016-0633

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	165
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

** 551WRS & 551 (B, XB, VB & VB-13 BR-89

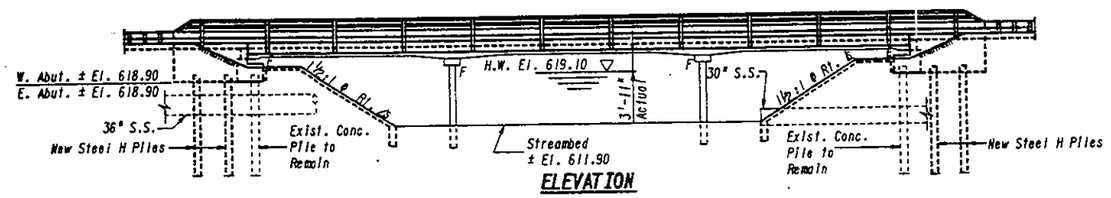
BENCHMARK

TBM #15 ⌀Railroad Spike in North face of light pole at the Southwest corner of Cermak Rd. & 17th Ave. Sta. 308+80.00 69' Rt. of Cermak Rd. El. 624.21

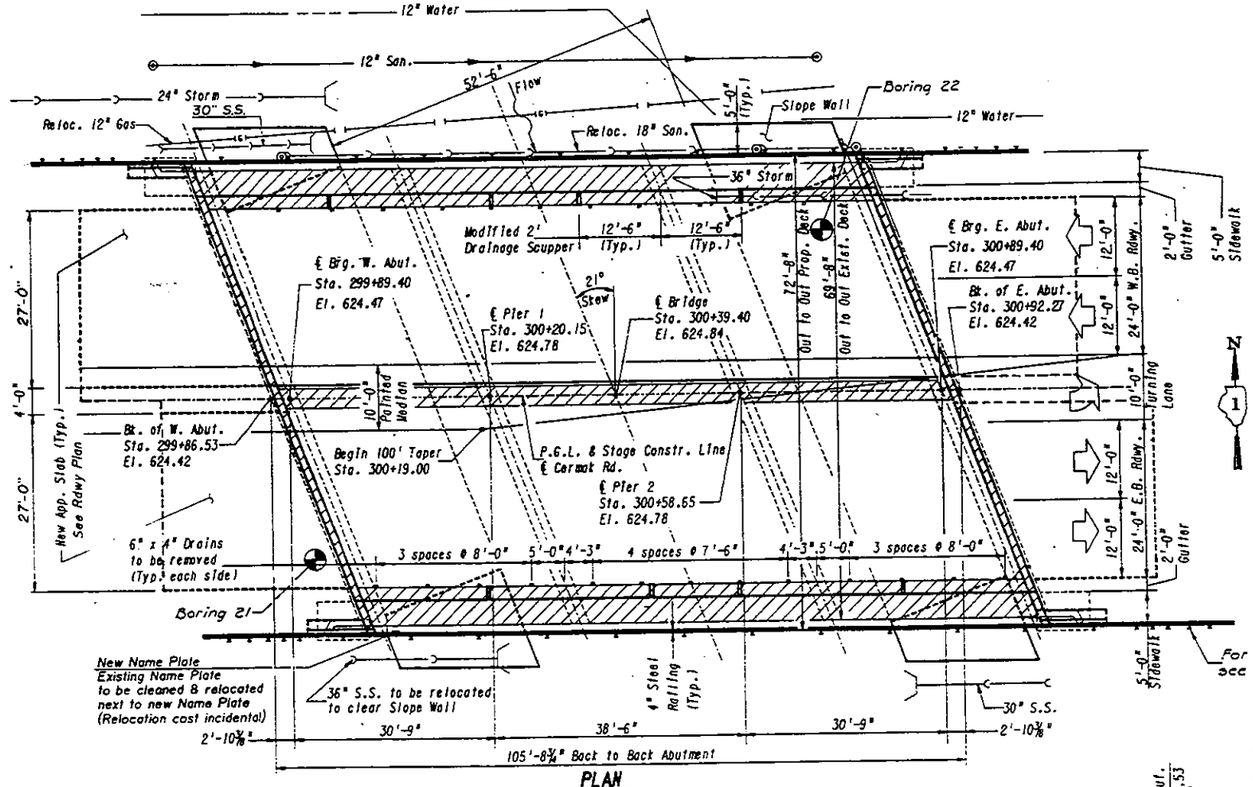
DESCRIPTION

Sta. 300+92.00, S.B.I. Rte. 55 - Sect. 551 - Y Built in 1959 Structure No. 016-0633-(New Sta. 300+39.40)
Substructure : Pile bent abutments & piers
Superstructure : 3 - span R.C. slab bridge

