

FOR INDEX OF SHEETS, SEE SHEET NO. 2

PROJECT LOCATED IN THE VILLAGE OF SCHAUMBURG
AND THE VILLAGE OF ELK GROVE VILLAGE

TRAFFIC DATA - ADT 2020

ADT = 107,025 - SB I-290 (IL 53) BETWEEN THORNDALE AVE.
AND HIGGINS RD.

105,975 - NB I-290 (IL 53) BETWEEN THORNDALE AVE.
AND HIGGINS RD.

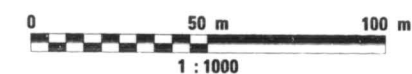
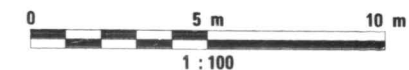
DESIGN SPEED = 100 Km/h (60 mph)

POSTED SPEED = 92 Km/h (55 mph)

DESCRIPTION OF PROJECT:

THE PROPOSED PROJECT CONSISTS OF THE REMOVAL AND REPLACEMENT OF THE EXISTING MEDIAN WITH BITUMINOUS PAVEMENT AND THE MILLING AND RESURFACING OF THE ADJACENT SOUTHBOUND SHOULDER. ADDITIONAL WORK INCLUDES DRAINAGE IMPROVEMENTS, A TEMPORARY SOUTHBOUND HIGGINS RD. BRIDGE STRUCTURE (NO. 016-0982), SIGN TRUSS REMOVAL, TEMPORARY BARRIER PLACEMENT, AND OTHER RELATED ROADWAY IMPROVEMENTS. THIS WORK IS PART OF AN ADVANCE CONTRACT TO ACCOMMODATE THE STAGING NEEDED FOR THE I-290 (IL 53) MAINLINE RECONSTRUCTION FOUND WITHIN THE SAME PROJECT LIMITS.

METRIC RATIOS



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

CONTRACT NO. 62332

PARSONS BRINCKERHOFF
230 WEST MONROE STREET
SUITE 350
CHICAGO, ILLINOIS 60606
TEL: (312) 782-8150
FAX: (312) 782-1684

STATE OF ILLINOIS

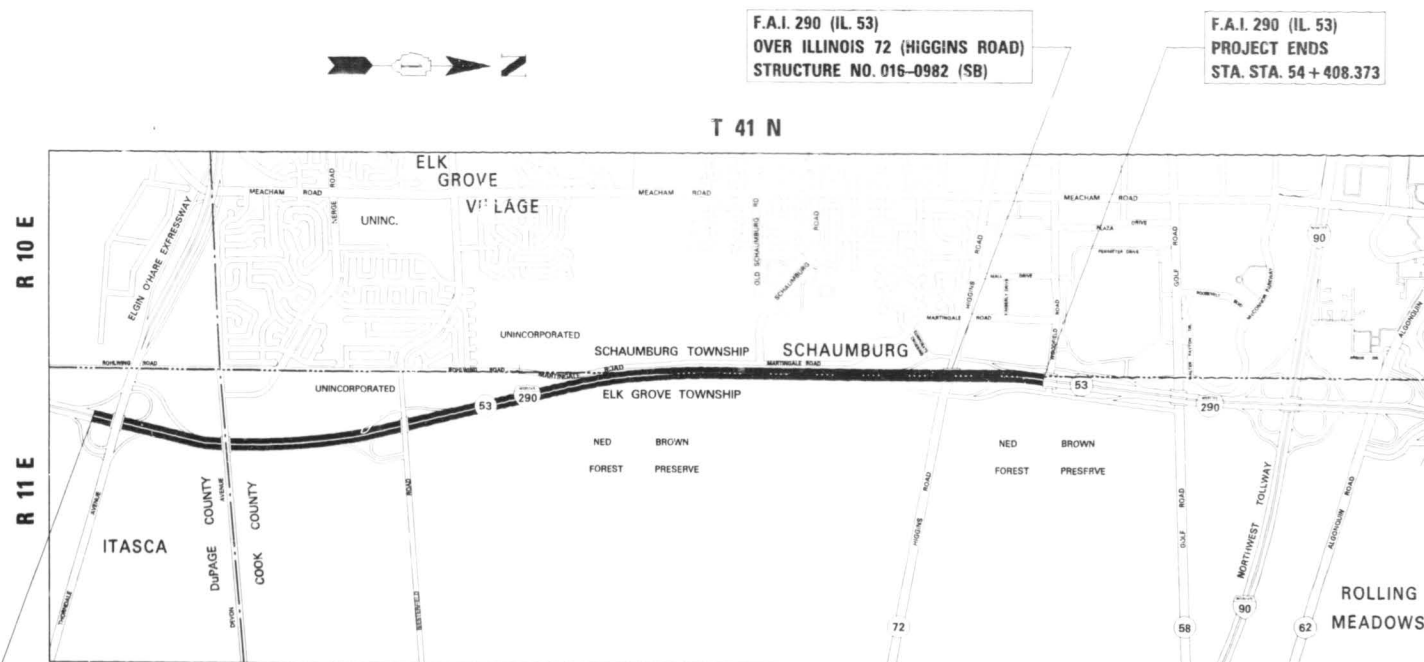
DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

PLANS FOR PROPOSED HIGHWAY

**F.A.I. 290 (ILLINOIS 53)
ILLINOIS 72 (HIGGINS ROAD) TO DEVON AVENUE
SECTION: 2001-153 I
~~(ADVANCE CONTRACT)~~**

**~~PROJECT NUMBER:~~
COOK & DU PAGE COUNTY
C-91-463-01**



F.A.I. 290 (IL 53)
PROJECT BEGINS
STA. 47 + 691.000

SCHAUMBURG - ELK GROVE TWP.

LOCATION MAP
NET LENGTH OF PROJECT: 6717.373 METERS = 6.717 KM



F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	2001-153 I	COOK & DU PAGE	259	1

D-91-463-01

DUPAGE



SEAL

License NO. 081-005467
License Expires 11-30-2002

License NO. 062-046611
License Expires 11-30-03

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED February 8, 2002
March 22, 2002
March 22, 2002

DISTRICT ENGINEER
ENGINEER OF DESIGN AND ENVIRONMENT
DIRECTOR, DIVISION OF HIGHWAYS

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	2001-153 I	COOK	259	3

GENERAL NOTES

3. BUTT JOINTS WILL BE INSTALLED AT THE ENDS OF ALL RESURFACING (WHERE RESURFACING MEETS EXISTING PAVEMENT), IN ACCORDANCE WITH THE "BUTT JOINT AND BITUMINOUS TAPER DETAILS" SHEET INCLUDED IN THE PLANS, UNLESS OTHERWISE SPECIFIED.

4. WHERE NEEDED, THE CONTRACTOR SHALL DETERMINE THE ELEVATIONS AT THE RESPECTIVE PROPERTY LINES BEFORE SETTING THE TOP OF CURB ELEVATIONS AND, ADJUST THE CURB EXPOSURE AND/OR GUTTER ELEVATION IN ORDER TO PROVIDE ADEQUATE GRADES AS APPROVED BY THE ENGINEER.

5. PRIOR TO STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULULI" AT (800) 892-0123 AND THE AFFECTED MUNICIPALITY FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS FACILITIES (48 HOUR NOTIFICATION IS REQUIRED).

6. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN ALL SURFACE DRAINAGE WITHIN THE PROJECT LIMITS. ALL STORM SEWER FLOW MUST BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

7. ANY EXISTING DRAINAGE FACILITIES DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS/HER EXPENSE. THIS WORK SHALL MEET WITH THE SATISFACTION OF THE ENGINEER.

8. THREE-METER (10 FEET) TRANSITIONS SHALL BE USED TO MATCH PROPOSED CURBS AND GUTTER AND MEDIAN ITEMS OF WORK TO EXISTING CURBS AND GUTTERS AND MEDIANS IN THE FIELD, UNLESS OTHERWISE SHOWN. THE TRANSITIONS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PROPOSED ITEMS OF WORK SPECIFIED.

9. THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT. THE ADJACENT MUNICIPALITIES NEED TO BE INCLUDED IN THE PROCESS TO APPROVE THE FIELD OFFICE LOCATION. PERMITS WILL BE REQUIRED.

10. WHEN MILLED PAVEMENT IS OPEN TO TRAFFIC THE MAXIMUM GRADE DIFFERENTIAL BETWEEN PASSES OF THE MILLING MACHINE SHALL NOT EXCEED 40 MM (1 1/2 INCHES) WHERE THE SPEED LIMIT IS 45 MPH OR LESS AND 25 (1 INCH) WHERE THE SPEED LIMIT IS GREATER THAN 45 MPH. A MAXIMUM GRADE DIFFERENTIAL OF 75 MM (3 INCHES) MAY BE ALLOWED IF THE EDGE OF THE MILLING IS SLOPED A MINIMUM OF 1:3 (V:H)

11. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

12. SAW CUTTING SHOWN ON THE PLANS SHALL BE CONSIDERED INCLUDED IN THE COST OF THE ADJACENT REMOVAL ITEM.

13. BARRICADES: THE CONTRACTOR SHALL PROVIDE AND INSTALL TWO (2) WEIGHTED SAND BAGS ON EACH TYPE I OR TYPE II BARRICADE USED - ONE WEIGHTED SANDBAG ACROSS EACH BOTTOM RAIL. THIS WORK SHALL BE INCLUDED IN THE COST FOR "TRAFFIC CONTROL AND PROTECTION (EXPRESSWAY

15. ALL STORM SEWER CONNECTIONS WITH PIPES 675 MM (27") DIAMETER AND SMALLER SHALL BE MADE WITH PRECAST "TEE" OR "WYE" PIPES. FOR PROPOSED STORM SEWER PIPES LARGER THAN 675 MM (27") DIAMETER, OPENINGS OF THE SPECIFIED DIAMETER SHALL BE MADE IN THE PIPE AT THE TIME IT IS MANUFACTURED. PRECAST "TEE" AND "WYE" PIPE CONNECTIONS FOR PROPOSED STORM SEWER WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE COST FOR THE STORM SEWERS.

16. WHEN USING HEAVY EQUIPMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUATE PROTECTION OF ALL EXISTING SEWER LINES, SEWER STRUCTURES, AND BENCH MONUMENTS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

17. LOCAL ROADS, RESIDENTIAL DRIVEWAYS AND PROPERTY ACCESS DRIVES MUST REMAIN OPEN TO TRAFFIC AT ALL TIMES. SHOULD A TEMPORARY CLOSURE BE NECESSARY, THE CONTRACTOR SHALL NOTIFY THE AFFECTED VILLAGE AND/OR THE AFFECTED PROPERTY OWNER TWENTY-FOUR (24) HOURS IN ADVANCE OF SUCH CLOSURE. CONSTRUCTION ACTIVITIES SHALL BE EXPEDITED AND ACCESS RESTORED WITHIN AN ADEQUATE TIME FRAME AS DIRECTED BY THE ENGINEER.

18. THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN AND PROTECT ALL ELECTRICAL SYSTEMS WITHIN THE PROJECT LIMITS, UNLESS OTHERWISE SHOWN ON PLANS OR DIRECTED BY THE ENGINEER. ANY DAMAGED ELECTRICAL SYSTEMS OR UNITS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS APPROVED OF BY THE ENGINEER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

19. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES AND THE VILLAGES OF SCHAUMBURG, ELK GROVE, AND ITASCA.

20. THE CONTRACTOR SHALL BE REQUIRED TO CLEAN THE PAVEMENT, WHICH IS OPEN TO TRAFFIC, FROM ALL MUD AND DEBRIS AS STATED IN THE SPECIAL PROVISIONS.

23. THE CONTRACTOR SHALL REMOVE EXISTING LIGHTING UNITS WITHIN THE MEDIAN WHICH WILL BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION. NEW TEMPORARY LIGHTING UNITS WILL BE INSTALLED AT THE START OF CONSTRUCTION, AS SHOWN IN THE LIGHTING PLAN.

24. EXISTING PAVEMENT DAMAGED DURING CONSTRUCTION, BUT NOT SHOWN TO BE REMOVED ON THE PLANS, SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE. THIS WORK SHALL MEET WITH THE APPROVAL OF THE ENGINEER.

- PAVING PATCHING QUANTITIES HAVE BEEN INCLUDED IN THE CONTRACT TO ACCOMMODATE IMPROVEMENT OF PAVEMENT, WHICH SHOWS SIGNS OF FAILURE OR EXCESSIVE CRACKING. PRIOR TO THE START OF THIS WORK, THE ENGINEER MUST APPROVE OF THE AREAS TO BE PATCHED. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE METER FOR CLASS D PATCHES, OF THE TYPE SPECIFIED.

NOTE: BOXED ITEMS ARE INCIDENTAL TO THIS CONTRACT

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION F.A.I. 290 (IL. 53) DEVON AVE. TO IL. 72 (HIGGINS RD.)
NAME	DATE	
		GENERAL NOTES

DRAWN BY MAM
 CHECKED BY DVE

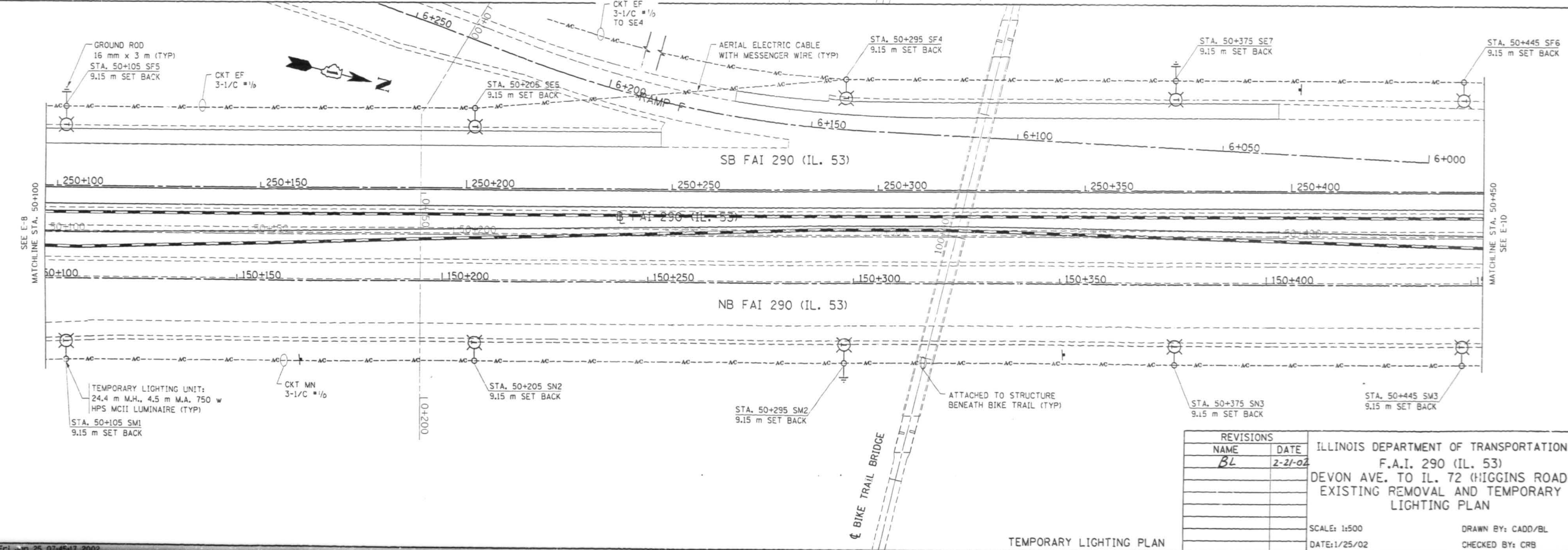
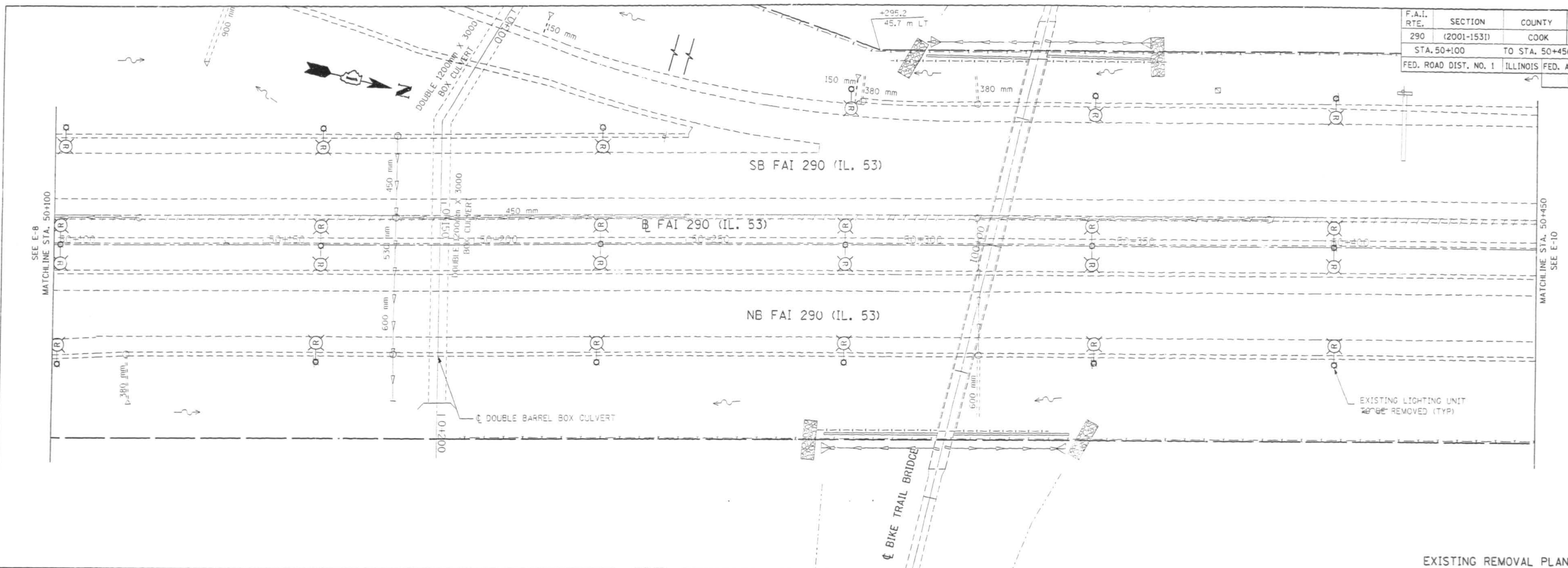
DATE 02-15-02



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el46301a.dgn, pp, 9 LV=2,17,29,35,40,42,46-48,50,57

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
290	(2001-153I)	COOK	259	126
STA. 50+100		TO STA. 50+450		
FED. ROAD DIST. NO. 1		ILLINOIS FED. AID PROJECT		
		E-9 OF 14		

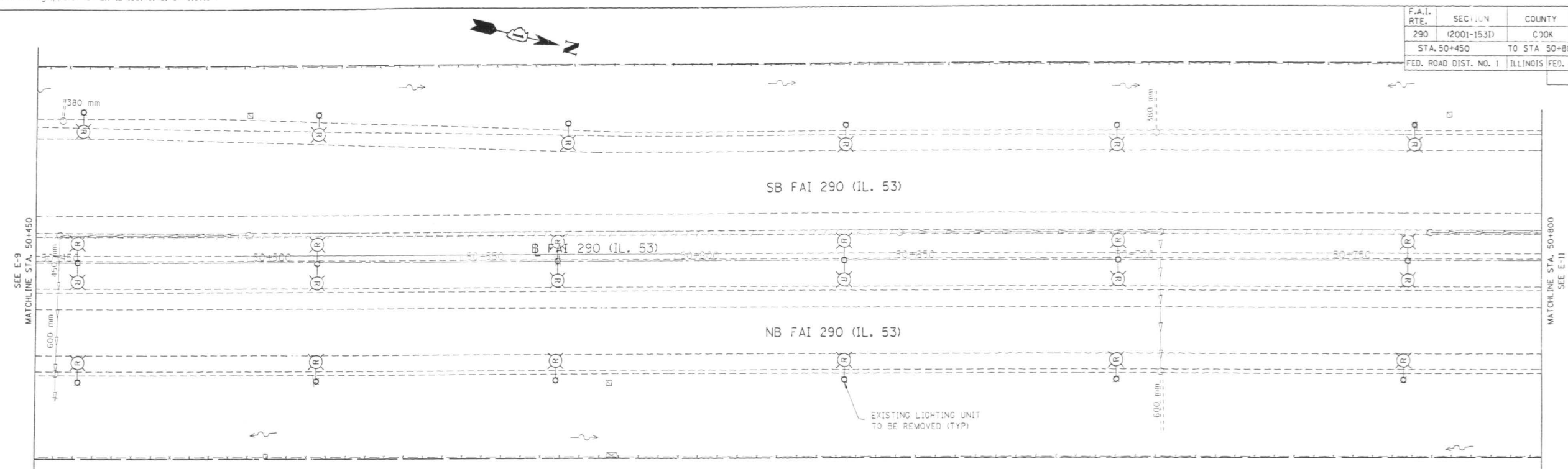


REVISIONS	
NAME	DATE
BL	2-21-02

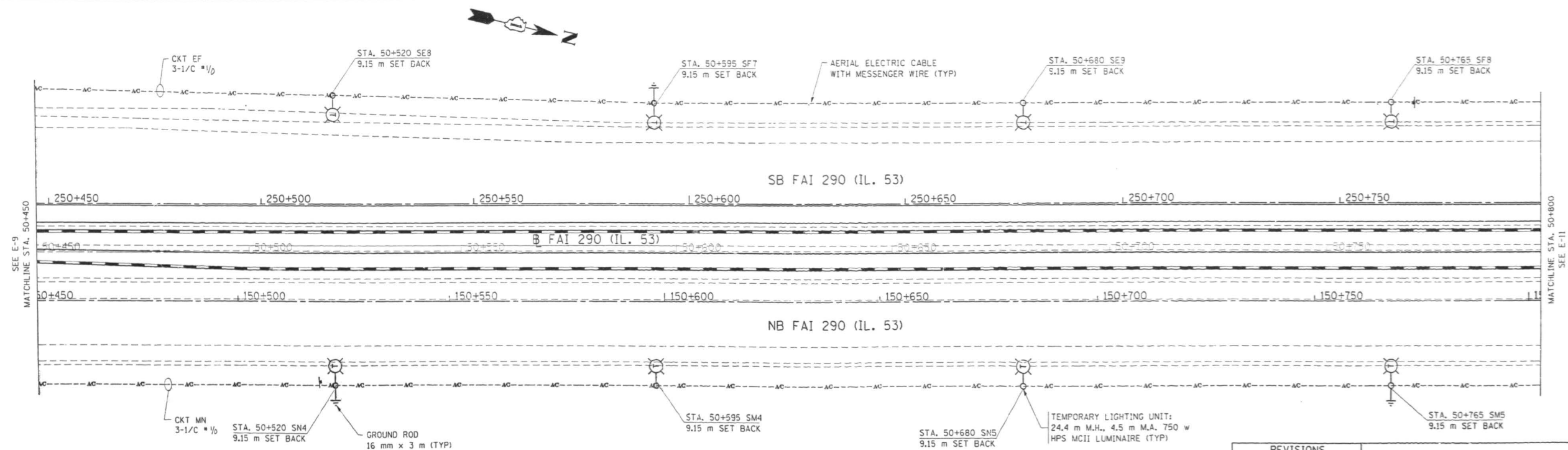
ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 290 (IL. 53)
DEVON AVE. TO IL. 72 (HIGGINS ROAD)
EXISTING REMOVAL AND TEMPORARY
LIGHTING PLAN

