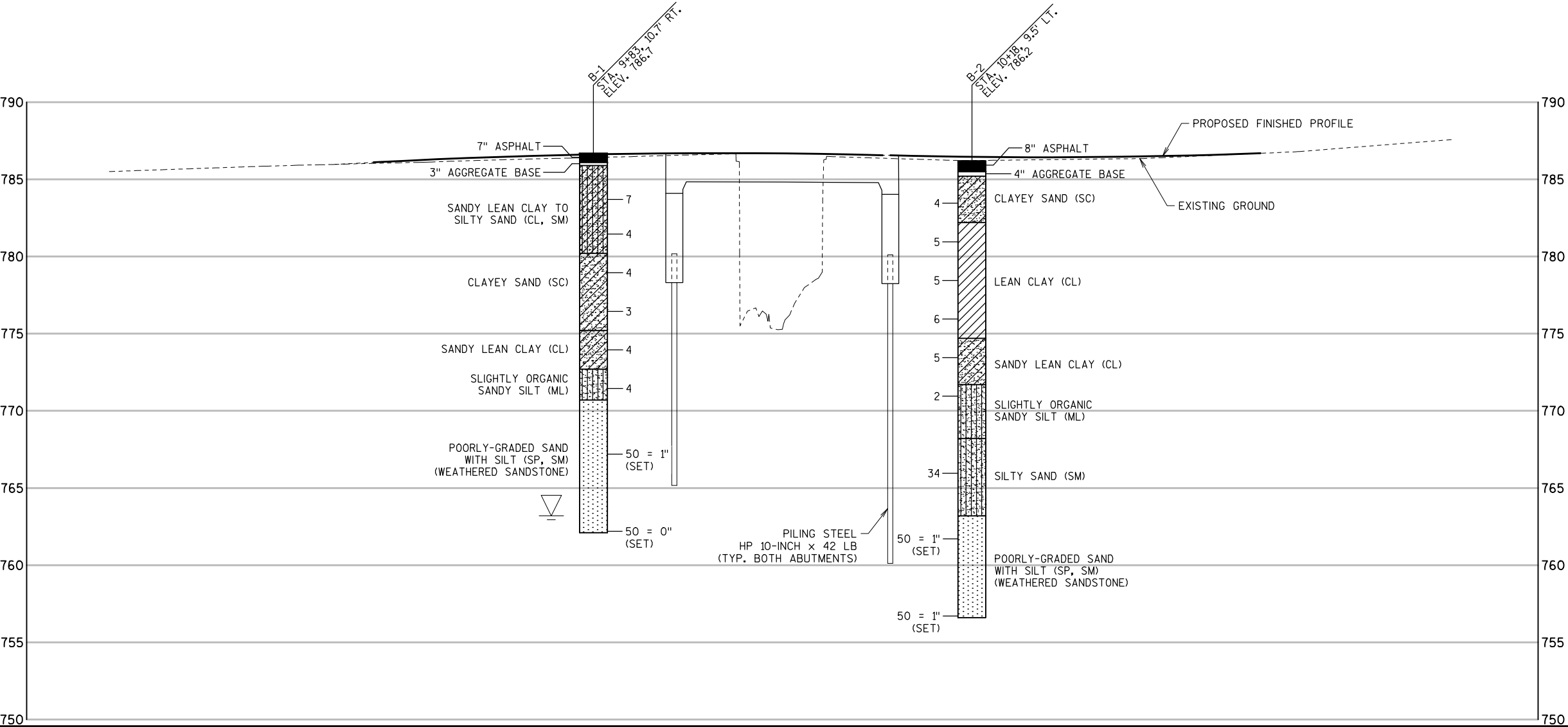
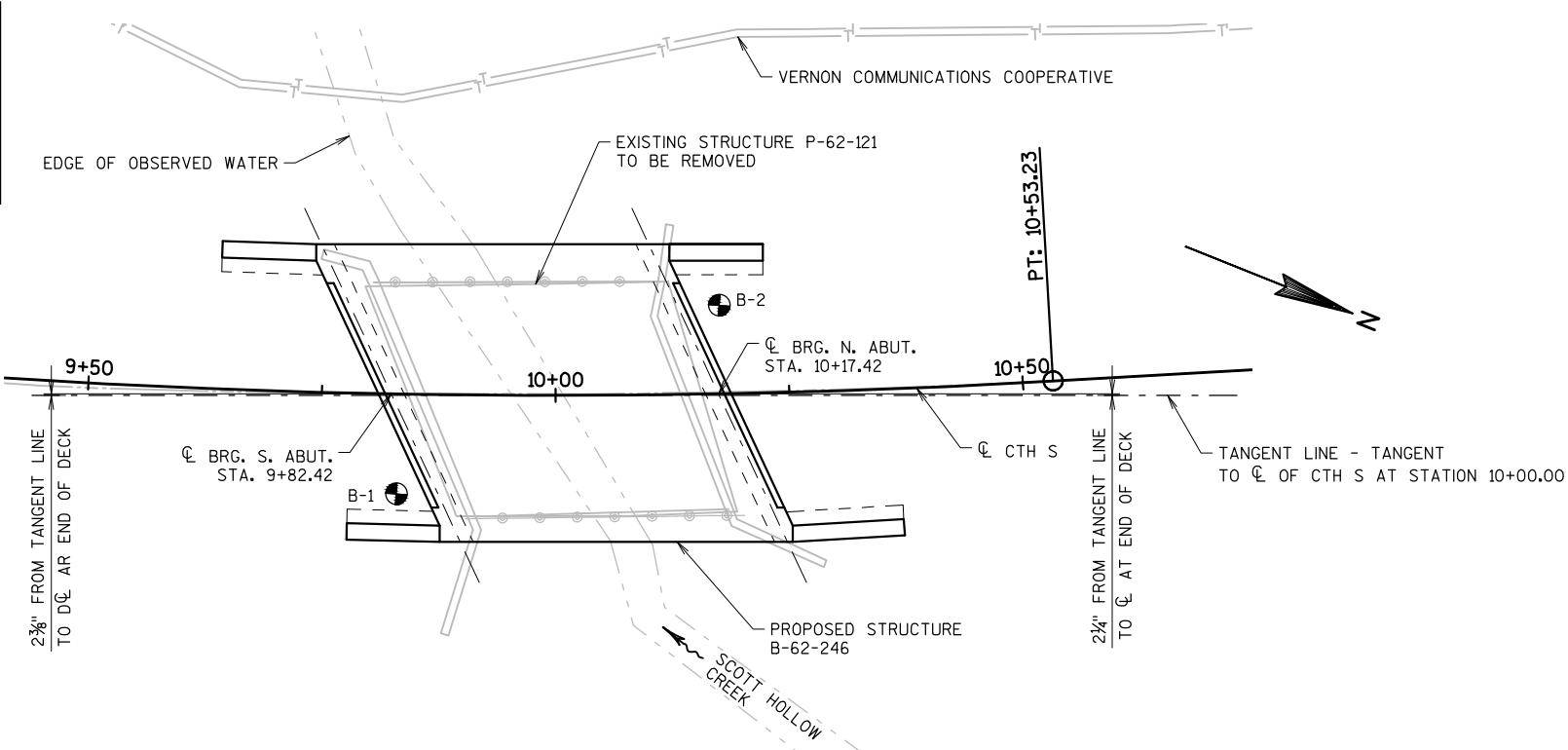