Superstructure to be partially removed and widened. Repair and overlay concrete deck
Traffic to be maintained utilizing stage construction



ELEVATION



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
POROUS GRANULAR EMBANKMENT	CU YD	-	13.4	13.4
PROTECTIVE COAT	SQ YD	206	-	206
CONC REMOVAL	CU YD	52.4	26.0	78.4
STRUCTURE EXCAVATION	CU YD	-	96	96
PREFORMED JOINT SEAL 1 3/4"	LIN FT	102	-	102
PREFORMED JOINT SEAL 2½"	LIN FT	156	-	156
CLASS X CONCRETE SUPERSTRUCTURE	CU YD	561	-	561
CLASS X CONCRETE	CU YD	-	18.8	18.8
STEEL RAILING, TYPE TP-1	LIN FT	246	-	246
BRIDGE HANDRAIL REMOVAL	LIN FT	204	-	204
REINFORCEMENT BARS, EPOXY COATED	POUND	10100	3060	13160
FURNISHING STEEL PILES HP 10x42	LIN FT		210	210
TEST PILE STEEL HP 10x42	EACH		1	1
BIT. CONC. REM. (DECK)	SQ YD	624.9	-	624.9
SLOPE WALL REMOVAL	SQ YD	-	152.2	152.2
SLOPE WALL 6 INCH	SQ YD	-	133.0	133.0
F B E STRUCTURAL STEEL	POUND	8680	-	8680
BR DK CONC OVLAY OPT (1=3½")	SQ YD	704.1	-	704.1
DECK SLAB REPAIR (FD-T1)	SQ YD	48.1	-	48.1
* DRAINAGE SCUPPERS (SPECIAL)	EACH	8	-	8
FORMED CONC. REPAIR DEPTH ≤ 5"	SQ YD	97	1	98
* PROTECTIVE SHIELD	SQ YD	120	-	120
* BRIDGE SEAT SEALER	SQ FT		388	388
CONC BRIDGE DECK SURF REM (METH 3)	SQ YD	715.8	-	715.8
* SLOPE WALL SLURRY PUMPING	CU YD	-	25	25
DRIVING STEEL PILES	LIN FT		210	210
NAME PLATE	EACH	1		1

* See Special Provisions

DESIGN SPECIFICATIONS

1989 AASHTO, 1990, 1991 Interim

DESIGN STRESSES

f'_c = 3,500 psi
f_y = 60,000 psi (Reinf.)

DESIGN LOADING

Live Load HS 20-44

No additional allowance for future wearing surface

STATION 300+39.40
REBUILT 199 BY
STATE OF ILLINOIS
F.A.U. RTE 1453/SEC. 551WRS &
551 XB - BR - 89
LOADING HS 20
STR. NO. 016 - 0633

PROJ. STPM-6003 (971)

Name Plate
See Std. 2113-2

WATERWAY INFORMATION

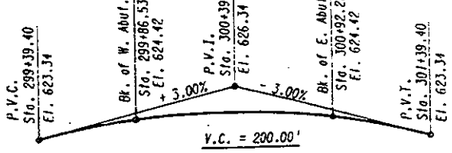
Drainage Area = 20.40 Sq. MI. Low Grade Elev. 625.0 @ Sta. (Unknown)

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	1300	555	555	619.1	-	-	-	-
Base	100	1520	555	555	619.7	-	-	-	-
Overtopping									
Max. Calc.	500	1920	555	555	621.1	-	-	-	-

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

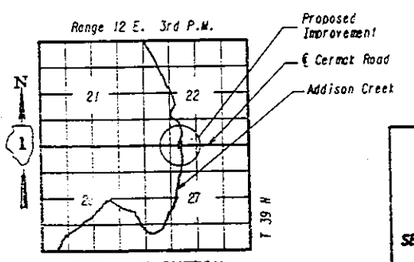
Ralph E. Anderson
Engineer of Bridges and Structures

PHILLIP D. FREY 081-004426 REGISTERED STRUCTURAL ENGINEER
EXP. 11/30/92



PROFILE GRADE

Top of Bridge Deck Conc. Overlay Option
℄ Cermak Rd. (22nd St.)
F.A.U. Rte. 1453



LOCATION SKETCH

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

GENERAL PLAN & ELEVATION

F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & VB-13 BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