SCALE: 1:500
DATE: 1/25/02

DRAWN BY: CADD/BL
CHECKED BY: CRB



EXISTING REMOVAL PLAN



TEMPORARY LIGHTING PLAN

[illegible]

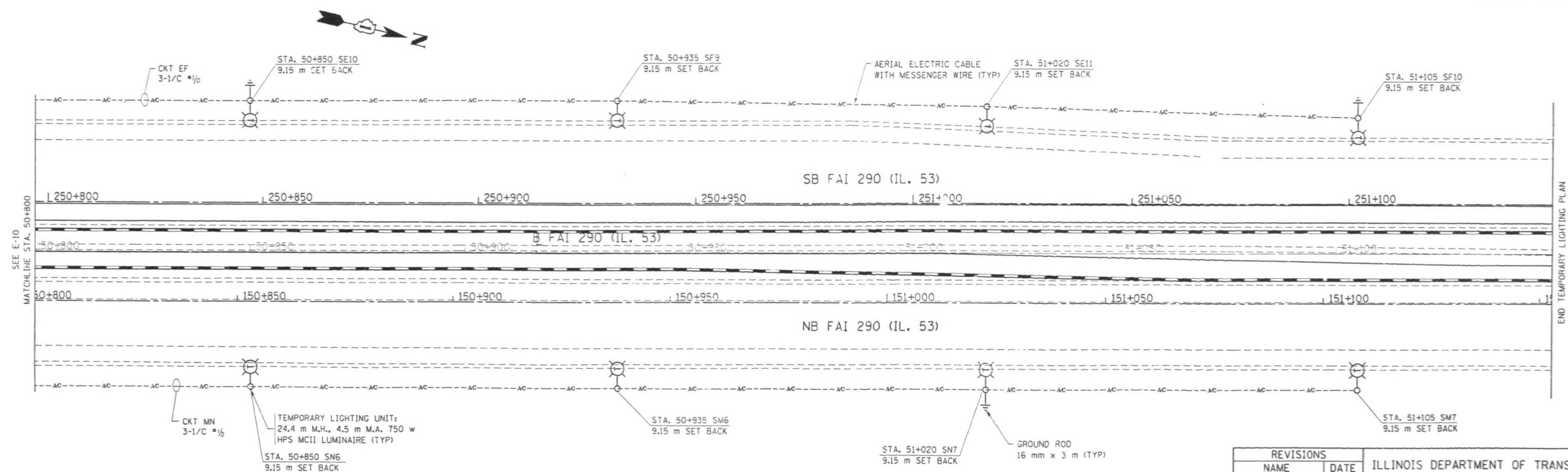
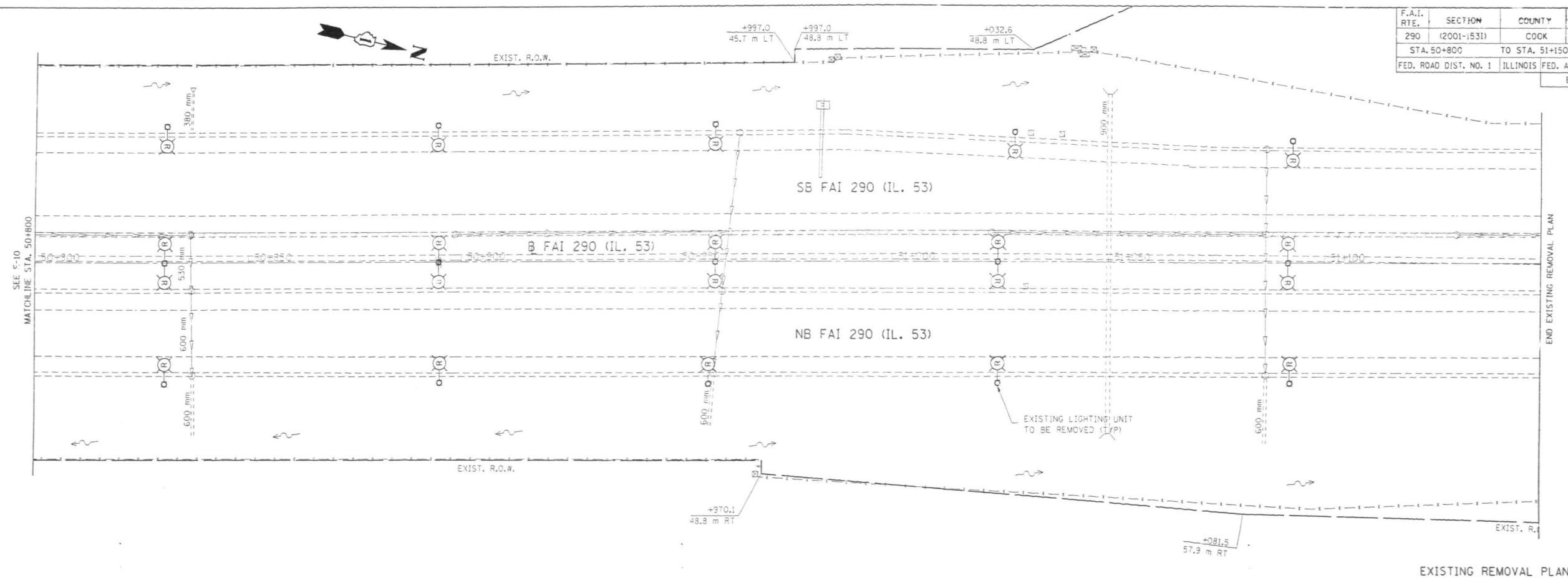
ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 290 (IL. 53)
DEVON AVE. TO IL. 72 (HIGGINS ROAD)
EXISTING REMOVAL AND TEMPORARY
LIGHTING PLAN

SCALE: 1:500

DRAWN BY: CADD/BL

DATE: 1/25/02

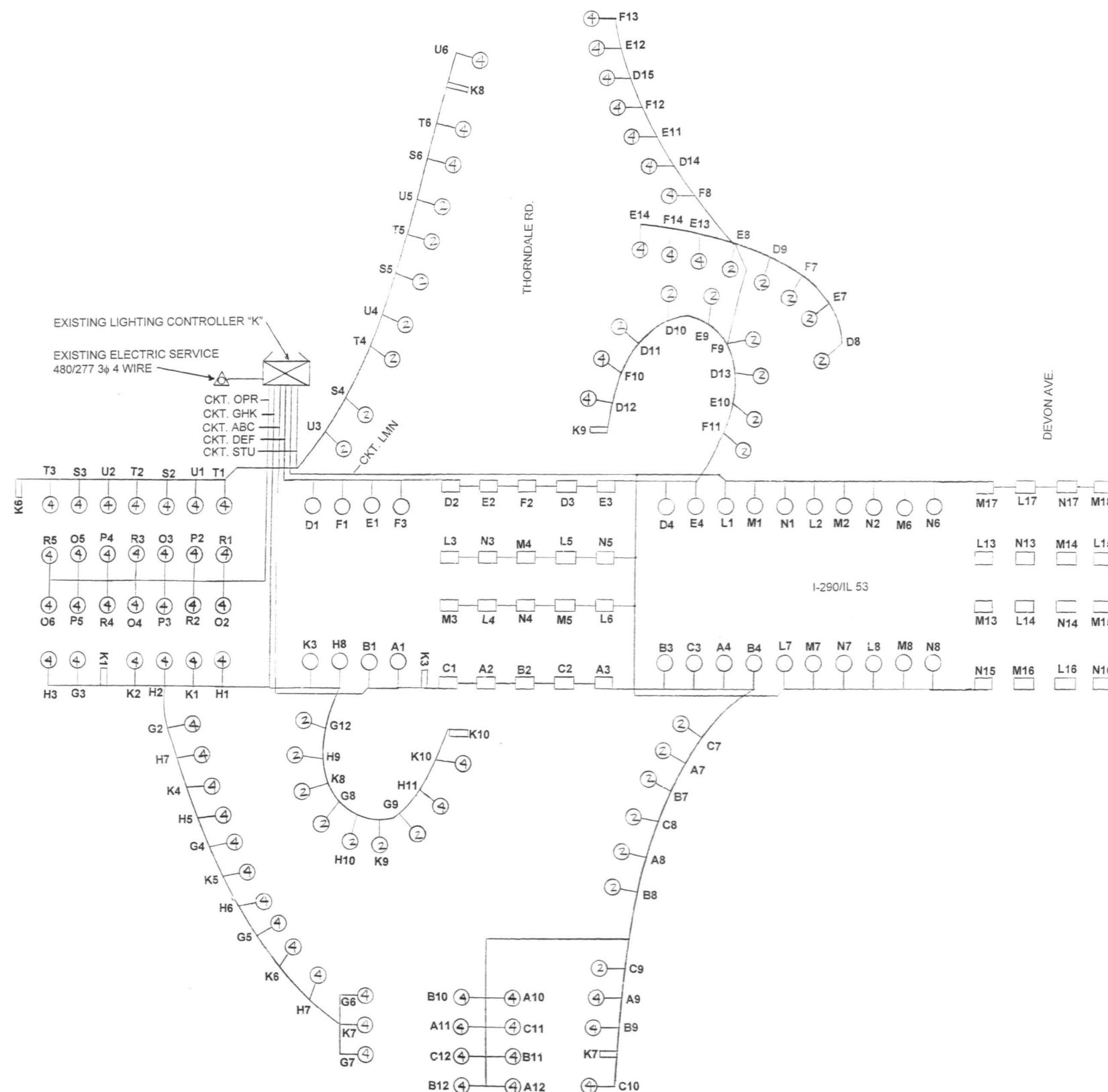
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ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 290 (IL. 53)
DEVON AVE. TO IL. 72 (HIGGINS ROAD)
EXISTING REMOVAL AND TEMPORARY
LIGHTING PLAN

SCALE: 1:500
DATE: 1/25/02

DRAWN BY: CADD/BL
CHECKED BY: CRB



LEGEND

- 750W HPS LUMINAIRE
- 400W HPS LUMINAIRE
- 200W HPS LUMINAIRE
- 55W LPS LUMINAIRE
- SIGN STRUCTURE
- WIRING AS INDICATED 3 #2 AND 1 #4 GROUND IN 1-1/2" UNIT DUCT OR AERIAL CABLE 3 #6 WITH MESSENGER WIRE (SEE PLAN). UNDERPASS WIRING: #10 IN 1" CONDUIT.

LOAD TABLE - CONTROLLER "K"

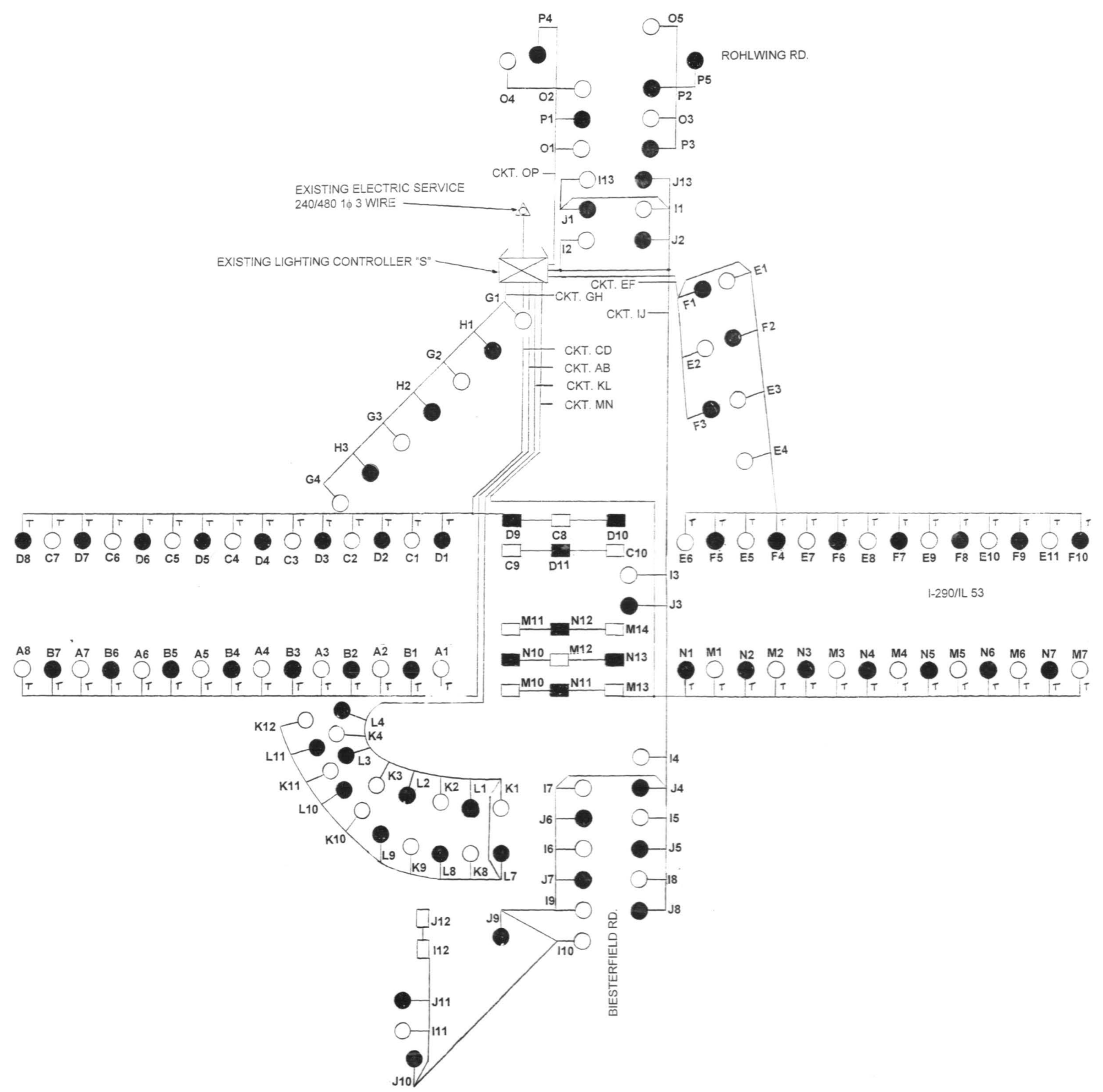
CIRCUIT	PHASE 1	CIRCUIT	PHASE 2	CIRCUIT	PHASE 3
A	16.8A	B	17.2A	C	12.9A
D	19.6A	E	18.6A	F	13.6A
G	12.9A	H	18.5A	K	16.8A
L	21.4A	M	24.5A	N	23.5A
O	8.5A	P	6.8A	R	8.5A
S	8.6A	T	8.6A	U	7.8A
TOTAL:	87.8A	TOTAL:	94.2A	TOTAL:	83.1A
TOTAL LOAD:	265.1A		73.4KVA		

REVISIONS	
NAME	DATE
BL	2-21-02

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 290 (IL 53)
DEVON AVE. TO IL 72 (HIGGINS RD.)
ONE LINE DIAGRAM
CONTROLLER "K"

SCALE: VERT. NONE
HORIZ.
DATE January 24, 2002

DRAWN BY BL
CHECKED BY CRB



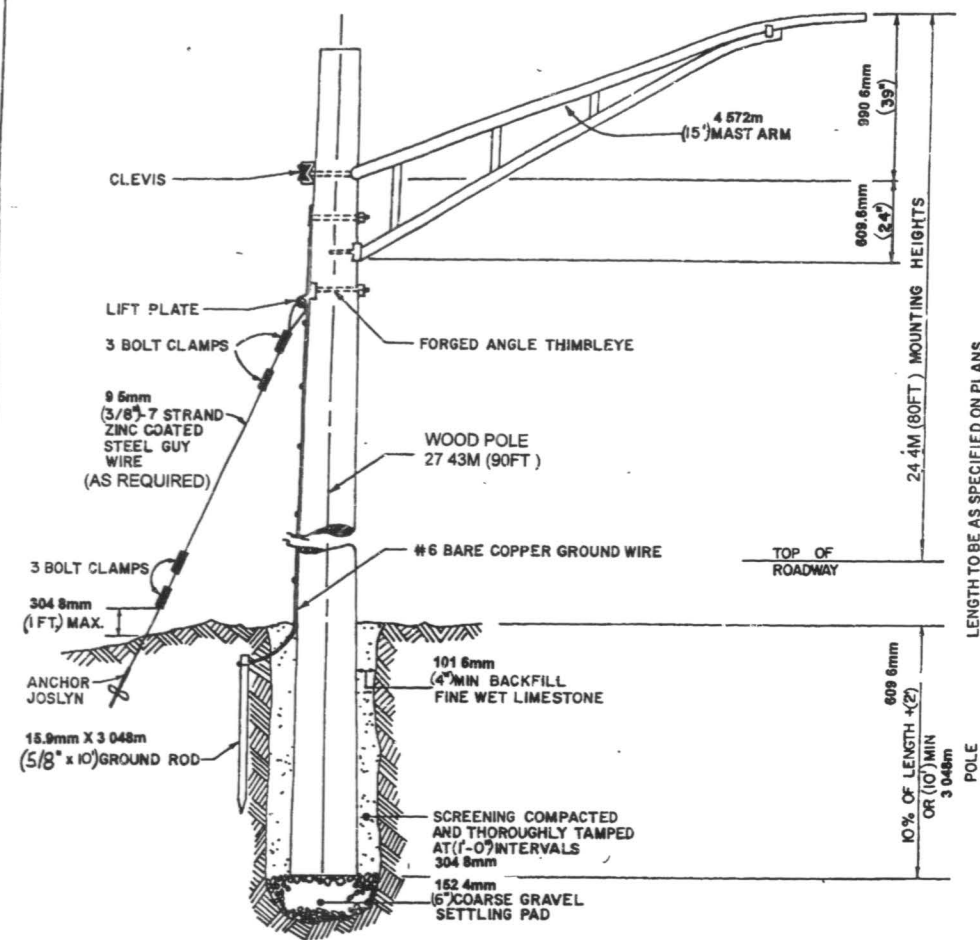
- LEGEND**
- 750W HPS LUMINAIRE RED WIRE
 - 750W HPS LUMINAIRE BLACK WIRE
 - 310W HPS LUMINAIRE RED WIRE
 - 310W HPS LUMINAIRE BLACK WIRE
 - 55W LPS LUMINAIRE RED WIRE
 - 55W LPS LUMINAIRE BLACK WIRE
 - WIRING AS INDICATED, AERIAL CABLE 3 #1/0 WITH MESSENGER WIRE; UNDERPASS WIRING #10 IN 1" CONDUIT

LOAD TABLE - CONTROLLER "S"

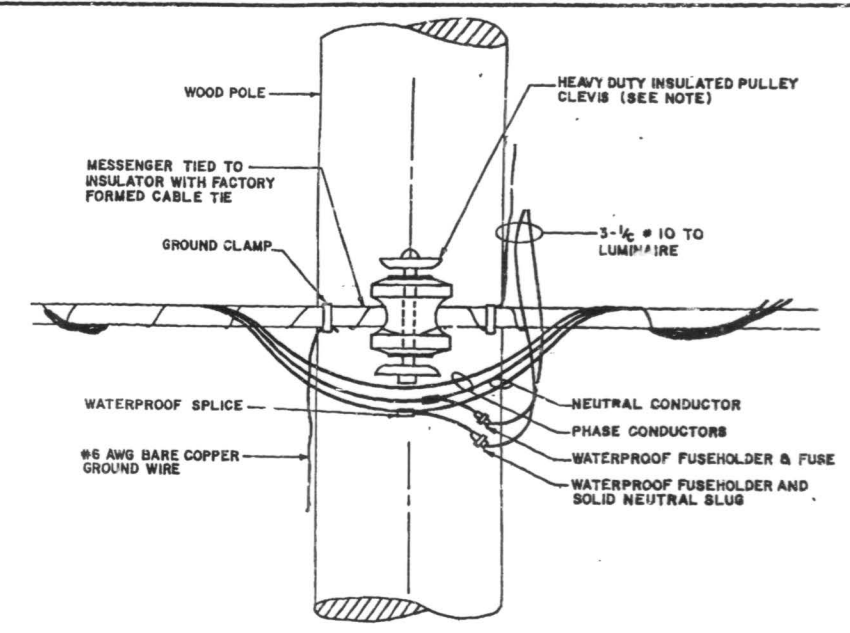
CIRCUIT	RED	CIRCUIT	BLACK
A	28A	B	24.5A
C	24.5A	D	28A
E	30.5A	F	29A
G	9A	H	7.5A
I	19A	J	19A
K	13.5A	L	13.5A
M	29.5A	N	29.5A
O	7.5A	P	7.5A
TOTAL:	161.5A	TOTAL:	158.5A
TOTAL LOAD:	320A	TOTAL LOAD:	76.5KVA

REVISIONS	
NAME	DATE
BL	2-21-02

ILLINOIS DEPARTMENT OF TRANSPORTATION
 F.A.I. 290 (IL 53)
 DEVON AVE. TO IL 72 (HIGGINS RD.)
 ONE LINE DIAGRAM
 CONTROLLER "S"
 SCALE: VERT. NONE
 HORIZ. NONE
 DATE: January 24, 2002
 DRAWN BY: BL
 CHECKED BY: CRB

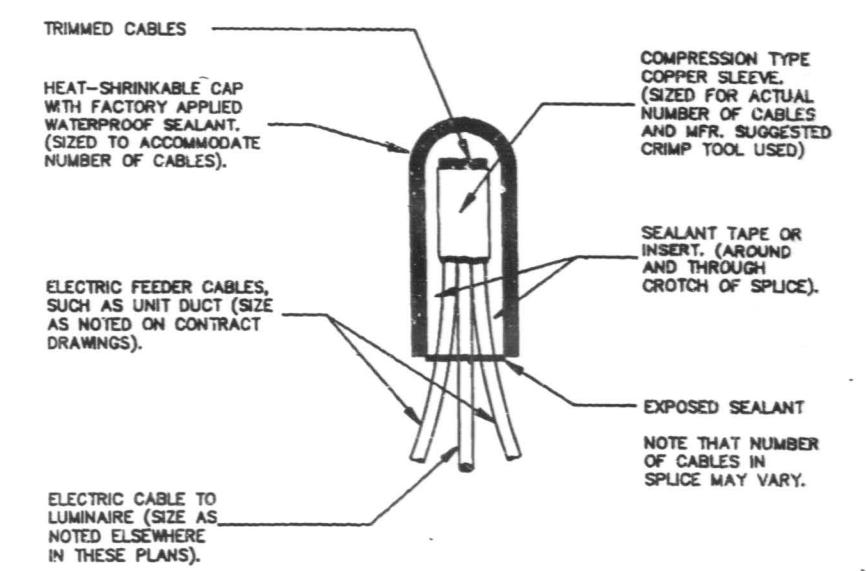


TEMPORARY LIGHT POLE DETAIL



TEMPORARY LIGHT POLE CABLE ATTACHMENT DETAIL

SPlicing ELECTRIC CABLES
BASIC MATERIALS AND METHODS



REVISIONS	
NAME	DATE
PKG, HM, DV, PF	8-11-88
JJR	1/24/90

ILLINOIS DEPARTMENT OF TRANSPORTATION
F.A.I. 290 (IL 53)
DEVON AVE. TO IL 72 (HIGGINS RD.)
TEMPORARY LIGHTING DETAILS
SCALE: VERT NONE
HORIZ NONE
DATE: 8/2/91
DRAWN BY: BL
CHECKED BY: CRB

FILENAME: G:\16772A\STRUCT\TEMP\LAN.DGN; 3/7/02; 14:01:36

Bench Mark: IDOT BM44, Square Cut in wingwall at N.W. corner of IL 53 S.B. Bridge over Higgins Rd.
Elev. 226.819, Sta. 53+801.216, Offset 25.547 m Lt.