TOTAL ESTIMATED QUANTITIES

BID NUMBER	BID ITEM	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-62-246	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	170	180	-----	350
502.0100	CONCRETE MASONRY BRIDGES	CY	32	33	72	137
502.3200	PROTECTIVE SURFACE TREATMENT	SY	12	14	139	165
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2410	2400	-----	4810
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1550	1590	15440	18580
513.7083	RAILING STEEL TYPE NY3 B-62-246	LF	22	24	76	122
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9.1	9.1	-----	18.2
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	80	105	-----	185
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	90	115	-----	205
606.0300	RIPRAP HEAVY	CY	100	120	-----	220
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	110	-----	210
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	45	45	-----	90
645.0120	GEOTEXTILE TYPE HR	SY	130	150	-----	280
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY PKF		PLANS ETP CK'D.	
CROSS SECTION & QUANTITIES		SHEET 2 OF 11	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	MAY 10, 2016	143220.413	740130.037
2	MAY 10, 2016	143244.950	740098.448
BORINGS COMPLETED BY: CHOSEN VALLEY TESTING			
REPORT COMPLETED BY: CHOSEN VALLEY TESTING			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) VERNON COUNTY			



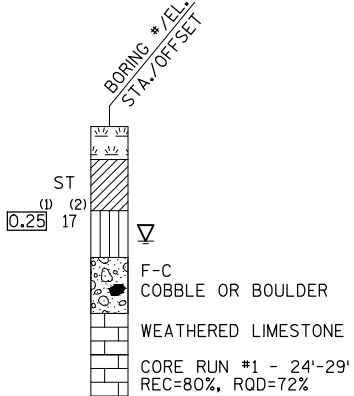
STATE PROJECT NUMBER

5289-00-72

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 DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY		PKF	PLANS CK'D. ETP
SUBSURFACE EXPLORATION		SHEET 3 OF 11	



BILL OF BARS - SOUTH ABUTMENT

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS					TOTAL WEIGHT = 2,410 LBS
A401	5	28'-0"	X		BODY - AT PILES - 1 PER PILE VERT.
A402	10	2'-3"			BODY - AT PILES - 2 PER PILE VERT.
A503	44	14'-2"	X		BODY - STIRRUPS TRANS.
A604	22	18'-10"			BODY - F.F. TOP, BOT. HORIZ.
A805	14	20'-2"	X		BODY - B.F. HORIZ.
A506	29	7'-1"	X		BODY - ABUT SEAT TRANS.
A407	3	28'-4"			BODY - ABUT SEAT HORIZ.
COATED BARS					TOTAL WEIGHT = 1,550 LBS
A508	34	2'-0"			BODY - TOP VERT.
A609	9	11'-3"			WING 1 - B.F. HORIZ.
A510	7	13'-3"			WING 1 - F.F. HORIZ.
A511	6	11'-7"			WING 2 - F.F. HORIZ.
A612	8	12'-7"			WING 2 - B.F. HORIZ.
A513	11	15'-8"	X		WING 2 - STIRRUPS TRANS.
A514	10	18'-10"	X		WING 1 - STIRRUPS TRANS.
A615	28	9'-7"	X		WINGS 1 & 2 VERT.
A416	12	9'-8"			WINGS 1 & 2 - B.F. & F.F. VERT.
A617	4	9'-8"			WINGS 1 & 2 - TOP HORIZ.

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

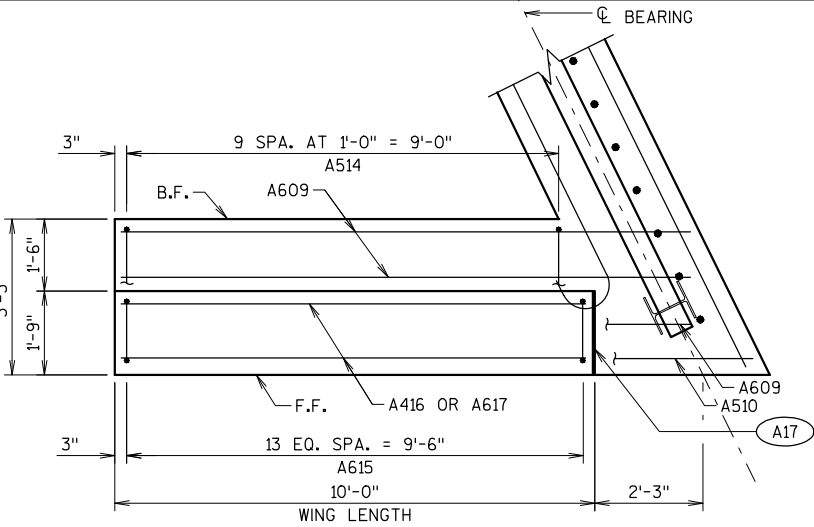
LEGEND

- A03** OPTIONAL KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" (18" RUBBERIZED MEMBRANE WATERPROOFING AT B.F. & 3/4" "V" GROOVE AT F.F. IF JOINT IS USED).
- A15** PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A17** 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMNOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

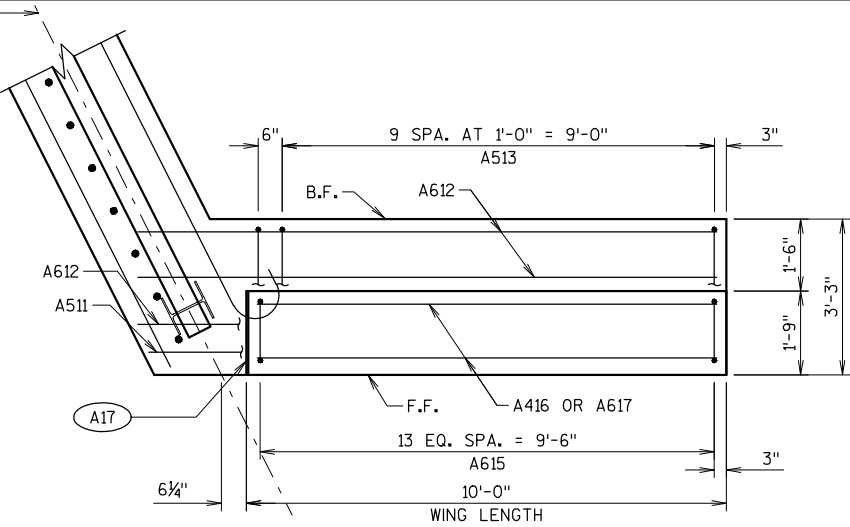
B.F. DENOTES BACK FACE  
F.F. DENOTES FRONT FACE  
E.F. DENOTES EACH FACE  
\*\* MATCH SLOPE OF SLAB



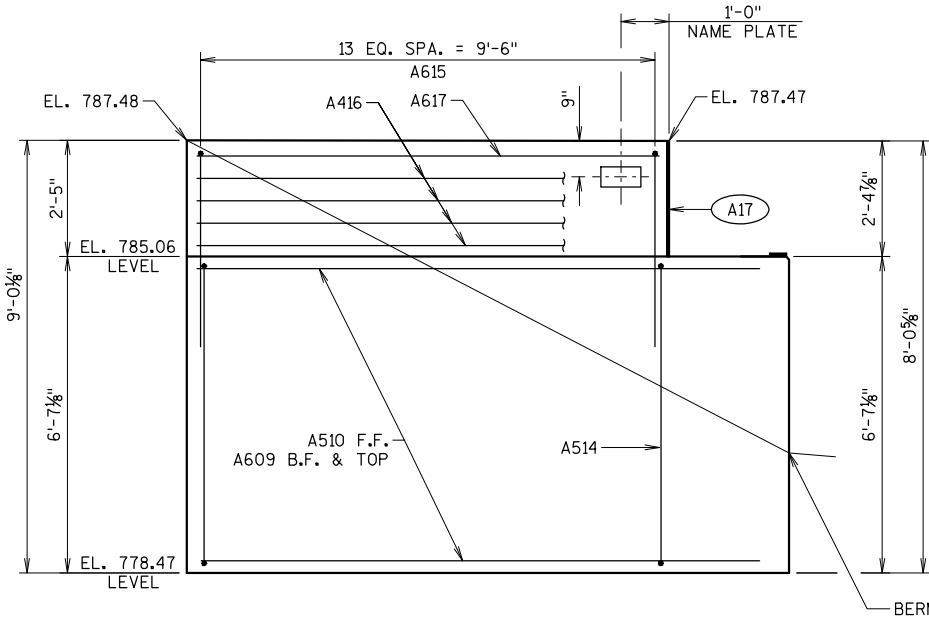
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY PKF		PLANS ETP	
SOUTH ABUTMENT DETAILS			SHEET 5 OF 11



