

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	1
STA. 9+00.00		TO STA. 11+50.00		
*03-07146-00-BR ILLINOIS PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
**PLANS FOR PROPOSED
BRIDGE REPLACEMENT AND
REHABILITATION PROGRAM**

PROJECT NO. BROS-115 (54)
JOB NO. C-95-310-05
MACON COUNTY
SECTION 03-07146-00-BR
TR 27 HEMAN ROAD

CONSTRUCTED UNDER THE PROVISIONS OF THE
ILLINOIS HIGHWAY CODE

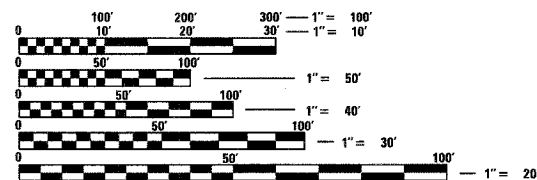
INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES & QUANTITIES
- 3 TYPICAL SECTIONS AND DETAILS
- 4 PLAN AND PROFILE
- 5 GENERAL PLAN & ELEVATION
- 6 BEAM DETAILS
- 7 TYPE SM STEEL BRIDGE RAIL SIDE MOUNTED
- 8 ABUTMENT NO. 1 DETAILS
- 9 ABUTMENT NO. 2 DETAILS
- 10 CONCRETE PILE DETAILS
- 11-16 CROSS SECTIONS

STANDARDS

- 515001-02 NAME PLATE FOR BRIDGES
- 702001-05 TRAFFIC CONTROL DEVICES
- BLR 21-6 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS

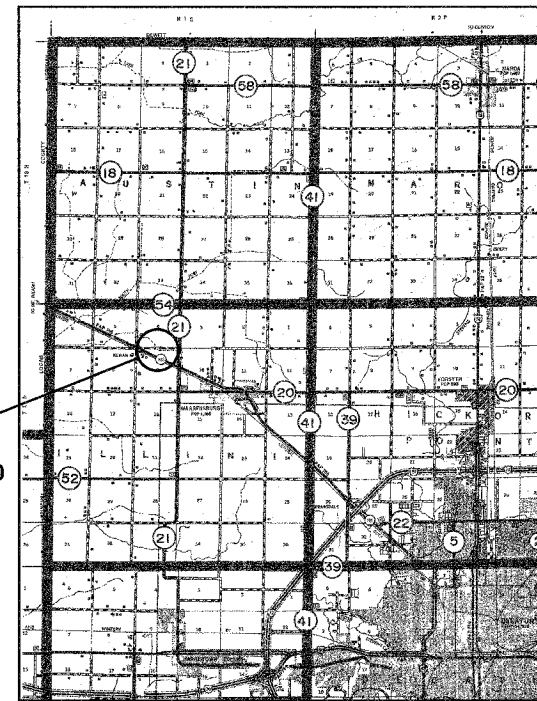
**HOMER L.
CHASTAIN
& ASSOCIATES, LLP**
CONSULTING ENGINEERS
DECATUR (317) 422-8544
CHICAGO (773) 714-0050
184-001597



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

HLC PROJECT NO. 4900
HLC FIELD BOOK NO. 375



PROPOSED
SECTION 03-07146-00-BR
BEGINS STATION 9+00.00
ENDS STATION 11+50.00
PROPOSED STRUCTURE
NO. 058-3372

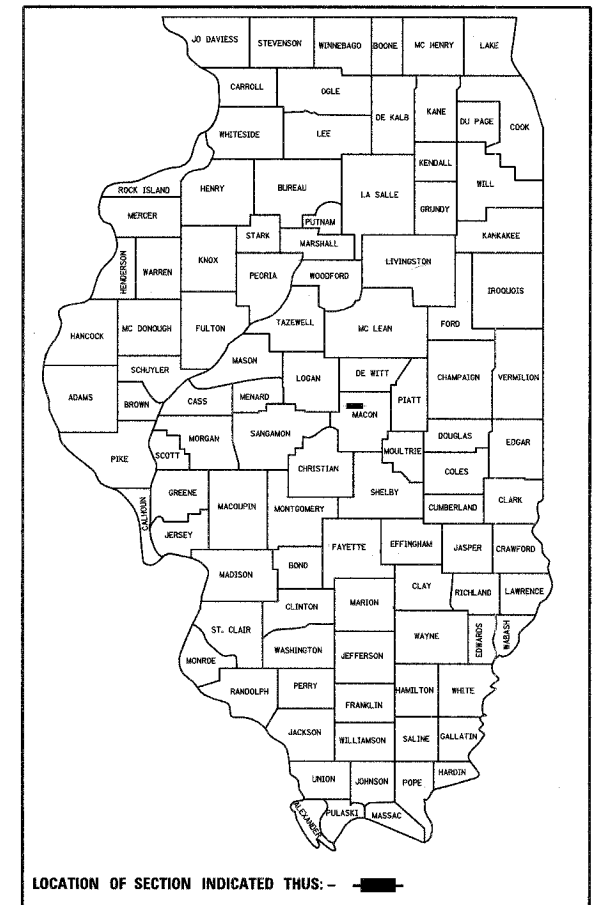
LOCATION MAP

TOTAL LENGTH 250 FEET = 0.05 MILES
NET LENGTH 250 FEET = 0.05 MILES

THE PROPOSED IMPROVEMENT CONSISTS OF REMOVAL OF EXISTING STRUCTURE AND REPLACEMENT WITH SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM (21" DEPTH) BRIDGE WITH PILE BENT ABUTMENTS, 24' CLEAR ROADWAY AND 51.89' BACK TO BACK ABUTMENTS, 45 DEGREE SKEW, VARIABLE WIDTH TRANSITION APPROACHES AND OTHER MINOR COLLATERAL WORK.



Cory W. Chamberlain
8-2-05
Exp 11-30-05



LOCATION OF SECTION INDICATED THIS: - ■ -

FUNCTIONAL CLASSIFICATION - LOCAL ROAD
2003 ADT = 50
2023 ADT = 61
DESIGN SPEED = 30 MPH

APPROVED August 9 2005
[Signature]
COUNTY ENGINEER

PASSED David H. Spill 11/28 2005
DISTRICT FIVE ENGINEER OF
LOCAL ROADS AND STREETS

Releasing For
Bid Based on
Limited Review Nov 29 2005
[Signature]
DEPUTY DIRECTOR OF HIGHWAYS
REGION THREE ENGINEER
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	#	MACON	16	2
FEDERAL DISTRICT	ILLINOIS	PROJECT		

#03-07146-00-BR

SUMMARY OF QUANTITIES

X080-2A

CODE NUMBER	PAY ITEM	UNIT	TOTAL
20200100	EARTH EXCAVATION	CU YD	154
20300100	CHANNEL EXCAVATION	CU YD	186
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.2
28100207	STONE RIPRAP, CLASS A4	TON	320
28200200	FILTER FABRIC	SQ YD	346
35101400	AGGREGATE BASE COURSE, TYPE B	TON	155
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	37
48101200	AGGREGATE SHOULDERS, TYPE B	TON	29
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	177
50200100	STRUCTURE EXCAVATION	CU YD	138
50300225	CONCRETE STRUCTURES	CU YD	27.0
50400405	PPC DECK BEAMS (21" DEPTH)	SQ FT	1200
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	1960
50901005	STEEL RAILING, TYPE SM	FOOT	100
51202200	FURNISHING CONCRETE PILES	FOOT	608
51202800	DRIVING CONCRETE PILES	FOOT	608
51204200	TEST PILE CONCRETE	EACH	1
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	152
54215550	METAL END SECTIONS 15"	EACH	3
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	100
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
Z0013825	CONTROLLED LOW STRENGTH MATERIAL	CU YD	52.6

GENERAL NOTES

- Where permanent survey markers are encountered, the Engineer shall be notified before such monuments are disturbed. The Contractor shall protect and preserve all property markers and monuments until the Owner and an authorized surveyor has witnessed or otherwise referenced the location.
- The Engineer shall not guarantee the work of any Contractor or Subcontractor, shall have no supervision of the persons doing the work, shall have no charge of the work, shall not be responsible for safety in, on, or about the job site or have any control of the safety or adequacy of any equipment, building component, scaffolding, support, forms or other work aids. In addition, the Standard Specifications for Road and Bridge Construction shall be modified as follows:

Under Section 105, add the following sentence: Nothing contained herein shall relieve the Contractor of his/her duties to observe and comply with all applicable laws, nor shall the Engineer be responsible for the Contractor's compliance with such laws.