Sheet 1 of 13

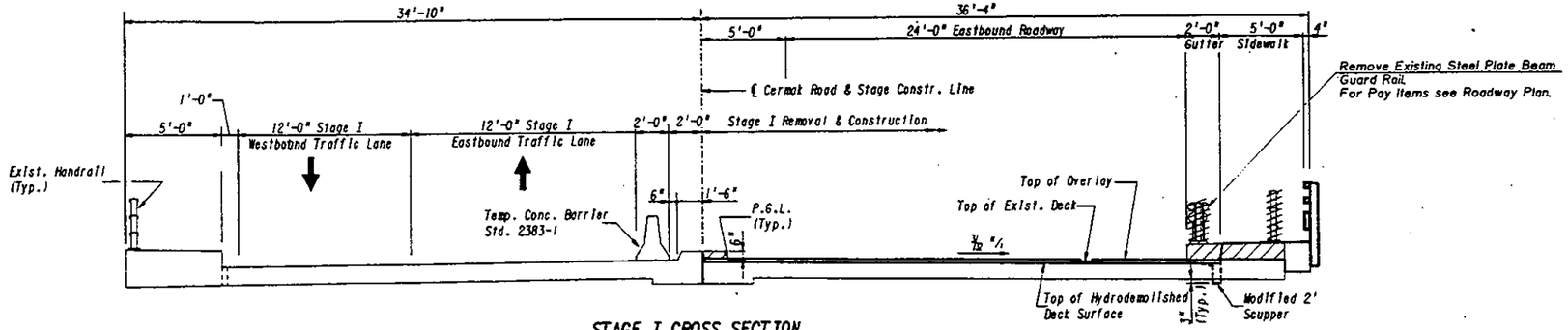
Donohue Engineers & Architects

DESIGN BY: P.D.F.	DESIGN CK'D. BY: H.S.	DRAWN BY: E.Z.	CHECKED BY: H.S.
PROJECT NUMBER 18046.200			

PRF=gpod.000 TAPE NO.
FILE=gpod.dgn DATE:
W.U.= SCALE=

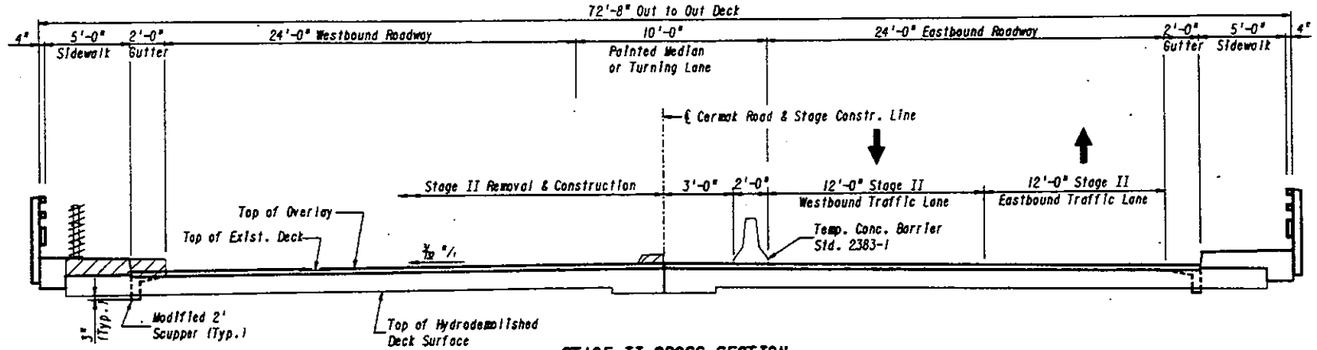
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	156
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

** 55IWRS & 55I (B, XB, VB & VB-11 BR-89



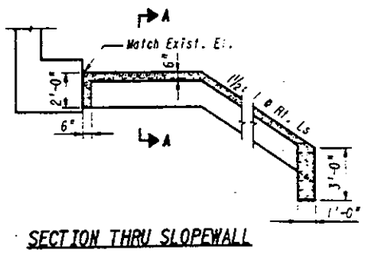
STAGE I CROSS SECTION

Looking East

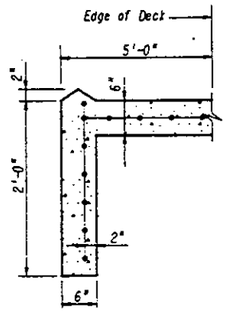


STAGE II CROSS SECTION

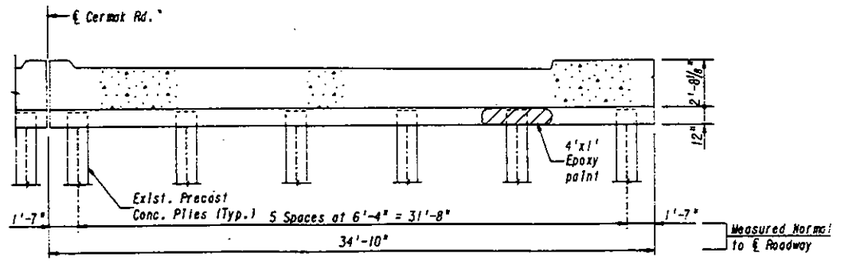
Looking East



SECTION THRU SLOPEWALL



SECTION A-A



W. ELEVATION OF PIER 1

Looking East Showing Concrete Repair

GENERAL NOTES

All structural steel shall be shop painted with the zinc-silicate & vinyl paint system.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

Slope wall shall be reinforced with welded wire fabric, 6" x 6" - W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.