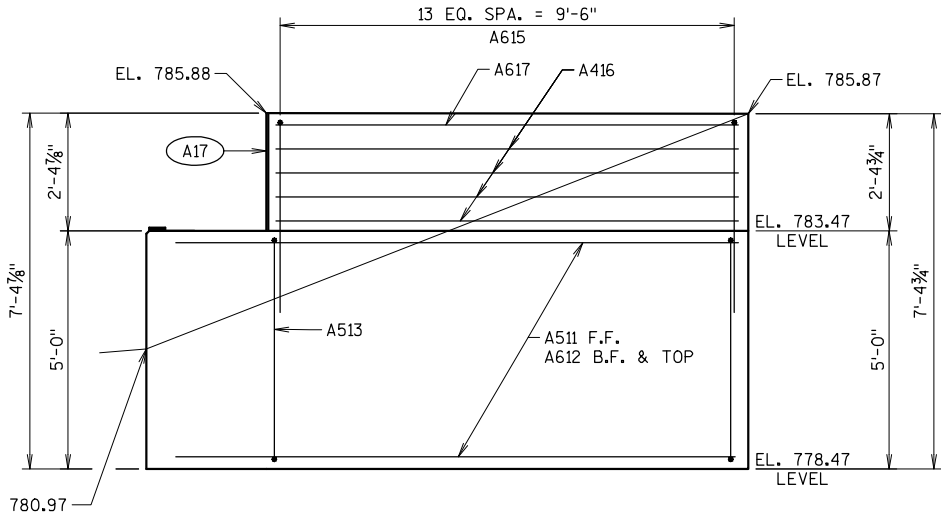
PLAN - WING 1



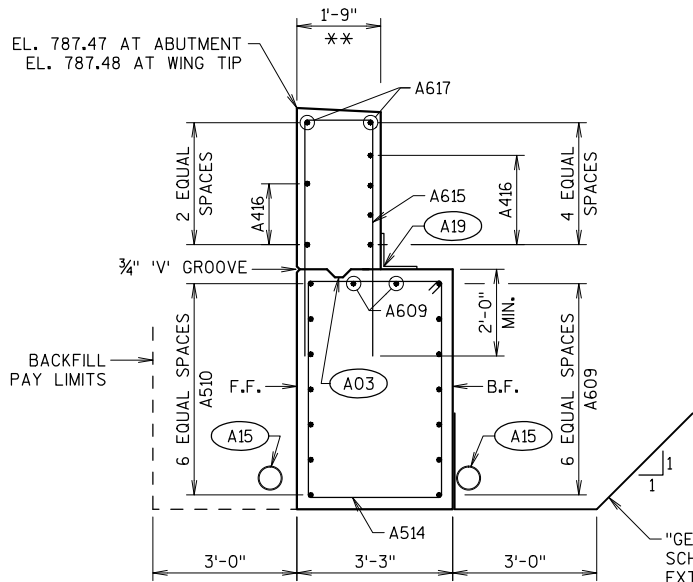
PLAN - WING 2



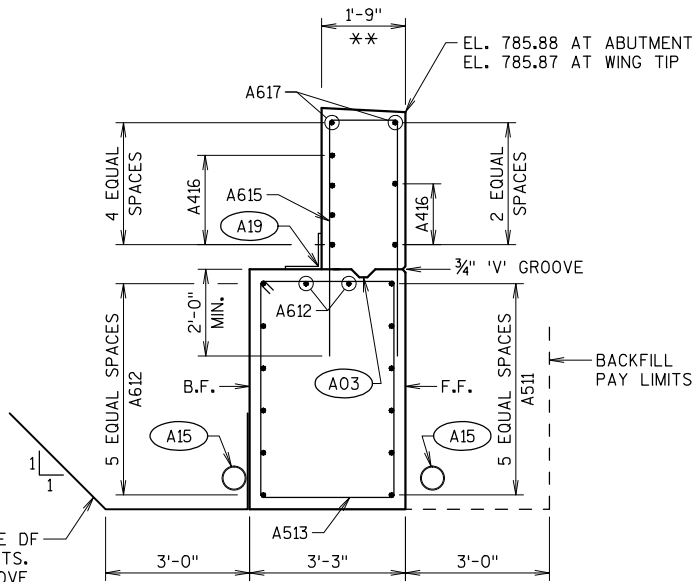
ELEVATION - WING 1



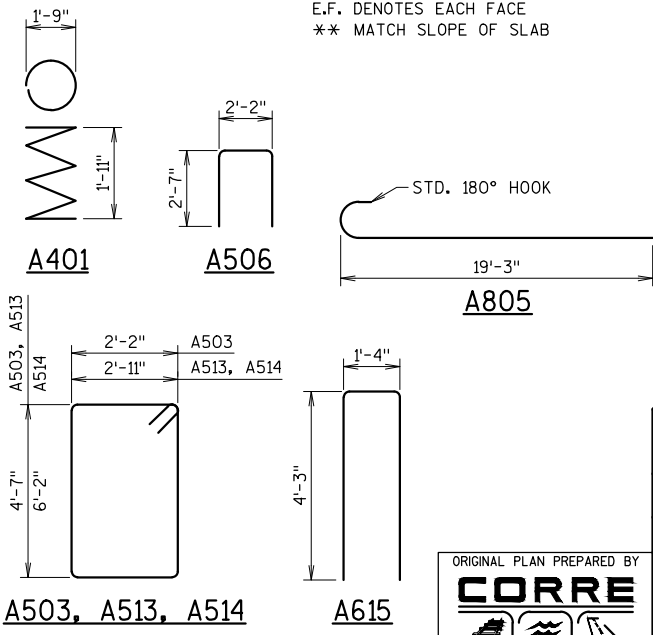
ELEVATION - WING 2



SECTION THRU WING 1



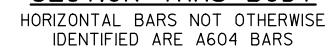
SECTION THRU WING 2





○ INDICATES WING NUMBER

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



NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-62-246					
			DRAWN BY	PKF	PLANS CK'D. ETP
NORTH ABUTMENT				SHEET 6 OF 11	

BILL OF BARS - NORTH ABUTMENT

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

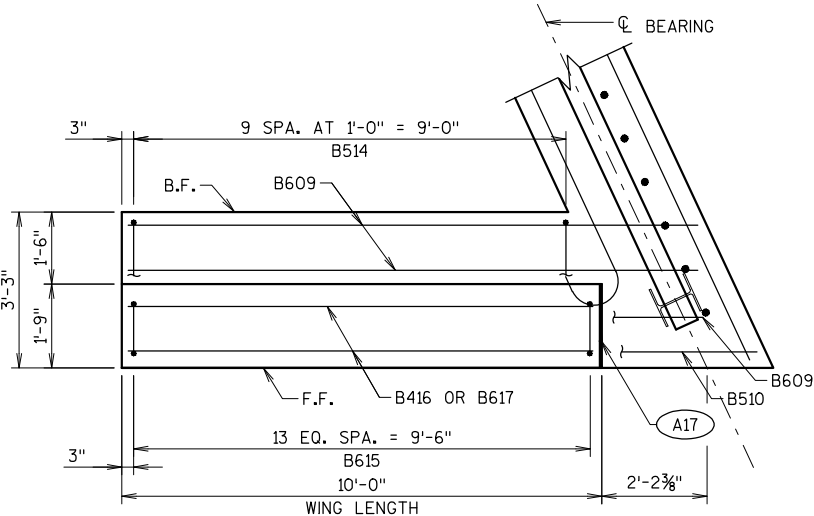
BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS					TOTAL WEIGHT = 2,400 LBS
B401	5	28'-0"	X		BODY - AT PILES - 1 PER PILE VERT.
B402	10	2'-3"			BODY - AT PILES - 2 PER PILE VERT.
B503	44	14'-2"	X		BODY - STIRRUPS
B604	22	18'-10'			BODY - F.F. TOP, BOT. HORIZ.
B805	14	20'-2"	X		BODY - B.F. HORIZ.
B506	29	6'-9"	X		BODY - ABUT SEAT TRANS.
B407	3	28'-4"			BODY - ABUT SEAT HORIZ.
COATED BARS					TOTAL WEIGHT = 1,590 LBS
B508	34	2'-0"			BODY - TOP VERT.
B609	8	11'-3"			WING 3 - B.F. HORIZ.
B510	6	13'-3"			WING 3 - F.F. HORIZ.
B511	7	13'-7"			WING 4 - F.F. HORIZ.
B612	9	14'-7"			WING 4 - B.F. HORIZ.
B513	13	18'-8"	X		WING 4 - STIRRUPS TRANS.
B514	10	15'-8"	X		WING 3 - STIRRUPS TRANS.
B615	30	9'-7"	X		WINGS 3 & 4 VERT.
B416	6	9'-8"			WING 3 - B.F. & F.F. VERT.
B617	2	9'-8"			WINGS 3 - TOP HORIZ.
B418	6	11'-8"			WING 4 - B.F. & F.F. VERT.
B619	2	11'-8"			WINGS 4 - TOP HORIZ.