Under Article 107.01, add the following sentence: The Engineer shall not be responsible for the Contractor's duty to observe and comply with the provisions of this article, or for the Contractor's failure to do so.
- All elevations are based on U.S.G.S. Mean Sea Level datum. The proposed grade elevations shown on the plan and profile sheets and station cross sections are the elevations for the finished surface at the locations indicated.
- The following rates were used in calculating quantities for this project:

Aggregate Base Course/Aggregate Shoulders: 2.1 tons/ cu yd
- Proposed profile grade is shown at the top of the aggregate base course.

EARTHWORK SCHEDULE

LOCATION	1	2	3	4
	20200100 EARTH EXCAVATION (CU YD)	*EXCAVATION TO BE USED IN EMBANKMENT (ADJUSTED FOR SHRINKAGE) (COL 1 X 0.75) (CU YD)	*EMBANKMENT (FILL) (CU YD)	*FURNISHED EXCAVATION WASTE (+) OR SHORTAGE (-) (COL 2 - COL 3) (CU YD)
9+00 TO 11+50	154	115	12	103
EARTH EXCAVATION SHRINKAGE FACTOR = 25%				
ITEMS MARKED WITH AN ASTERISK (*) ARE FOR INFORMATIONAL PURPOSES ONLY				

GENERAL NOTES AND QUANTITIES

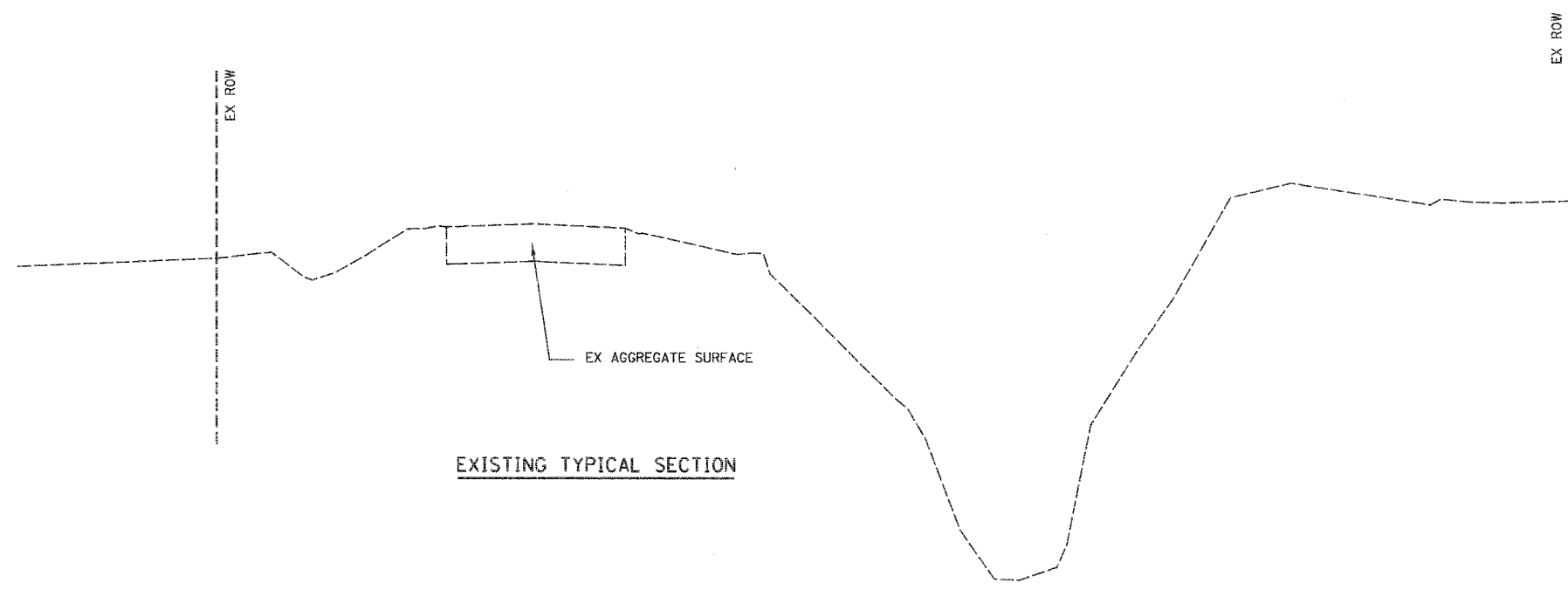
REVISIONS	SECTION 03-07146-00-BR	TR 27	DRAWN BY DATE
1	MACON	COUNTY	DLS 12/04
2			CHECKED BY DATE
3			CWC 2/05
4			BOOK NUMBER
5			375
6			PROJECT NO.
7			4900
8			SHEET NO.
9			2
10			

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CONSULTING ENGINEERS
124-00197

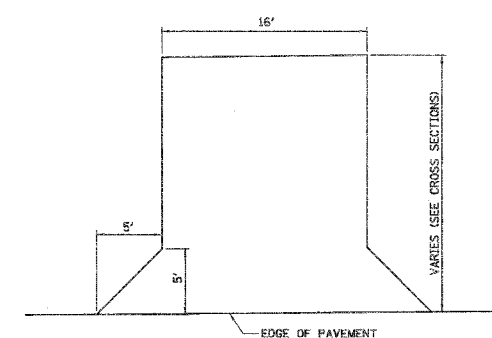
DECATUR
(217) 422-8544
CHICAGO
(773) 714-0050