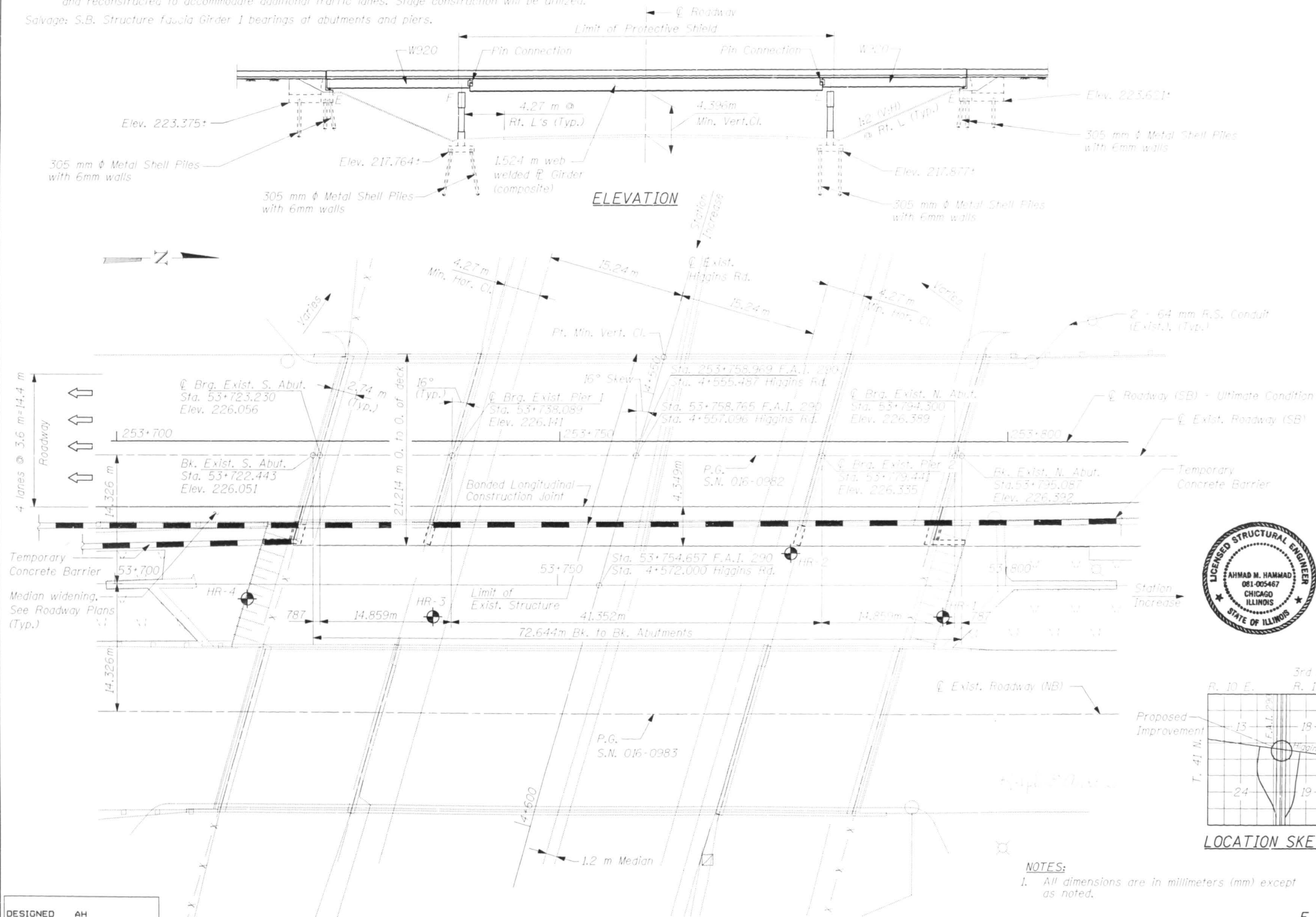
Existing Structure: S.N. 016-0982 (S.B.) & S.N. 016-0983 (N.B.) built in 1969 as F.A.I. Route 290, Section S-0404-313-HB. Both structures consist of a R.C. deck supported on three span multi-steel welded girders in span 2 and multi-steel stringers in Span 1 and 3. Stub type abutments are supported on concrete piles and multi-column piers on creosoted piles. Bridge length is 72.644 m Bk. to Bk. abutments and width 18.90 m o. to o. of deck. The existing concrete (S.B.) will be partially removed on the east side and reconstructed to accommodate additional traffic lanes. Stage construction will be utilized.

Salvage: S.B. Structure fascia Girder 1 bearings at abutments and piers.

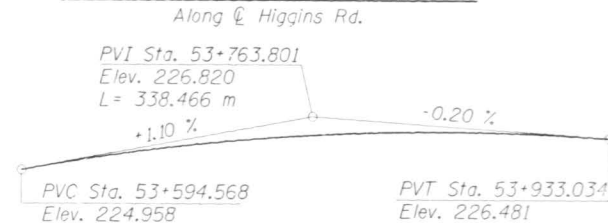
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	PROJECT	DATE	SHEET NO.
F.A.I. 290	**	COOK	253	132
22-1-2, 0103-30, & 0305-3 ETA				

SHEET NO. 1
25 SHEETS

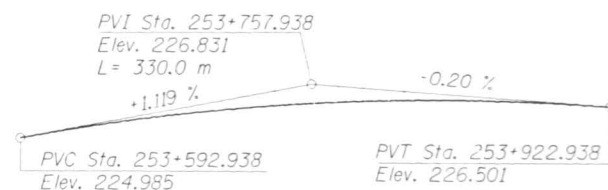


PROFILE GRADE HIGGINS RD.



PROFILE GRADE F.A.I. 290

Along Existing Southbound PGL
(Profile is approximated based on survey data of top of existing deck on January 31, 2002)



PROFILE GRADE F.A.I. 290

(ULTIMATE CONDITION)
Along Southbound PGL



Signed: Ahmad M. Hammad, S.E., II, L.C. No. 081-005467
Expires 11-30-2002

Date: 03-07-02

LOADING MS18 & ALT.

DESIGN SPECIFICATIONS

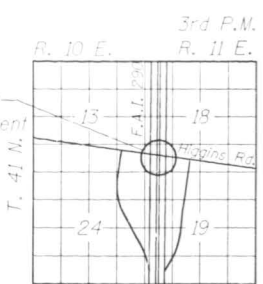
1996 AASHTO WITH 1997 - 2000 INTERIMS.

DESIGN STRESSES

EXISTING	PROPOSED
$f_c = 9.7 \text{ MPa}$	$f'_c = 24 \text{ MPa}$
$f_s = 138 \text{ MPa (Reinf.)}$	$f_y = 400 \text{ MPa (Reinf.)}$
	$f_y = 250 \text{ MPa (M270 Grade 250)}$

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.0



LOCATION SKETCH

NOTES:
1. All dimensions are in millimeters (mm) except as noted.

DESIGNED	AH
CHECKED	JIG
DRAWN	EKM
CHECKED	AH

PLAN

LEGEND

HR-1 - indicates Soil Boring Location



GENERAL PLAN & ELEVATION
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

03-07-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DATE	BY	CHECKED	DATE
F.A.I. RTE. 290	**	0000	050	050	
SHEET NO. 2					
25 SHEETS					
** 22-1-2, 0103-30, & 0305-3 ETA					

GENERAL NOTES

- Fasteners shall be high strength bolts. Bolts M 20, open holes 22 mm ϕ , unless otherwise noted.
- All new structural steel shall be shop painted with inorganic zinc rich primer per AASHTO M300, Type I.
- Field welding of construction accessories will not be permitted to the bottom flange of beams and girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
- Anchor bolts shall be set before bolting diaphragms over supports.
- The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams, web and tension flanges of the plate girder and all splice plate material except fill plates.
- Reinforcement bars shall conform to the requirements of AASHTO M 31M, M 42M or M 53M Grade 400.
- Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 3 mm. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 3 mm adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. (For Type I Elastomeric Bearings, two 3 mm adjusting shims shall be provided for each bearing and placed as detailed).
- The contractor shall drive one 305 mm ϕ metal shell test pile with 6 mm wall in a permanent location at both abutments and piers, 4 locations, as directed by the Engineer before ordering the remainder of the piles.
- Bridge Seat Sealer shall be applied to the seat area of the abutments.
- Prior to pouring the new concrete for the deck, all loose rust, loose mill scale and all other loose potentially detrimental foreign material shall be removed from the surfaces of the beams or girders in contact with concrete. The cost of this work will be included in the pay item Concrete Removal. All heavy rust and other tightly adhered potentially detrimental foreign matter shall also be removed from the surfaces of the beams or girders in contact with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of this work will be paid for according to Article 109.04.
- All existing construction accessories welded to the top flange over the piers between the quarter points of the beams or girders shall be removed. The remaining weld shall be ground smooth and inspected for cracks using magnetic particle testing. Any cracks that can not be removed by grinding approximately 6 mm deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of this work will be paid for according to Article 109.04.
- All dimensions are in millimeters (mm) except as noted.
- The existing structural steel coating contains lead. The Contractor should take appropriate precautions to deal with the presence of lead on this project.

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- Bar Splicer Assembly Details
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- South Abutment Details
- Pier 1 Widening
- Pier 2 Widening
- North Abutment Widening
- North Abutment Details
- Pile Details
- Boring Logs I
- Boring Logs II

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Protective Shield	Sq. m	130	—	130
Concrete Removal	Cu. m	49.4	10.7	60.1
Structure Excavation	Cu. m	—	245	245
Bridge Joint System (Expansion), 25 mm	m	3.8	—	3.8
Elastomeric Bearing Assembly, Type I	Each	1	—	1
Elastomeric Bearing Assembly, Type II	Each	1	—	1
Temporary Support System	Each	2	—	2
Structural Steel Removal	kg	3,550	—	3,550
Neoprene Expansion Joint, 65mm	m	3.8	—	3.8
Concrete Structures	Cu. m	—	72.5	72.5
Concrete Superstructure	Cu. m	65.6	—	65.6
Stud Shear Connectors	Each	312	—	312
Furnishing & Erecting Structural Steel	kg	36,570	—	36,570
Reinforcement Bars, Epoxy Coated	kg	9,650	5,320	14,970
Furnishing Metal Pile Shells, 305mm	m	—	267	267
Driving and Filling Shells	m	—	267	267
Test Pile Metal Shells	Each	—	4	4
Bridge Seat Sealer	Sq. m	—	4.4	4.4
Bituminous Concrete Surface Course Class I	M. Ton	30.0	—	30.0
Bar Splicers	Each	46	68	114

GENERAL NOTES & BILL OF MATERIAL
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

DESIGNED	CBO
CHECKED	AH
DRAWN	DCP
CHECKED	JIC

ROUTE NO.	SECTION	CONTRACT	SECTION SHEETS	SHEET NO.
F.A.L. 290	**	600K	250	134
ELECTRICAL EQUIPMENT		ELECTRICAL EQUIPMENT		

SHEET NO. 3
25 SHEETS

** 22 1 2, 0013-30, 3 0305-6 4

STAGE CONSTRUCTION
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

LEGNED

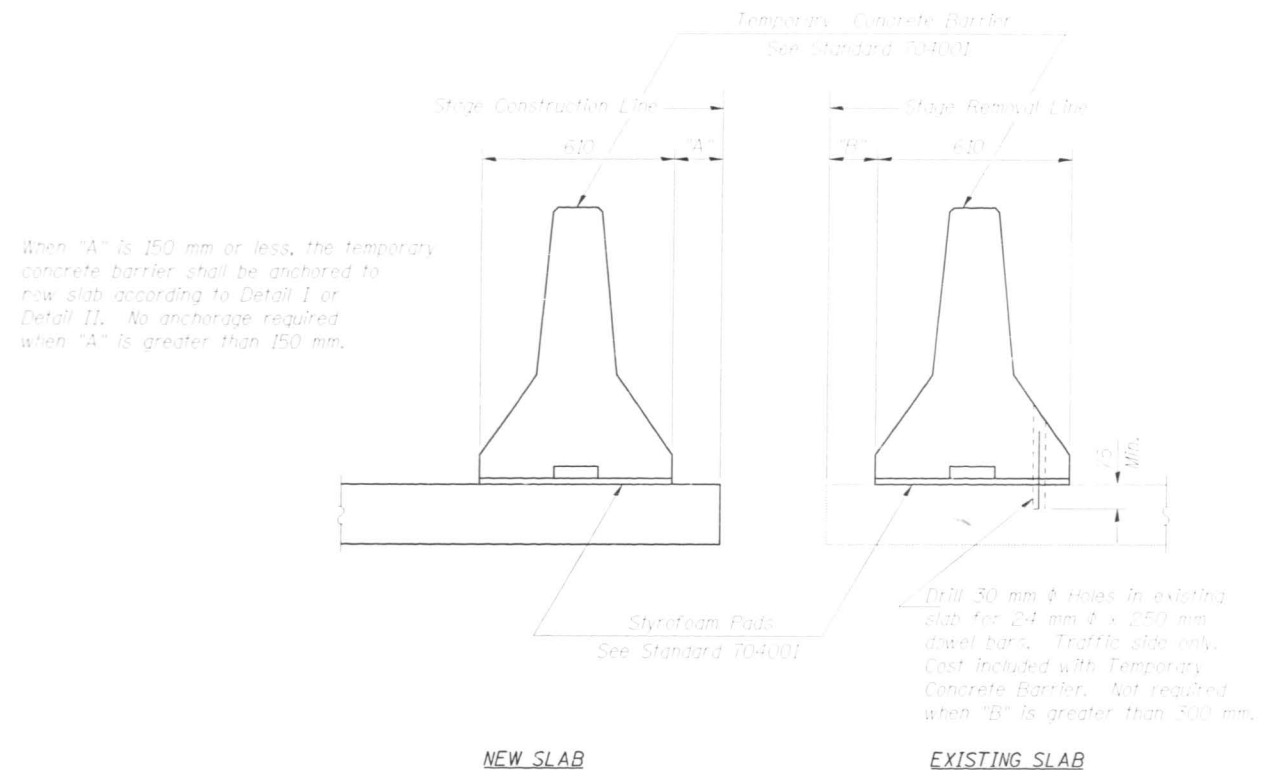
 Hatched areas indicates concrete removal



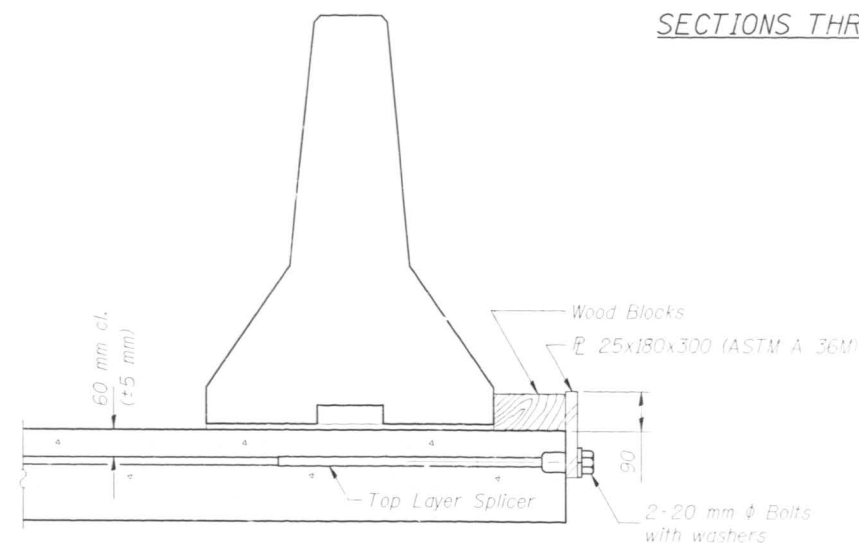
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

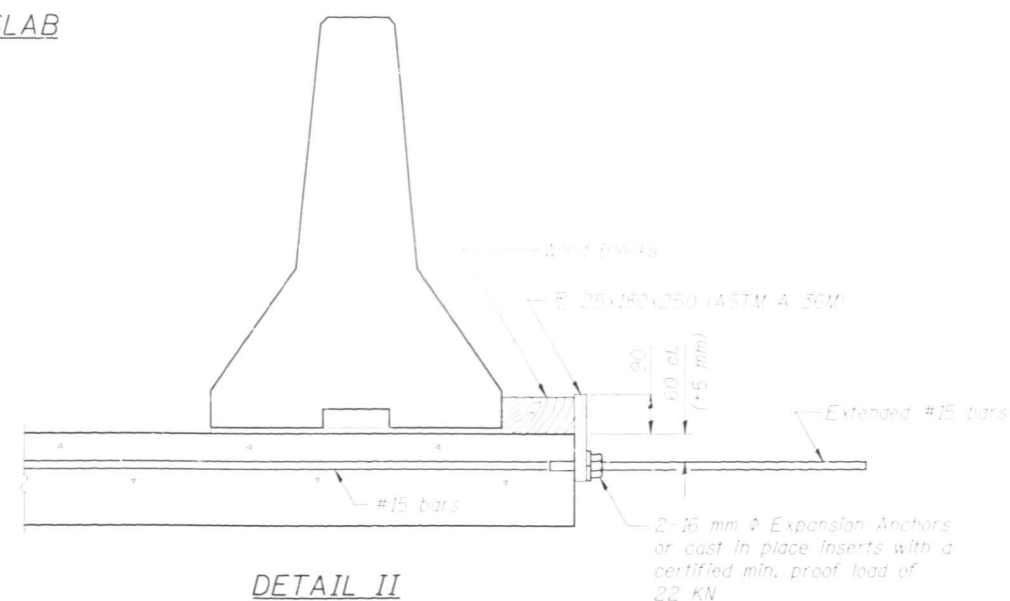
PROJECT NO.	SHEET NO.	DATE	BY	CHECKED	APPROVED
F.A.I. RTE. 290	25	000*	25/3	155	
SHEET NO. 4 25 SHEETS					



SECTIONS THRU SLAB



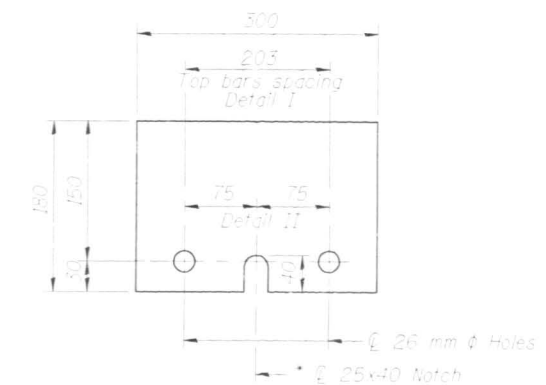
The 25x180x300 Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



The 25x180x250 Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

NOTES

- Detail I - With Bar Splicer or Couplers:
Connect one (1) 25x180x300 steel $\bar{E}$ to the top layer of couplers with 2-20 mm ϕ bolts screwed to coupler at approximate $\bar{E}$ of each 3 m barrier panel.
- Detail II - With Extended Reinforcement Bars:
Connect one (1) 25x180x250 steel $\bar{E}$ to the concrete slab with 2-16 mm ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate $\bar{E}$ of each 3 m barrier panel.
- Cost of anchorage included with Temporary Concrete Barrier.
- All dimensions are in millimeters (mm) except as noted.



25x180x300

* Required only with Detail II

DESIGNED	AH
CHECKED	KM
DRAWN	DCP
CHECKED	JIG

03-07-02

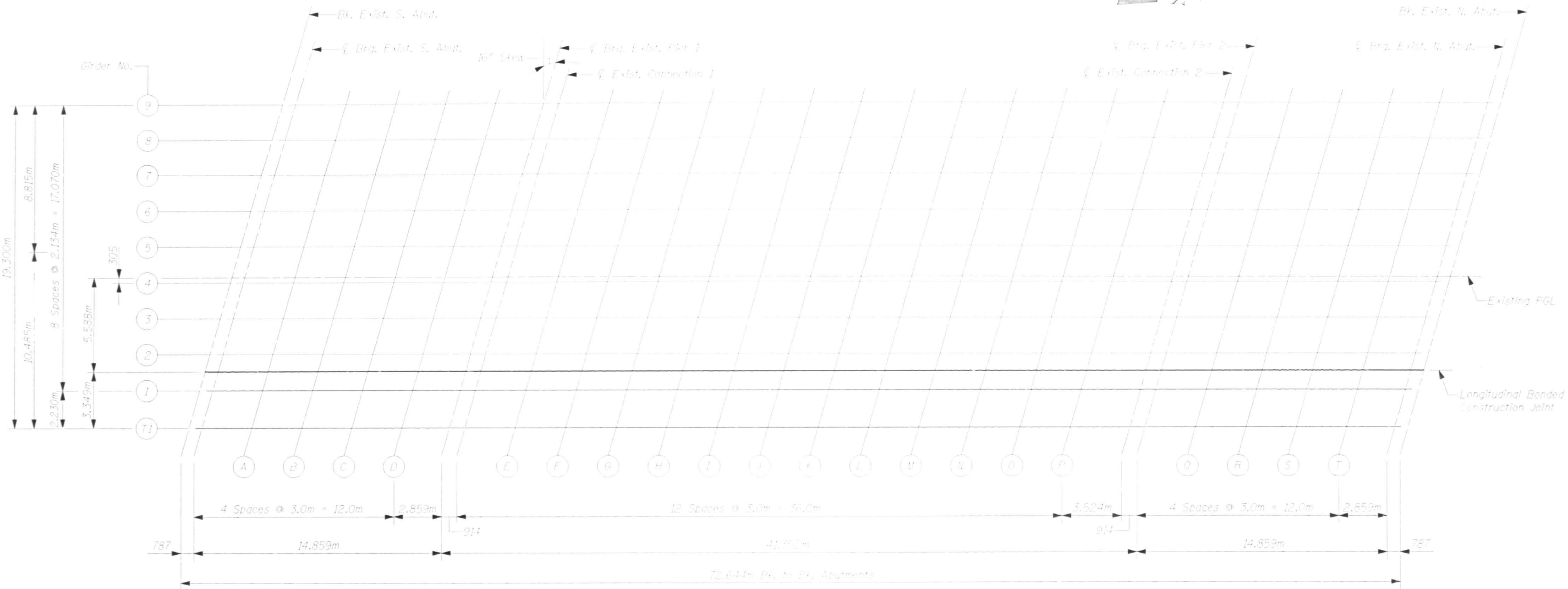
TEMPORARY CONCRETE BARRIER
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

**PARSONS
BRINCKERHOFF**

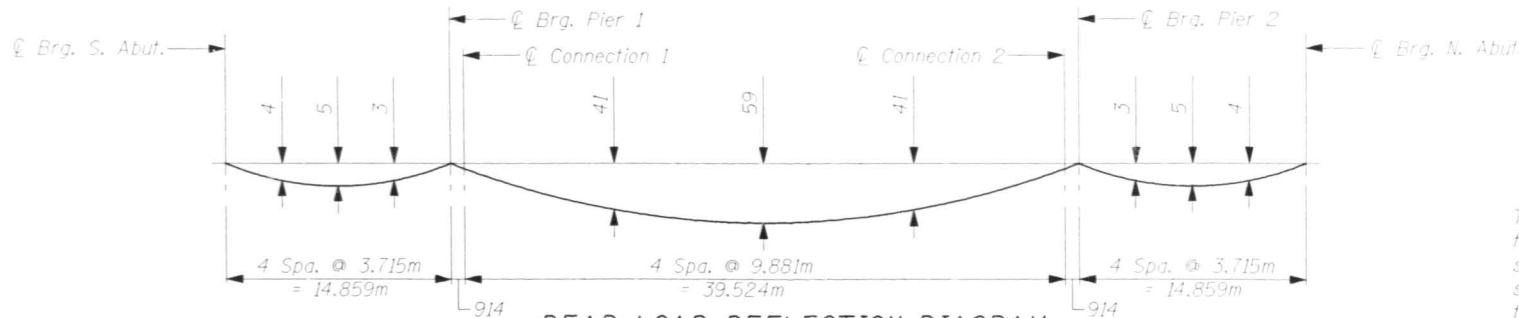
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 5
F.A.I. RTE. 290	**	COOK	255	150	25 SHEETS
PROJECT NO. 016-0982	ILLINOIS	REC. AND PROJECT			

** 22-1-2, 0103-30, & 0305-3 ETA



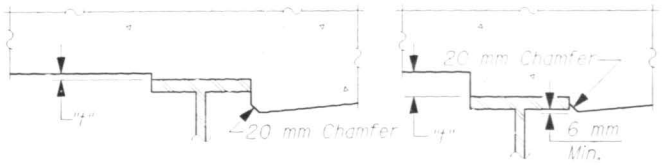
PLAN



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheet No. 6. All dimensions are in millimeters (mm) except as noted. All offsets are in meters.