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

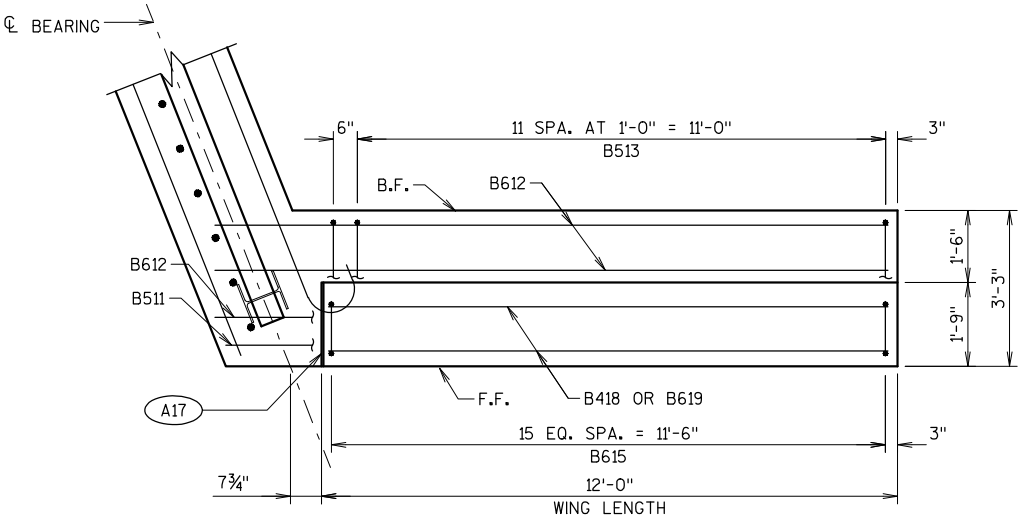
LEGEND

- A03 OPTIONAL KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" (18" RUBBERIZED MEMBRANE WATERPROOFING AT B.F. & 3/4" "V" GROOVE AT F.F. IF JOINT IS USED).
- A15 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): 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.)
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

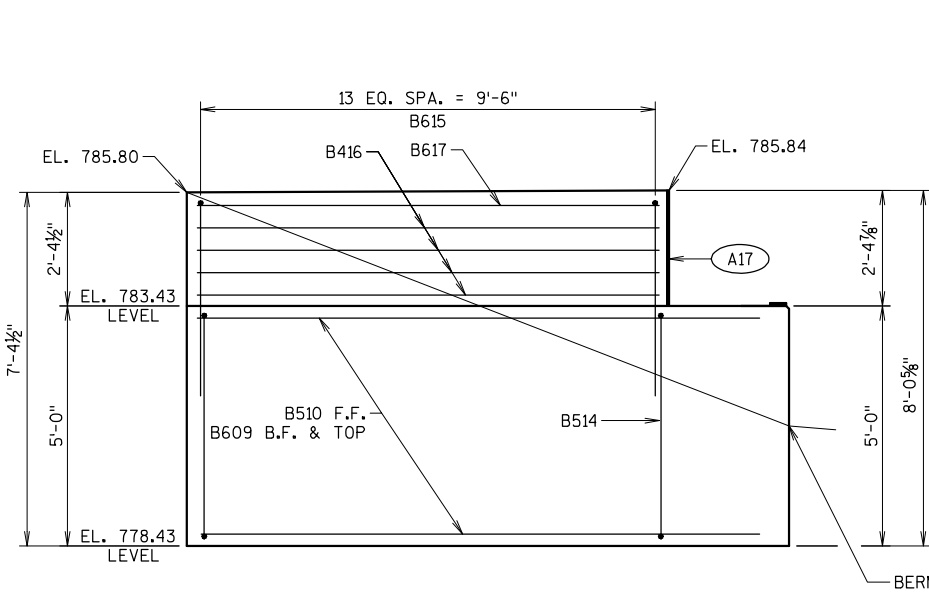
B.F. DENOTES BACK FACE  
F.F. DENOTES FRONT FACE  
E.F. DENOTES EACH FACE  
\*\* MATCH SLOPE OF SLAB