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	3

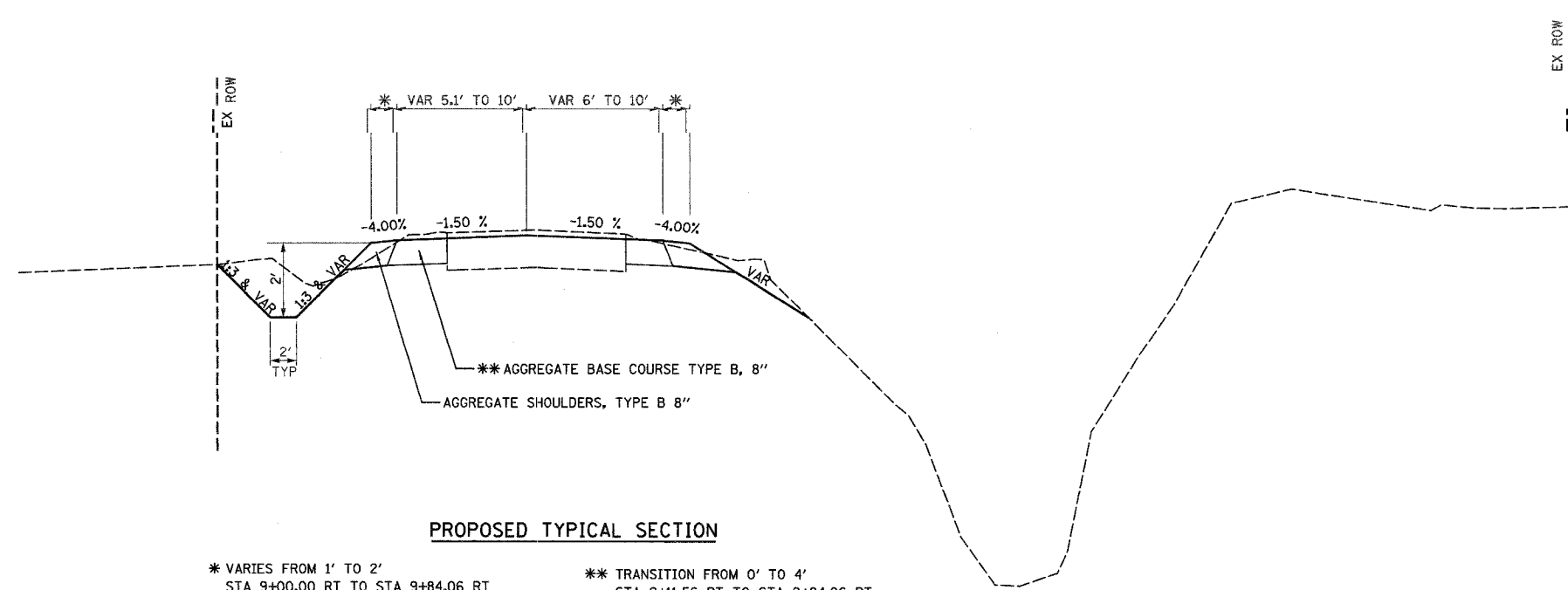
FEDERAL ROAD DIST. NO. B.LINING PROJECT
 #03-07146-00-BR



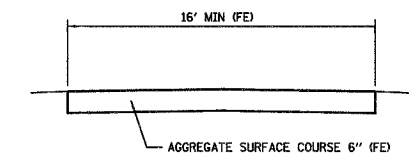
EXISTING TYPICAL SECTION



FIELD ENTRANCE PLAN



PROPOSED TYPICAL SECTION



SECTION THRU FIELD ENTRANCE

- * VARIES FROM 1' TO 2'
 STA 9+00.00 RT TO STA 9+84.06 RT
 STA 9+00.00 LT TO STA 9+64.06 LT
- ** TRANSITION FROM 0' TO 4'
 STA 9+11.56 RT TO STA 9+84.06 RT
 STA 9+11.56 LT TO STA 9+64.06 LT
- VARIES FROM 2' TO 1'
 STA 10+35.94 RT TO STA 11+50.00 RT
 STA 10+15.94 LT TO STA 11+50.00 LT
- TRANSITION FROM 4' TO 0'
 STA 10+35.94 RT TO STA 10+88.54 RT
 STA 10+15.94 LT TO STA 10+88.54 LT

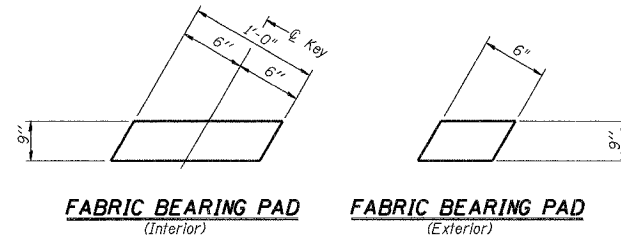
TYPICAL SECTIONS AND DETAILS				
REVISIONS	SECTION 03-07146-00-BR	TR 27	DRAWN BY DATE	
NO.	DATE	INITIALS	DLB	12/04
1			MACON	CHECKED BY DATE CWC 2/05
2			COUNTY	BOOK NUMBER
3				375
4				PROJECT NO.
5				4900
6				SHEET NO.
7				3
8				
9				
10				

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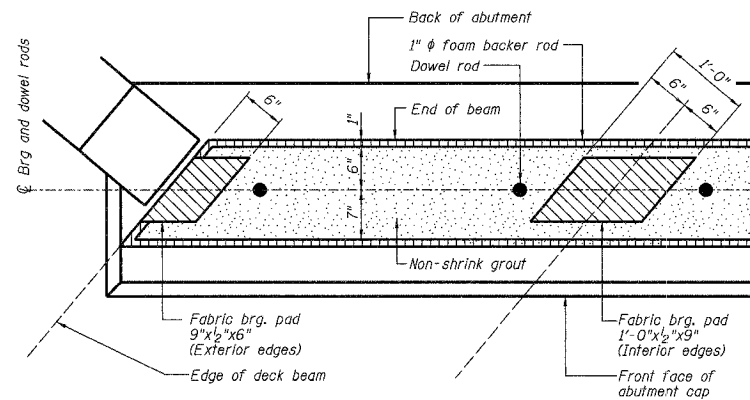
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TR 27	#	MACON	16	6
FEDERAL DIST. NO.		ILLINOIS	PROJECT	
*03-07146-00-BR				

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of 6 Sheets



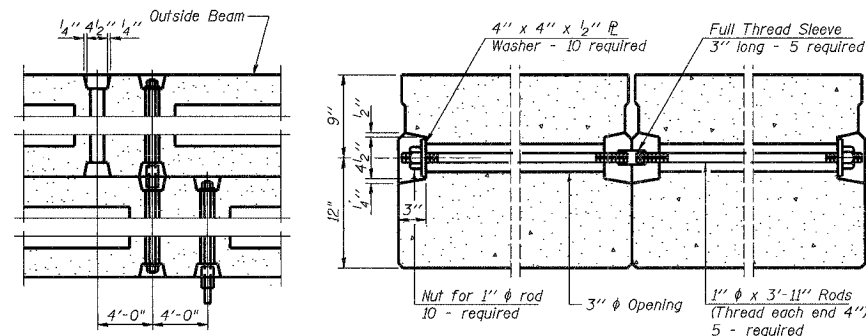
FABRIC BEARING PAD
(Interior) **FABRIC BEARING PAD**
(Exterior)

FIXED

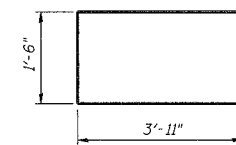


FIXED BEARINGS AT ABUTMENT

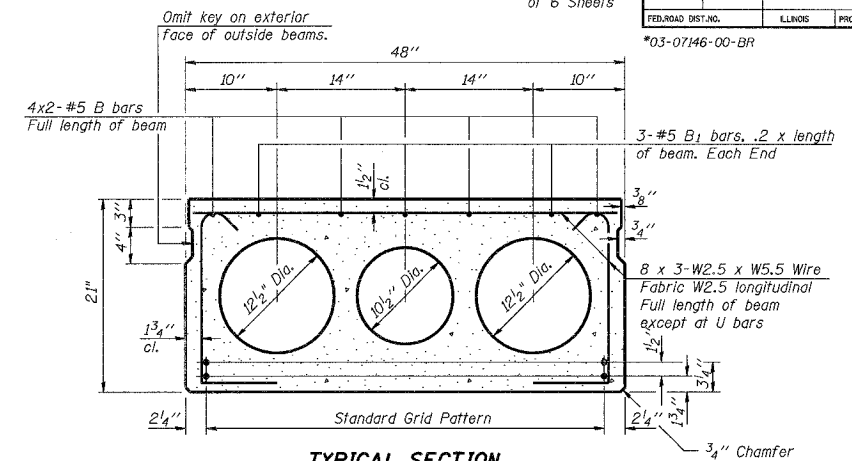
Cost of backer rod and non-shrink grout shall be included with "Precast Prestressed Concrete Deck Beams".



