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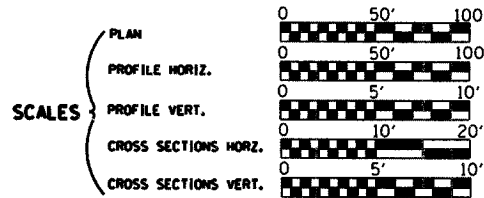
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**LIST OF STANDARDS**

- Standard 000001-04 Standard symbols, abbreviations and patterns
- Standard 280001-02 Temporary erosion control systems
- Standard 515001-02 Name plate for bridges
- Standard 630001-05 Steel Plate Beam Guardrail
- Standard 630301-03 Shoulder Widening For Type 1 (Special) Guardrail Terminals
- Standard 631026-02 Traffic Barrier Terminal Type 5A
- Standard 701011-01 Off-road moving operations, 2-l, 2-w, day only, for speeds > 45 mph
- Standard 701301-02 Lane closure, 2-l, 2-w, short time operations
- Standard 702001-05 Traffic control devices
- Standard BLR-21-6 Typical application of traffic control devices for Construction on Rural Local Highways
- Standard BLR-22-4 Typical application of traffic control devices 2-l, 2-w, rural, Road closed to Thru Traffic

ROADWAY CLASSIFICATION: MAJOR COLLECTOR  
 2021 ADT = 350  
 DESIGN SPEED: 50 MPH  
 DESIGN GUIDELINES: RURAL  
 VARIANCES GRANTED: NONE  
 COMMITMENTS: NONE

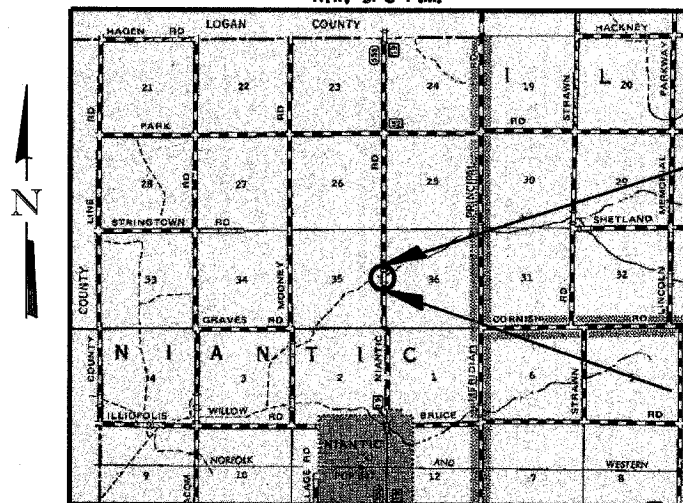
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PLANS FOR PROPOSED  
 LOCAL AGENCY IMPROVEMENT**



**BRIDGE REPLACEMENT  
 AND REHABILITATION PROGRAM  
 C.H. 19 OVER WILLOW BRANCH  
 SECTION 03-00181-00-BR  
 MACON COUNTY  
 PROJECT BRS-555(205)**

C-95-328-05

RIW, 3rd P.M.



IMPROVEMENT ENDS  
 STA. 20+40.00

EXIST. STR. NO. 058-3026  
 PROP. STR. NO. 058-3368

IMPROVEMENT BEGINS  
 STA. 12+00.00

IMPROVEMENT CONSISTS OF THE REMOVAL OF A TWO SPAN PRESTRESSED CONCRETE BOX BEAM SUPERSTRUCTURE ON CLOSED STONE ABUTMENTS WITH TIMBER WINGWALLS AND TIMBER PIER, 0-0 DECK = 21'-2", BK.-BK. ABUTMENTS = 50'-0" AND THE CONSTRUCTION OF A SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE ON CONCRETE SPILL THRU ABUTMENTS. TOTAL LENGTH = 71'-0", WIDTH = 24'-0" O.-O. DECK AND NECESSARY APPROACH ROADWAY WORK.

**LAYOUT**

Approximate Scale: scale miles

Total and Net Length of Improvement 840.00 Feet = 0.159 Miles

**JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS**

J.U.L.I.E. Telephone No. Toll Free 1-800-892-0123

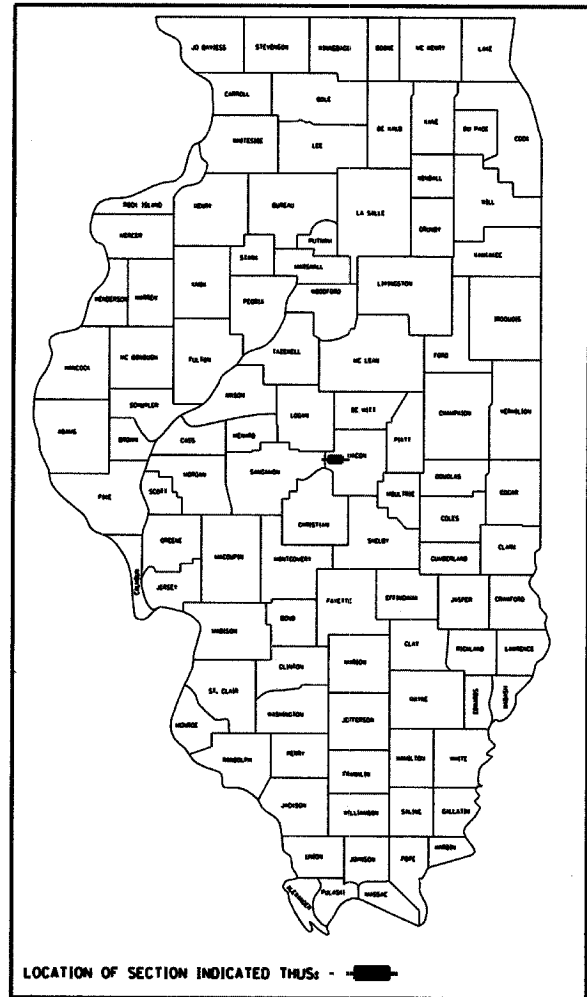
CONTRACT NO. : 91342



3040 N. UNIVERSITY AVE., SUITE ONE  
 DECATUR, ILLINOIS 62526-1343  
 PH. 217-875-4800

RTE. NO.	SECTION	COUNTY	TOTAL SHEETS	SHTS. NO.
C.H. 19	03-00181-00-BR	MACON	13	1
FED. ROAD DIST. NO.	ILLINOIS	PROJECT: BRS-555(205)		

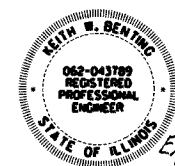
CONTRACT NO. 91342



PLANS DEVELOPED IN ACCORDANCE WITH B.L.R.S. MANUAL

APPROVED	<u>NOVEMBER 10</u>	20 <u>05</u>
	<i>[Signature]</i>	COUNTY ENGINEER
APPROVED		20 <u>  </u>
PASSED	<u>11/29</u>	20 <u>05</u>
	<i>[Signature]</i>	DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review	<u>NOV 29</u>	20 <u>05</u>
	<i>[Signature]</i>	DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION



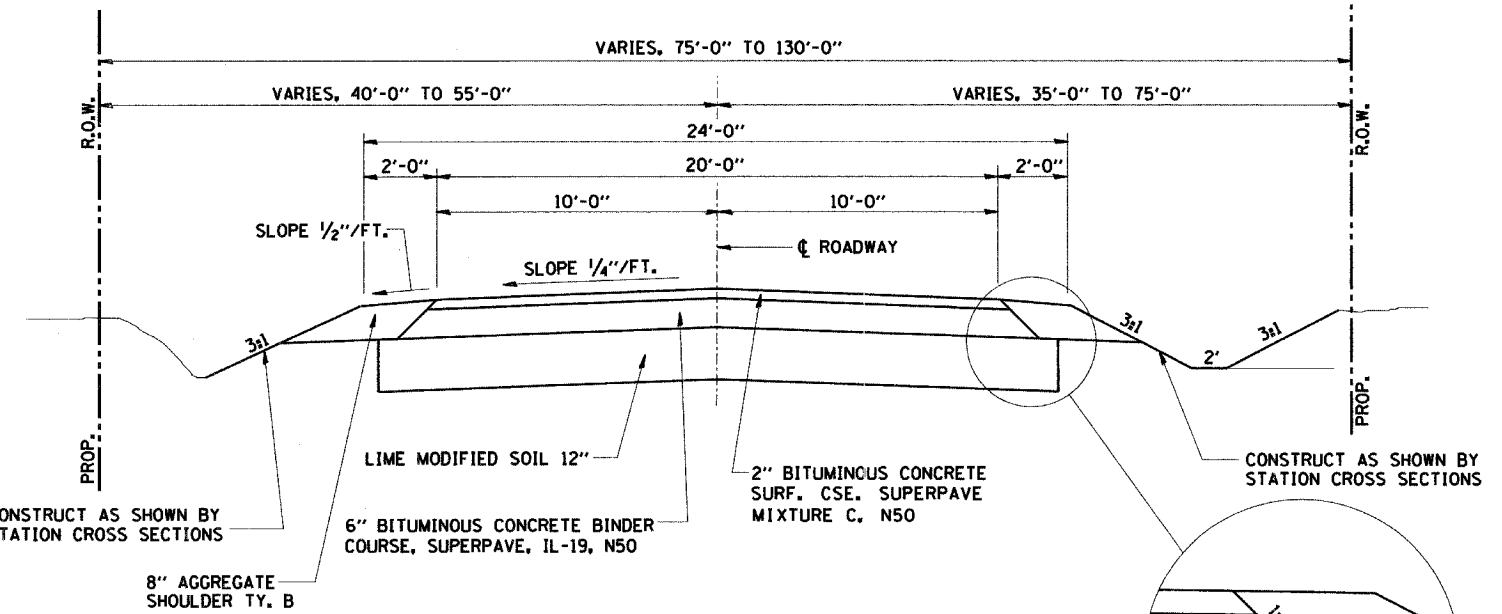
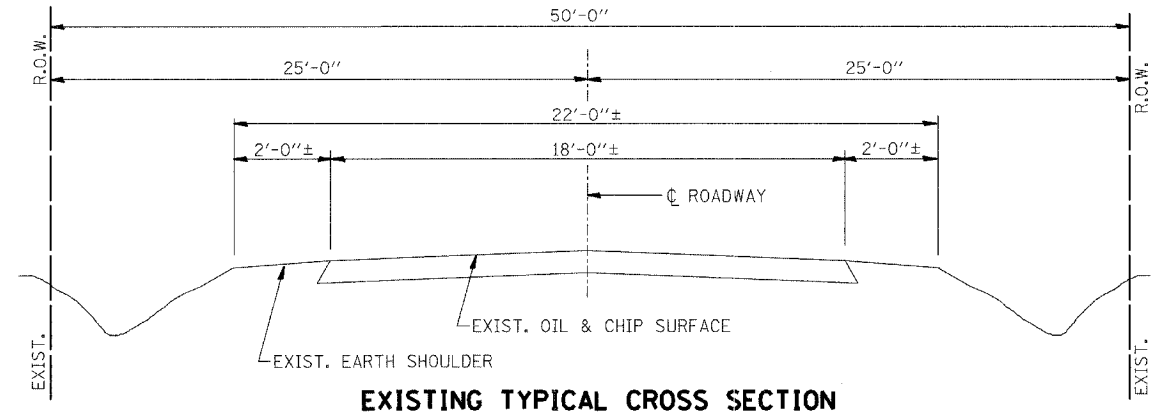
Keith W. Benting  
 Illinois Professional No. 43789