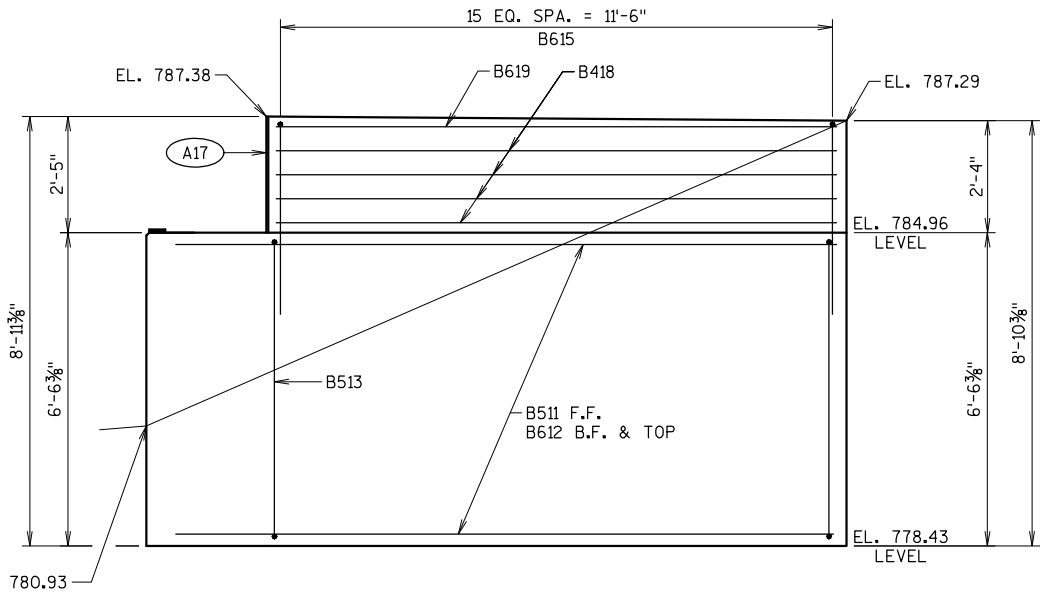
PLAN - WING 3



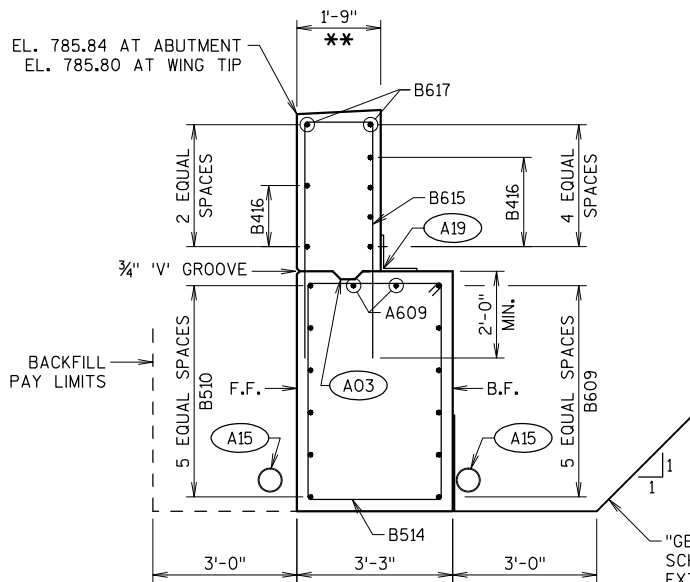
PLAN - WING 4



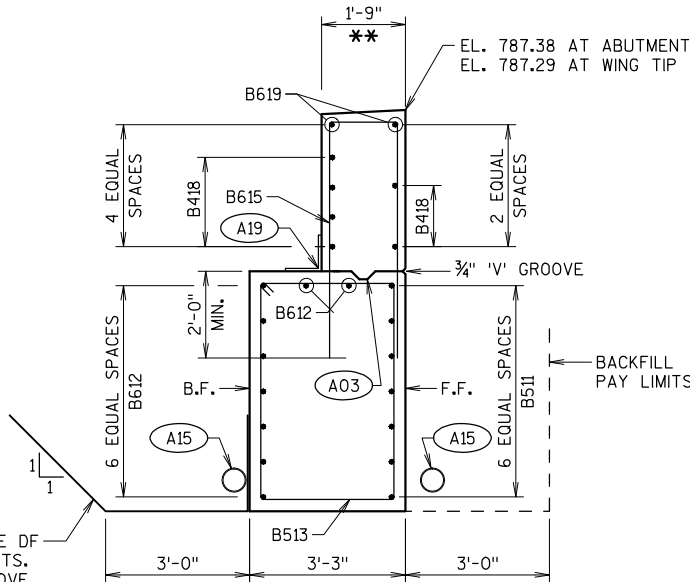
ELEVATION - WING 3



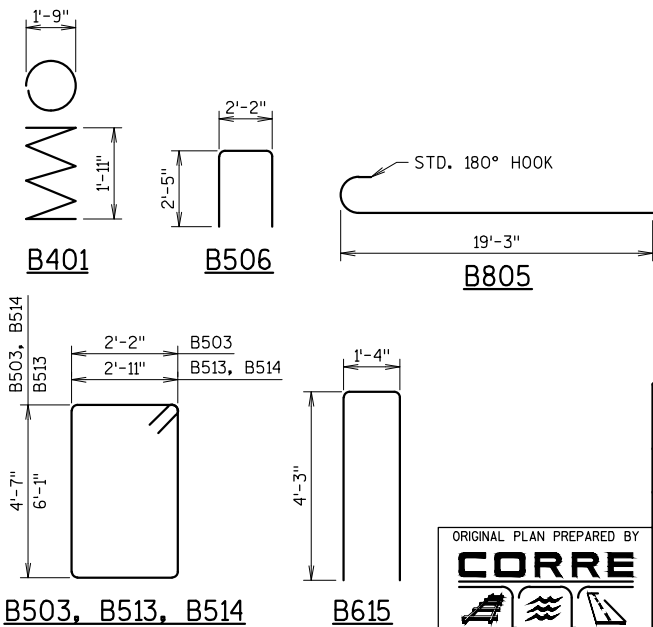
ELEVATION - WING 4



SECTION THRU WING 3



SECTION THRU WING 4



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY PKF		PLANS ETP	
NORTH ABUTMENT DETAILS			SHEET 7 OF 11



NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE CL OF SUBSTRUCTURE UNITS.

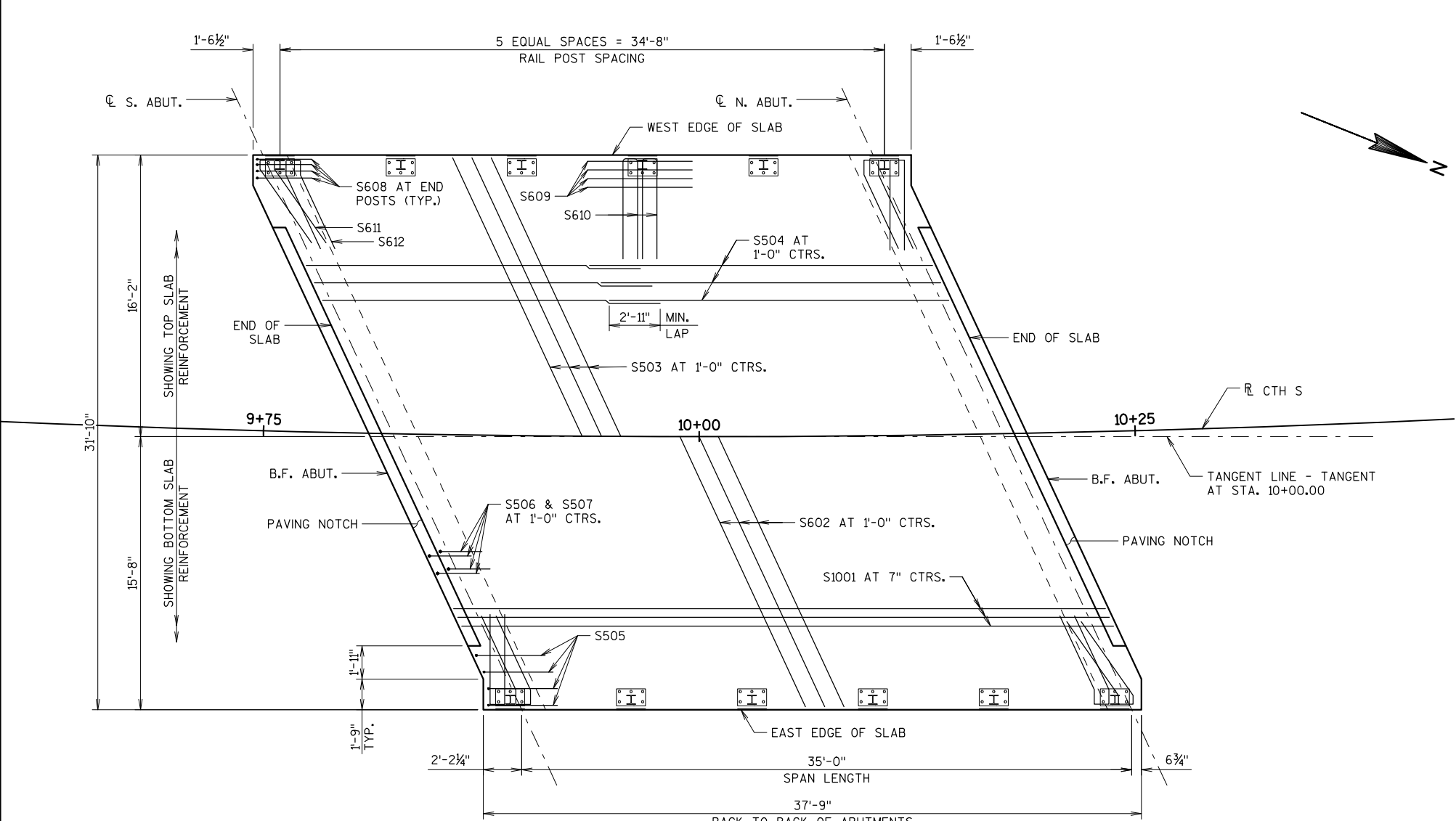
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