TYPICAL TRANSVERSE TIE ASSEMBLY



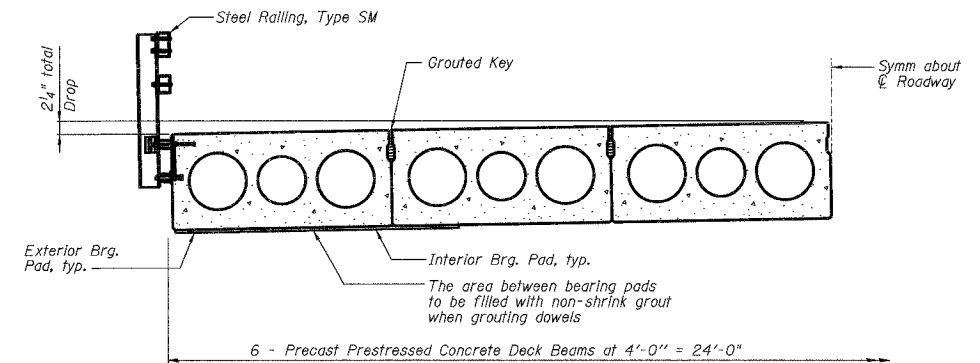
BAR U1



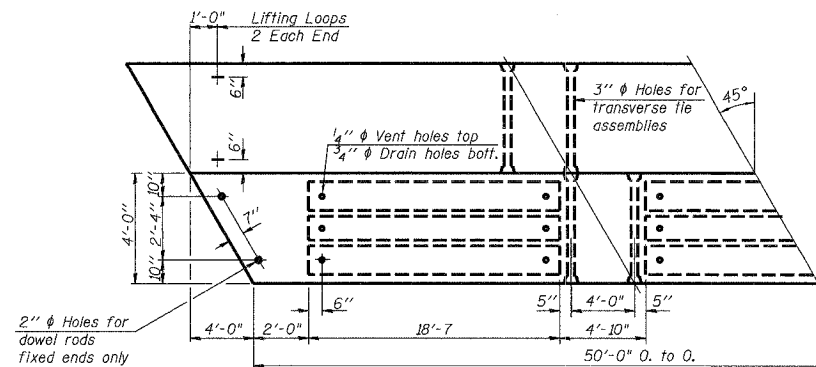
TYPICAL SECTION

1/2" ϕ Strands, Each Strand Stressed to 30,900 Lbs.
14-Strands 1 3/4" up, 6-Strands 3/4" up, 2-Strands 15" up

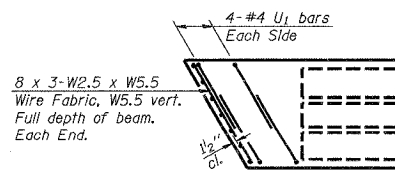
Note:
Place strands symmetrically about $\frac{1}{2}$ of beam.



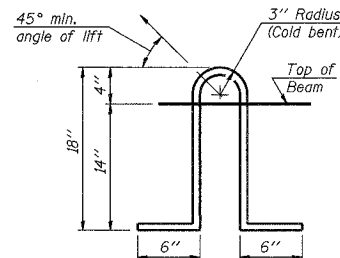
HALF CROSS SECTION



PLAN



END PLAN



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2 - 1/2" ϕ - 270 ksi strands, as shown. The 1" ϕ 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. Non prestressing steel shall conform to AASHTO M-31 or M-322 Grade 60. 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. 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. Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams. Required Release Strength, f'cl, shall be 4000 p.s.i.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
B	8	#5	26'-6"	—
Bi	6	#5	10'-0"	—
U1	16	#4	9'-4"	□
Precast Prestressed Conc. Deck Bms.		Sq. Ft.	1200	

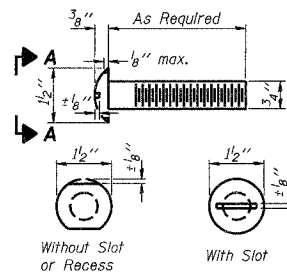
*The above bar list is for one beam only.
Bars indicated thus 4x2-#5 etc, indicates 4 lines of bars with 2 lengths per line.

BEAM DETAILS

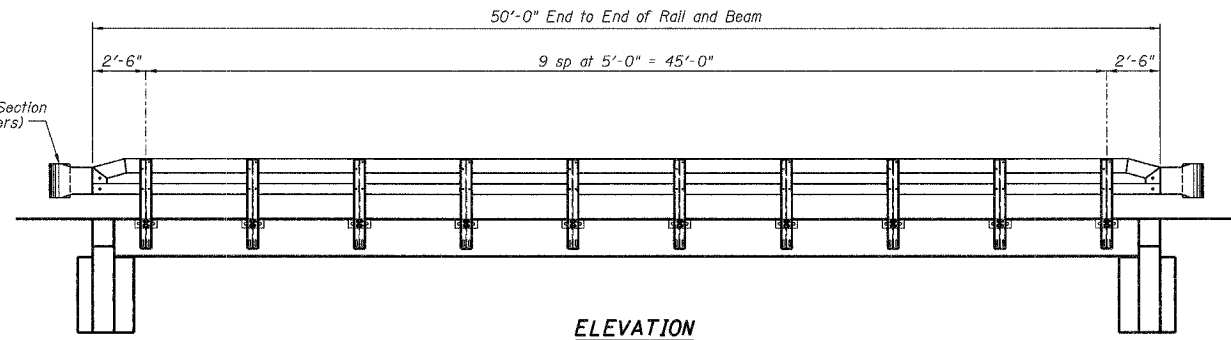
REVISIONS	NO.	DATE	INITIALS	TR 27 (HEMAN ROAD) OVER DRAINAGE DITCH	DRYAN BY DATE R King 1/05
1					CHECKED BY DATE CWC 1/05
2				TR 27 (HEMAN ROAD)	BOOK NUMBER 375
3				SEC 03-07146-00-BR	PROJECT NO. 4900
4				SN 058-3372	SHEET NO. 6
5				MACON	
6				COUNTY	
7				HOMER L. CHASTAIN & ASSOCIATES, LLP	
8				CONSULTING ENGINEERS	
9				184-001397	
10					