11/10/2005  
 Date

SUMMARY OF QUANTITIES (CONSTRUCTION TYPE CODE X081-2A)		UNIT	QUANTITY
CODE NO.	ITEM		
20200100	EARTH EXCAVATION	CU YD	1112
20200300	EARTH EXCAVATION FOR EROSION CONTROL	CU YD	59
20300100	CHANNEL EXCAVATION	CU YD	484
20400800	FURNISHED EXCAVATION	CU YD	934
25000200	SEEDING, CLASS 2	ACRE	1.1
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	99
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	99
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	99
25100115	MULCH, METHOD 2	ACRE	1.1
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	110
28000300	TEMPORARY DITCH CHECKS	EACH	8
28000400	PERIMETER EROSION BARRIER	FOOT	524
28000500	INLET AND PIPE PROTECTION	EACH	2
28100107	STONE RIPRAP, CLASS A4	SQ YD	1727
28200200	FILTER FABRIC	SQ YD	1727
30201500	LIME	TON	43.0
31000600	PROCESSING LIME STABILIZED SOIL MIXTURE 12"	SQ YD	1909
35101800	AGGREGATE BASE COURSE, TYPE B 6"	SQ YD	111
40300100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	1006
40600300	AGGREGATE (PRIME COAT)	TON	6
48101200	AGGREGATE SHOULDERS, TYPE B	TON	182
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	19.6
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1664
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2320
50900205	STEEL RAILING, TYPE S1	FOOT	139
51201300	FURNISHING STEEL PILES HP8X36	FOOT	247
51202700	DRIVING STEEL PILES	FOOT	247
51203300	TEST PILE STEEL HP8X36	EACH	1
51204315	CONCRETE ENCASEMENT	CU YD	3.4
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	70
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	185
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	485
63000005	STEEL PLATE BEAM GUARD RAIL, TYPE B	FOOT	137.5
63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
63100167	* TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT)	EACH	4
67100100	* MOBILIZATION	L SUM	1
78201000	* TERMINAL MARKER - DIRECT APPLIED	EACH	4
X4066414	* BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "C", N50	TON	216
X4066614	* BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, IL-19.0, N50	TON	598
Z0013825	* CONTROLLED LOW-STRENGTH MATERIAL	CU YD	14.5
* SEE SPECIAL PROVISIONS			

**BITUMINOUS MIXTURE REQUIREMENTS**

LOCATION	CH 19	CH 19
MIX USE	BINDER	SURFACE
AC/PG	PG 58-22	PG 58-22
RAP %	25	15
DESIGN VOIDS	4.0 @ N=50	4.0 @ N=50
MIXTURE COMPOSITION (GRAD. MIXTURE)	IL-19.0	IL-9.5
FRICTION	N/A	MIX C



**GENERAL NOTES**

THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT-OF-WAY AND EASEMENTS AS DIRECTED BY THE ENGINEER.

SEEDING DATES FOR ALL CLASSES OF SEEDING WILL BE AS LISTED BELOW:

CLASS OF SEEDING	BEGINNING DATES	TERMINATION DATES
1, 1A, 1B, 2, 2A, 3 (IN SPRING)	APRIL 1	MAY 15
1, 1A, 1B, 2, 2A, 3 (IN FALL)	AUGUST 15	OCTOBER 15

LAYOUT OF EROSION CONTROL ITEMS MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER (SEE SHEET 8 FOR EROSION CONTROL).

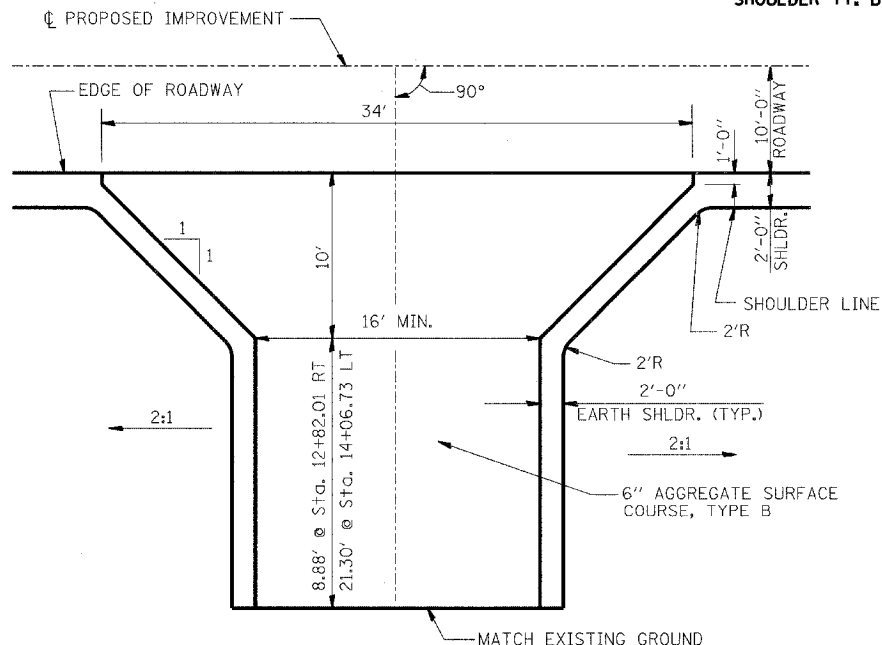
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITY FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR THEIR MARKING OF THE EXACT LOCATION.

WHERE SECTION OR SUB-SECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUB-SECTION MONUMENTS DESTROYED BY HIS OPERATIONS.

REMOVAL OF EXISTING PAVEMENT MATERIAL SHALL BE INCLUDED IN EARTH EXCAVATION.

APPLICATION RATES

LIME	45	LBS./S. Y.
GRANULAR MATERIALS	2.05	TONS/CU. YD.
BITUMINOUS MATERIALS-PRIME COAT	0.50	GALS./S. Y.
BITUMINOUS MATERIALS-FOG COAT	0.03	GALS./S. Y.
AGGREGATE PRIME COAT	2 OR 4	LBS./S. Y.
BITUMINOUS CONCRETE	112	LBS./S. Y./INCH
FERTILIZER NUTRIENTS	90	LBS./ACRE
MULCH METHOD 2	2	TONS/ACRE



**ROADWAY QUANTITY SCHEDULE**

LOCATION	PR LIM STAB SOIL M 12 (SQ YD)	BITUMINOUS MATERIALS (PRIME COAT) (GAL)	AGGREGATE (PRIME COAT) (TON)	BCBC SUP IL-19.0 N50 (TON)	BC SC SUPER "C" N50 (TON)	AGGREGATE SHLDS B (TON)
M.L. STA. 12+00.00 TO STA. 15+27.09	812	428	4	254	82	77
M.L. STA. 15+98.09 TO STA. 20+40.00	1097	578	2	344	111	105
OVERLAY AT STRUCTURE					23	
<b>TOTALS</b>	<b>1909</b>	<b>1006</b>	<b>6</b>	<b>598</b>	<b>216</b>	<b>182</b>

**GENERAL DATA**

Date	Designed MJP	<p>C.H. 19 OVER WILLOW BRANCH SECTION 03-00181-00-BR MACON COUNTY STA. 15+62.59 PROP. STR. NO. 058-3368</p>
Revisions	Drawn MJP	
	Checked KWB	
	Approved KWB	
Prepared by:	<b>URS</b> 3040 North University Avenue Decatur, IL 62526	URS Job No. <b>36431468</b>

**BENCHMARK:**

R.R. SPIKE IN POWER POLE  
 STA. 11+3.41, 27.9' RT.  
 ELEV. 100.00

**EXISTING STRUCTURE NO. 058-3026**

TWO SPAN PRECAST PRESTRESSED BOX BEAM SUPERSTRUCTURE ON  
 CLOSED STONE ABUTMENTS WITH TIMBER WINGWALLS AND TIMBER PIER.  
 50'-0" BK.-BK. ABUTMENTS  
 21'-2" O.-O. DECK

29.4' LT., STA. 13+87.73 TO  
 32.8' LT., STA. 14+25.73  
 39' FOOT PIPE CULVERT;  
 CLASS D, TYPE 1 15"  
 D.S.  $\bar{x}$  = 96.72  
 U.S.  $\bar{x}$  = 97.18