At Minimum Fillet

At Maximum Fillet

To determine "f": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheet No. 6, minus slab thickness, equals the fillet heights "f" above top flange of beams.

FILLET HEIGHTS

Notes:

Work this sheet with Sheet No. 6

All dimensions are in millimeters (mm) except as noted.

TOP OF SLAB ELEVATIONS LAYOUT
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



DESIGNED	KM
CHECKED	AH
DRAWN	KM
CHECKED	JIG

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. RTE. 290	**	0054	265	137
SHEET NO. 6		25 SHEETS		
RETURNING DESIGN NO.		DESIGN	FIELD NO. PROJECT	
** 22-1-2, 0103-30, & 0305-3 E.T.A.				

BEAM T1

Location	Station	Offset (m)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflections
BK. S. ABUT.	53+719.680	8.937	225.868	225.868
Q BRG. S. ABUT.	53+720.667	8.937	225.873	225.873
A	53+723.667	8.937	225.891	225.894
B	53+726.667	8.937	225.909	225.914
C	53+729.667	8.937	225.927	225.932
D	53+732.667	8.937	225.944	225.946
Q. BRG. PIER 1	53+735.526	8.937	225.960	225.960
Q. CONNECTION 1	53+736.440	8.937	225.965	225.965
E	53+739.440	8.937	225.982	225.997
F	53+742.440	8.937	225.998	226.024
G	53+745.440	8.937	226.014	226.051
H	53+748.440	8.937	226.029	226.075
I	53+751.440	8.937	226.044	226.092
J	53+754.440	8.937	226.059	226.117
K	53+757.440	8.937	226.073	226.132
L	53+760.440	8.937	226.087	226.144
M	53+763.440	8.937	226.101	226.151
N	53+766.440	8.937	226.114	226.156
O	53+769.440	8.937	226.127	226.160
P	53+772.440	8.937	226.140	226.157
Q. CONNECTION 2	53+775.964	8.937	226.155	226.155
Q. BRG. PIER 2	53+776.878	8.937	226.158	226.158
R	53+779.878	8.937	226.170	226.172
S	53+782.878	8.937	226.181	226.186
T	53+785.878	8.937	226.193	226.198
Q BRG. N. ABUT.	53+788.878	8.937	226.203	226.206
BK. N. ABUT.	53+791.737	8.937	226.213	226.213
	53+792.524	8.937	226.216	226.216

EXISTING PGL

Location	Station	Offset (m)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflections
BK. S. ABUT.	53+722.443	0.000	226.051	226.051
Q BRG. S. ABUT.	53+723.230	0.000	226.056	226.056
A	53+726.230	0.000	226.074	226.077
B	53+729.230	0.000	226.091	226.096
C	53+732.230	0.000	226.109	226.114
D	53+735.230	0.000	226.126	226.128
Q. BRG. PIER 1	53+738.089	0.000	226.141	226.141
Q. CONNECTION 1	53+739.003	0.000	226.146	226.146
E	53+742.003	0.000	226.163	226.178
F	53+745.003	0.000	226.178	226.204
G	53+748.003	0.000	226.194	226.231
H	53+751.003	0.000	226.209	226.255
I	53+754.003	0.000	226.224	226.279
J	53+757.003	0.000	226.238	226.296
K	53+760.003	0.000	226.252	226.311
L	53+763.003	0.000	226.266	226.323
M	53+766.003	0.000	226.280	226.330
N	53+769.003	0.000	226.293	226.335
O	53+772.003	0.000	226.305	226.338
P	53+775.003	0.000	226.318	226.335
Q. CONNECTION 2	53+778.527	0.000	226.332	226.332
Q. BRG. PIER 2	53+779.441	0.000	226.335	226.335
R	53+782.441	0.000	226.347	226.349
S	53+785.441	0.000	226.358	226.363
T	53+788.441	0.000	226.369	226.374
Q BRG. N. ABUT.	53+791.441	0.000	226.379	226.382
BK. N. ABUT.	53+794.300	0.000	226.389	226.389
	53+795.087	0.000	226.392	226.392

BEAM 1

Location	Station	Offset (m)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflections
BK. S. ABUT.	53+719.680	6.707	225.918	225.918
Q BRG. S. ABUT.	53+720.667	6.707	225.923	225.923
A	53+723.667	6.707	225.941	225.944
B	53+726.667	6.707	225.959	225.964
C	53+729.667	6.707	225.977	225.982
D	53+732.667	6.707	225.994	225.996
Q. BRG. PIER 1	53+735.526	6.707	226.010	226.010
Q. CONNECTION 1	53+737.080	6.707	226.015	226.015
E	53+740.080	6.707	226.032	226.047
F	53+743.080	6.707	226.048	226.074
G	53+746.080	6.707	226.063	226.100
H	53+749.080	6.707	226.079	226.125
I	53+752.080	6.707	226.094	226.149
J	53+755.080	6.707	226.118	226.166
K	53+758.080	6.707	226.123	226.182
L	53+761.080	6.707	226.137	226.194
M	53+764.080	6.707	226.150	226.200
N	53+767.080	6.707	226.164	226.206
O	53+770.080	6.707	226.177	226.210
P	53+773.080	6.707	226.189	226.216
Q. CONNECTION 2	53+776.604	6.707	226.204	226.204
Q. BRG. PIER 2	53+777.518	6.707	226.207	226.207
R	53+780.518	6.707	226.219	226.221
S	53+783.518	6.707	226.230	226.235
T	53+786.518	6.707	226.241	226.246
Q BRG. N. ABUT.	53+789.518	6.707	226.250	226.255
BK. N. ABUT.	53+792.377	6.707	226.262	226.262
	53+793.164	6.707	226.265	226.265

LONGITUDINAL BONDED CONSTRUCTION JOINT

Location	Station	Offset (m)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflections
BK. S. ABUT.	53+720.841	5.588	225.944	225.944
Q BRG. S. ABUT.	53+721.828	5.588	225.948	225.948
A	53+724.828	5.588	225.967	225.970
B	53+727.828	5.588	225.984	225.989
C	53+730.828	5.588	226.002	226.007
D	53+733.828	5.588	226.019	226.021
Q. BRG. PIER 1	53+736.487	5.588	226.035	226.035
Q. CONNECTION 1	53+737.401	5.588	226.040	226.040
E	53+740.401	5.588	226.057	226.072
F	53+743.401	5.588	226.073	226.099
G	53+746.401	5.588	226.088	226.125
H	53+749.401	5.588	226.104	226.150
I	53+752.401	5.588	226.119	226.174
J	53+755.401	5.588	226.133	226.191
K	53+758.401	5.588	226.148	226.207
L	53+761.401	5.588	226.161	226.218
M	53+764.401	5.588	226.175	226.225
N	53+767.401	5.588	226.188	226.230
O	53+770.401	5.588	226.201	226.234
P	53+773.401	5.588	226.214	226.231
Q. CONNECTION 2	53+776.925	5.588	226.228	226.228
Q. BRG. PIER 2	53+777.839	5.588	226.232	226.232
R	53+780.839	5.588	226.243	226.245
S	53+783.839	5.588	226.255	226.260
T	53+786.839	5.588	226.266	226.271
Q BRG. N. ABUT.	53+789.839	5.588	226.277	226.280
BK. N. ABUT.	53+792.698	5.588	226.286	226.286
	53+793.485	5.588	226.289	226.289

DESIGNED	KM
CHECKED	AH
DRAWN	KM
CHECKED	JTG



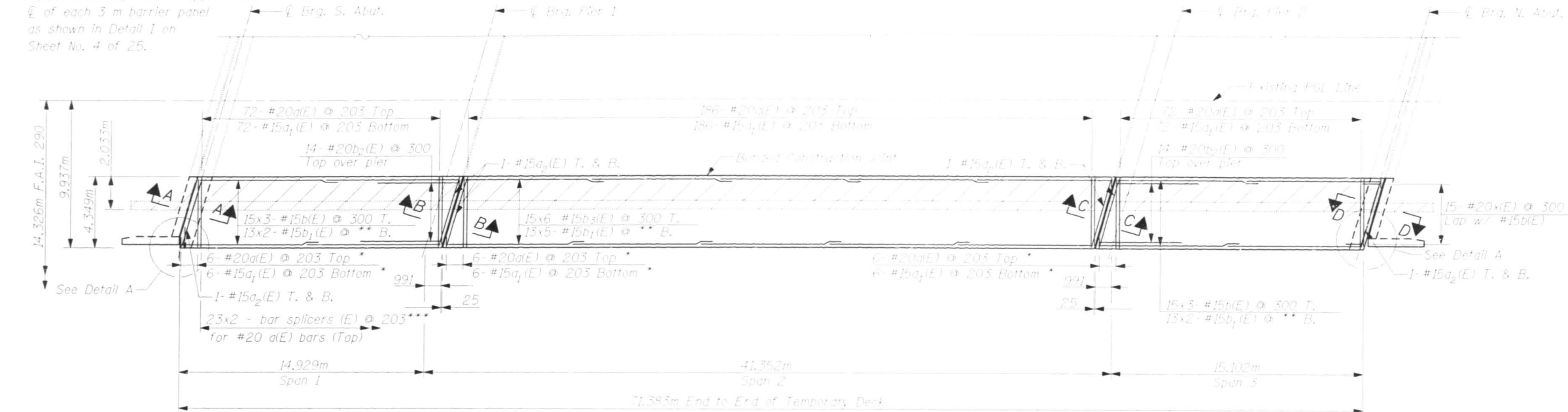
TOP OF SLAB ELEVATIONS I
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

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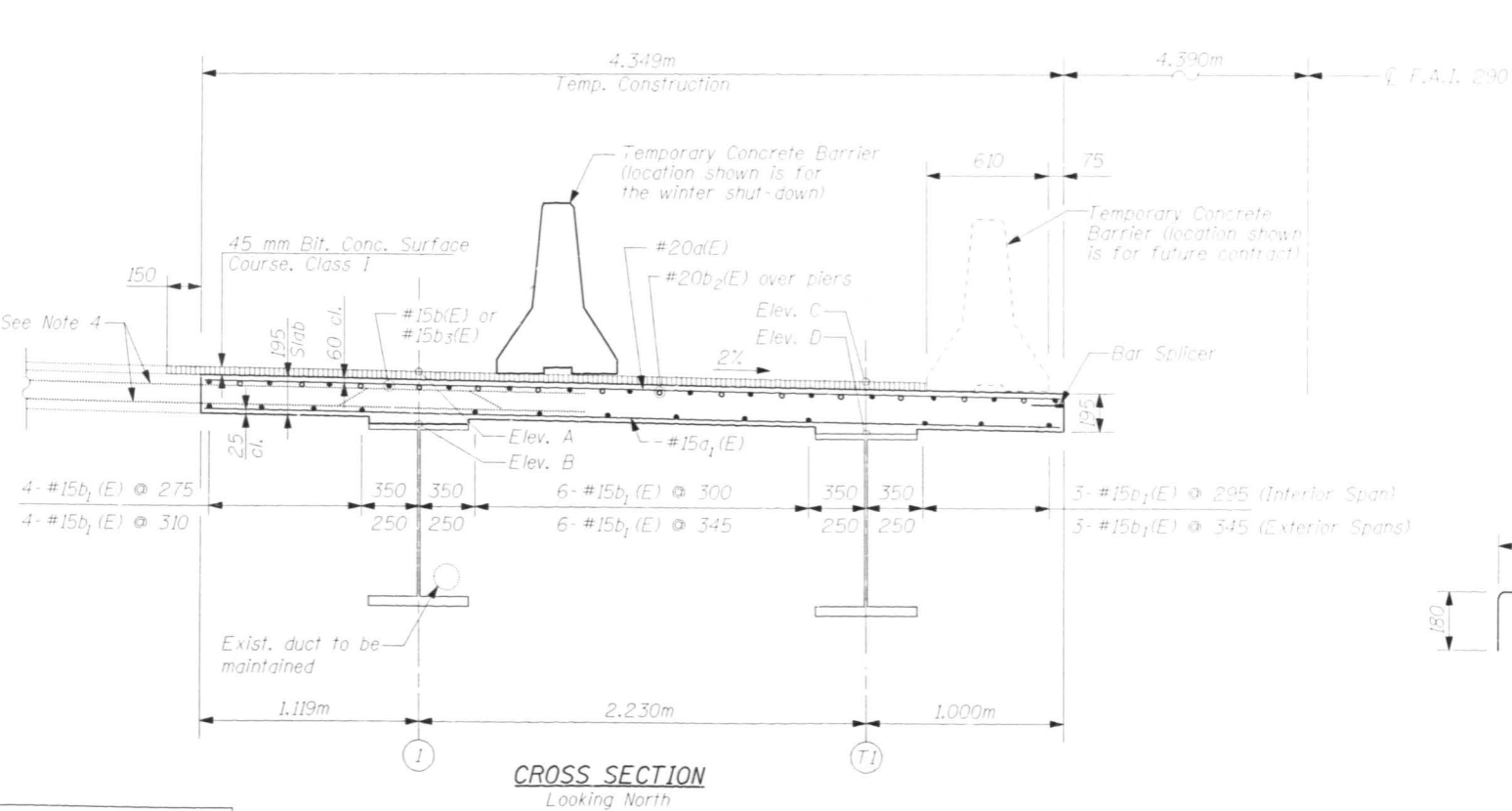
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SHEET NO.	DATE	BY	CHKD	APP'D
F.A.I. RTE. 290	25	0003-30	0305-3	ETA	
25 SHEETS					

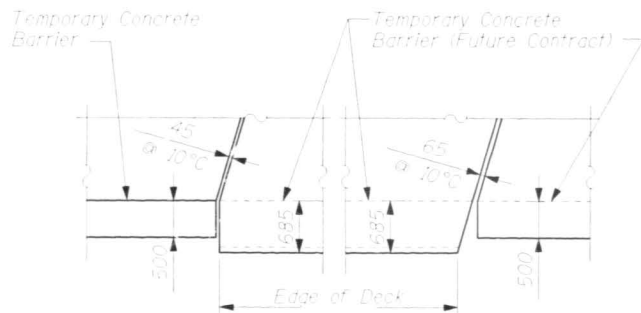
- * Order these bars full length cut to fit skew and use remainder in opposite end
- ** For spacing, see Cross Section
- *** Space 2 bar splicers @ approximate $\frac{1}{2}$ of each 3 m barrier panel as shown in Detail 1 on Sheet No. 4 of 25.



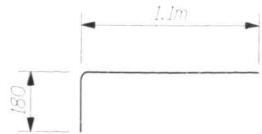
PLAN
(Barriers not shown for clarity)



CROSS SECTION
Looking North



DETAIL A



BAR X

LEGEND

Portion of existing structure to be removed

SUPERSTRUCTURE
BILL OF MATERIAL

Bar	No.	Size	Length (m)	Shape
a ₁ (E)	350	#20	4.300	—
a ₂ (E)	348	#15	4.300	—
b ₁ (E)	12	#15	4.470	—
b ₂ (E)	90	#15	5.690	—
b ₃ (E)	117	#15	8.280	—
b ₄ (E)	28	#20	4.900	—
b ₅ (E)	90	#15	6.970	—
x(E)	15	#15	1.280	—
Reinforcement Bars, Epoxy Coated			kg	9650
Concrete Superstructure			Cu. m	63.2
Concrete Removal			Cu. m	49.4
Bituminous Concrete Surface Course Class 1			M. Ton	30.0
Bridge Joint System (Expansion), 25 mm			m	3.8
Neoprene Expansion Joint, 65 mm			m	3.8

Notes:

- Reinforcement bars designated (E) shall be epoxy coated.
- Bars indicated thus 1 x 3 - #15 etc. indicates 1 line of bars with 3 lengths per line.
- All dimensions are in millimeters (mm) except as noted.
- Existing reinforcement bars to be cleaned and incorporated into the new construction.
- For Sections A-A, B-B & D-D, see Sheet No. 8.
- For Elev. A and C see sheet No. 6, for Elev B and D see sheet No. 11. Contractor to verify elevation of existing girder and adjust fillet. Contractor to maintain 2% slope.

SUPERSTRUCTURE
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



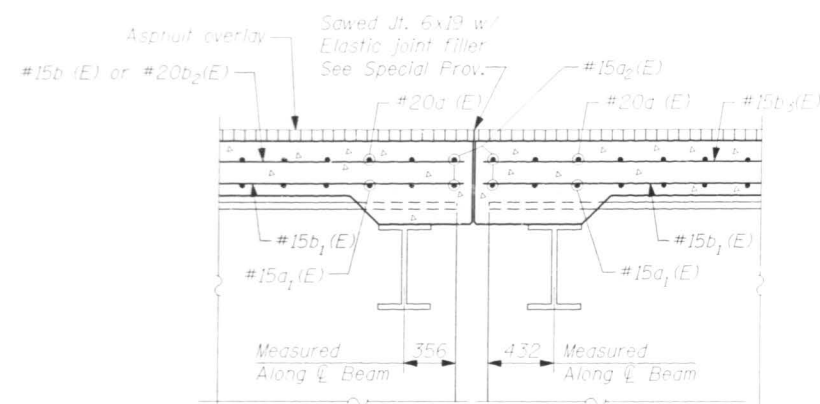
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CHECKED	EKM
DRAWN	DCP
CHECKED	AH

03-07-02

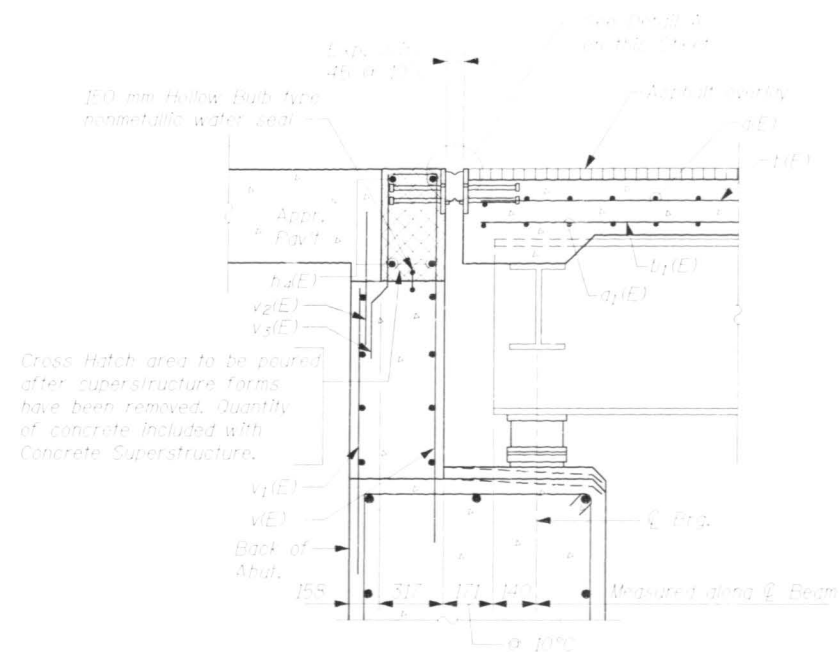
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

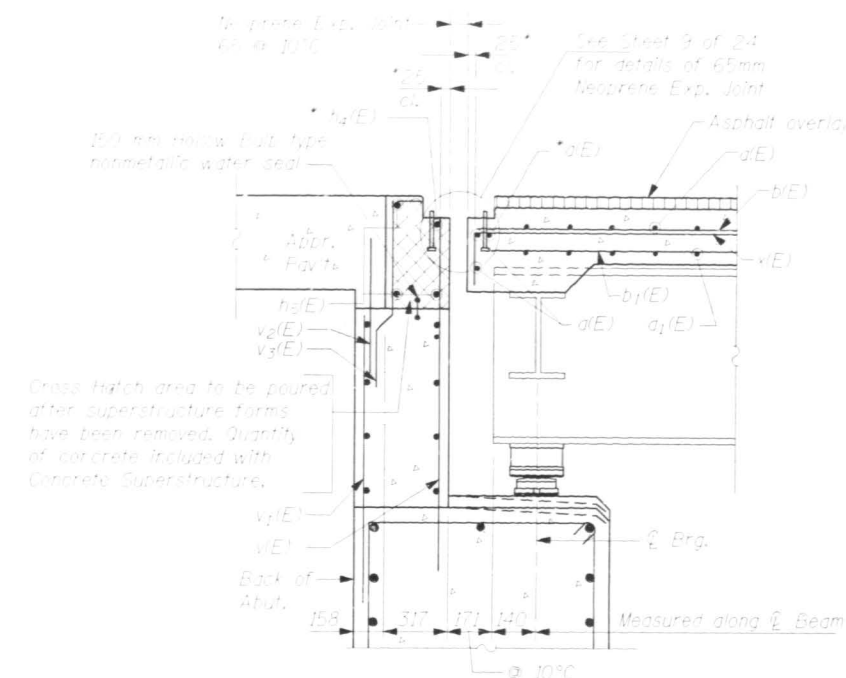
ROUTE NO.	SECTION	COUNTY	DATE	SHEET	SHEET NO. 8
F.A.I. 290	**	COOK	25	139	25 SHEETS
** SEE SHEET 8, 9, & 105, 106					



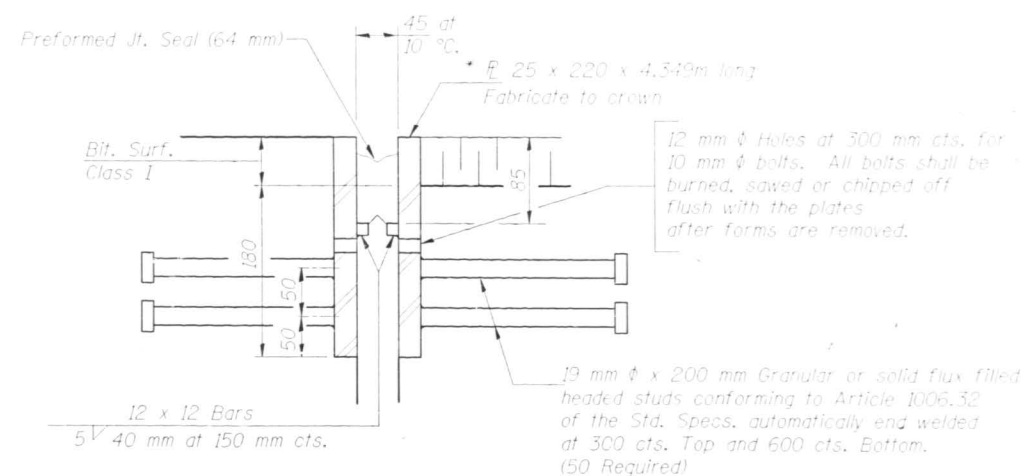
SECTION B-B
(Section C-C opposite hand)



SECTION A-A

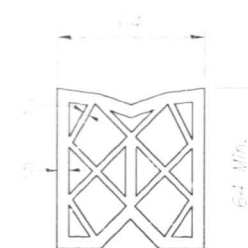


SECTION D-D



DETAIL A

* Furnish in segments of 6 m maximum length. Maximum space between installed segments shall be 5 mm. Seal space with Silicone Sealant suitable for Structural Steel.