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	#	MACON	16	7
FEDERAL DISTRICT		ILLINOIS	PROJECT	
*03-07146-00-BR				

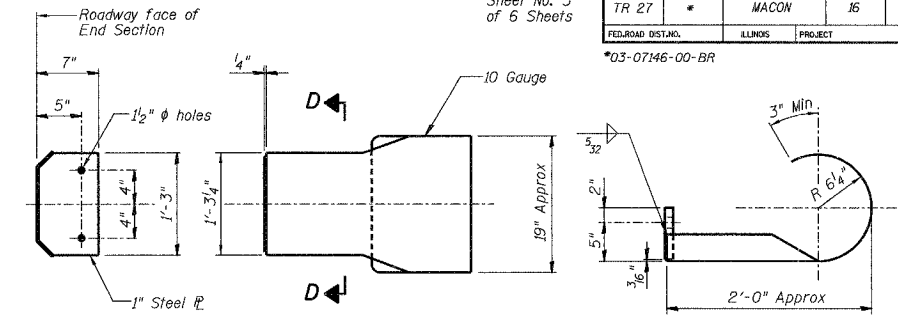
Sheet No. 3
of 6 Sheets



**VIEW A-A
ROUND HEAD BOLT**



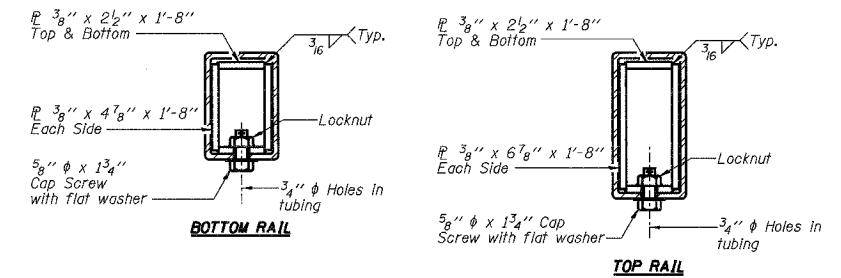
ELEVATION



SECTION D-D

DETAILS OF CURLED END SECTION

(Cost included with Steel Railing, Type SM)



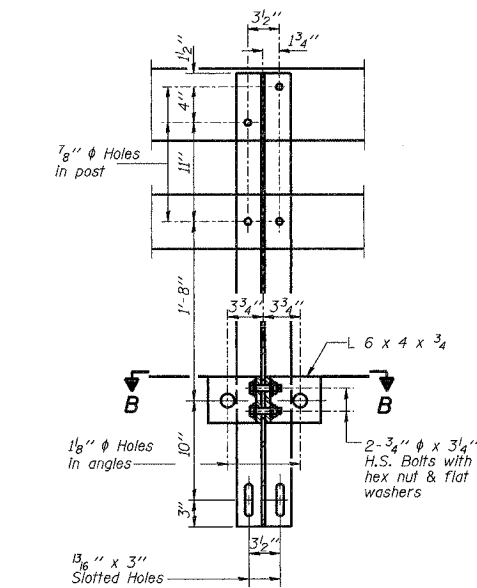
SECTIONS AT RAIL SPLICE

NOTES

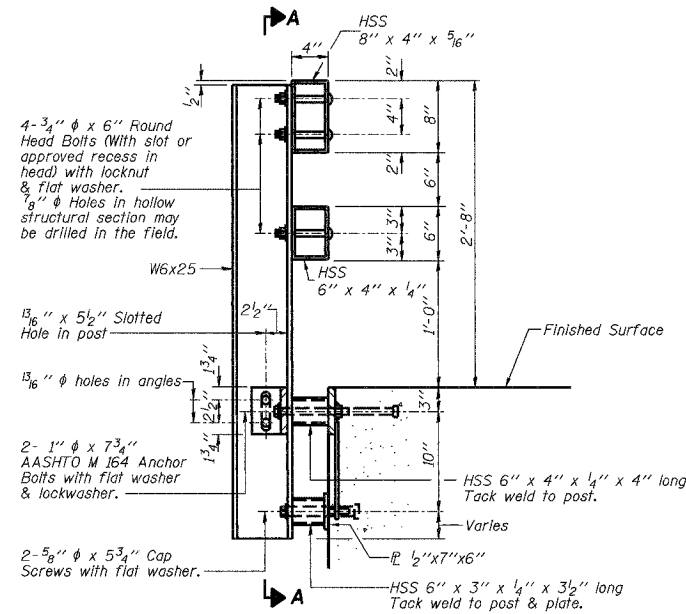
Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F. All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles 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 Bridge Rail, Type SM. All field drilled holes shall be coated with an approved zinc rich paint before erection. The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/2" fabric bearing pads between the plates 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(FX2) 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 1/2 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

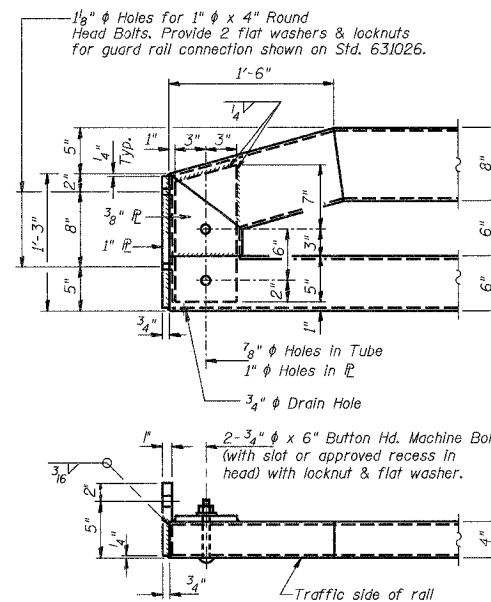
Item	Unit	Quantity
Steel Bridge Rail, Type SM	Foot	100



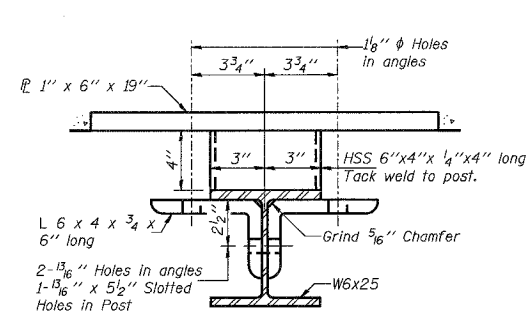
SECTION A-A



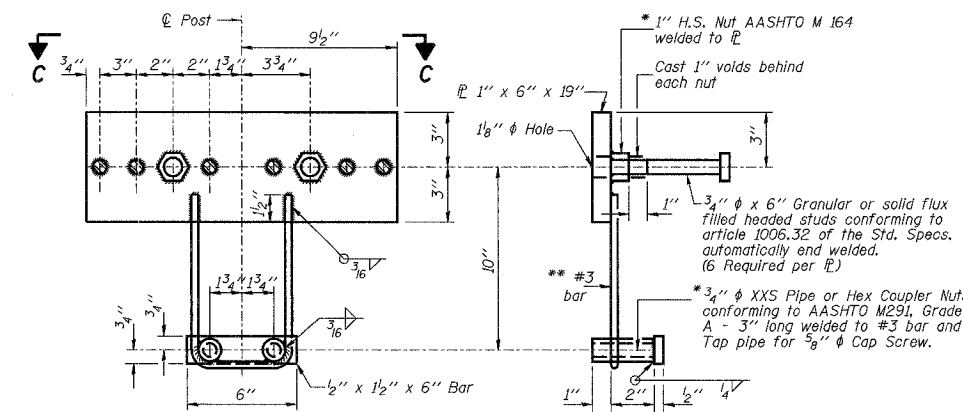
SECTION AT RAIL POST



END OF RAIL DETAILS

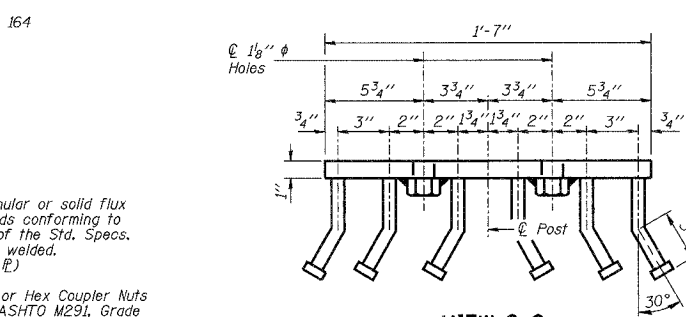


SECTION B-B



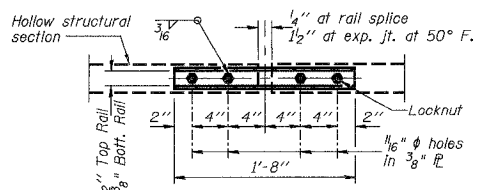
ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

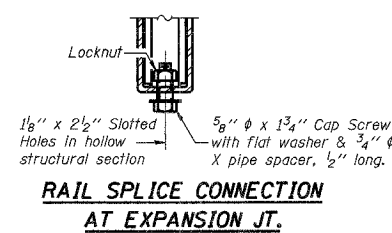


VIEW C-C

**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 inch.



PLAN-BOTT. SPLICE TYPICAL



RAIL SPLICE CONNECTION AT EXPANSION JT.