LEGEND

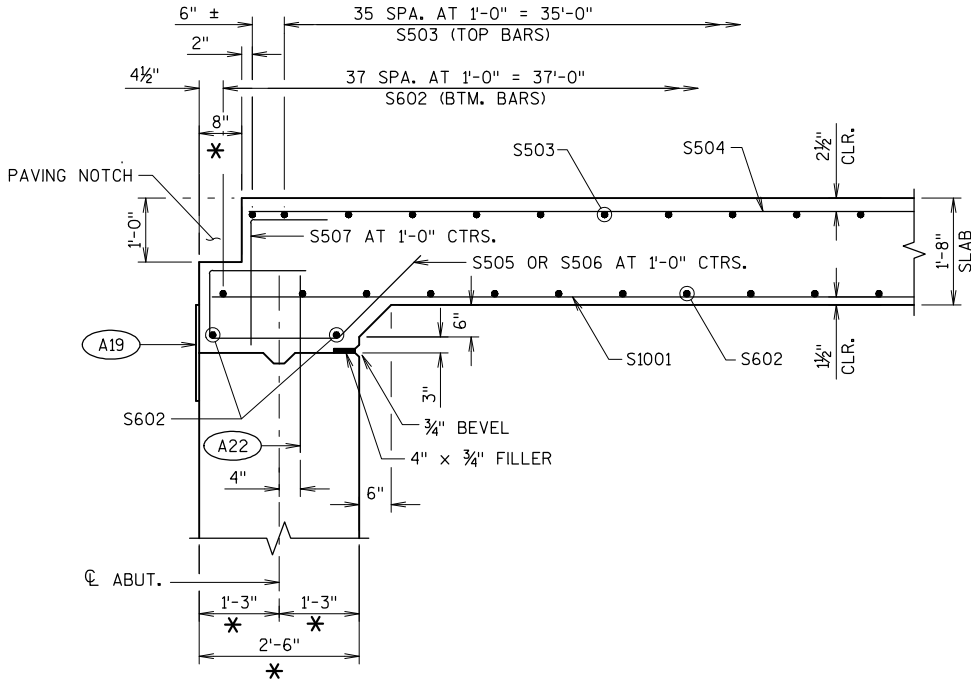
A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

A22 A507 OR B509 BARS AT 1'-0". THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

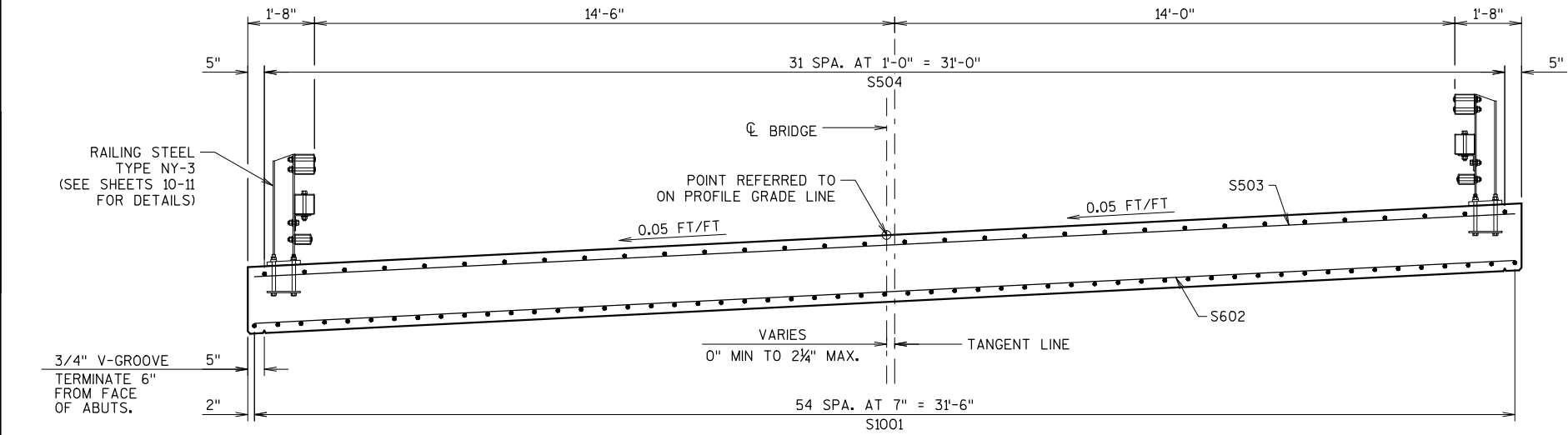
\* DIMENSION IS NORMAL TO CL SUBSTRUCTURE.



PLAN

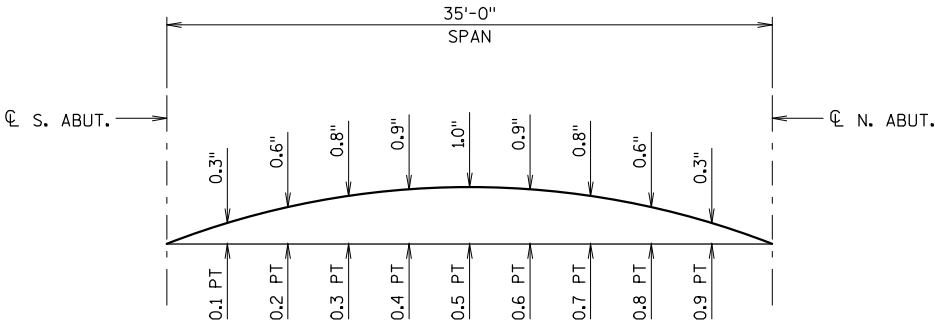


PARTIAL LONGITUDINAL SECTION



TYPICAL SECTION THRU SLAB

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY		PKF	PLANS CK'D. ETP
ORIGINAL PLAN PREPARED BY		CORRE	
SUPERSTRUCTURE		SHEET 8 OF 11	



CAMBER DIAGRAM

PROVIDE CAMBER AS SHOWN ABOVE TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. THIS DOES NOT INCLUDE ANY ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CL.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

TOP OF SLAB ELEVATION AT FINAL GRADE  
LESS SLAB THICKNESS  
PLUS CAMBER  
PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)

EQUALS TOP OF SLAB FALSEWORK ELEVATION.

TOP OF DECK ELEVATIONS

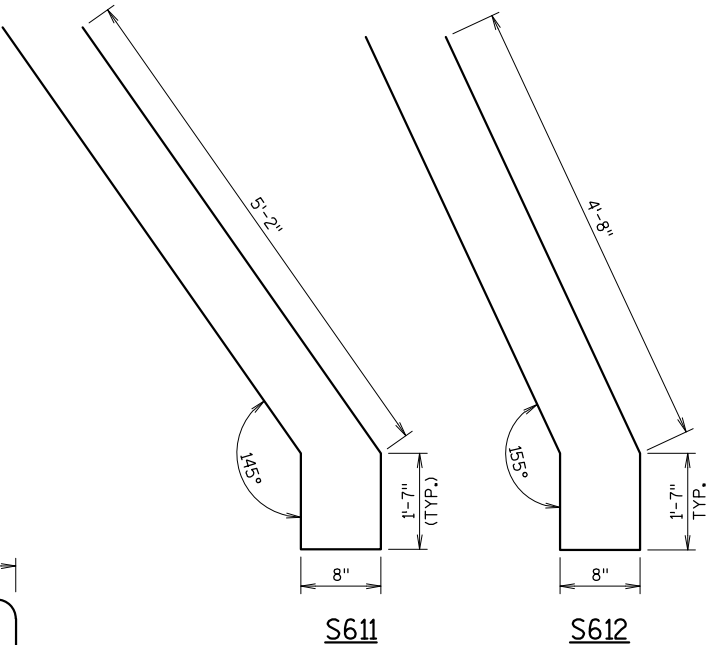
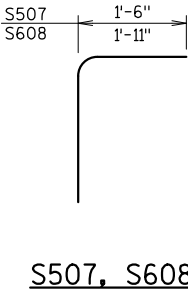
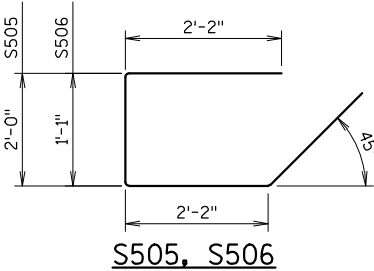
LOCATION	CL OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF N. ABUT.
WEST EDGE OF SLAB	785.91	785.90	785.90	785.90	785.89	785.88	785.88	785.87	785.87	785.86	785.85
CL STRUCTURE (ALONG TANGENT LINE)	786.70	786.69	786.69	786.69	786.69	786.68	786.67	786.66	786.65	786.64	786.63
EAST EDGE OF SLAB	787.48	787.48	787.47	787.46	787.46	787.45	787.44	787.43	787.42	787.41	787.39

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

SURVEY TOP OF SLAB ELEVATIONS

SPAN POINT	W. ABUT.	0.5	E. ABUT.
WEST EDGE OF SLAB	785.87	785.83	785.8
CL STRUCTURE	786.53	786.53	786.53
EAST EDGE OF SLAB	787.48	787.25	787.29

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CL. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.