**JEAN WYLIE**

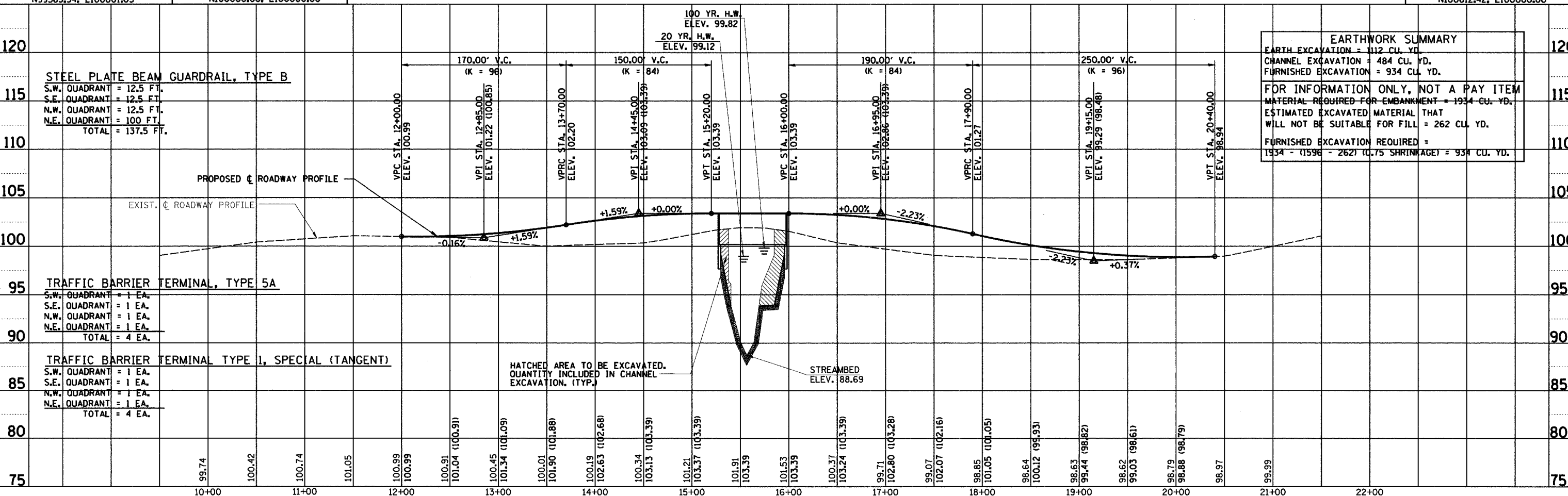
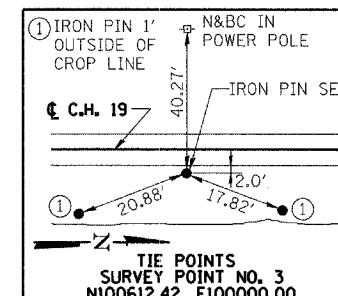
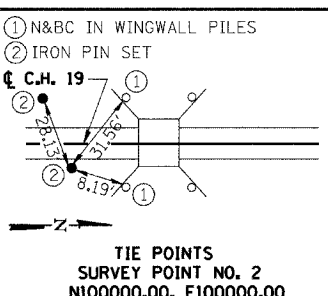
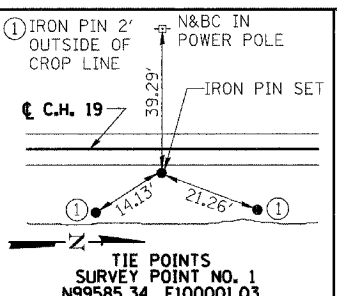
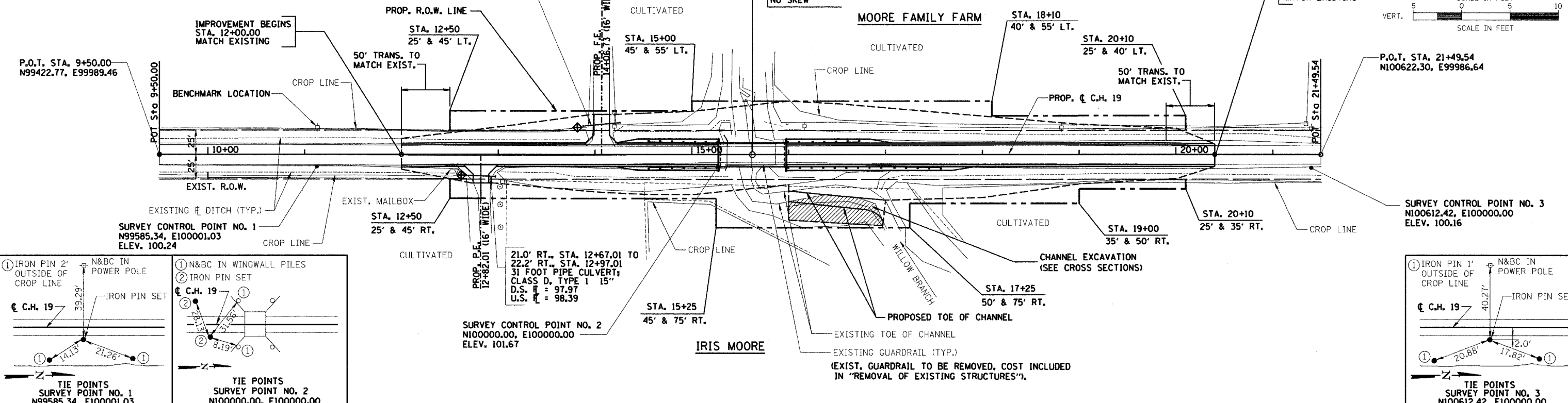
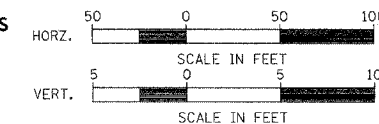
STA. 15+62.59, SPECIAL BRIDGE DESIGN,  
 SINGLE SPAN PPC DECK BEAM BRIDGE,  
 SPAN OF 68'-2" ON CONC. PILE BENT ABUT'S  
 LENGTH = 71'-0" BK.-BK. ABUTMENTS.  
 WIDTH = 24'-0" O.-O. DECK.  
 NO SKEW

**MOORE FAMILY FARM**

IMPROVEMENT ENDS  
 STA. 20+40.00  
 MATCH EXISTING

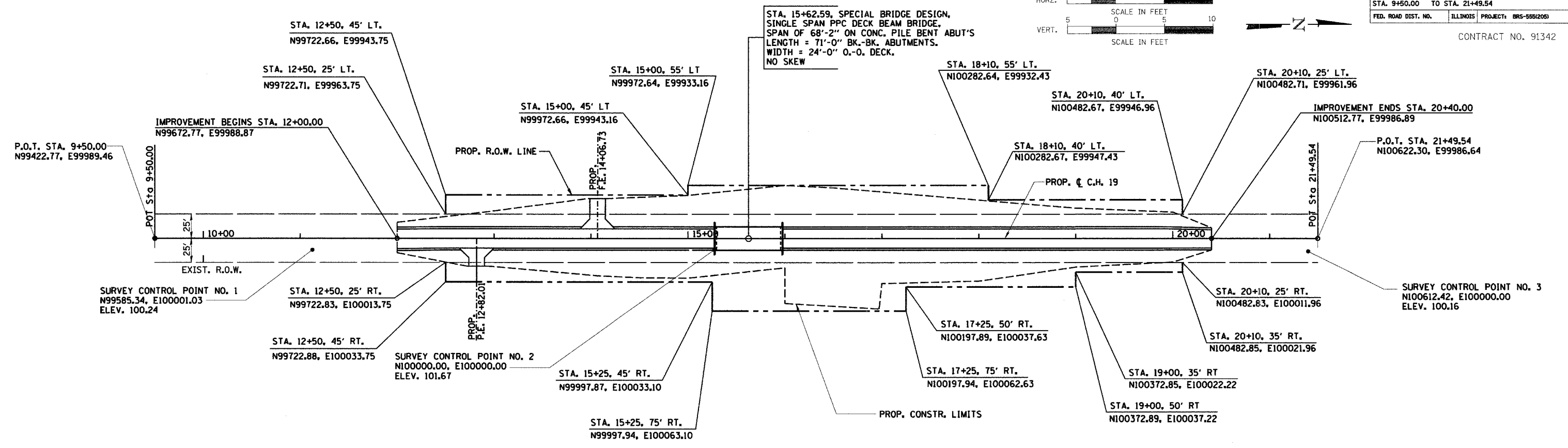
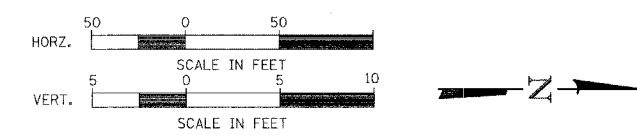
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
C.H. 19	03-00181-00-BR	MACON	13	3
STA. 9+50.00		TO STA. 21+49.54		
FED. ROAD DIST. NO.	ILLINOIS	PROJECT:	BRS-5552051	

CONTRACT NO. 91342



RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 19	03-00181-00-BR	MACON	13	4
STA. 9+50.00 TO STA. 21+49.54				
FED. ROAD DIST. NO.	ILLINOIS	PROJECT: BRS-555(205)		

CONTRACT NO. 91342



STA. 15+62.59, SPECIAL BRIDGE DESIGN,  
SINGLE SPAN PPC DECK BEAM BRIDGE,  
SPAN OF 68'-2" ON CONC. PILE BENT ABUT'S  
LENGTH = 71'-0" BK.-BK. ABUTMENTS.  
WIDTH = 24'-0" O.-O. DECK.  
NO SKEW

PROPOSED STRUCTURE LAYOUT

SOUTH ABUTMENT

BK. OF S. ABUT. STA. 15+27.09  
N99999.86, E99988.10

☐ S. ABUT. STA. 15+28.34  
N100001.11, E99988.10

FACE OF S. ABUT. STA. 15+29.59  
N100002.36, E99988.09

NORTH ABUTMENT

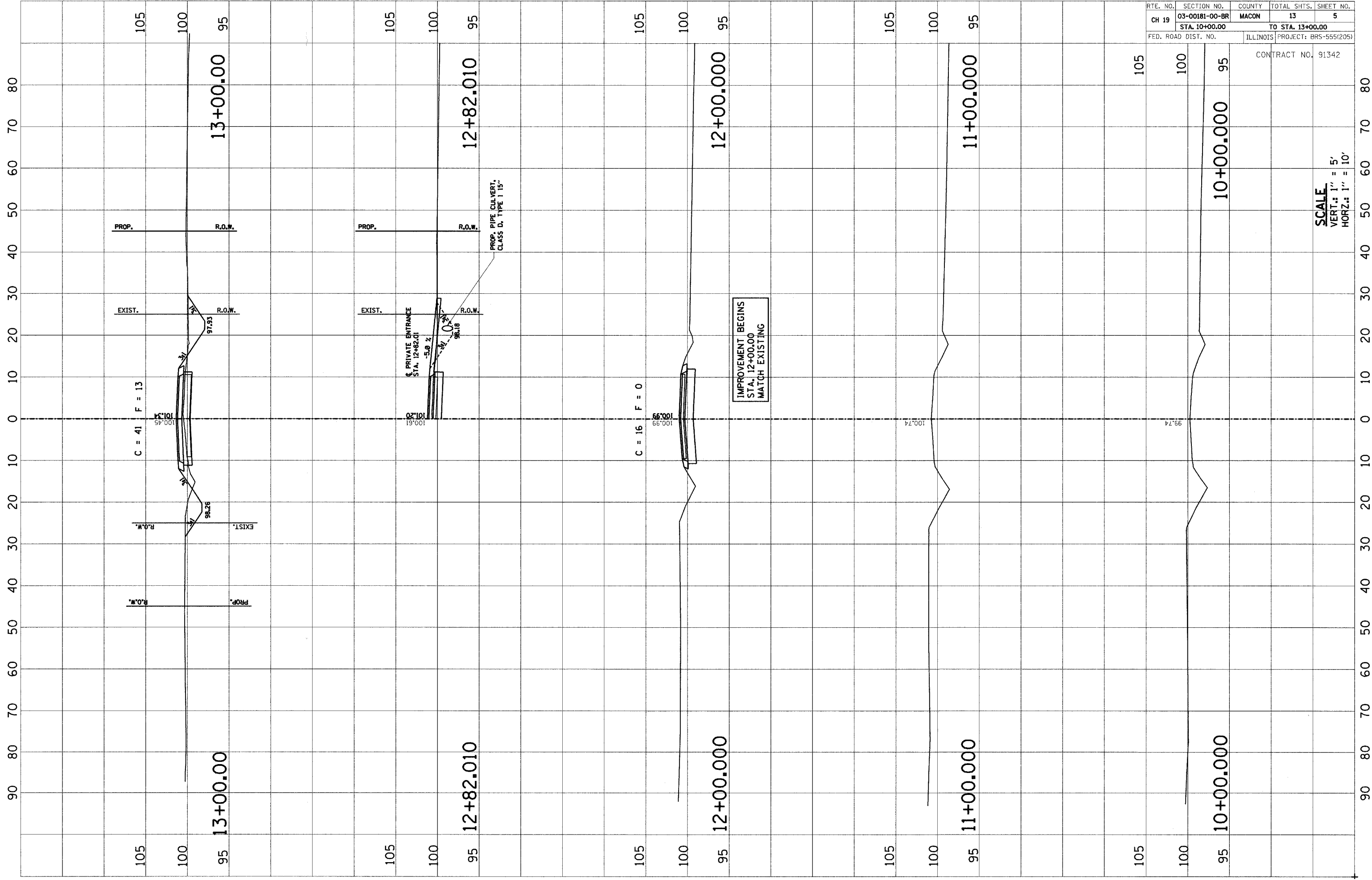
BK. OF N. ABUT. STA. 15+98.09  
N100070.86, E99987.93