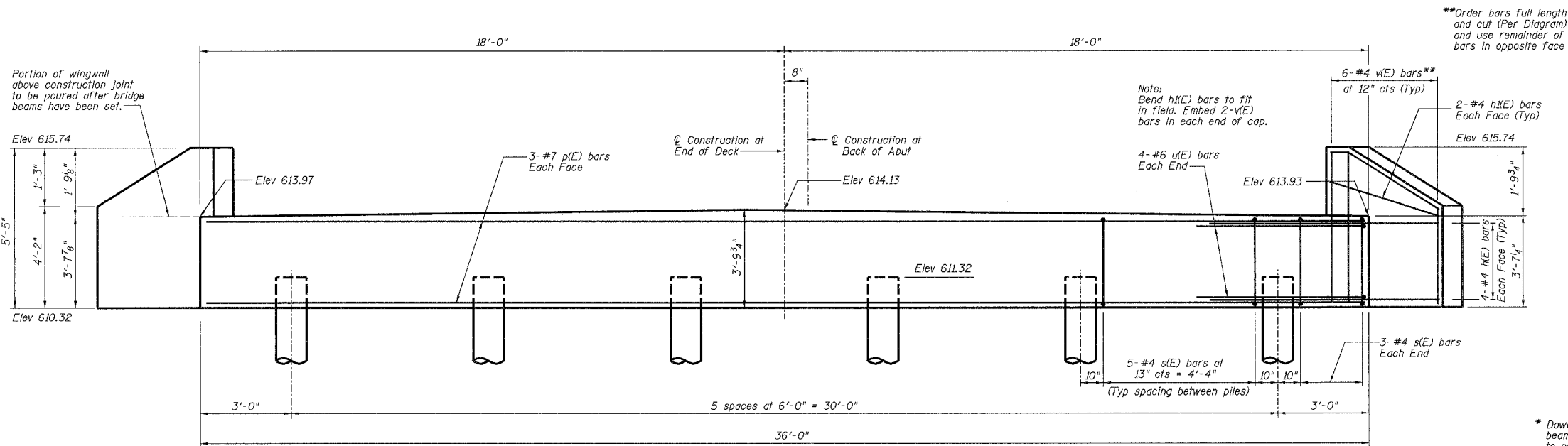
REVISIONS		TYPE SM STEEL BRIDGE RAIL SIDE MOUNTED		DRAWN BY DATE	
NO.	DATE	INITIALS		R King	1/05
1			TR 27 (HEMAN ROAD) OVER DRAINAGE DITCH		
2			TR 27 (HEMAN ROAD)	SEC 03-07146-00-BR	CHECKED BY DATE
3			MACON	SN 058-3372	CWC
4					1/05
5					BOOK NUMBER
6					375
7					PROJECT NO.
8					4900
9					SHEET NO.
10					7

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CONSULTING ENGINEERS
184-001397

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of 6 Sheets

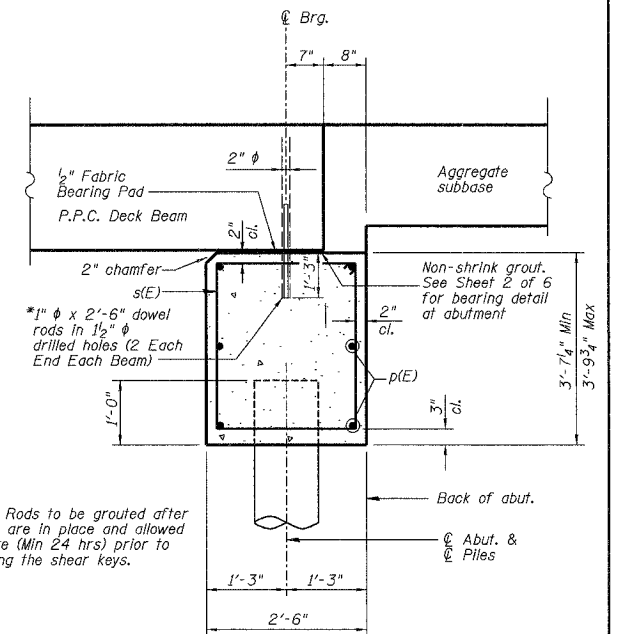
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	8
FEDERAL DIST. NO.		K.M.M.S.	PROJECT	

*03-07146-00-BR



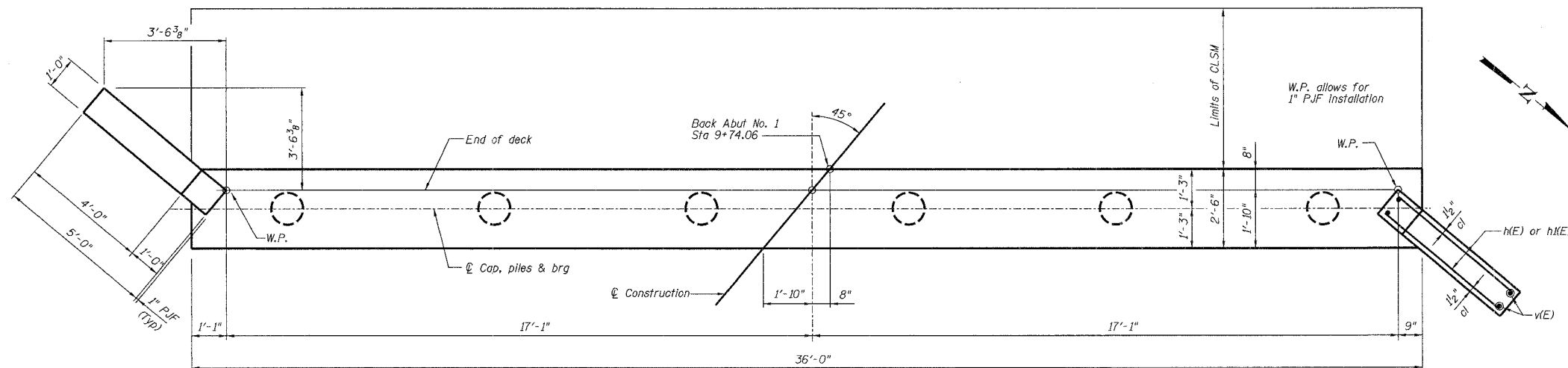
ELEVATION

**Order bars full length and cut (Per Diagram) and use remainder of bars in opposite face



SECTION THRU ABUTMENT
(Dimensions at Rt L's)

*Dowel Rods to be grouted after beams are in place and allowed to cure (Min 24 hrs) prior to grouting the shear keys.