BILL OF BARS - SUPERSTRUCTURE

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 15,440 LBS
S1001	55	37'-5"			SLAB - BTM LONGIT.
S602	42	35'-10"			SLAB - BTM TRANS.
S503	38	35'-10"			SLAB - TOP TRANS.
S504	66	19'-6"			SLAB - TOP LONGIT.
S505	16	7'-10"	X		SLAB - OUTSIDE PAVING NOTCH TRANS.
S506	50	7'-1"	X		SLAB - AT PAVING NOTCH TRANS.
S507	50	3'-0"	X		SLAB - AT PAVING NOTCH VERT.
S608	16	6'-2"	X		SLAB - AT CORNER RAIL POSTS VERT.
S609	32	6'-0"			SLAB - AT INTERIOR RAIL POSTS LONGIT.
S610	18	12'-0"	X		SLAB - AT INTERIOR RAIL POSTS TRANS.
S611	2	13'-8"	X		SLAB - AT CORNERS 2 & 4 TRANS.
S612	4	12'-8"	X		SLAB - AT CORNER RAIL POSTS TRANS.

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

LEGEND

- ① W6 X 25 WITH 1½" X 1½" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT NO. 5. USE 1" DIA. HOLES FOR BOLT NO. 6 AT NO. 5A AND FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1½" X 10" X 1'-2" WITH 1½" X 1½" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1½" LONG BOLT FOR CONCRETE DECKS. ON CONCRETE SLAB SUPERSTRUCTURES, USE 1'-3" LONG BOLT FOR SLAB THICKNESS > 16" AND 11½" LONG FOR THICKNESS ≤ 16". USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)
- ④ ¾" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1½" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 6 X 6 X ¾" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ¾" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
- ⑤A TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1½" X 1½" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑥ ¾" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, ¾" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
- ⑥A ¾" DIA. A325 BOLT WITH HEX NUT & SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE & 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH ¾" X 1¾" X 1¾" WASHER).
- ⑦ L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
- ⑧ TS 5 X 5 X ⅝" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
- ⑧A 4¼" X 2½" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
- ⑨ ¾" DIA. A325 FULLY THREADED BOLTS, 7" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
- ⑨A ¾" DIA. A325 FULLY THREADED BOLTS, 4" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
- ⑩ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

● TIE TO TOP MAT OF STEEL.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY3 B-62-246", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

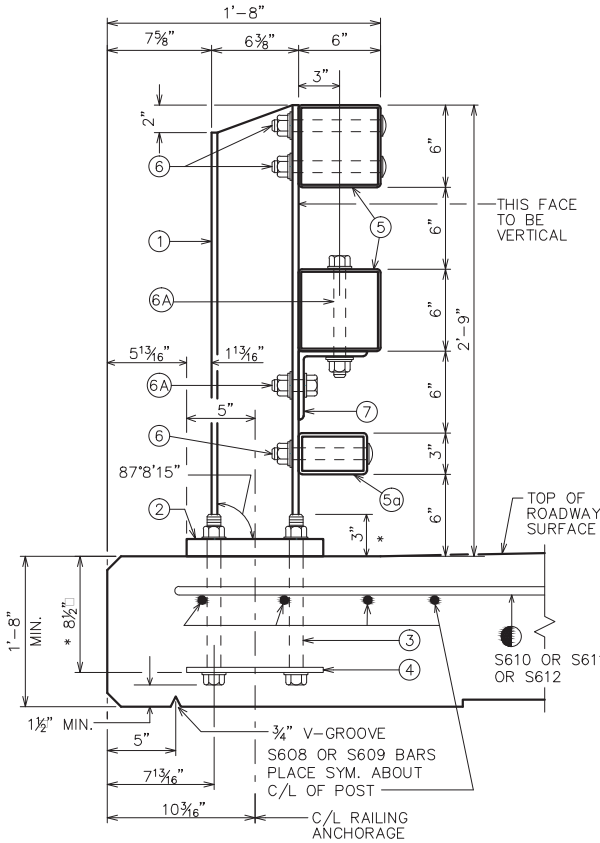
RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED  $f_y=50$  KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ½" TURN.

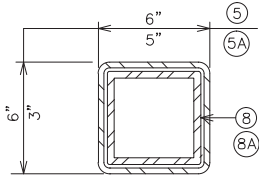
FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

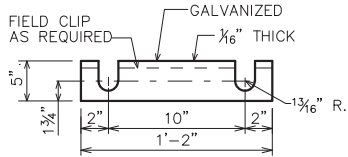
THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).



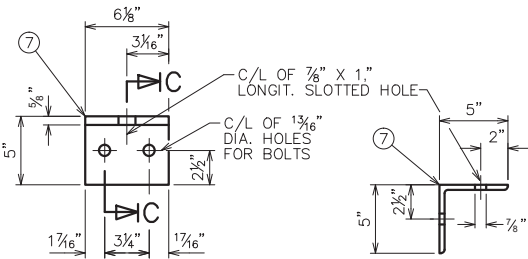
SECTION THRU RAILING ON SLAB  
\* NORMAL TO BASE PLATE



SECTION D-D

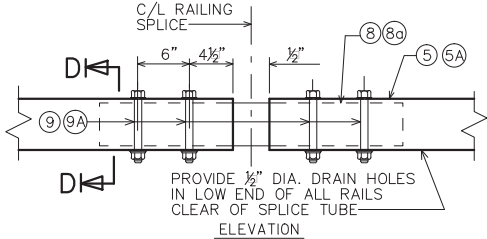
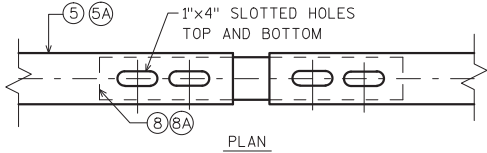


POST SHIM DETAIL

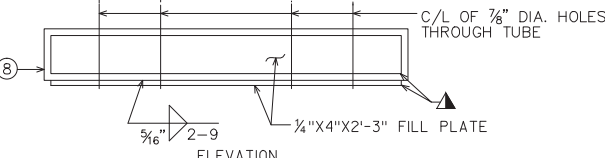
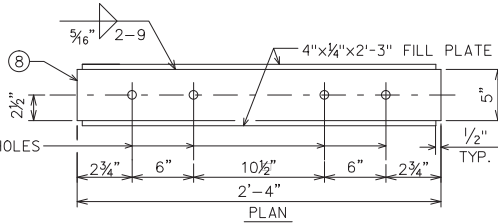