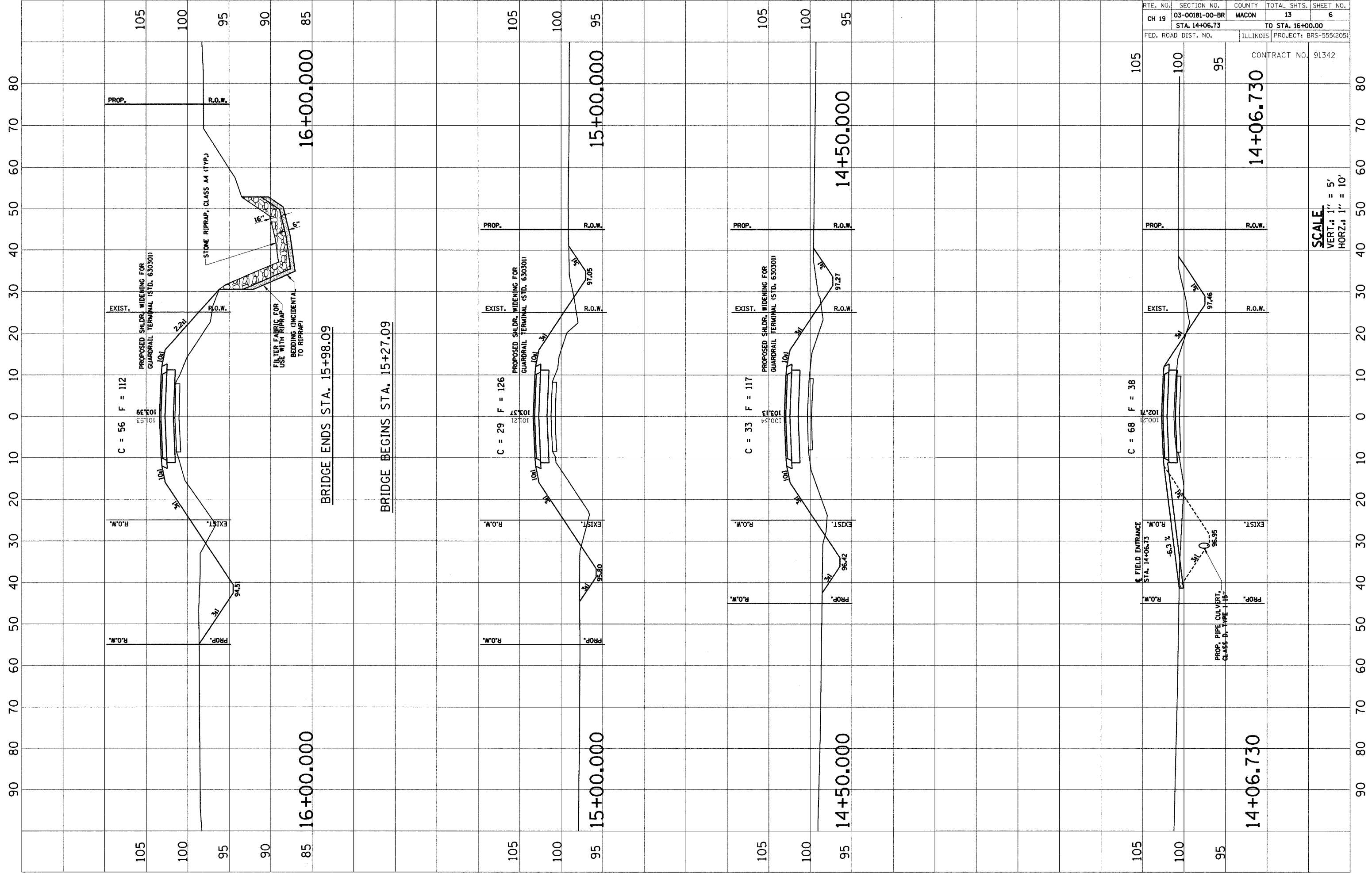
☐ N. ABUT. STA. 15+96.84  
N100069.61, E99987.93

FACE OF N. ABUT. STA. 15+95.59  
N100068.36, E99987.94

NOTE:  
FOR TIE POINTS AND BENCHMARK LOCATION,  
SEE SHEET 3 OF 13.

HORIZONTAL LAYOUT



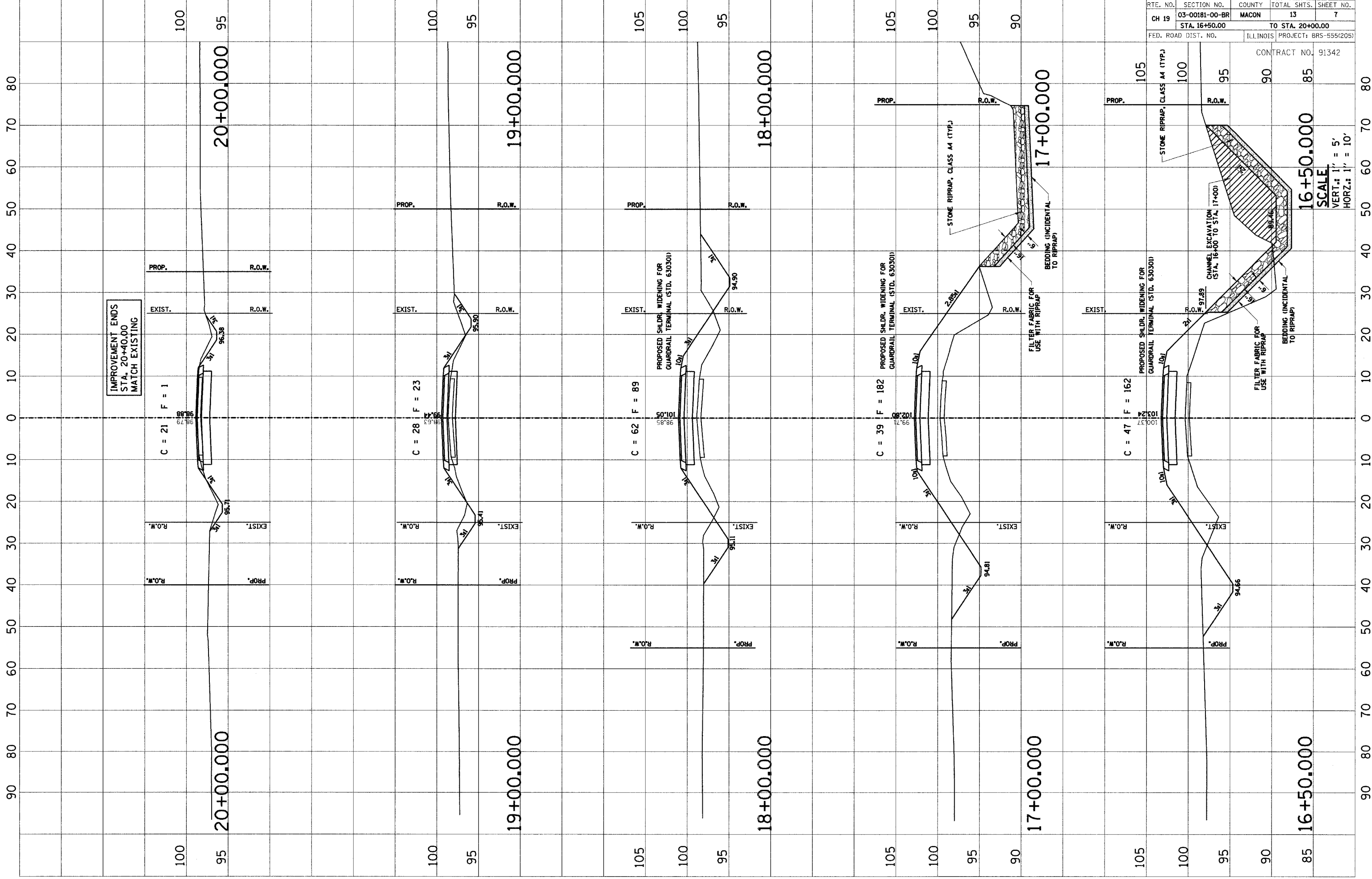


**SCALE**  
 VERT.: 1" = 5'  
 HORZ.: 1" = 10'

RTE. NO.	SECTION NO.	COUNTY	TOTAL SHTS.	SHEET NO.
CH 19	03-00181-00-BR	MACON	13	7
STA. 16+50.00		TO STA. 20+00.00		
FED. ROAD DIST. NO.		ILLINOIS	PROJECT: BRS-555(205)	

CONTRACT NO. 91342

SCALE  
 VERT.: 1" = 5'  
 HORZ.: 1" = 10'

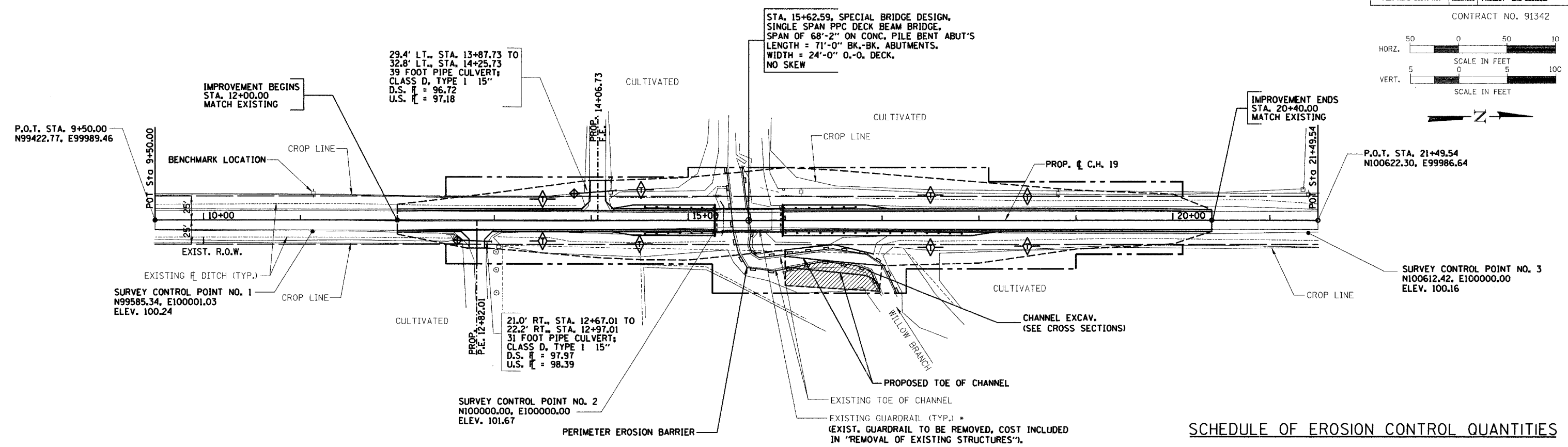
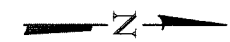
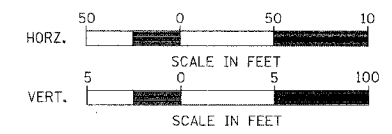