PLAN

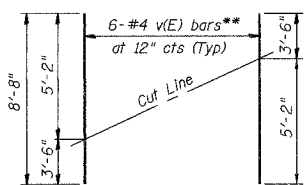
PILE DATA:

Type: 12" concrete
Capacity: 30 Ton
Est. Length: 53'
No. Req'd: 6

BILL OF MATERIAL

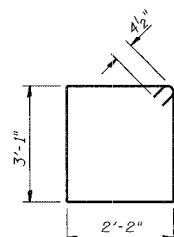
Bar	No.	Size	Length	Shape
h(E)	16	#4	4'-9"	—
h(E)	8	#4	5'-2"	—
p(E)	6	#7	35'-8"	—
s(E)	31	#4	11'-3"	□
u(E)	8	#6	13'-1"	—
v(E)	12	#4	8'-8"	—
Structure Excavation		Cu Yd		69
Concrete Structures		Cu Yd		13.5
Reinforcement Bars (Epoxy Coated)		Pound		980
Furnishing Concrete Piles		Feet		318
Driving Concrete Piles		Feet		318
Controlled Low Strength Material		Cu Yd		26.3

Reinforcement bars designated (E) shall be epoxy coated.

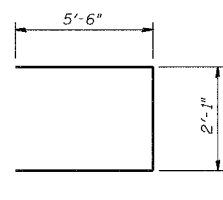


FIELD CUTTING DIAGRAM

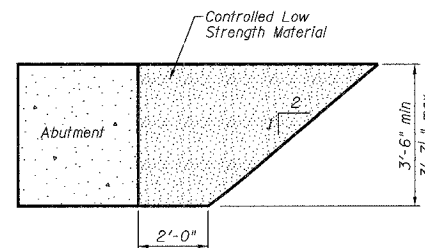
Order v(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s(E)



BAR u(E)



CONTROLLED LOW STRENGTH MATERIAL LIMITS

ABUTMENT NO. 1 DETAILS

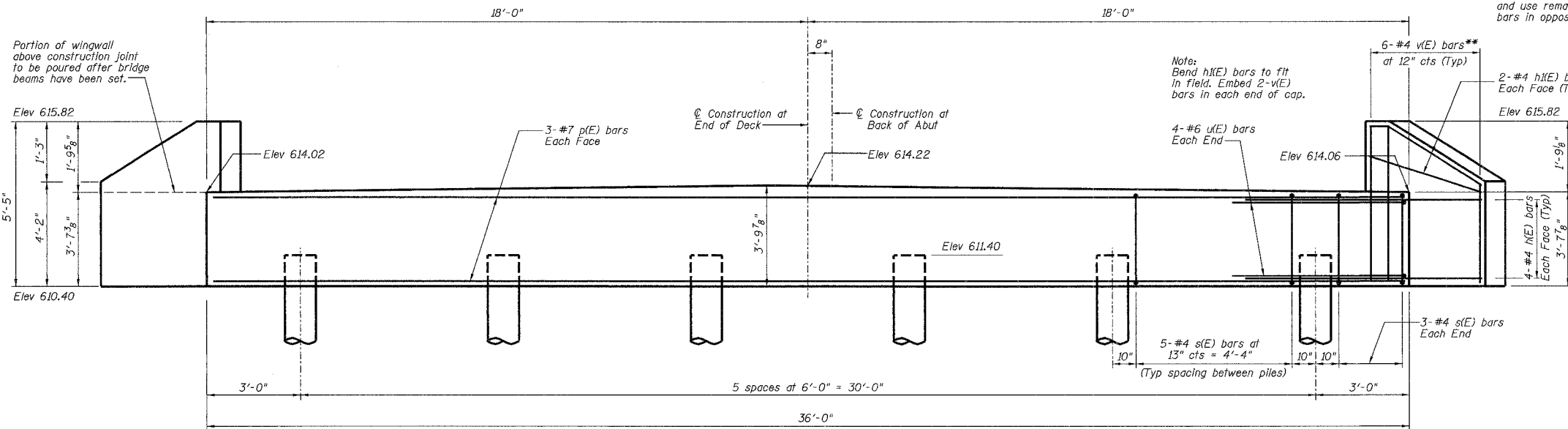
REVISIONS		DRAWN BY DATE	
No.	DATE	INITIALS	
1			R King 1/05
2			CWC 1/05
3			375
4			4900
5			
6			
7			
8			
9			
10			

TR 27 (HEMAN ROAD) OVER DRAINAGE DITCH		PROJECT NO. 4900	
TR 27 (HEMAN ROAD) SEC 03-07146-00-BR		SHEET NO. 8	
MACON SN 058-3372 COUNTY		HOMER L. CHASTAIN & ASSOCIATES, LLP CONSULTING ENGINEERS 184-001397	

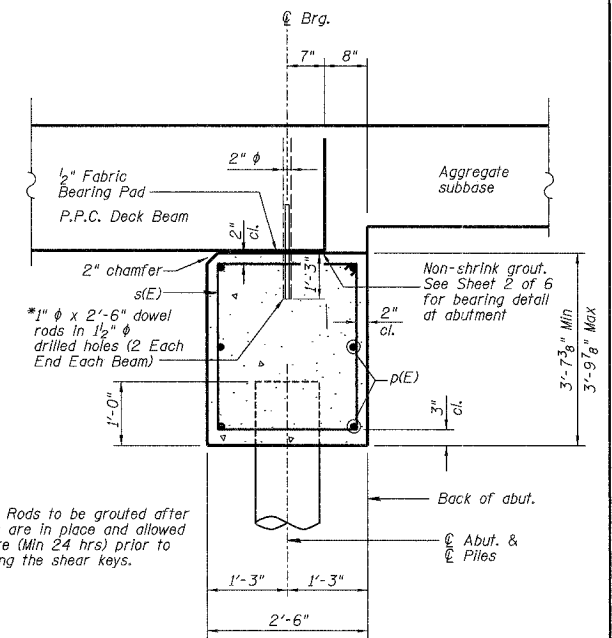
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	9
FEDERAL DIST. NO.	LINE	PROJECT		
03-07146-00-BR				

Sheet No 5 of 6 Sheets

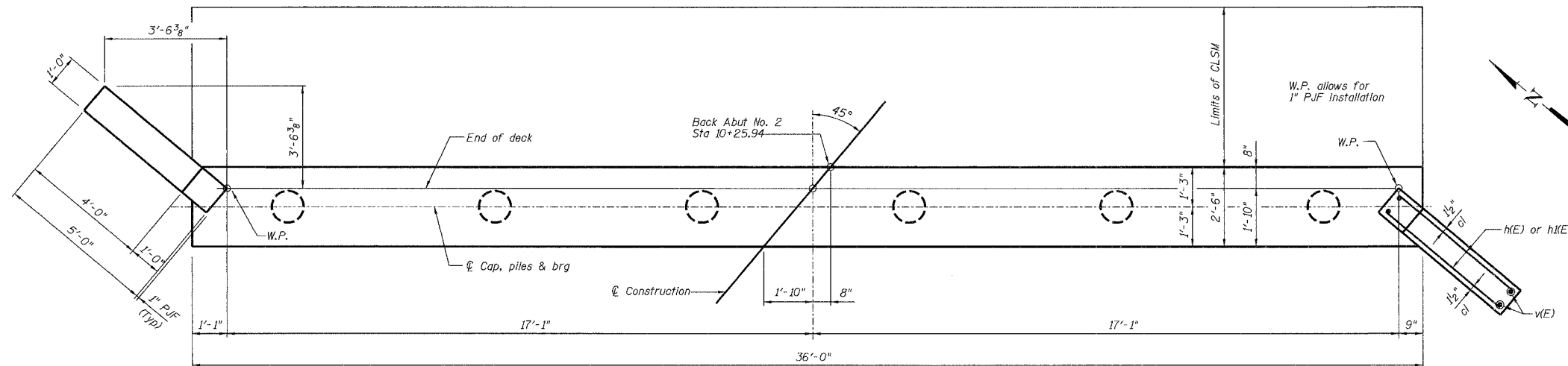
**Order bars full length and cut (Per Diagram) and use remainder of bars in opposite face