PREFORMED JOINT SEAL (64 mm)

Notes:

New Preformed Joint Seal shall be bonded to the existing PJS.

* Place a1(E) and h4(E) bars in back of anchor bolt as shown. If required to maintain 25 mm cl. (+0/-3 mm), Anchor bolts should be tied to a1(E) and h4(E) bars.

DESIGNED	TJM
CHECKED	EKM
DRAWN	DCP
CHECKED	AH

03-07-02

**PB PARSONS
BRINCKERHOFF**

SUPERSTRUCTURE DETAILS
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

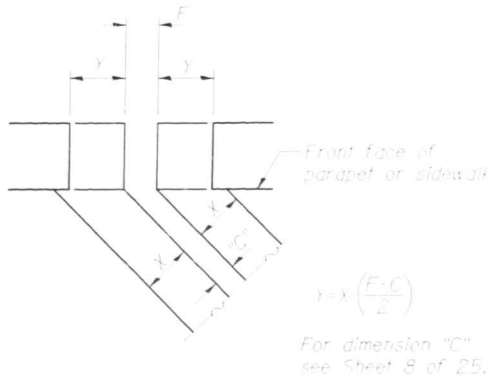
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET	SHEET NO. 9
F.A.I. RTE. 290	**	COOK	259	140	25 SHEETS
** 22-1-2, 0103-30, & 0305-3 ETA					

Joint Size	"C" at 10 °C	"D" at 10 °C
50	50	40 Min.
65	65	45 Min.
100	75	65 Min.

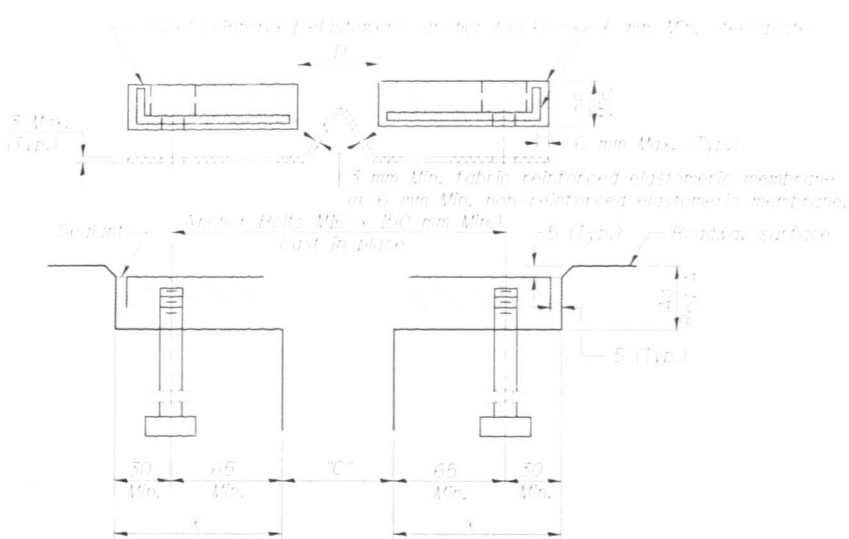
INSTALLATION NOTES

- ① Install continuous seal in roadway. Bond the existing membrane to the new one.
- ② Install anchor blocks as indicated.

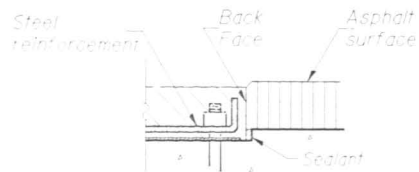
NOTE A: Maximum spacing of anchor bolts shall be 300 centers.



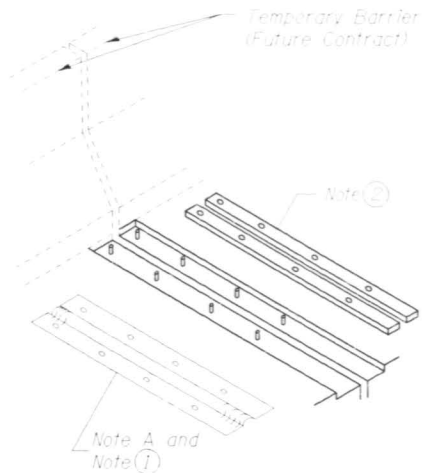
**FORMING BLOCKOUT
SKETCH**



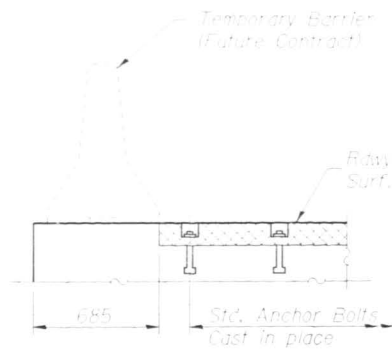
CROSS SECTION



**ANCHOR BLOCK WITH
ASPHALT SURFACE**



AT PARAPET



AT TEMPORARY BARRIER

GENERAL NOTES

Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane.

The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

Joint openings shall be adjusted according to Article 503.10(c) of the Standard Specifications when the deck is poured at an ambient temperature other than 10 °C.

The parapet and roadway membrane shall be made continuous by an approved vulcanizing process. Lapping will not be permitted.

All dimensions are in millimeters (mm) except as noted.

DESIGNED	TJM
CHECKED	AH
DRAWN	DCP
CHECKED	JIG

**PB PARSONS
BRINCKERHOFF**

NEOPRENE EXPANSION JOINT DETAIL
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

FILENAME: G:\16772A\STRUCT\CADD\TEMP STRUCTURE\TMPSTRUCBARSP.DGN: 3/7/02: 14:40:48

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	PROJECT	SHEET NO.	SHEET
F.A.I. RTE. 290	**	COOK	253	141
SHEET NO. 10		25 SHEETS		

** 22-1-2, 0103-30, & 0305-3 ETA

NOTES

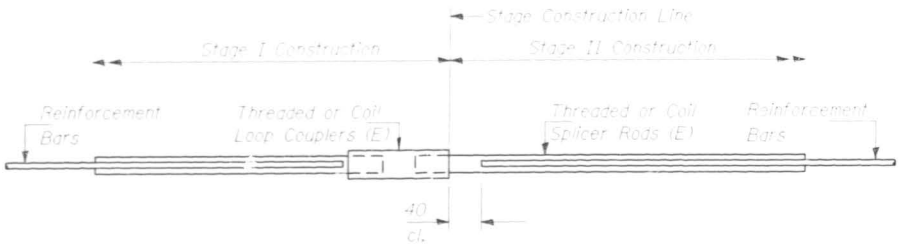
Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars. Splicer rods shall be of minimum 400 MPa yield strength, threaded or rolled. All reinforcement bars shall be lapped and tied to the splicer rods or dowel bar. Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity (Tension in kN) = $1.25 \times 10^{-3} \times f_y \times A_s$
② Minimum Pull-out Strength (Tension in kN) = $1.25 \times 10^{-3} \times f_{allow} \times A_s$

Where f_y = Yield strength of lapped reinforcement bars in MPa.
 f_{allow} = Allowable tensile stress in lapped reinforcement bars in MPa (Service Load)
 A_s = Tensile stress area of lapped reinforcement bars (mm²).
* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity (kN - tension)	Min. Pull-Out Strength (kN - tension)
#15	610 mm	100	40
#20	790 mm	150	60
#25	1,040 mm	250	100
#30	1,370 mm	350	140

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."
All dimensions are in millimeters (mm) except as noted.



BAR SPLICER ASSEMBLY DETAIL

Bar Size	No. Assemblies Required	Location
#20	46	Deck
#20	34	SE Wingwall
#20	34	NE Wingwall

The diameter of this part is equal or larger than the diameter of bar spliced.

ROLLED THREAD DOWEL BAR



** ONE PIECE

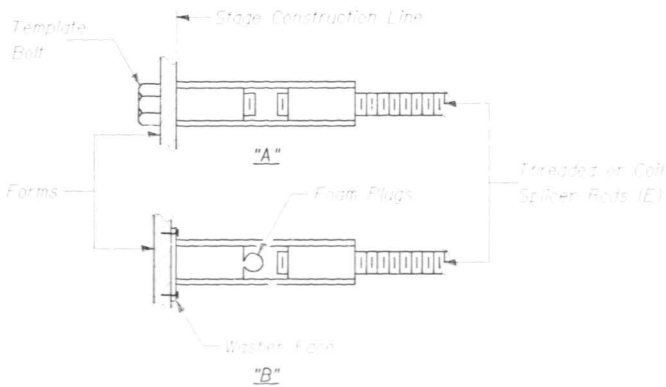
Wire Connector



WELDED SECTIONS

BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563M, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

DESIGNED
CHECKED
DRAWN DCP
CHECKED

03-07-02

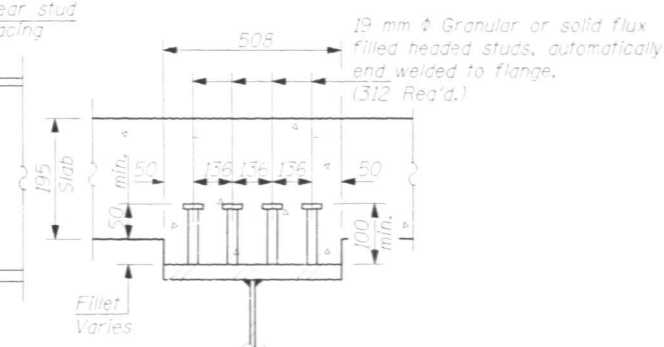
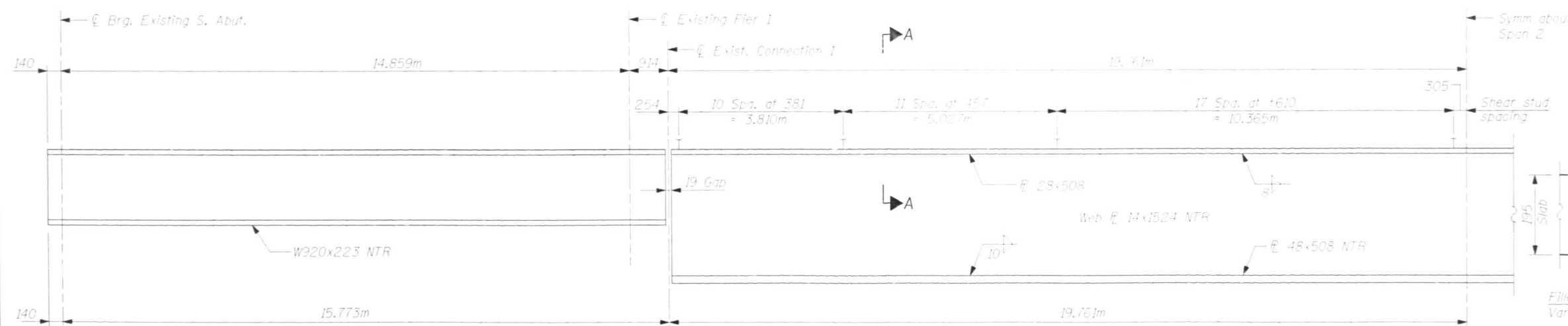
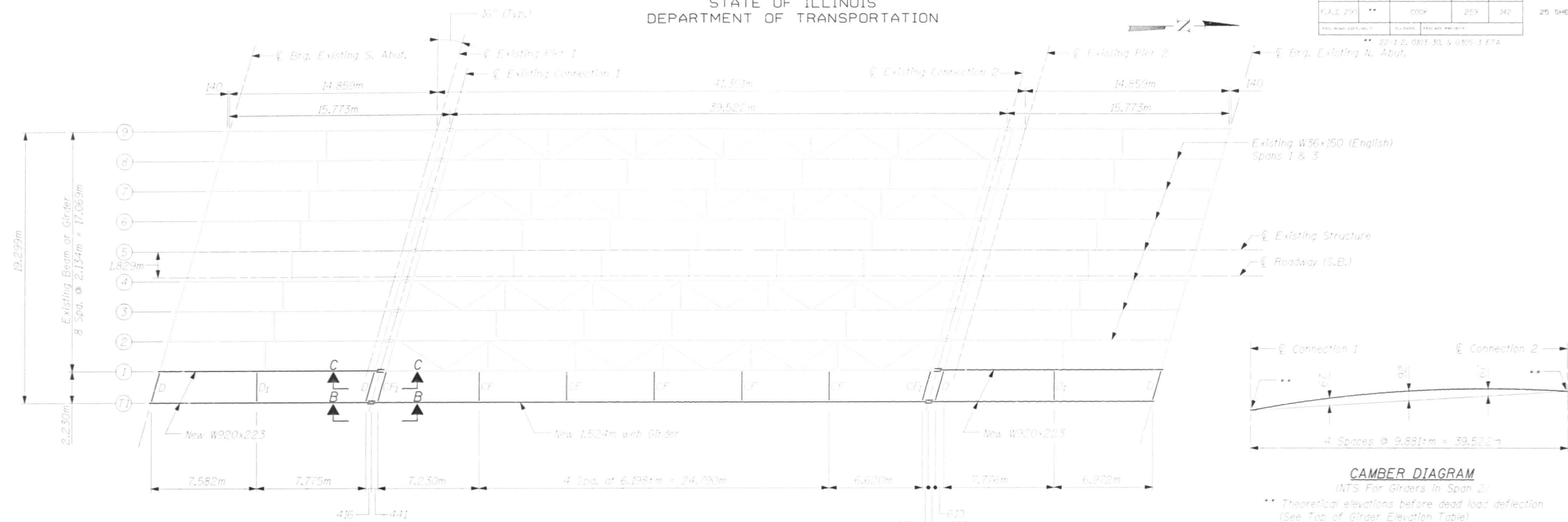
BAR SPLICER ASSEMBLY DETAILS
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	DATE	BY	CHKD	SHEET NO.
F.A.I. RTE. 290	**	COOK	259	142	25 SHEETS
22-1-2, 0103-30, & 0305-3 ETA					



NOTES

1. All dimensions are in millimeters (mm) except as noted.
2. See Sheet No. 13 for Section B-B, Section C-C and for splice details.

GIRDER ELEVATION

"NTR" denotes plates to which notch toughness requirements are applicable.

TOP OF BEAM AND TOP OF GIRDER ELEVATIONS

Location	Girder 1	Girder T1
Brig. S. Abut.	225.670	225.620
Pier 1	225.754	225.704
Connection 1	225.759	225.709
Connection 2	225.948	225.899
Pier 2	225.912	225.903
Brig. N. Abut.	226.009	225.960

"For Fabrication Only"

**PB PARSONS
BRINCKERHOFF**

FRAMING PLAN
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

DESIGNED	AH
CHECKED	JIG
DRAWN	DCP
CHECKED	AH

03-07-02

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	PROJECT NO.	SHEET NO.
F.A.I. RTE. 290	**	COOK	259	143
25 SHEETS				

22-1-2, 0103-30, & 0305-3 ETA

INTERIOR GIRDER MOMENT TABLE				
	0.4 Sp. #1 or 0.4 Sp. #3	Pier 1 or 2	0.5 Sp. #2	
I_s	(10 ⁶ mm ⁴)	3770	3770	26961
I_c (n)	(10 ⁶ mm ⁴)			55972
I_c (sn)	(10 ⁶ mm ⁴)			40505
S_s	(10 ³ mm ³)	8280	8280	59443
S_c (n)	(10 ³ mm ³)			49141
S_c (sn)	(10 ³ mm ³)			45206
ψ	(kN/m)	16.17	16.17	15.54
M_R	(kN-m)	297	329	3054
s_R	(kN/m)			3.58
M_{sR}	(kN-m)			698
M_L	(kN-m)	513	155	1768
M (Imp)	(kN-m)	148	36	339
$P_s(M_L + M_{Imp})$	(kN-m)	1101	319	3513
M_a	(kN-m)	1818	842	9445
M_u	(kN-m)	2380		12186
$f_s R$ (non-comp)	(MPa)	36	40	77
$f_s R$ (comp)	(MPa)			16
$f_s^{5/3}$ (L + Imp)	(MPa)	133	38	71
f_s (Overload)	(MPa)	169	78	164
f_s (Total)	(MPa)		153	
VR	(kN)	244		258

INTERIOR GIRDER REACTION TABLE		
	Abuts.	Piers
R_R	(kN)	532
R_L	(kN)	247
Imp.	(kN)	40
R (Total)	(kN)	818

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total and Overload).

I_c (n) and S_c (n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

I_c (sn) and S_c (sn) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (See AASHTO 10.38).

VR is the maximum $L \times L$ impact shear range in span.

The Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1.

f_s (Total) is the sum of the stresses due to $1.3 [M D L + M_s D L + 5/3 (M L L + M [Imp])]$

f_s (Overload) is the sum of the stresses due to $M D L + M_s D L + 5/3 (M L L + M [Imp])]$

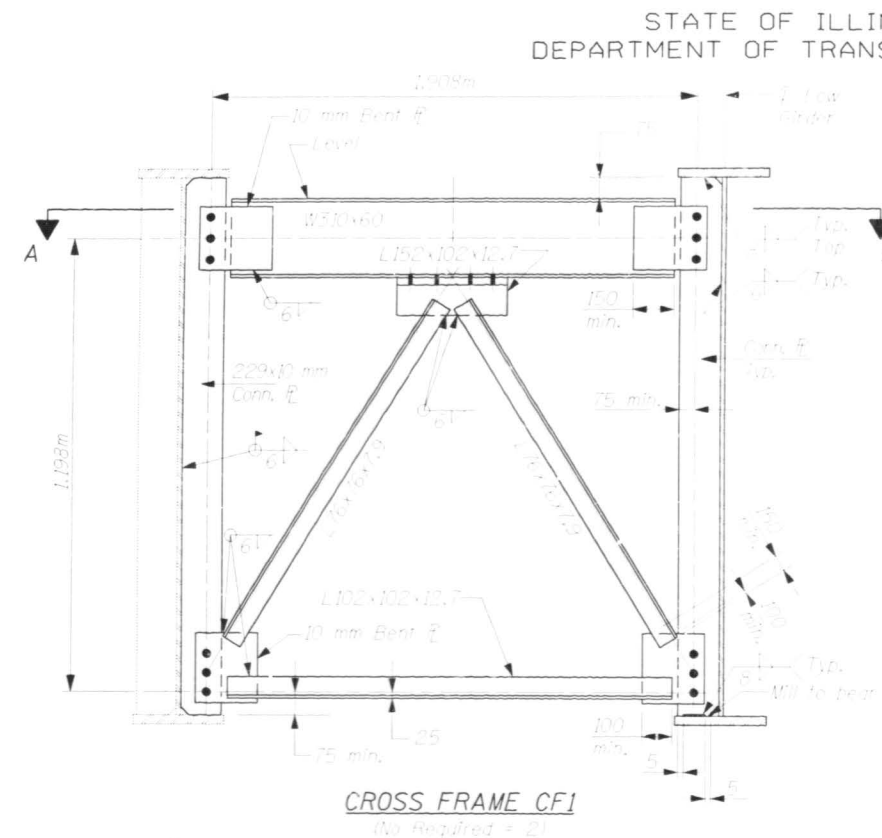
$M D L$ - Moment due to dead loads on non-composite section.

$M_s D L$ - Moment due to dead loads on composite section.

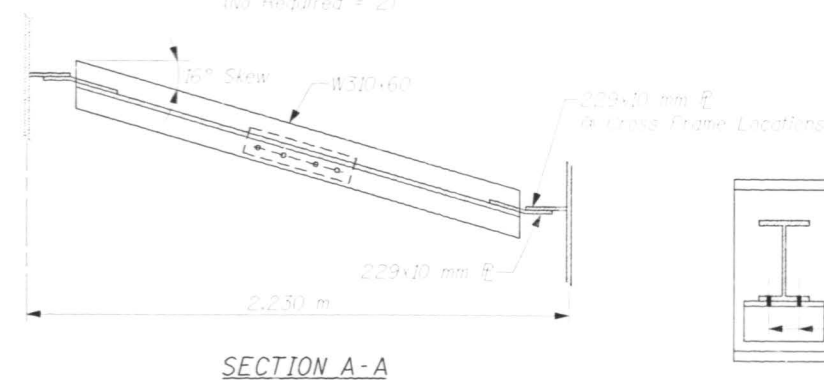
$M L L$ - Moment due to live load on non-composite or composite section.