IMPROVEMENT ENDS  
 STA. 20+40.00  
 MATCH EXISTING



RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 19	03-00181-00-BR	MACON	13	8
STA. 9+50.00		TO STA. 21+49.54		
FED. ROAD DIST. NO.	ILLINOIS	PROJECT	BRS-555(205)	

CONTRACT NO. 91342



STA. 15+62.59, SPECIAL BRIDGE DESIGN,  
SINGLE SPAN PPC DECK BEAM BRIDGE,  
SPAN OF 68'-2" ON CONC. PILE BENT ABUT'S  
LENGTH = 71'-0" BK.-BK. ABUTMENTS,  
WIDTH = 24'-0" O.-O. DECK,  
NO SKEW

29.4' LT., STA. 13+87.73 TO  
32.8' LT., STA. 14+25.73  
39 FOOT PIPE CULVERT;  
CLASS D, TYPE I 15"  
D.S.  $\bar{H}$  = 96.72  
U.S.  $\bar{H}$  = 97.18

21.0' RT., STA. 12+67.01 TO  
22.2' RT., STA. 12+97.01  
31 FOOT PIPE CULVERT;  
CLASS D, TYPE I 15"  
D.S.  $\bar{H}$  = 97.97  
U.S.  $\bar{H}$  = 98.39

**LEGEND**

- TEMPORARY AGGREGATE DITCH CHECK (TYP.)  
(COST INCLUDED IN TEMPORARY DITCH CHECK,  
SEE STD. 280001)
- PERIMETER EROSION BARRIER
- TEMPORARY PIPE PROTECTION

ALL ITEMS SHALL BE CONSTRUCTED AS SHOWN ON STANDARD 280001  
AND AS DIRECTED BY THE ENGINEER. MAINTENANCE AND CLEANING OF  
THE EROSION CONTROL ITEMS SHALL BE INCLUDED IN THE RESPECTIVE  
EROSION CONTROL PAY ITEM.

**STORM WATER POLLUTION PREVENTION PLAN**

**DESCRIPTION OF INTENDED SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES:**

1. REMOVAL OF EXISTING STRUCTURE.
2. EXCAVATION WILL BE COMPLETED ALONG THE ENTIRE LENGTH OF THE JOB TO REMOVE THE EXISTING ROADWAY AND GRADE THE PROPOSED DITCHES.
3. NECESSARY EMBANKMENT WILL BE PLACED ALONG THE ENTIRE LENGTH OF THE JOB FOR THE PROPOSED ROADWAY.
4. PLACEMENT, MAINTENANCE, REMOVAL AND PROPER CLEAN-UP OF TEMPORARY EROSION CONTROL ITEMS, SUCH AS PERIMETER EROSION BARRIER, AGGREGATE DITCH CHECKS, TEMPORARY SEEDING AND OTHER MISCELLANEOUS EROSION CONTROL MEASURES.
5. CONSTRUCT NEW BRIDGE SUBSTRUCTURE UNITS.
6. PLACEMENT OF PERMANENT EROSION CONTROL ITEMS, INCLUDING RIPRAP AND SEEDING.
7. CONSTRUCT NEW BRIDGE SUPERSTRUCTURE AND APPROACH ROADWAY.
8. FINAL GRADING AND OTHER MISCELLANEOUS ITEMS.

**NOTES:**  
ALL DITCH CHECKS SHALL BE AGGREGATE.  
FOR LAYOUT OF STONE RIPRAP AT BRIDGE, SEE SHT. 10 OF 13.

**SCHEDULE OF EROSION CONTROL QUANTITIES**

**EARTH EXCAVATION FOR EROSION CONTROL**  
TOTAL = 59 CU. YD.

**TEMPORARY EROSION CONTROL SEEDING**  
100 LBS/ACRE X 1.1 ACRES = 110 POUNDS

**SEEDING, CLASS 2**  
AREA INSIDE OF CONSTRUCTION  
LIMITS, LESS ROADWAY.  
TOTAL = 1.1 ACRES

**NITROGEN FERTILIZER NUTRIENT**  
TOTAL = 99 POUNDS

**PHOSPHORUS FERTILIZER NUTRIENT**  
TOTAL = 99 POUNDS

**POTASSIUM FERTILIZER NUTRIENT**  
TOTAL = 99 POUNDS

**MULCH, METHOD 2**  
TOTAL = 1.1 ACRES

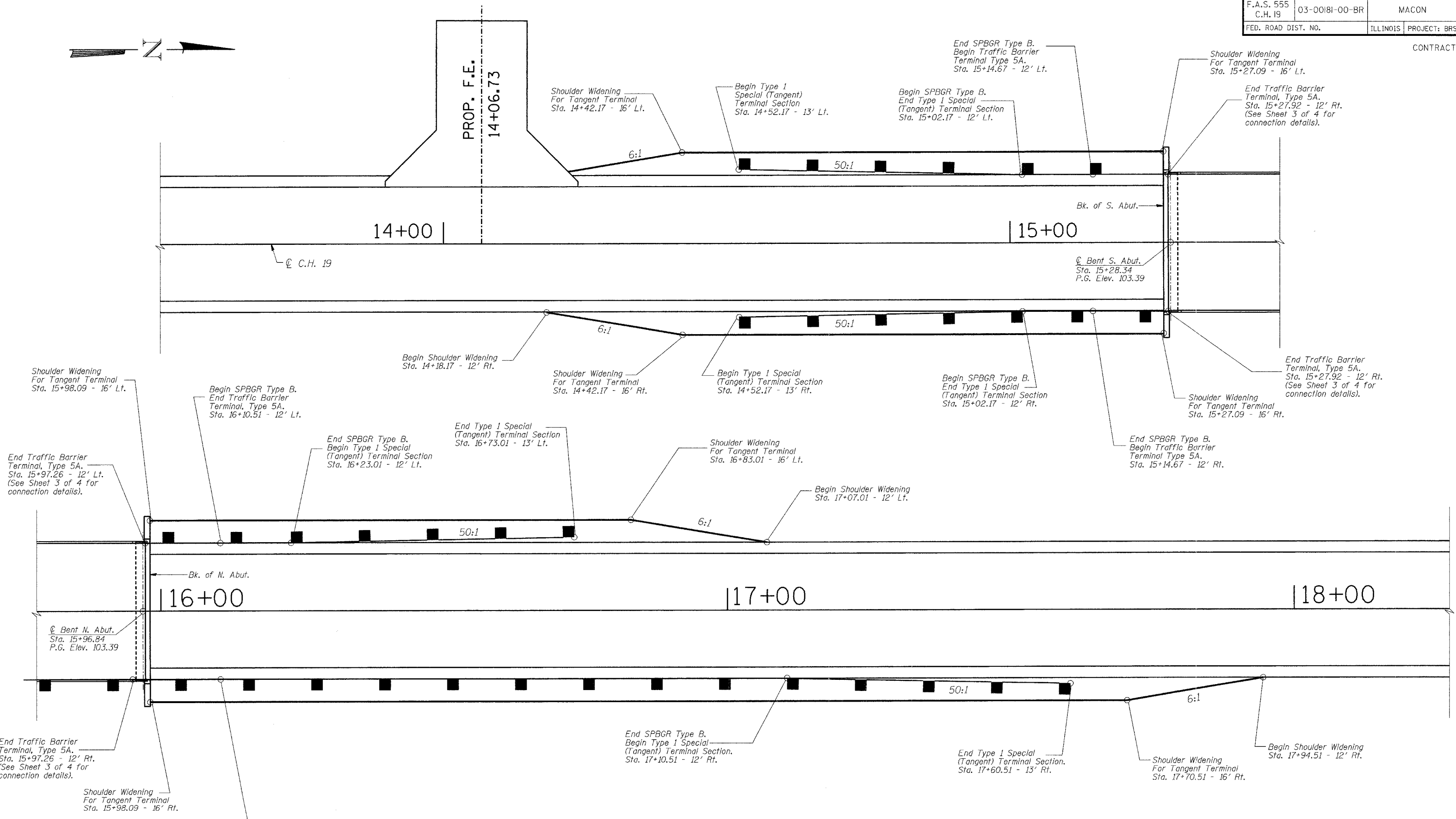
**INLET AND PIPE PROTECTION**  
21.0' RT., STA. 12+67.01 = 1 EACH  
29.4' LT., STA. 13+87.73 = 1 EACH  
TOTAL = 2 EACH

**PERIMETER EROSION BARRIER**  
TO BE CONSTRUCTED AT LOCATIONS SHOWN  
ON PLANS. LAYOUT MAY VARY AS DIRECTED  
BY THE ENGINEER.  
TOTAL = 524 FOOT

**TEMPORARY DITCH CHECK**  
STA. 13+50, LT. & RT. = 2 EACH  
STA. 14+50, LT. & RT. = 2 EACH  
STA. 17+50, LT. & RT. = 2 EACH  
STA. 18+50, LT. & RT. = 2 EACH  
TOTAL = 8 EACH

**STORM WATER POLLUTION PREVENTION  
AND EROSION CONTROL PLAN**





HIGHWAY STANDARDS	Std. No.:	Description:
	630001-05	Steel Plate Beam Guardrail
	630301-03	Shoulder Widening for Type 1 (Special) Guardrail Terminals
	631026-02	Traffic Barrier Terminal Type 5A