RAILING ANGLE DETAIL  
INTERIOR ELEVATION

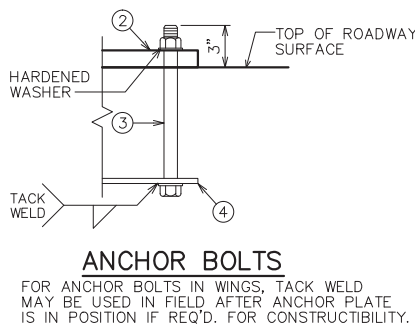
SECTION C-C  
ANGLE SECTION



FIELD ERECTION  
JOINT DETAIL

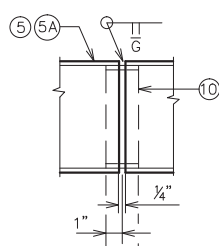


SPLICE TUBE



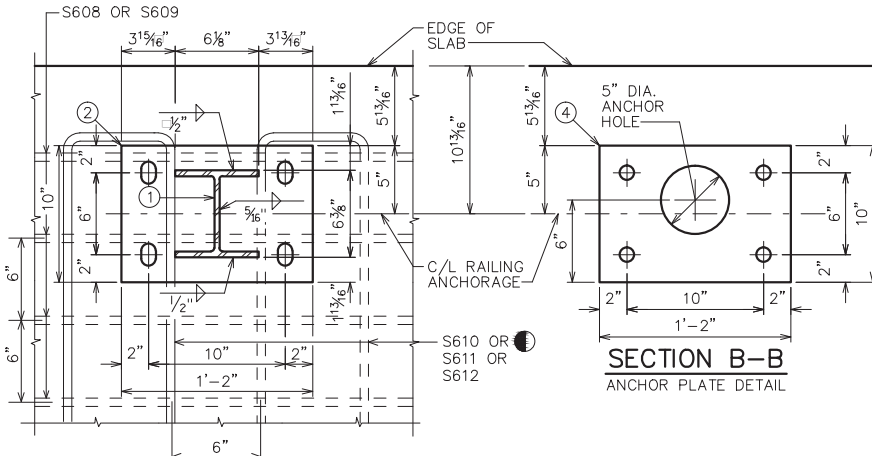
ANCHOR BOLTS

FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

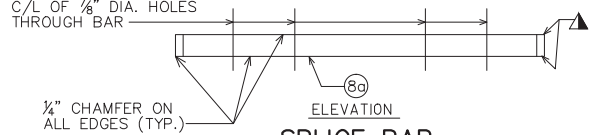
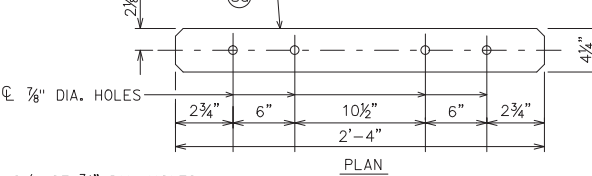


SHOP RAIL  
SPLICE DETAIL

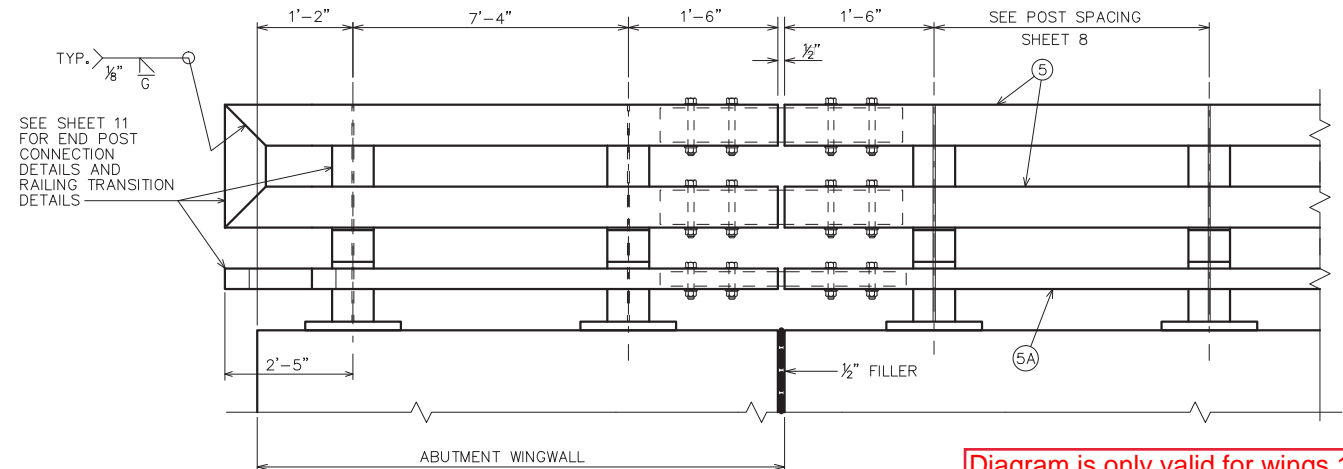
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION A-A  
BASE PLATE DETAIL

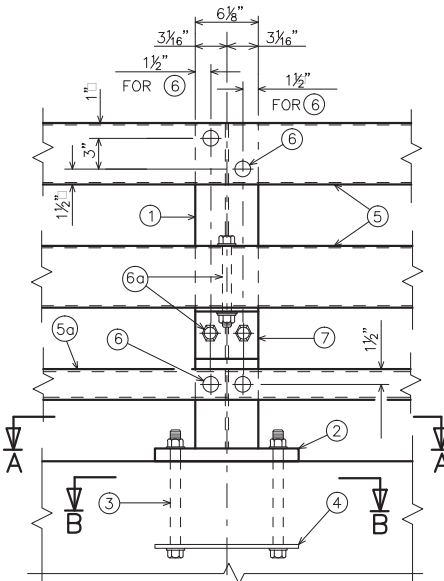


SPLICE BAR



PART ELEVATION OF RAILING  
INTERIOR ELEVATION

Diagram is only valid for wings 1-3.  
See sheet 33a for wing 4's post  
spacing.



PART ELEVATION OF RAILING AT POST  
INTERIOR ELEVATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
DRAWN BY		PKF	PLANS CK'D. ETP
TUBULAR STEEL RAILING TYPE NY3			SHEET 10 OF 11





- (1) W6 X 25 WITH  $\frac{1}{8}$ " X  $\frac{1}{8}$ " HORIZONTAL SLOTTED HOLES ON SIDE OF POST FOR BOLT NO. 6 AT NO. 5. USE  $\frac{1}{2}$ " DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- (2) PLATE  $1\frac{1}{2}$ " X 10" X  $\frac{1}{2}$ ". SEE SHEET "TUBULAR STEEL RAILING NY3" FOR MORE INFORMATION.
- (5) TS 6 X 6 X  $\frac{3}{8}$ " STRUCTURAL TUBING. USE  $\frac{7}{8}$ " DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PART DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.
- (5A) TS 5 X 3 X  $\frac{1}{4}$ " STRUCTURAL TUBING. USE  $1\frac{1}{8}$ " X  $\frac{1}{8}$ " HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- (6)  $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT,  $\frac{3}{16}$ " X  $1\frac{1}{4}$ " X  $1\frac{1}{4}$ " WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).
- (11) TS 6 X 6 X  $\frac{3}{8}$ " STRUCTURAL TUBING. USE  $\frac{1}{2}$ " DIA. HOLES IN FRONT AND BACK FOR BOLT NO. 14 &  $\frac{7}{8}$ " DIA. HOLES IN TOP & BOTTOM FOR BOLT NO. 13.
- (12) L 6 X 6 X  $\frac{1}{2}$ " STRUCTURAL ANGLE. USE  $\frac{7}{8}$ " DIA. HOLES IN TOP FLANGE FOR BOLT NO. 13.
- (13)  $\frac{3}{4}$ " DIA. A325 FULLY THREADED BOLTS, 2 WASHERS AND A HEAVY HEX NUT, ON EACH BOLT. NUT TO BE FINGER TIGHT. 3 BOLTS AT EACH END POST.
- (14)  $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT AND  $\frac{3}{16}$ " X 2" X 2" WASHER FOR CONNECTION OF THRIE BEAM (4 REQUIRED).

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED  $F_y=50$  KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-62-246			
		DRAWN BY PKF	PLANS CHKD. ETP
END POST FOR RAILING TYPE NY3		SHEET 11 OF 11	