M (Imp) - Moment due to live load impact on non-composite or composite section

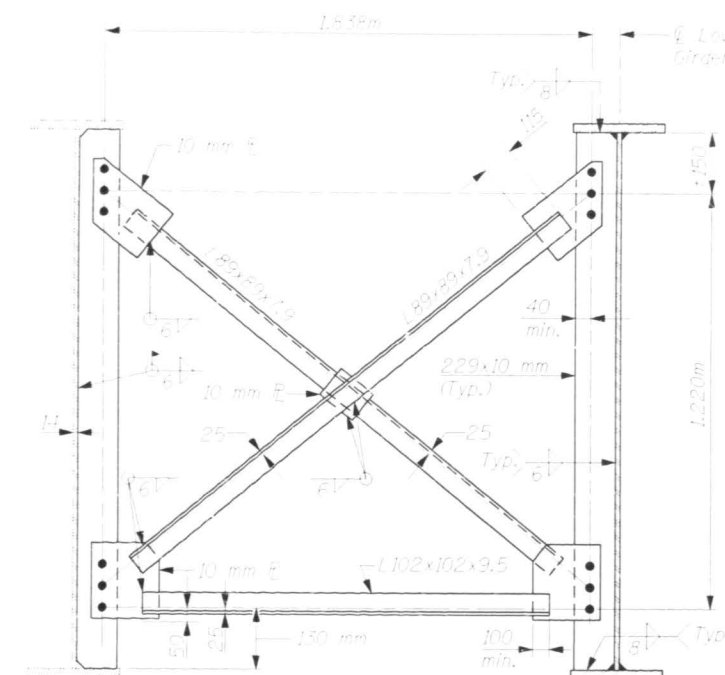
M_a (Applied Moment) = $1.3 [M D L + M_s D L + 5/3 (M L L + M [Imp])]$



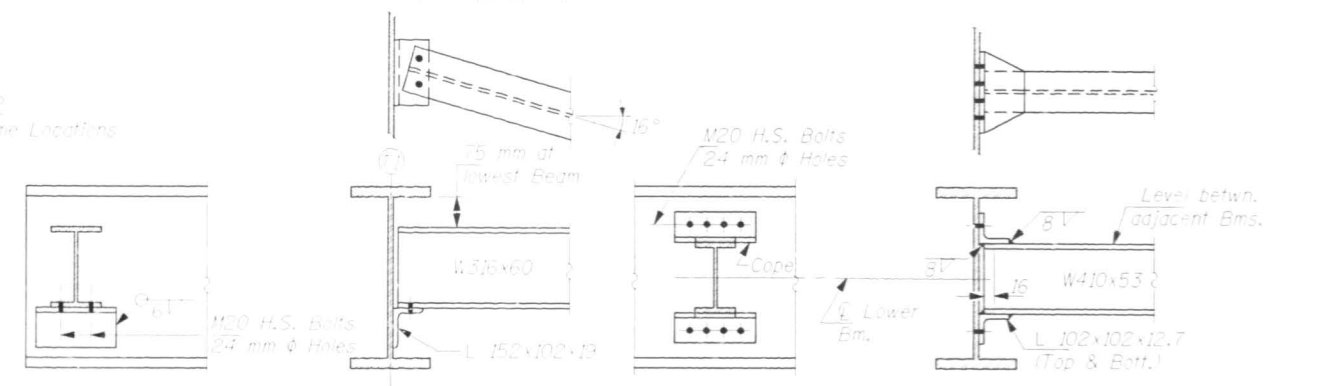
CROSS FRAME CF1
(No Required = 2)



SECTION A-A

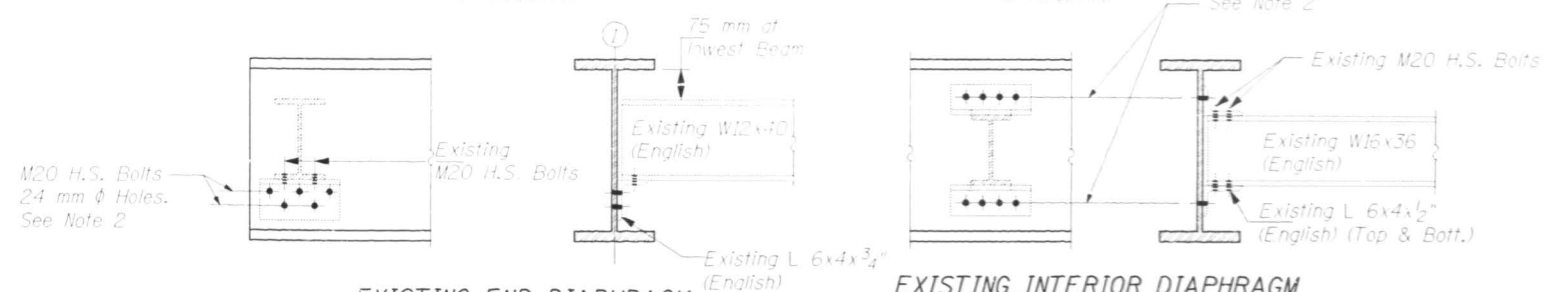


CROSS FRAME CF
(No Required = 5)



DIAPHRAGM D
(4 Required)

DIAPHRAGM D1
(2 Required)



EXISTING END DIAPHRAGM
CONNECTION TO NEW BEAM

EXISTING INTERIOR DIAPHRAGM
CONNECTION TO NEW BEAM

Notes:

1. Drill 24 mm ϕ holes for all M20 H.S. bolts. Hardened washer shall be required over all oversized holes.
2. Field drill 24 mm ϕ holes for M20 H.S. bolts in New Beams using existing angle as a template.
3. For cross frames CF & CF1, holes in the connection plates on the existing girders shall be field drilled using holes in the new cross frame as a template.

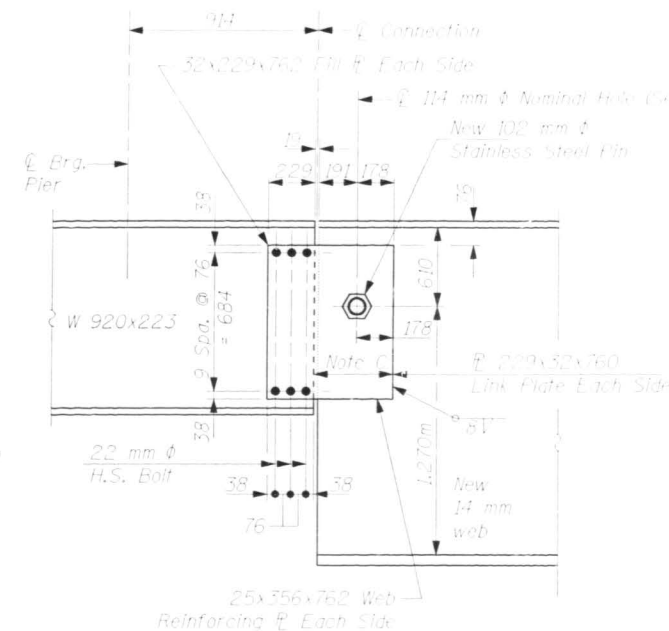
DESIGNED	AH
CHECKED	KM
DRAWN	DCP
CHECKED	AH

03-07-02

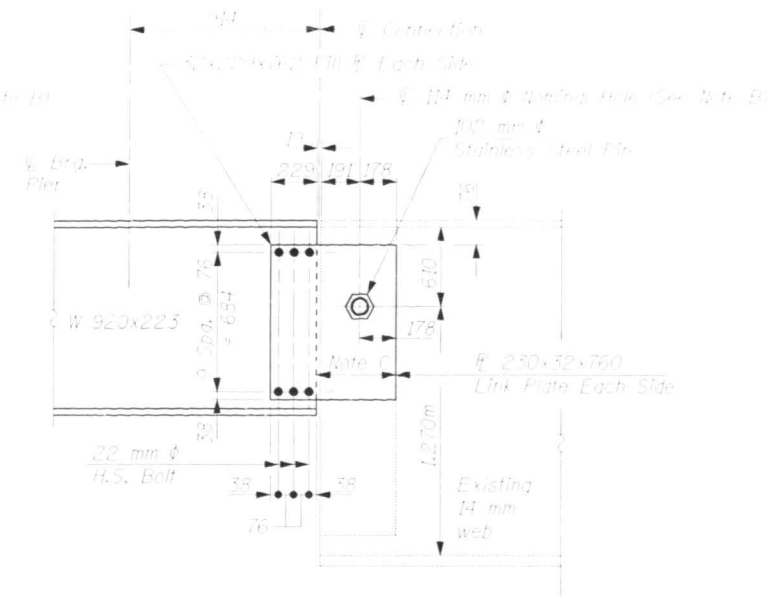
**PB PARSONS
BRINCKERHOFF**

STRUCTURAL STEEL DETAILS I
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

EXISTING CONNECTION DETAILS
(Interior Girder)



SECTION B-B
(Exterior Girder)

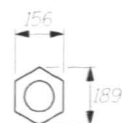


SECTION C-C
(Interior Girder)

Note E:

Note F:

Nominal Pin diameter (diameter tolerances subject to Specifications of Teflon Bushing Manufacturer and shall be approved by the Engineer.). Pin shall be ASTM A276, UNS 21800 (Nitronic 60 or equal) (No step at threads) and shall have a thread pitch of 2.1 mm. Install prior to new link plates.

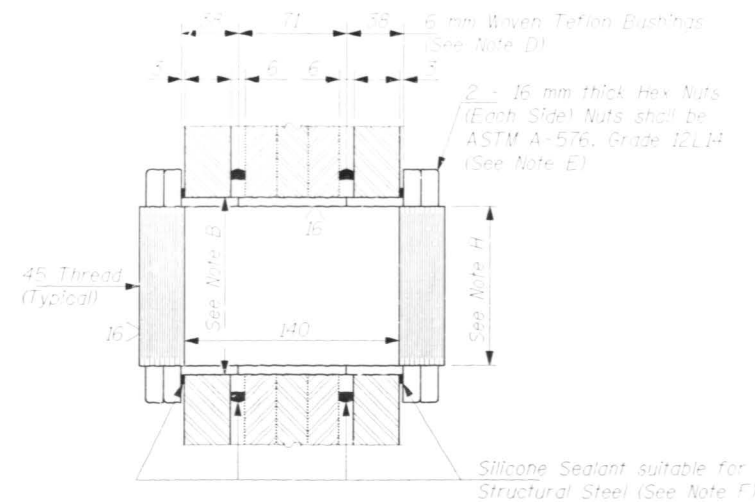


NUT DETAIL
(16 Required)

NOTES

MAXIMUM REACTIONS AT PIN

R_D	(kN)	378
R_L	(kN)	206
Imp.	(kN)	49
R (Total)	(kN)	633



SECTION THRU PIN
(4 Required)

BILL OF MATERIAL

Item	Unit	Total
Temporary Support System	Each	2

DESIGNED	AH
CHECKED	KM
DRAWN	DCP
CHECKED	JIG



**PARSONS
BRINCKERHOFF**

STRUCTURAL STEEL DETAILS II
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

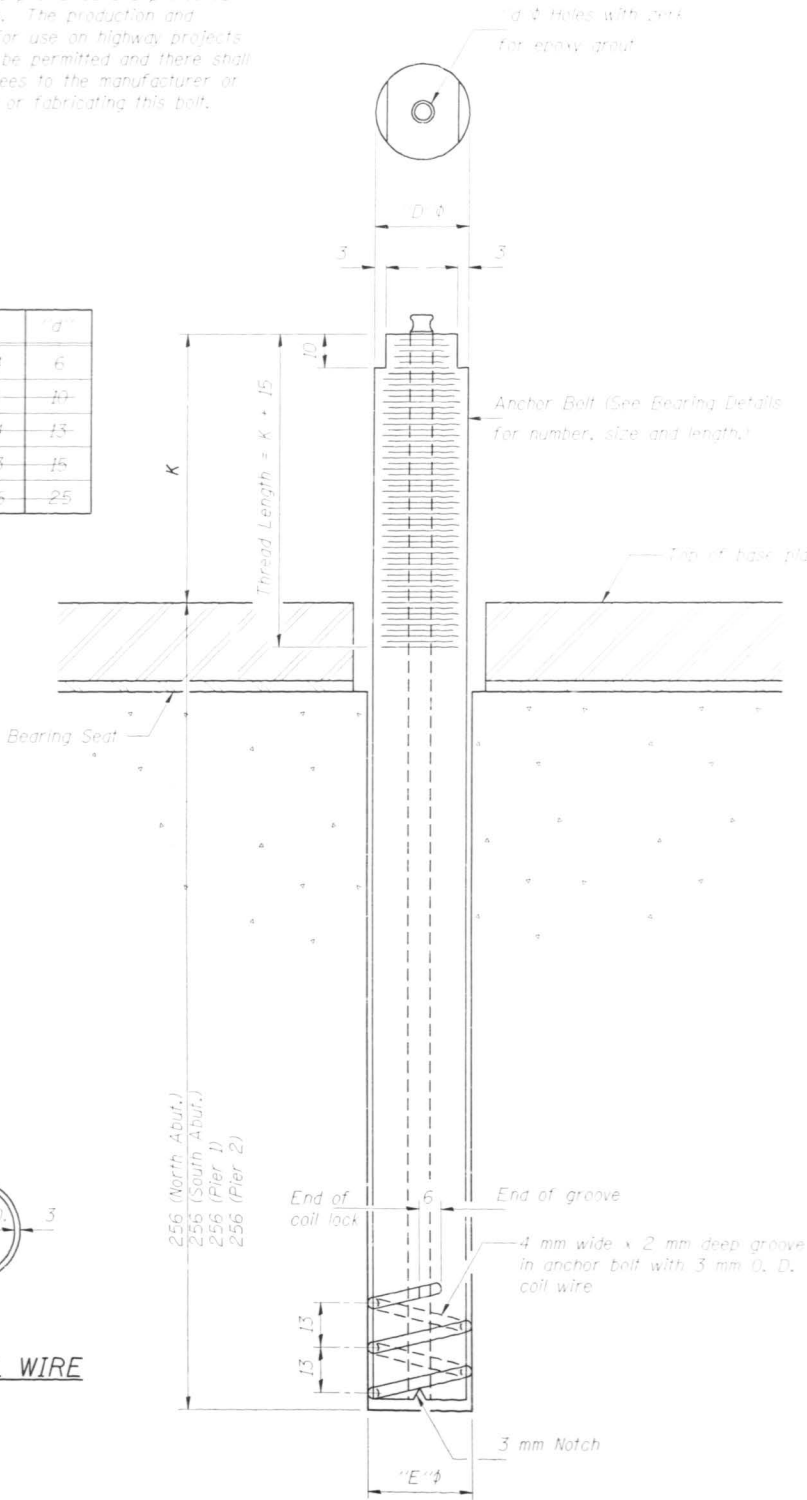
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	REV. NO.	CONTRACT	DATE	SHEET NO.	SHEET TOTAL
F.A.I. RTE. 290	**	COOK	253	187	25 SHEETS
** 22-1-2, 0103-30, & 0305-3 ETA					

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	a
24	27	20	44	6
30	33	26	51	10
36	39	32	54	13
48	51	44	73	15
64	67	60	86	25



ILLINOIS COIL-LOCK ANCHOR BOLT

MATERIALS FOR ILLINOIS COIL-LOCK
ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 513, Grade 100, CW and drilled with longitudinal holes and cut washers.
The coil wire shall be made of any suitable soft steel wire.
The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.
The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade I and of a Class suitable for the temperature at installation.

INSTALLATION PROCEDURE for the ILLINOIS
COIL-LOCK ANCHOR BOLT

- With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tightened until the steel base plates are held securely to the concrete bearing seat.
- Epoxy grout shall be pumped through the perk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.
The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:
1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Bolt ϕ (mm)	Bolt Material	Total Bolts
S. Abut. (S.B.)	24	A307	2*
Pier 1 (S.B.)	24	M164M	2*
Pier 2 (S.B.)	24	M164M	2*
N. Abut. (S.B.)	24	A307	2*

ASTM F 1554 (F_y = 724 MPa), ASTM A 449 and AASHTO M 314 (F_y = 724 MPa) anchor bolts may be substituted for the anchor bolts shown above.

* Existing anchor bolts will be reused at the abutments and piers for Girder 1.

ANCHOR BOLT DETAILS FOR BEARINGS
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



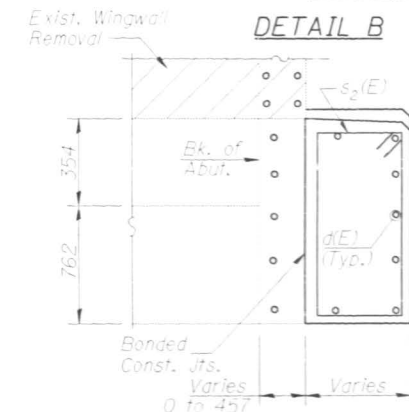
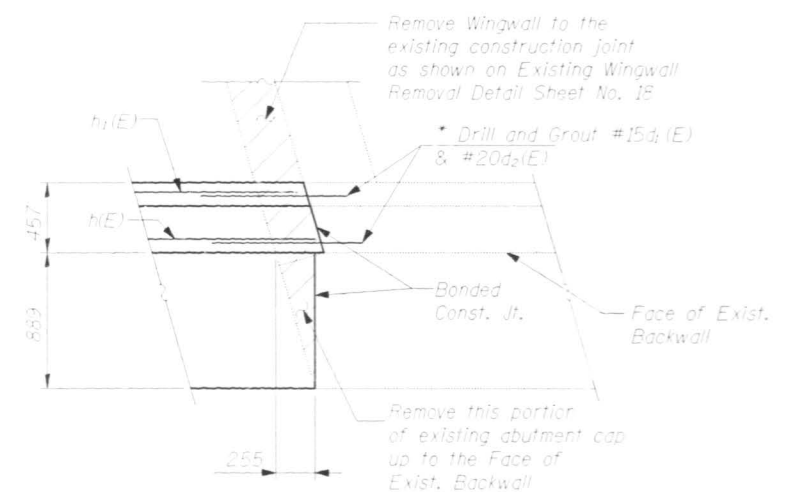
DESIGNED	TJM
CHECKED	AH
DRAWN	DCP
CHECKED	JIG

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	DATE	SHEET	SHEET NO. 17
F.A.I. 290	**	COOK	259	148	25 SHEETS
PROJECT NO. 016-0982 (S.B.)					

- Notes:
1. All edges have standard 20mm chamfers except as noted.
 2. All dimensions are in millimeters (mm) except as noted.
 3. Space reinforcement in cap to miss anchor bolts.
 4. For wing wall and abutment details, See Sheet No. 18 of 25.
 5. Existing reinforcement extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost shall be included with Concrete Removal.
 6. Elevations shown on existing structure were taken from existing plans, unless noted otherwise.
 7. Hatched areas indicate Concrete Removal, unless noted otherwise.
 8. For legend See Sheet No. 18 of 25.



SECTION A-A

For Reinf. and Dimensions not shown.
See Section A-A on Thru Abut. sheet 18 of 25.

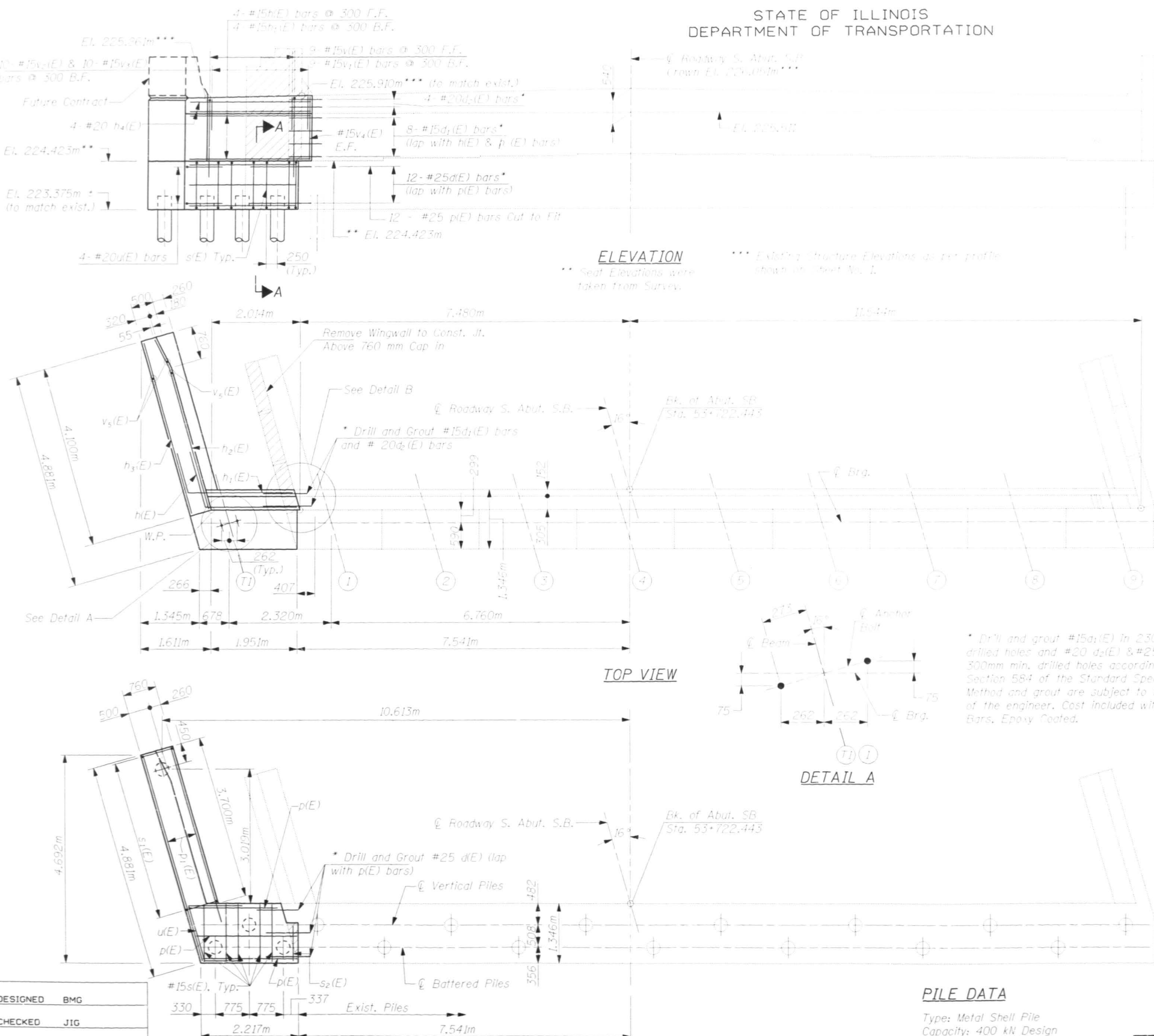
SOUTH ABUTMENT WIDENING
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



PILE DATA

Type: Metal Shell Pile
Capacity: 400 kN Design
Est. Length: 8.5m
No. Req'd. 3+1 Test Pile