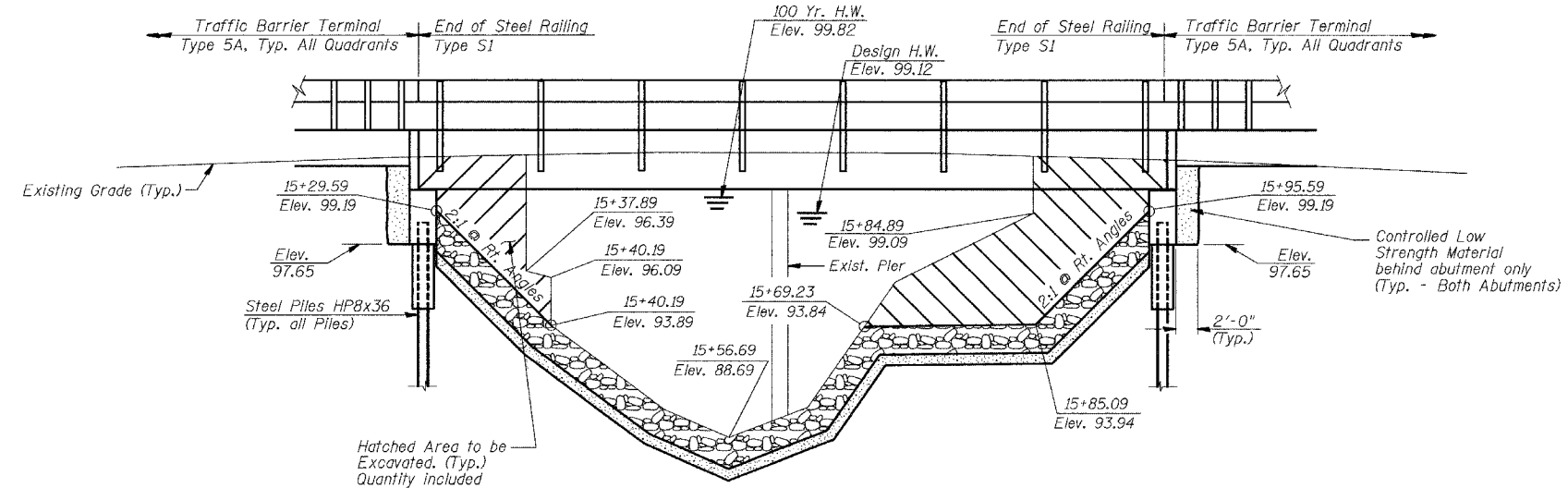
GUARDRAIL LAYOUT DETAILS		
Date	Designed MJP	<p align="center"><b>C.H. 19 OVER WILLOW BRANCH</b>  <b>SECTION 03-00181-00-BR</b>  <b>MACON COUNTY</b>  <b>STA. 15+62.59</b>  <b>PROP. STR. NO. 058-3368</b></p>
Revisions	Drawn MJP	
	Checked KWB	
	Approved KWB	
Prepared by:	<p><b>URS</b> 3040 North University Avenue          Decatur, IL 62526</p>	
		WVP Job No. <b>36431468</b>

**BENCHMARK:**  
RR Spike In Power Pole Sta. 11+13.41, 27.9' Rt.  
Elevation = 100.00

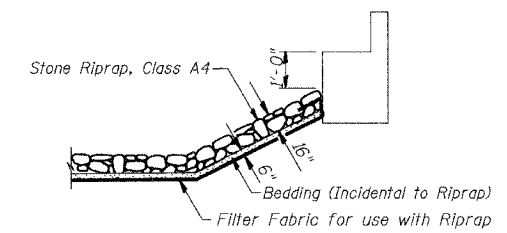
**EXISTING STRUCTURE (SN 058-3026):**  
Two Span Prestressed Box Beam Superstructure on Closed Stone Abutments with Timber Wingwalls and Timber Pier.  
21'-2" O.-O. Deck. 50'-0" Bk.-Bk. Abuts. No Salvage.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 555 C.H. 19	03-00181-00-BR	MACON	13	10
FED. ROAD DIST. NO.		ILLINOIS PROJECT: BRS 555(205)		

CONTRACT NO. 91342



**ELEVATION LOOKING DOWNSTREAM**



**STONE RIPRAP DETAIL**

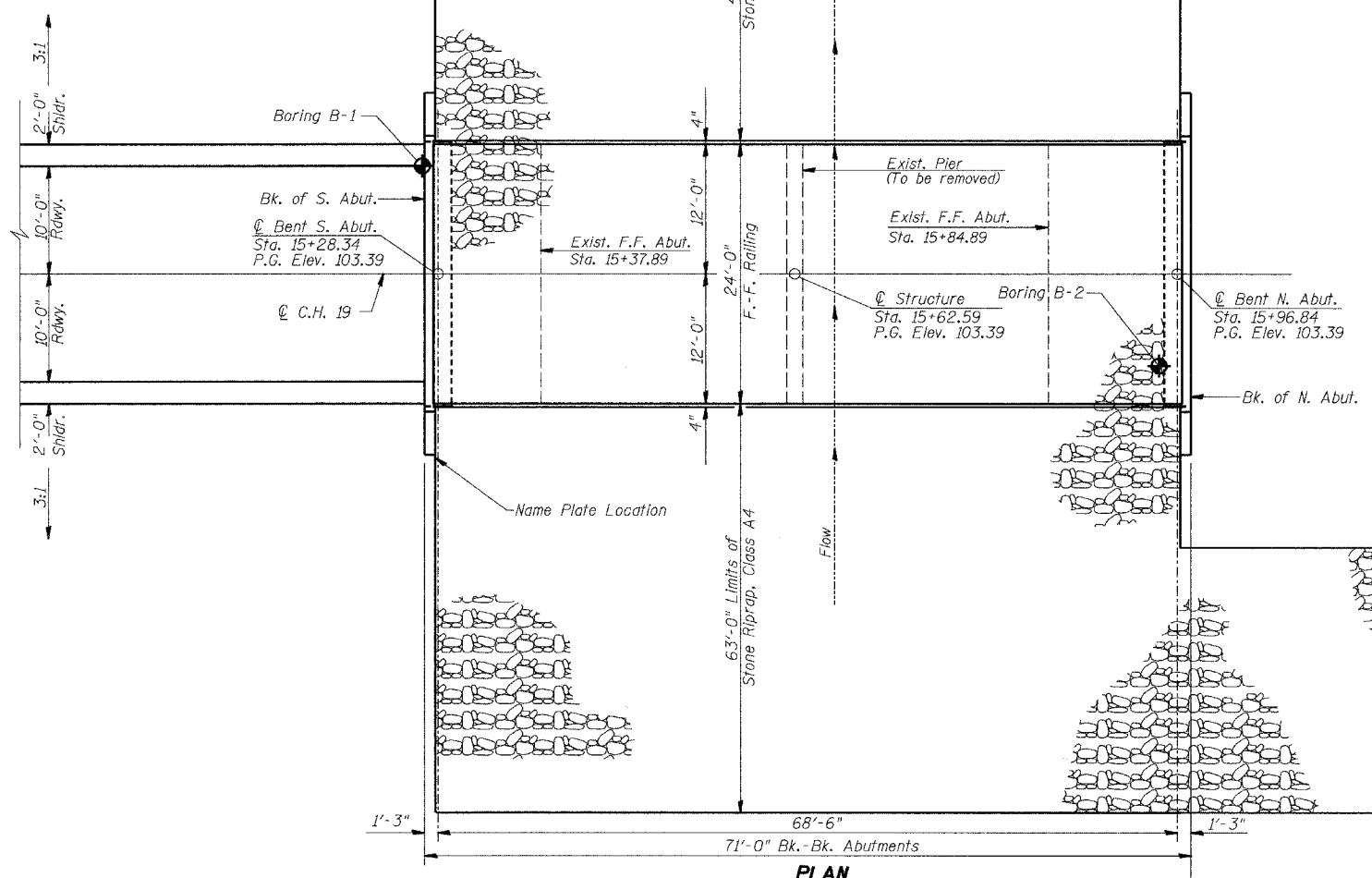
**GENERAL NOTES**  
Layout of Riprap Slopes may be varied in the field to suit ground conditions as directed by the Engineer.  
See Proposal for Boring Data.  
Reinforcement Bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.  
The Contractor shall drive one Steel Test Pile in a permanent location at the South Abutment as directed by the Engineer before ordering the remainder of piles.  
Excavation required for abutment construction shall be incidental to Concrete Structures. No additional compensation will be provided for Structure Excavation.

**TOTAL BILL OF MATERIAL**

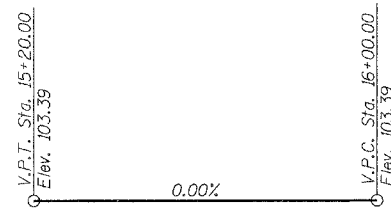
ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each			1
P.P.C Deck Beams (33" Depth)	Sq. Ft.	1664		1664
Concrete Structures	Cu. Yd.		19.6	19.6
Reinforcement Bars, Epoxy Coated	Pound		2320	2320
Furnishing Steel Piles HP8x36	Foot		247	247
Driving Steel Piles	Foot		247	247
Test Pile Steel HP8x36	Each		1	1
Channel Excavation	Cu. Yd.		484	484
Stone Riprap, Class A4	Sq. Yd.		1727	1727
Filter Fabric for use with Riprap	Sq. Yd.		1727	1727
Name Plates	Each		1	1
Steel Railing Type S1	Foot	139		139
Portland Cement Mortar Fairing Course	Foot	485		485
Waterproofing Membrane System	Sq. Yd.	185		185
Bituminous Concrete Surface Course, Superpave, Mixture C, N50	Ton	23		23
Controlled Low Strength Material	Cu. Yd.		14.5	14.5
Concrete Encasement	Cu. Yd.		3.4	3.4

**WILLOW BRANCH  
BUILT 200\_ BY  
MACON COUNTY  
SECTION 03-00181-00-BR  
C.H. 19 STA. 15+62.59  
STR. NO. 058-3368 LOADING HS-20  
MOORE BRIDGE  
**NAME PLATE**  
(See Std. 515001)**

NOTE:  
See Std. 630301-03 and Sheet 9 of 13  
for Shldr. Widening Transitions for  
Guardrail.



**PLAN**



**C PROFILE C.H. 19**

DATE: Nov. 10, 2005  
Keith W. Benting  
KEITH W. BENTING  
ILL. STRUCTURAL NO. 4777



"I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THIS BRIDGE DESIGN IS STRUCTURALLY ADEQUATE FOR THE DESIGN LOADING SHOWN ON THE PLANS. THE DESIGN IS AN ECONOMICAL ONE FOR THE STYLE OF STRUCTURE AND COMPLIES WITH REQUIREMENTS OF THE CURRENT 'AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES'."