ELEVATION



SECTION THRU ABUTMENT
(Dimensions at Rt L's)



PLAN

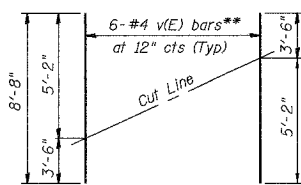
PILE DATA:

Type: 12" concrete
Capacity: 30 Ton
Est. Length: 58'
No. Req'd: 5 plus 1 test pile

BILL OF MATERIAL

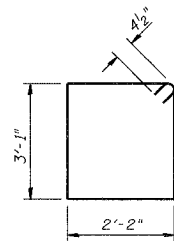
Bar	No.	Size	Length	Shape
h(E)	16	#4	4'-9"	—
h(E)	8	#4	5'-2"	—
p(E)	6	#7	35'-8"	—
s(E)	31	#4	11'-3"	□
u(E)	8	#6	13'-1"	—
v(E)	12	#4	8'-8"	—
Structure Excavation		Cu Yd	69	
Concrete Structures		Cu Yd	13.5	
Reinforcement Bars (Epoxy Coated)		Pound	980	
Furnishing Concrete Piles		Feet	290	
Driving Concrete Piles		Feet	290	
Test Pile Concrete		Each	1	
Controlled Low Strength Material		Cu Yd	26.3	

Reinforcement bars designated (E) shall be epoxy coated.

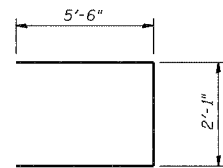


FIELD CUTTING DIAGRAM

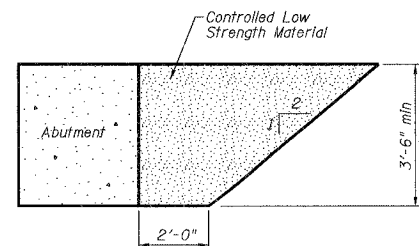
Order v(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s(E)



BAR u(E)



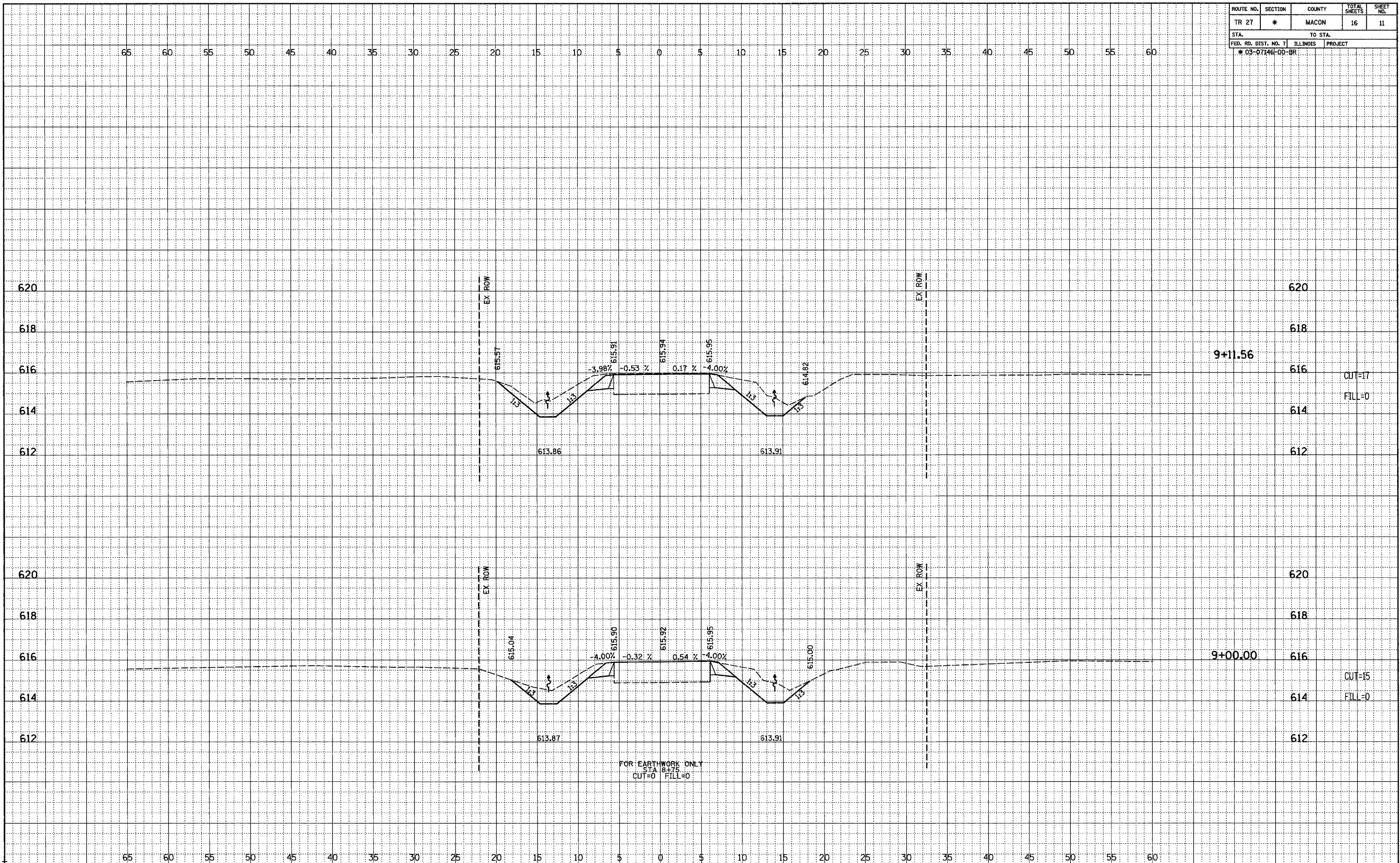
CONTROLLED LOW STRENGTH MATERIAL LIMITS

REVISIONS		ABUTMENT NO. 2 DETAILS		DRAWN BY DATE
NO.	DATE	INITIALS	TR 27 (HEMAN ROAD) OVER DRAINAGE DITCH	R King 1/05
1				
2				
3			TR 27 (HEMAN ROAD)	SEC 03-07146-00-BR
4			MACON	SN 058-3372
5				COUNTY
6				
7				
8				
9				
10				

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	11
STA.		TO STA.		
FED. RD. DIST. NO. 7		ILLINOIS PROJECT		
* 03-07146-00-BR				

DATE	
BY	
SURVEYED	
PLOTTED	
CHECKED	
DATE	
BY	
NO. OF PAGES CHECKED	
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 27	*	MACON	16	14
STA.		TO STA.		
FED. RD. DIST. NO. 7		ILLINOIS PROJECT		
* 03-07146-00-BR				

DATE	
BY	
SURVEYED	
PLOTTED	
CHECKED	
DATE	
BY	
FINAL	
NOTEBOOK	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
CHECKED	
DATE	
BY	
ORIGINAL	
NOTEBOOK	
NO.	