PLAN-PILE CAP



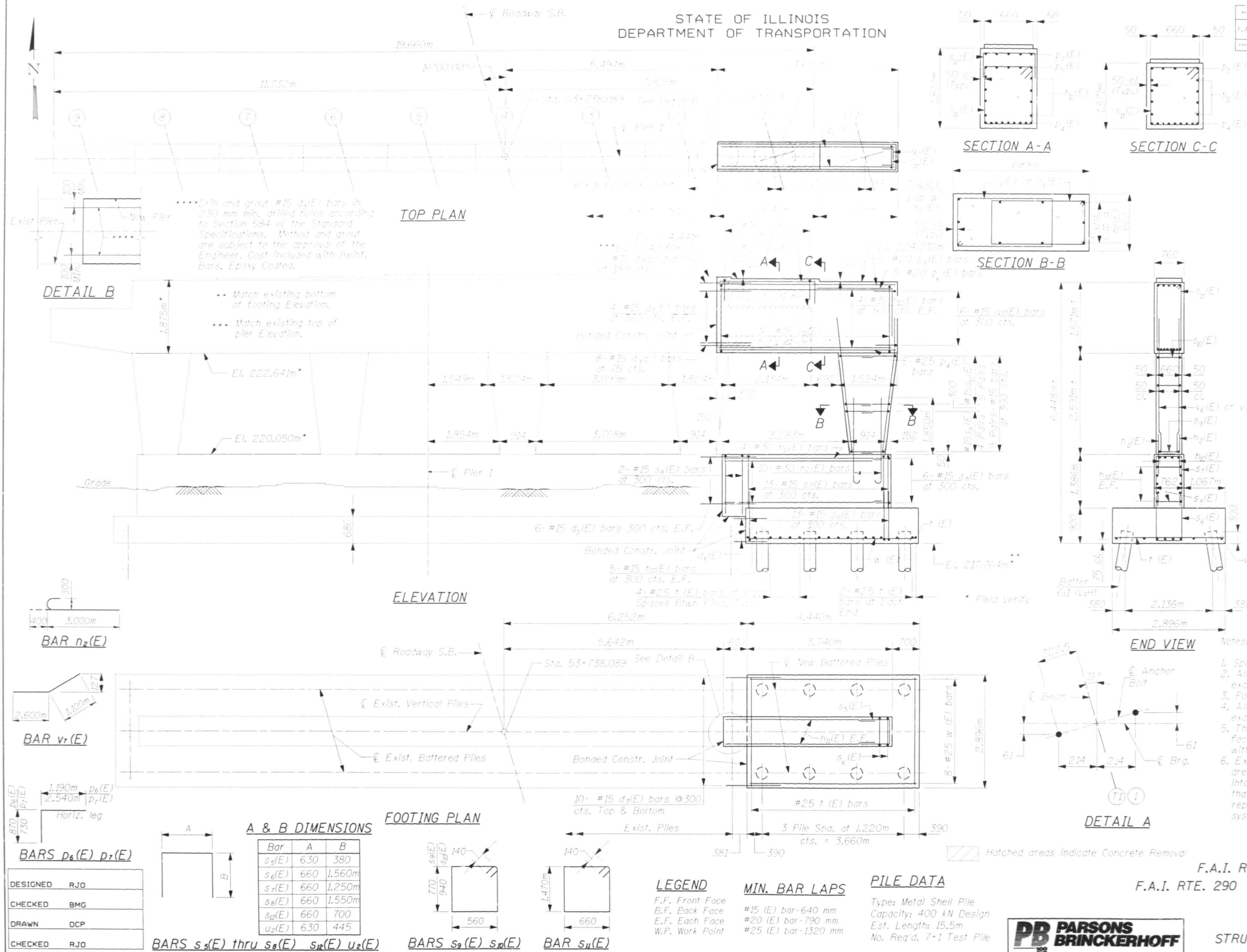
ELEVATION

** Seat Elevations were taken from Survey.

*** Existing Structure Elevations as per profile shown on sheet No. 1.

DESIGNED	BMG
CHECKED	JIG
DRAWN	DCP
CHECKED	JIG

03-07-02



Eqn	No.	Size	Length (m)	Shape
$d_3(E)$	60	#15	0.940	—
$h_{10}(E)$	4	#30	4.250	—
$h_{11}(E)$	10	#15	4.250	—
$h_{12}(E)$	8	#15	4.550	—
$h_{21}(E)$	10	#30	3.400	┐
$p_4(E)$	8	#25	4.550	—
$p_5(E)$	5	#20	4.550	—
$p_6(E)$	5	#20	2.060	┐
$p_7(E)$	5	#20	3.270	┐
$s_6(E)$	6	#15	1.390	┐
$s_7(E)$	13	#15	3.780	┐
$s_7(E)$	13	#15	3.160	┐
$s_8(E)$	2	#15	3.760	┐
$s_9(E)$	8	#15	2.940	┐
$s_{10}(E)$	10	#15	3.280	┐
$s_{11}(E)$	16	#15	4.540	┐
$s_{12}(E)$	9	#15	2.060	┐
$t(E)$	16	#25	2.790	—
$u_2(E)$	6	#15	1.520	┐
$v_5(E)$	7	#30	3.700	—
$v_7(E)$	3	#30	3.700	┐
$w(E)$	8	#25	4.340	—
Structure Excavation		Cu. m.	77.5	
Concrete Structures		Cu. m.	25.2	
Concrete Removal		Cu. m.	2.6	
Reinforcement Bars, Epoxy Coated		kg	1680	
Furnishing Metal Pile Shells, 305 mm		m	108.5	
Driving and Filling Shells		m	108.5	
Test Piles Metal Shell		Each	1	

- Notes:
1. Space reinforcement in cap to miss anchor bolts.
2. All edges shall have standard 20 mm chamfers except as noted.
3. Four steps monolithically with cap.
4. All dimensions are in millimeters (mm) except as noted.
5. The cost of any slupewall removal required to facilitate the substructure widening is included with Structure Excavation.
6. Existing reinforcement extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost shall be included with Concrete Removal.

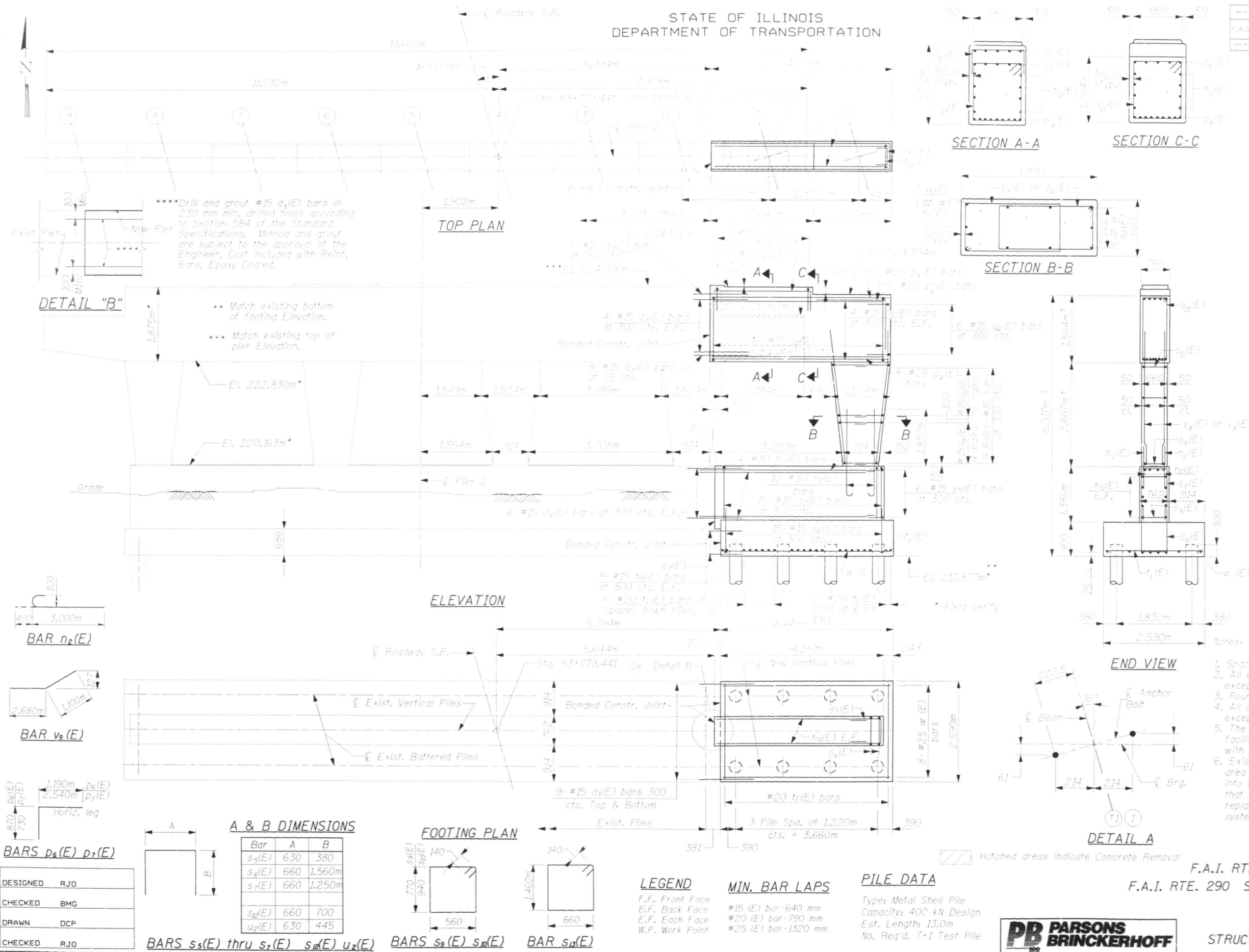
Concrete Removal

PIER 1 WIDENING
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SHEET NO.	COUNTY	DATE	BY	SHEET NO. 20
F.A.I. 290	**	COOK	255	151	25 SHEETS
22-1-2, 0103-30, & 0305-3 ETA					



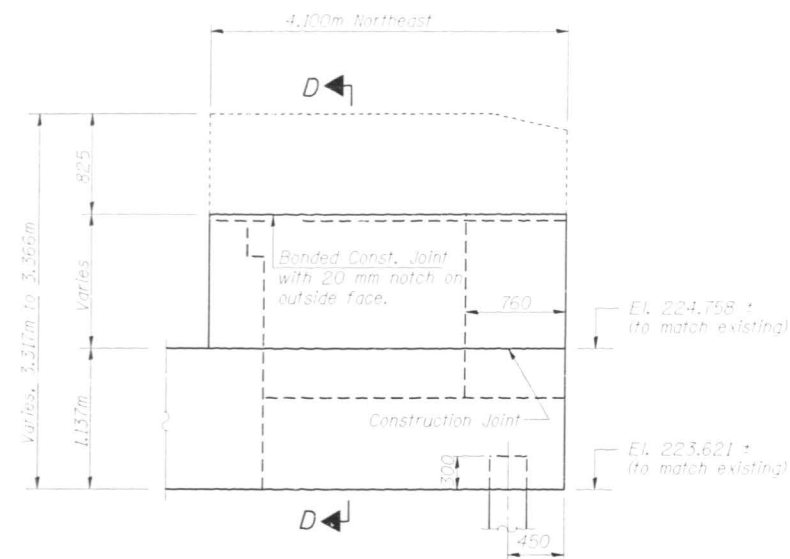
BILL OF MATERIAL

Bar	No.	Size	Length (m)	Unit
$d_3(E)$	58	#15	0.940	
$t_1(E)$	4	#30	4.250	
$t_2(E)$	10	#15	4.250	
$t_3(E)$	8	#15	4.550	
$n_2(E)$	10	#30	3.400	
$p_4(E)$	8	#25	4.550	
$p_5(E)$	5	#20	4.550	
$p_6(E)$	5	#20	2.060	
$p_7(E)$	5	#20	3.270	
$s_5(E)$	6	#15	1.390	
$s_6(E)$	15	#15	3.780	
$s_7(E)$	15	#15	3.160	
$s_9(E)$	8	#15	2.940	
$s_{10}(E)$	10	#15	3.280	
$s_{11}(E)$	9	#15	2.060	
$s_{12}(E)$	16	#15	4.520	
$t_1(E)$	22	#20	2.490	
$u_2(E)$	6	#15	1.520	
$v_2(E)$	7	#30	3.780	
$v_3(E)$	3	#30	3.780	
$w(E)$	8	#25	4.340	
Structure Excavation			Cu. m.	77.5
Concrete Structures			Cu. m.	24.1
Concrete Removal			Cu. m.	2.5
Reinforcement Bars, Epoxy Coated			kg	1650
Furnishing Metal Pile Shells, 305 mm			m	91
Driving and Filling Shells			m	91
Test Piles			Each	1

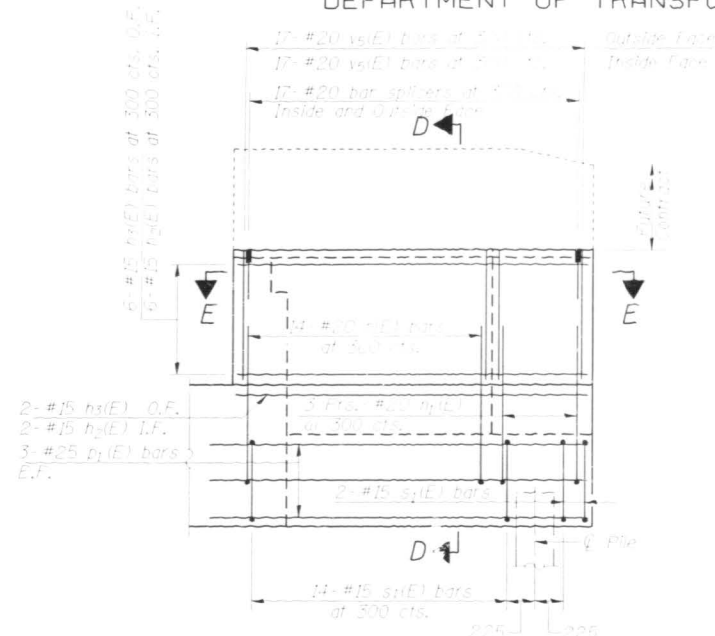
- Notes:
1. Space reinforcement in cap to miss anchor bolts.
 2. All edges shall have standard 20 mm chamfers except as noted.
 3. Four steps monolithically with cap.
 4. All dimensions are in millimeters (mm) except as noted.
 5. The cost of any slopewall removal required to facilitate the substructure widening is included with Structure Excavation.
 6. Existing reinforcement extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost shall be included with Concrete Removal.

PIER 2 WIDENING
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

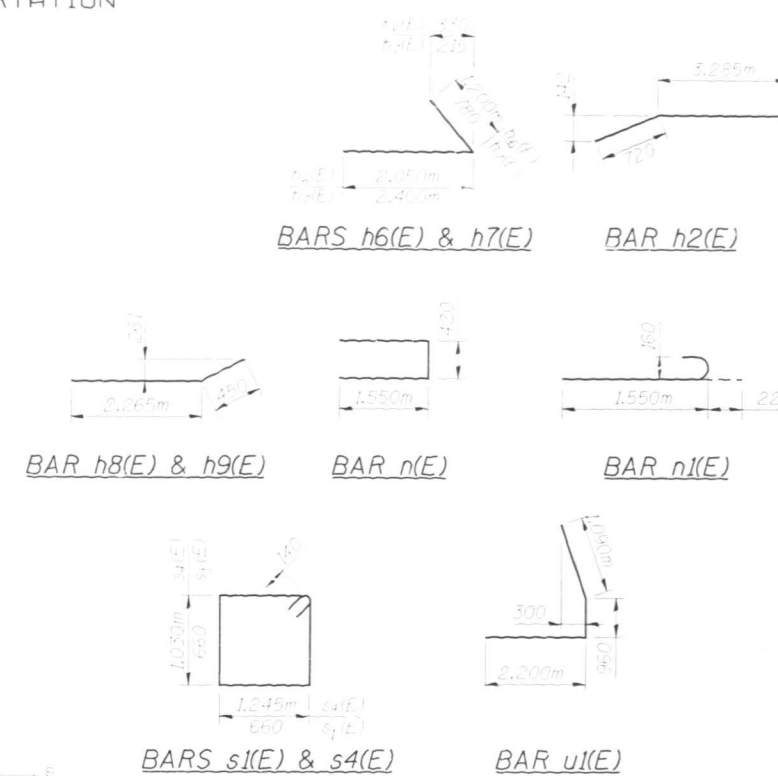
PB PARSONS BRINCKERHOFF



NORTHEAST WINGWALL ELEVATION
Showing Dimensions

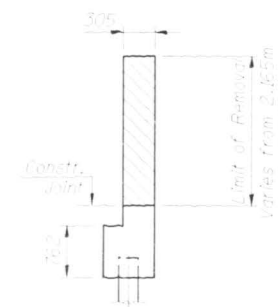


NORTHEAST WINGWALL ELEVATION
Showing Rebar Reinforcement



BARS $s1(E)$ & $s4(E)$

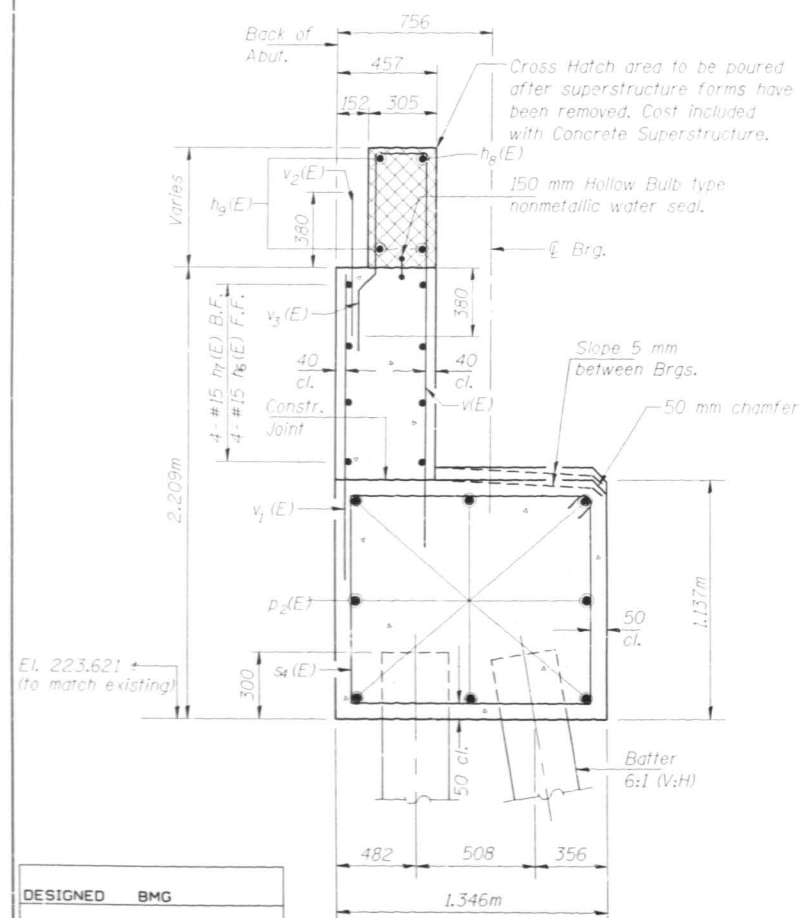
BAR UI(E)



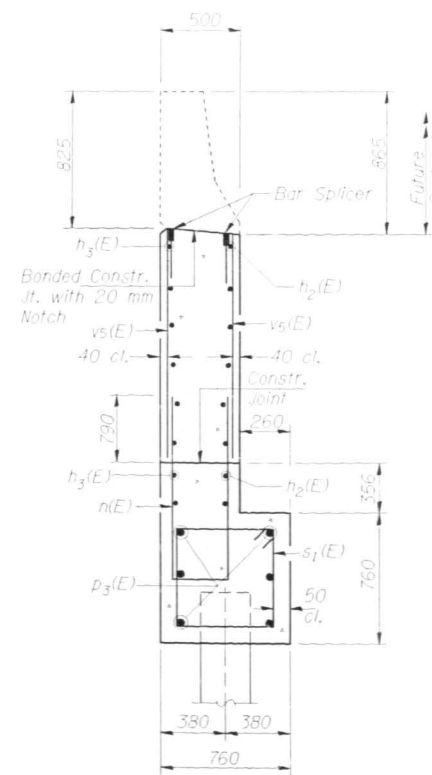
BAR $v(E)$

BAR v3(E)

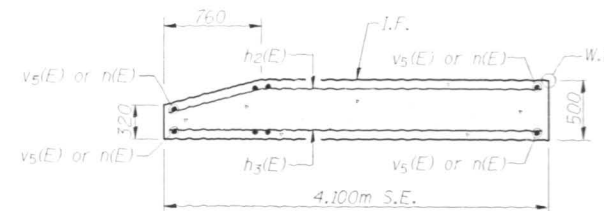
EXISTING WINGWALL REMOVAL DETAIL



SEC. THRU ABUT.
(Dimension at Rt. L's)



SECTION D-D



SECTION E-E

BILL OF MATERIAL				
Qty	No.	Size	Length (m)	Notes
d ₁ (E)	8	#25	1.660	=====
d ₂ (E)	9	#15	0.910	=====
d ₃ (E)	4	#20	1.130	=====
h ₂ (E)	8	#15	4.005	=====
h ₃ (E)	8	#15	3.990	=====
h ₆ (E)	4	#15	3.250	=====
h ₇ (E)	4	#15	3.180	=====
h ₈ (E)	1	#15	2.715	=====
h ₉ (E)	3	#20	2.715	=====
n ₁ (E)	14	#20	3.520	=====
n ₂ (E)	6	#20	1.770	=====
p ₂ (E)	8	#25	2.280	=====
p ₃ (E)	6	#25	3.985	=====
s ₁ (E)	14	#15	2.920	=====
s ₄ (E)	6	#15	4.830	=====
u ₁ (E)	4	#20	4.250	=====
v ₁ (E)	7	#15	2.050	=====
v ₂ (E)	7	#15	1.500	=====
v ₆ (E)	9	#15	760	=====
v ₃ (E)	9	#15	912	=====
v ₄ (E)	4	#15	1.400	=====
v ₅ (E)	34	#20	1.565	=====
Concrete Structures			m ³	11.7
Reinforcement Bars, Epoxy Coated			kg	940
Furnishing Metal Pile Shells, 305 mm			m	42
Driving and Filling Shells			m	42
Test Pile Metal Shells			Each	1
Concrete Removal			m ³	2.9
Structure Excavation			m ³	45
Bridge Seat Sealer			m ²	2.2

LEGEND

I.F. Inside Face
O.F. Outside Face
F.F. Front Face
B.F. Back Face
E.F. Each Face
S.E. Southeast
S.W. South west

NORTH ABUTMENT DETAILS
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)