**DESIGN SPECIFICATIONS**  
2002 AASHTO

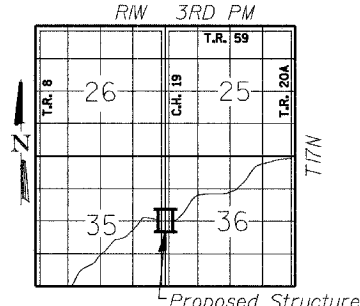
**LOADING HS20-44**

Allowed 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**  
f'c = 3,500 p.s.i.  
f'y = 60,000 p.s.i.  
n = 9

**PPC UNITS**  
f'ci = 4,000 p.s.i.  
f'c = 5,000 p.s.i.  
f's = 270,000 p.s.i.  
f'sl = 201,960 p.s.i.



**LOCATION SKETCH**

**WATERWAY INFORMATION**

Drainage Area = 14.5 Sq. Mi. Existing Low Grade Elev. 98.62 @ Sta. 19+50.00  
Proposed Low Grade Elev. 98.88 @ Sta. 20+00.00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Nat. H.W.E. 99.12	Head-Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	20	1732	298 396	99.12	*0.34 *0.24	99.46 99.37
Base	100	2603	326 450	99.82	*0.23 *0.45	100.05 100.26
Overtopping						
Max. Calc.	500	3444	333 450	100.37	*0.09 *0.36	100.46 100.73

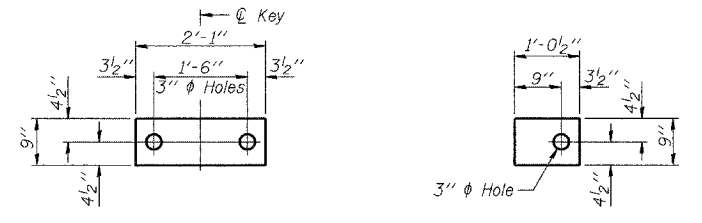
Low Beam Elev. (Prop.) = 100.19

\* Over-the-Road Flow Occurs  
**EXISTING**  
20 Yr.: 209.2 Sq. Ft. over roadway  
100 Yr.: 368.3 Sq. Ft. over roadway  
500 Yr.: 538.9 Sq. Ft. over roadway

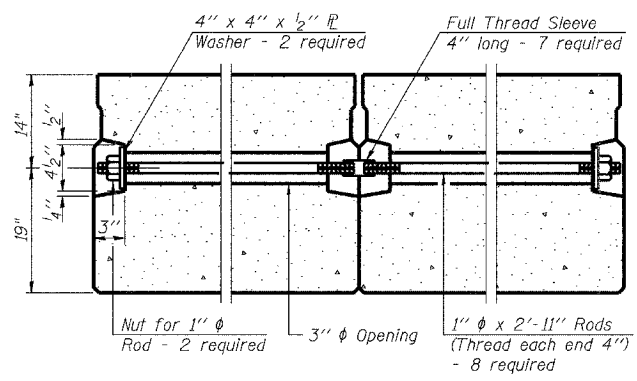
**PROPOSED**  
20 Yr.: 53.0 Sq. Ft. over roadway  
100 Yr.: 202.6 Sq. Ft. over roadway  
500 Yr.: 313.3 Sq. Ft. over roadway

**GENERAL PLAN AND ELEVATION**

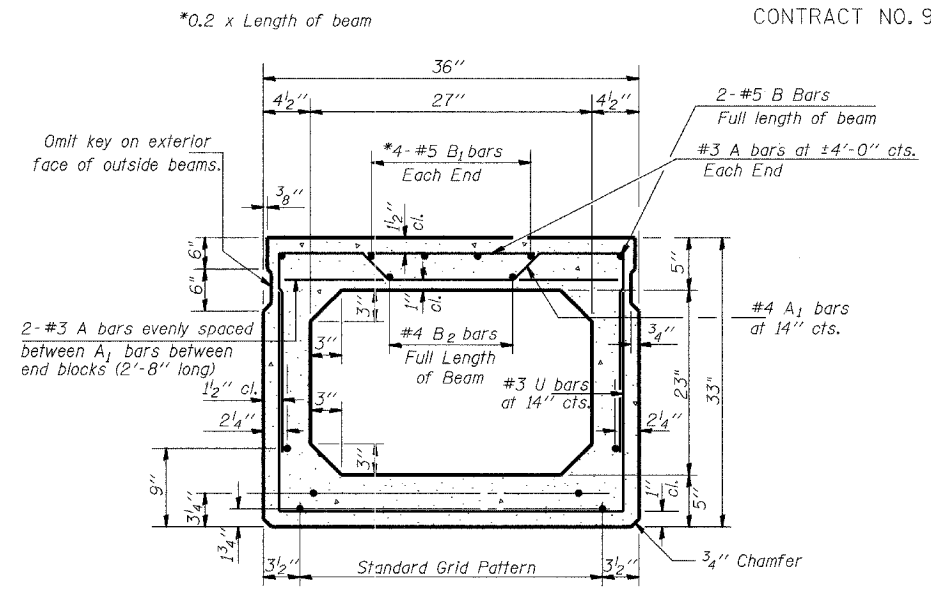
Date	Designed MJP	<b>C.H. 19 OVER WILLOW BRANCH SECTION 03-00181-00-BR MACON COUNTY STA. 15+62.59 PROP. STR. NO. 058-3368</b>	Sheet No.
Revisions	Drawn MJP		<b>1</b>
	Checked KWB		of 4
	Approved KWB		
Prepared by:	<b>URS</b> 3040 North University Avenue Decatur, IL 62526		URS Job No. <b>36431468</b>



**FABRIC BEARING PAD**  
(Interior) **FIXED**  
**FABRIC BEARING PAD**  
(Exterior)



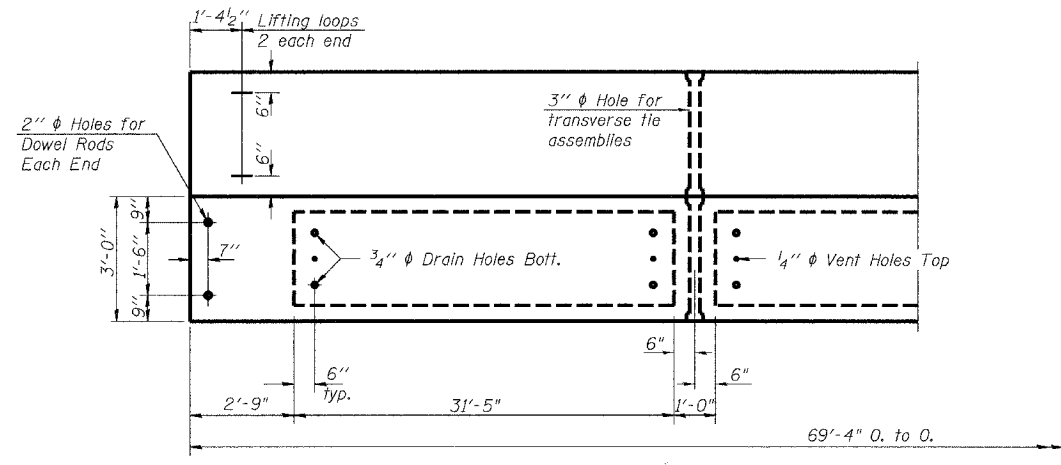
**TYPICAL TRANSVERSE TIE ASSEMBLY**



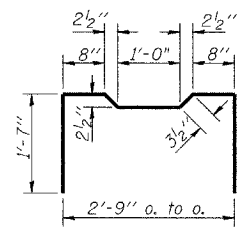
**TYPICAL SECTION**

16 - 1/2" Strands Each Strand Stressed to 30,900 Lbs.  
8 - Strands 1 3/4" up, 6 - Strands 3/4" up,  
and 2 - Strands 9" up.

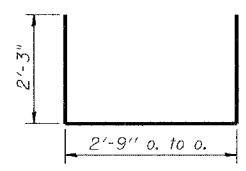
Note: Place strands symmetrically about centerline of beam.



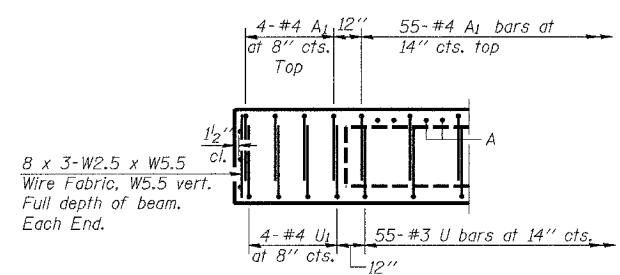
**PLAN**



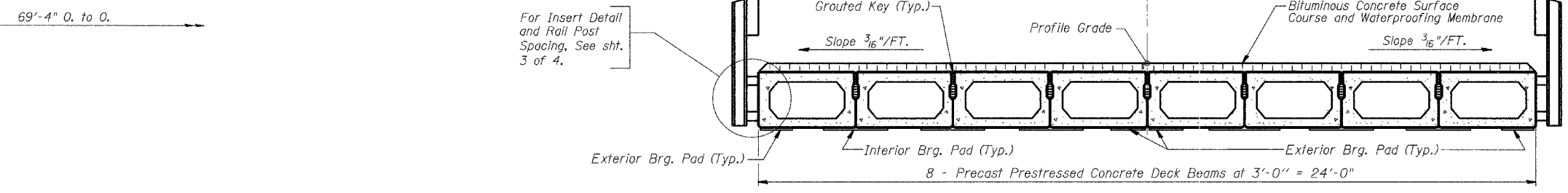
**BAR A1**



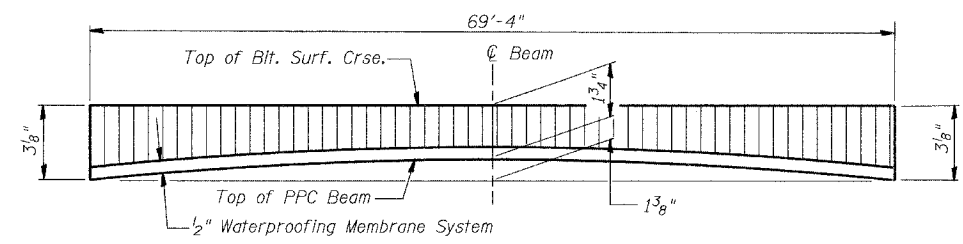
**BARS U & U1**



**END ELEVATION**



**CROSS SECTION**



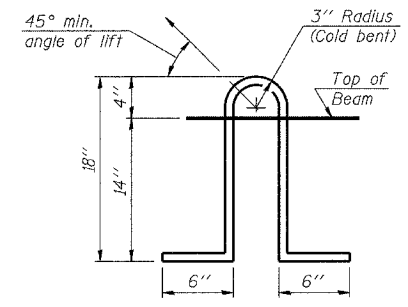
**ANTICIPATED CAMBER DIAGRAM**

**NOTES**

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
3. Lifting loops shall be 3-1/2" diameter 270 ksi strands, as shown.
4. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.
5. Non prestressing steel shall conform to AASHTO M-31 or M-322, Grade 60.
6. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.
7. Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.
8. Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
9. Required Release Strength, f'ci, shall be 4,000 p.s.i.
10. When a waterproofing membrane is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. The finished surface shall be free of depressions or high spots with sharp corners and the top edge of keys shall be rounded or chamfered a minimum of 1/4".

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
Precast Prestressed Conc. Deck Bms.	33"	Sq. Ft.	1664	

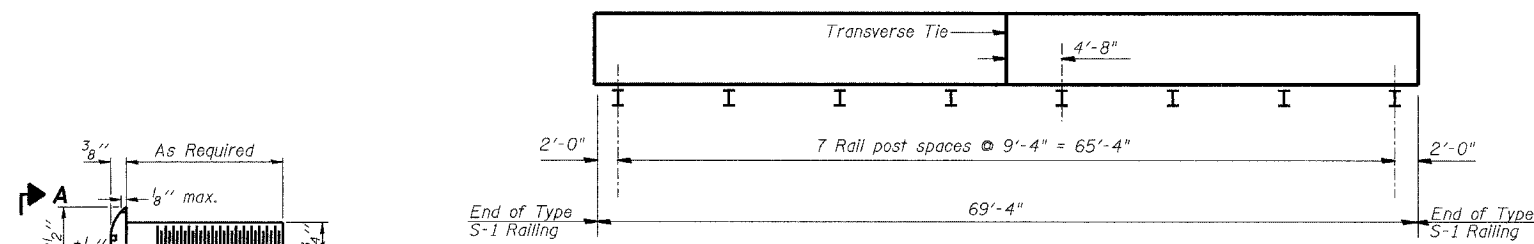


**LIFTING LOOP DETAIL**

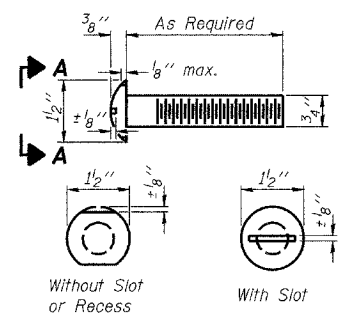
<b>DATE</b>		<b>DESIGNED</b> MJP		<b>SUPERSTRUCTURE</b>	Sheet No. <b>2</b> of 4
<b>REVISIONS</b>		<b>DRAWN</b> MJP			
		<b>CHECKED</b> KWB			
		<b>APPROVED</b> KWB			
Prepared by: <b>URS</b> 3040 North University Avenue Decatur, IL 62526				C.H. 19 OVER WILLOW BRANCH SECTION 03-00181-00-BR MACON COUNTY STA. 15+62.59 PROP. STR. NO. 058-3368	
				URS Job No. <b>36431468</b>	

ROUTE NO. F.A.S. 555 C.H. 19	SECTION 03-00181-00-BR	COUNTY MACON	TOTAL SHEETS 13	SHEET NO. 12
FED. ROAD DIST. NO.		ILLINOIS PROJECT: BRS 555(205)		

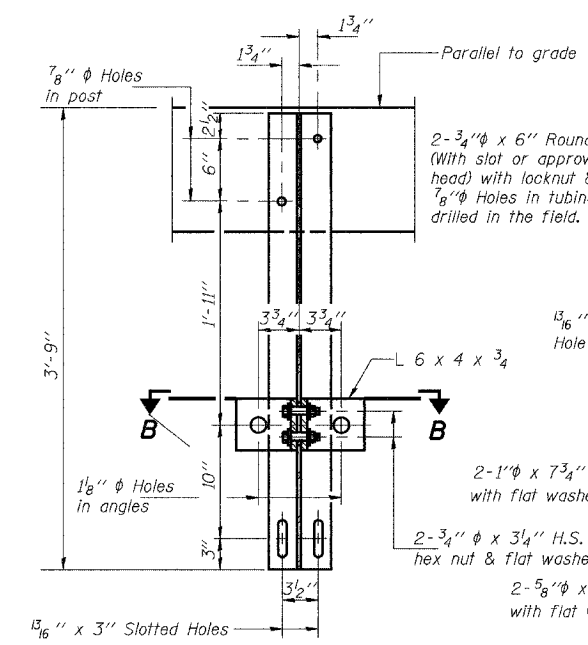
CONTRACT NO. 91342



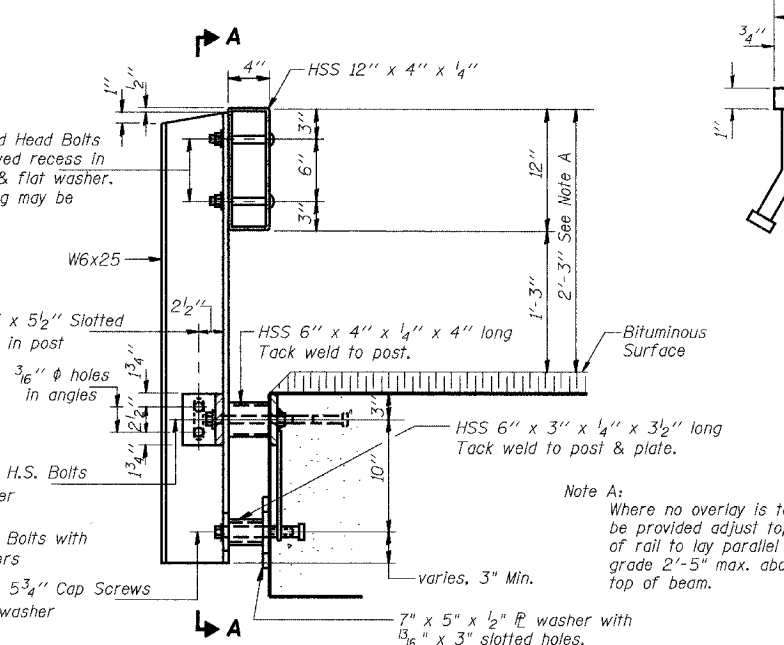
**PLAN VIEW - EXTERIOR BEAM**  
(Showing Rail Post Spacing)



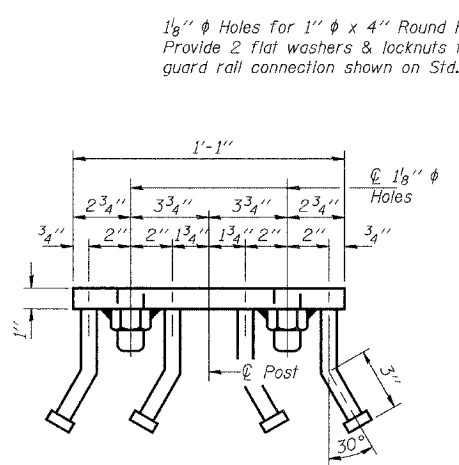
**VIEW A-A**  
**ROUND HEAD BOLT**



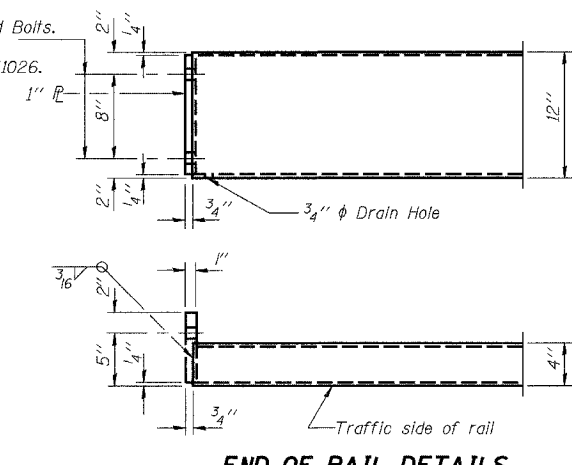
**SECTION A-A**



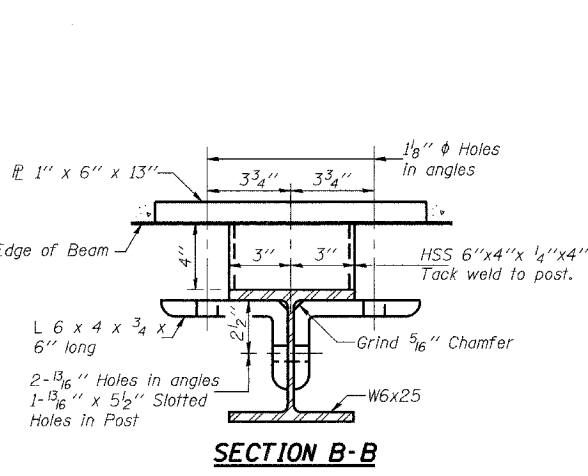
**SECTION AT RAIL POST**



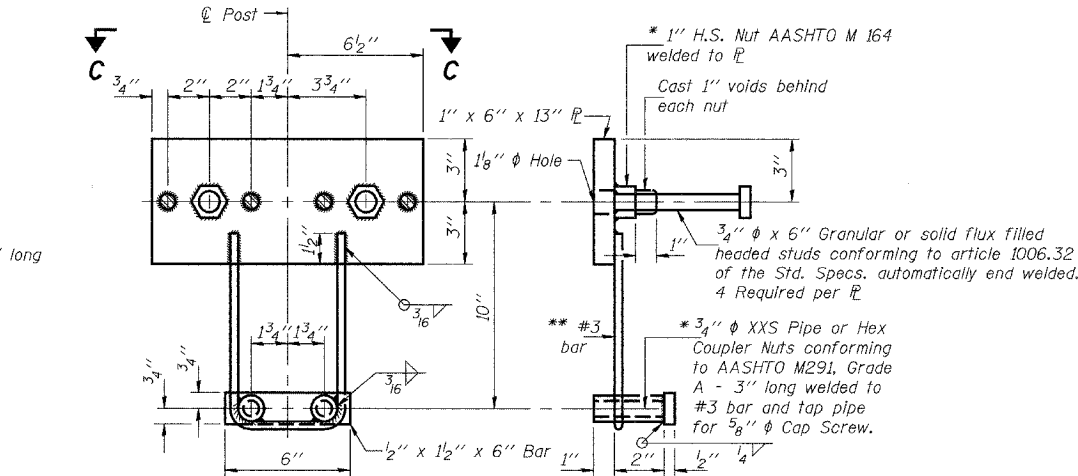
**VIEW C-C**



**END OF RAIL DETAILS**



**SECTION B-B**



**ANCHOR DEVICE**

\*\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

**NOTES**

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

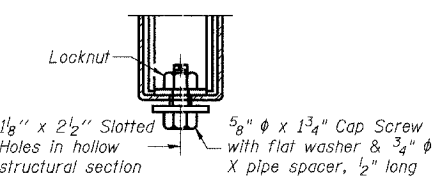
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

The 7" x 5" x 1/2" plate washer in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pad between the post and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

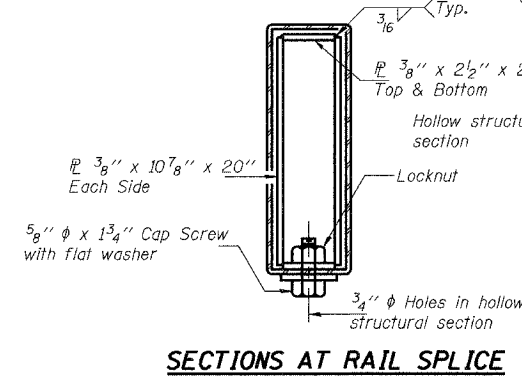
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.



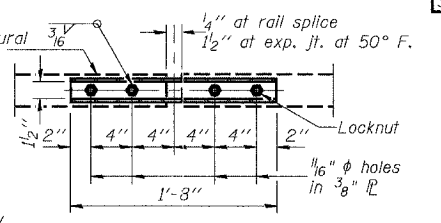
**RAIL SPLICE CONNECTION**  
**AT EXPANSION JT.**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing Type S-1	Foot	139



**SECTIONS AT RAIL SPLICE**



**PLAN-BOTT. SPLICE TYPICAL**

**STEEL RAILING**

Date	Designed MJP	C.H. 19 OVER WILLOW BRANCH SECTION 03-00181-00-BR MACON COUNTY STA. 15+62.59 PROP. STR. NO. 058-3368	Sheet No.
Revisions	Drawn MJP		<b>3</b>
	Checked KWB		of 4
	Approved KWB		URS Job No. 36431468
Prepared by:	<b>URS</b> 3040 North University Avenue Decatur, IL 62526		