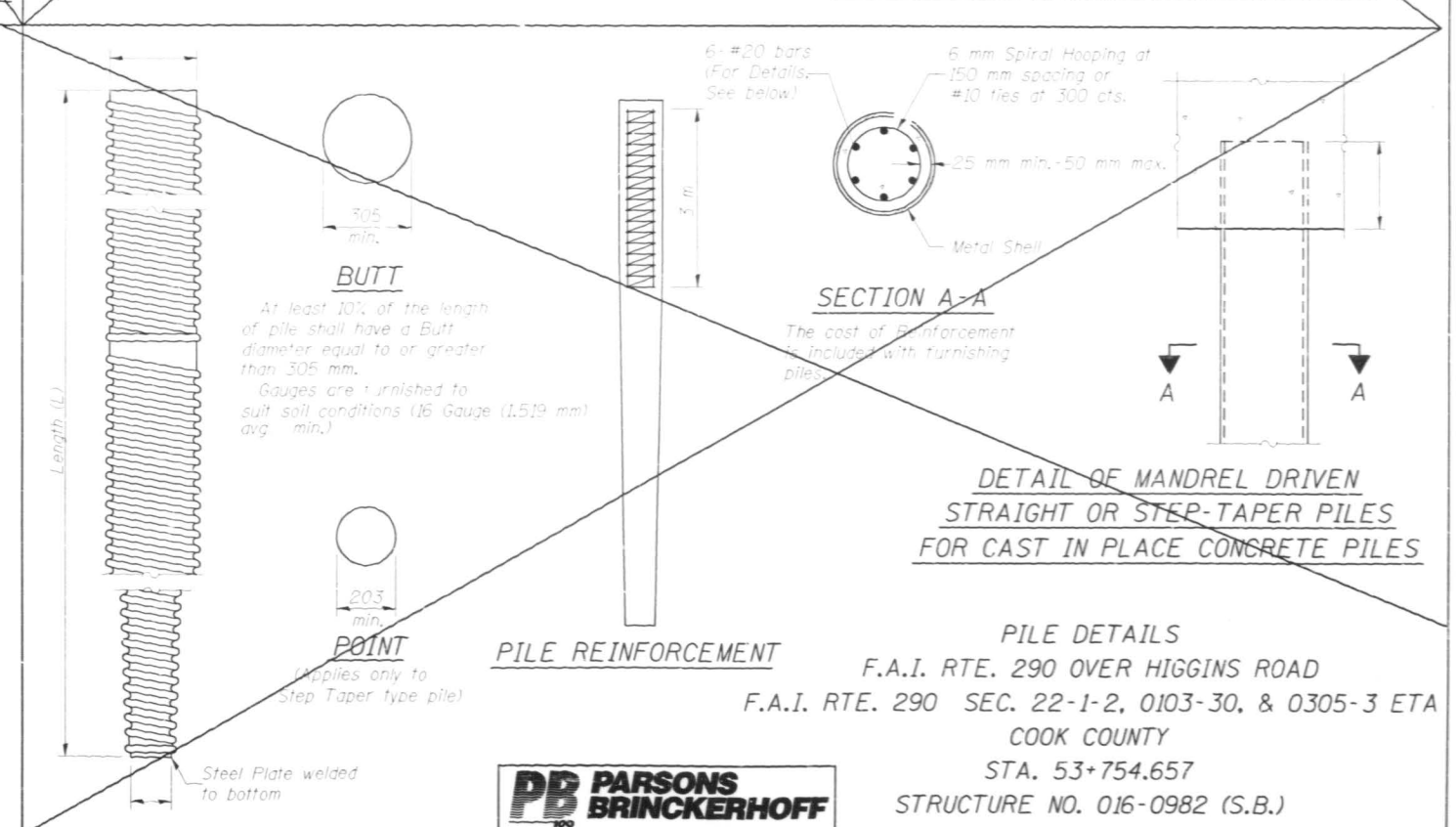
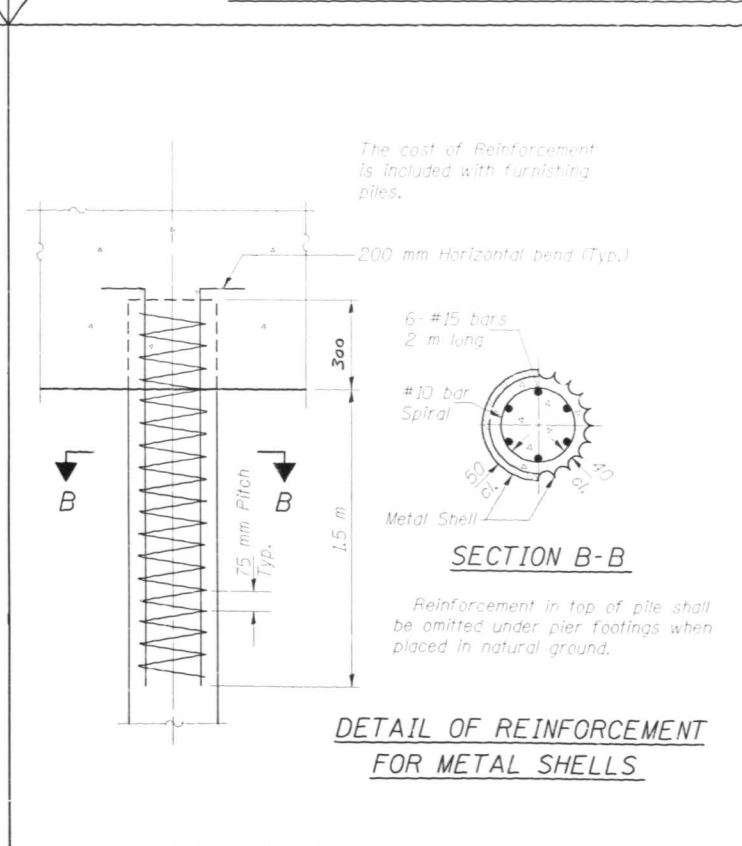
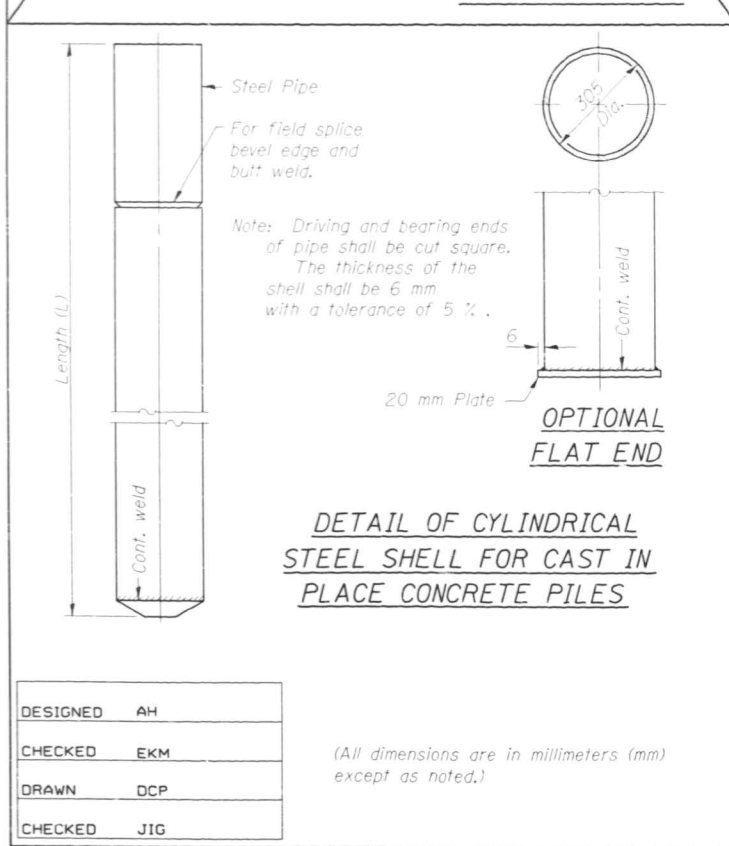
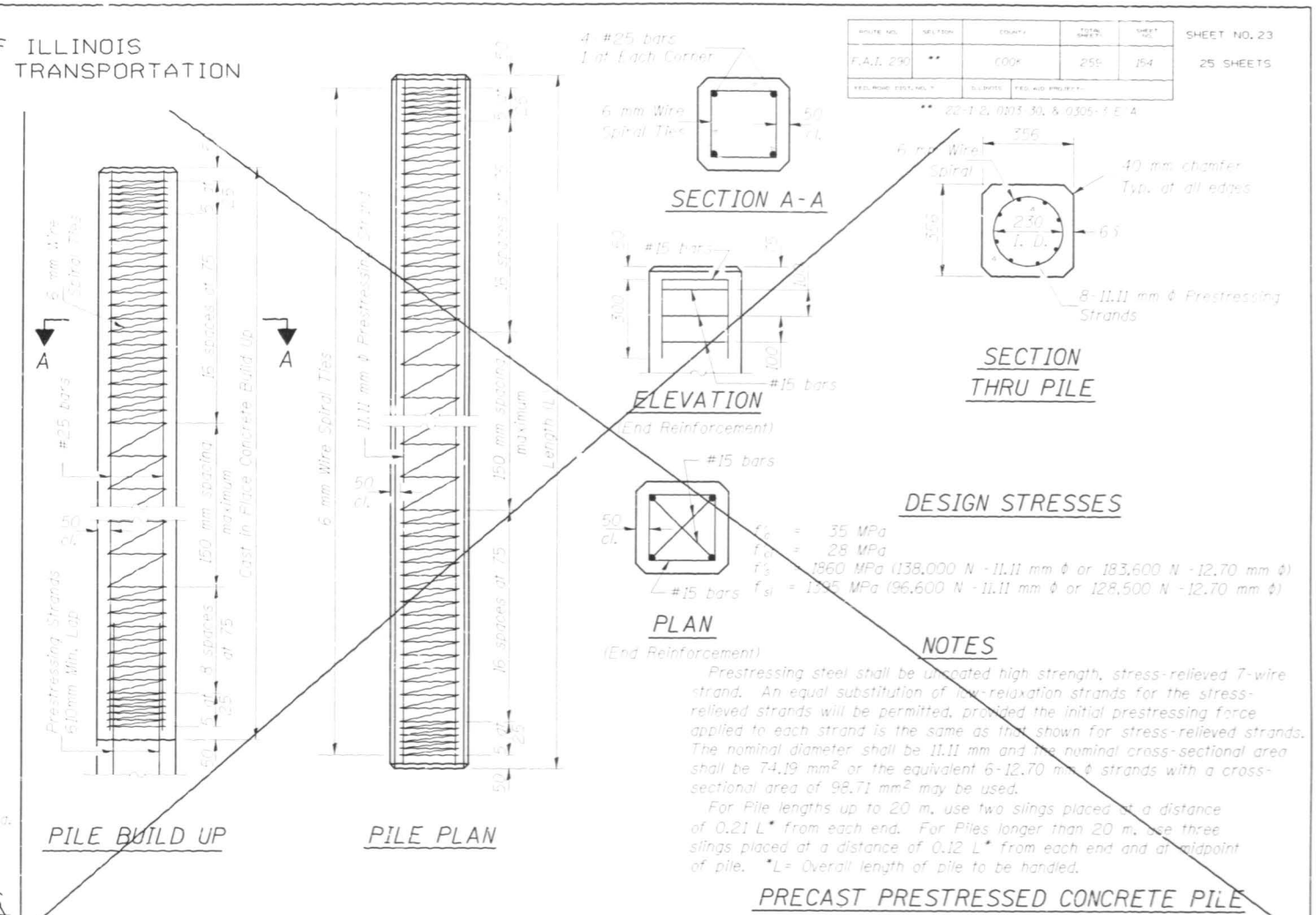
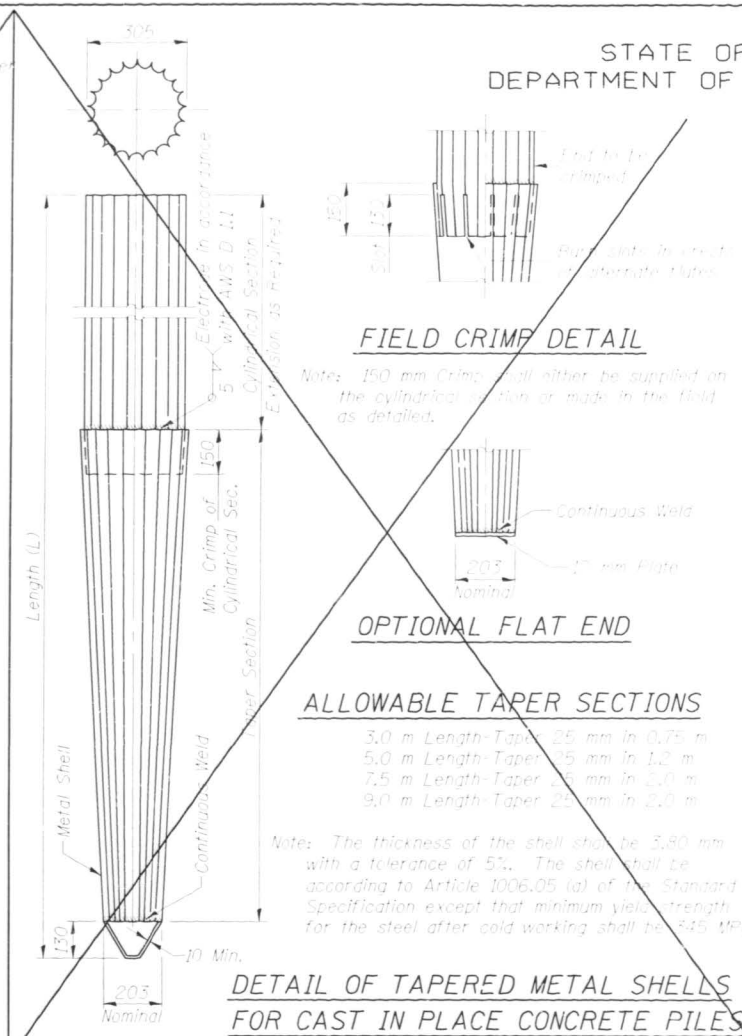
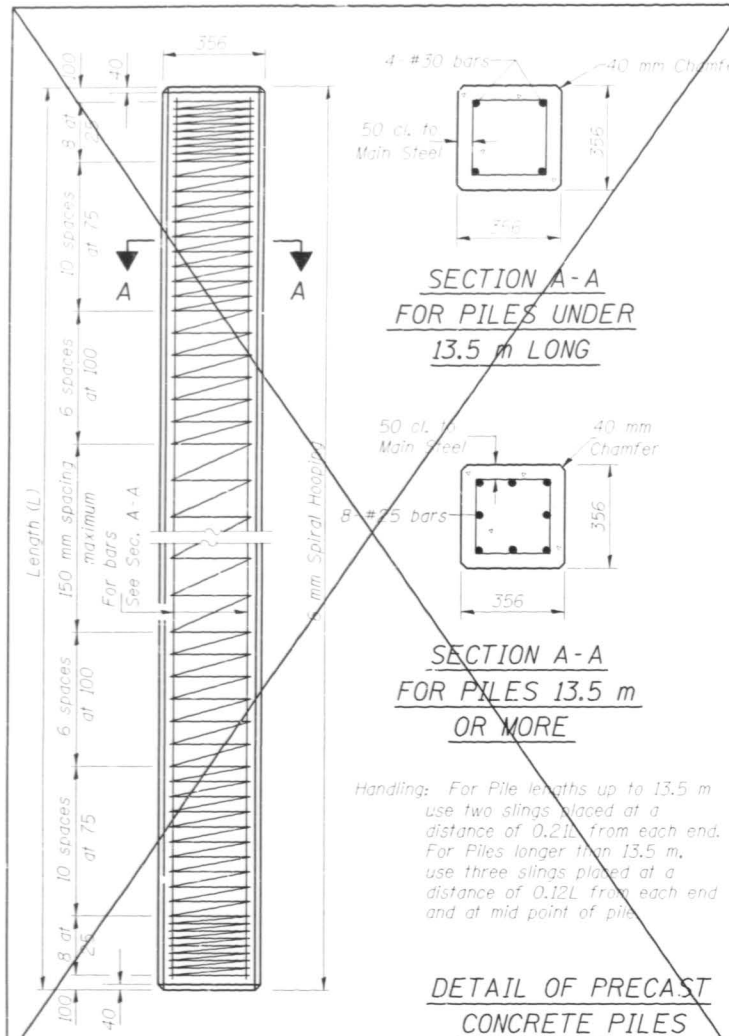
DESIGNED	BMG
CHECKED	TJM
DRAWN	DCP
CHECKED	JIG

03-07-02

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DATE	BY	CHECKED	DATE
F.A.I. 290	**	000*	250	154	
SHEET NO. 23					
25 SHEETS					



DESIGNED	AH
CHECKED	EKM
DRAWN	DCP
CHECKED	JIG

(All dimensions are in millimeters (mm) except as noted.)

BORING HR-2

[illegible]

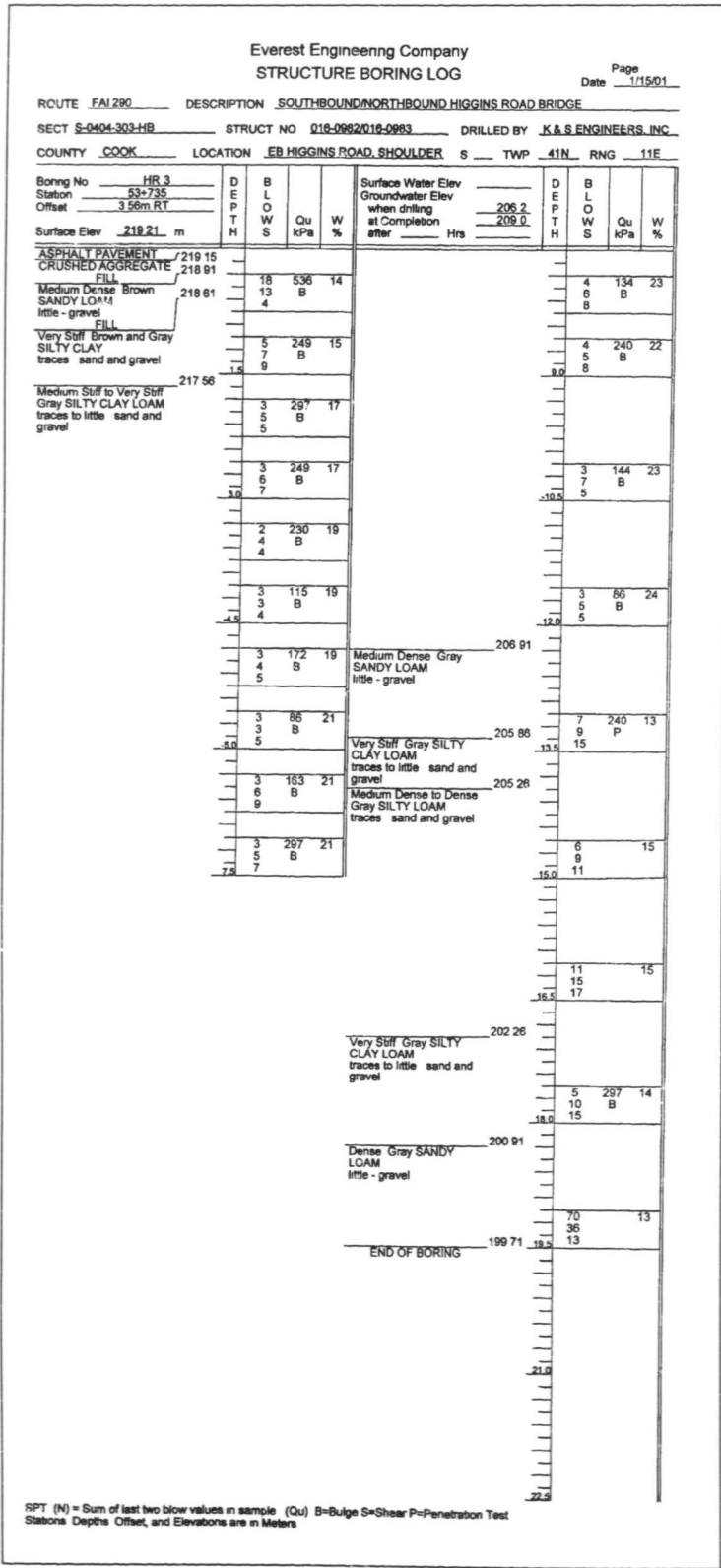
PB **PARSONS**
BRINCKERHOFF

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

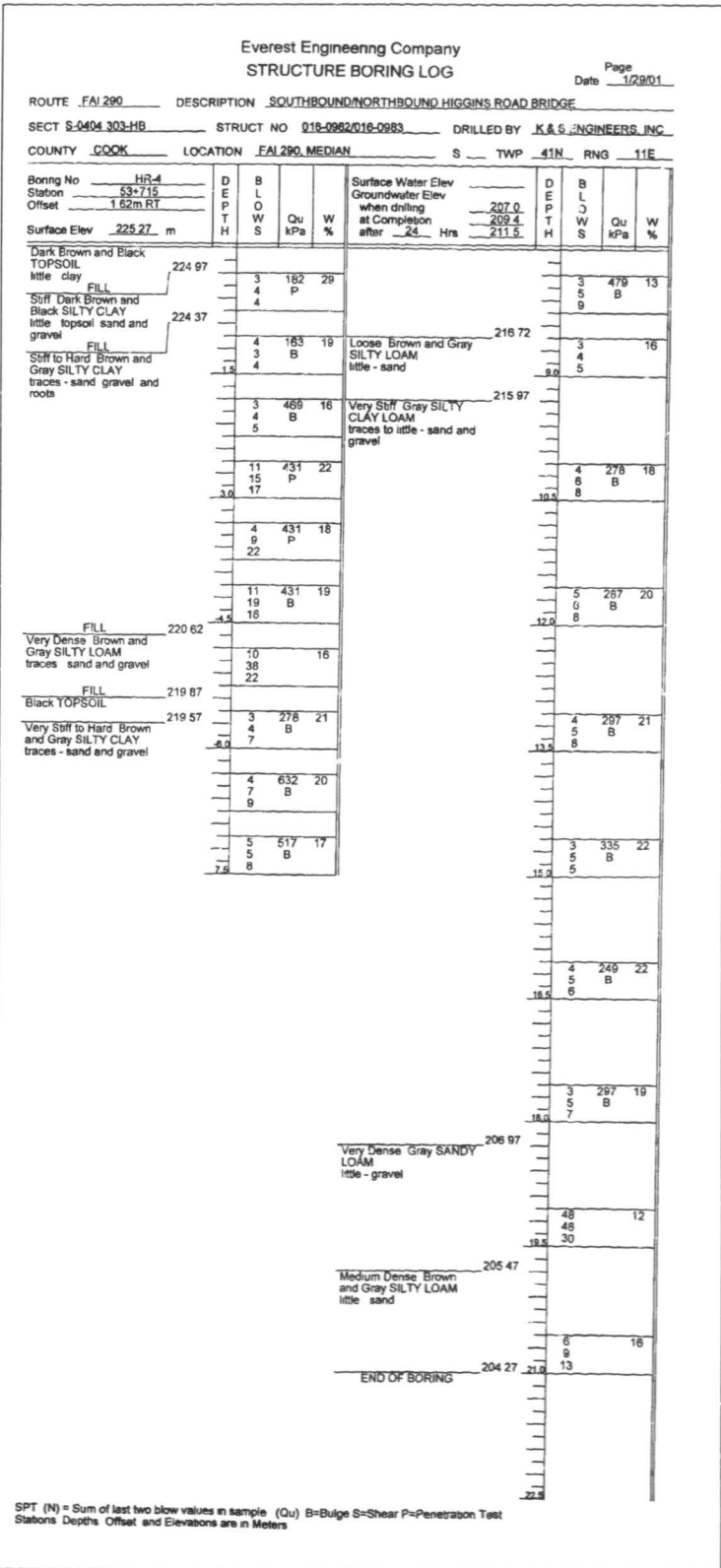
ROUTE NO.	SECTION	PROJECT	DATE	SHEET NO.
FAI 290	**	COOK	253	156
25 SHEETS				

22-1-2, 0103-30, & 0305-3 ETA

BORING HR-3



BORING HR-4



BORING LOGS II
F.A.I. RTE. 290 OVER HIGGINS ROAD
F.A.I. RTE. 290 SEC. 22-1-2, 0103-30, & 0305-3 ETA
COOK COUNTY
STA. 53+754.657
STRUCTURE NO. 016-0982 (S.B.)



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