The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework, in addition to allowance for dead load deflection.

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 the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

See Sh.13 of 13 for Boring Data.

Layout of the Slope Protection System may be varied to suit ground condition in the field, as directed by the Engineer.

Backfill shall be placed & compacted at all new slope walls. Where the existing slope wall is undermined & is accessible, it shall be backfilled to the bottom of the existing slab. The cost of backfilling shall be incidental to the item SLOPE WALL 6 INCH.

In areas where the slope wall is undermined & is inaccessible for backfilling, slopewall grouting shall be used as directed by the Engineer. The grout shall fill the cavities to the bottom of existing concrete.

Bridge seat sealer shall be applied to the seat area of the abutments.

The Contractor shall drive one steel HP10x42 test pile in a permanent location at the W. Abutment as directed by the Engineer before ordering the remainder of piles.

Item	Unit	Quantity
* Epoxy Paint	Sq. Yd.	0.5

* Incidental to Class X Concrete.

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

STAGING & GENERAL NOTES

F.A.U. RTE 1453
SECTION 55IWRS & 55I (B, XB, VB & VB-11 BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

Donohue
Engineers & Architects

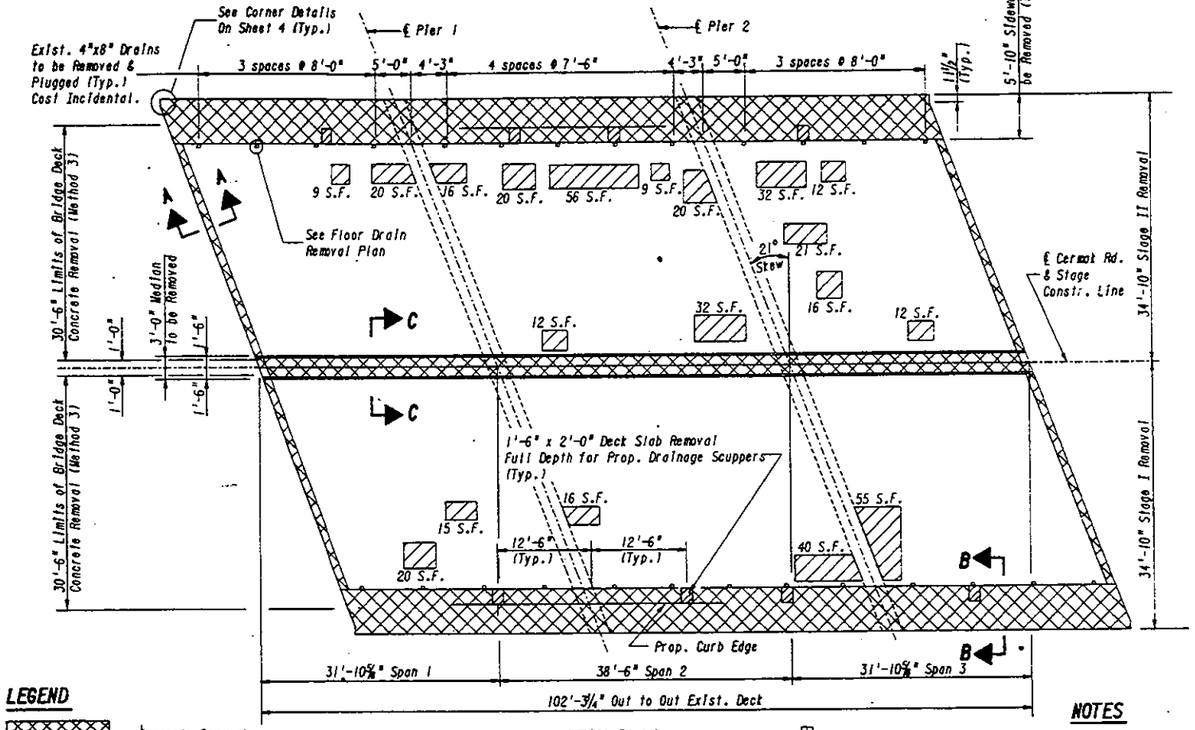
DESIGN BY:	DESIGN CK'D. BY:	DRAWN BY:	CHECKED BY:
P.D.F.	H.S.	E.Z.	H.S.

PROJECT NUMBER 18046.200

PRF=staged.000 TAPE NO.
FILE=staged.dgn DATE:
W.U.= SCALE=

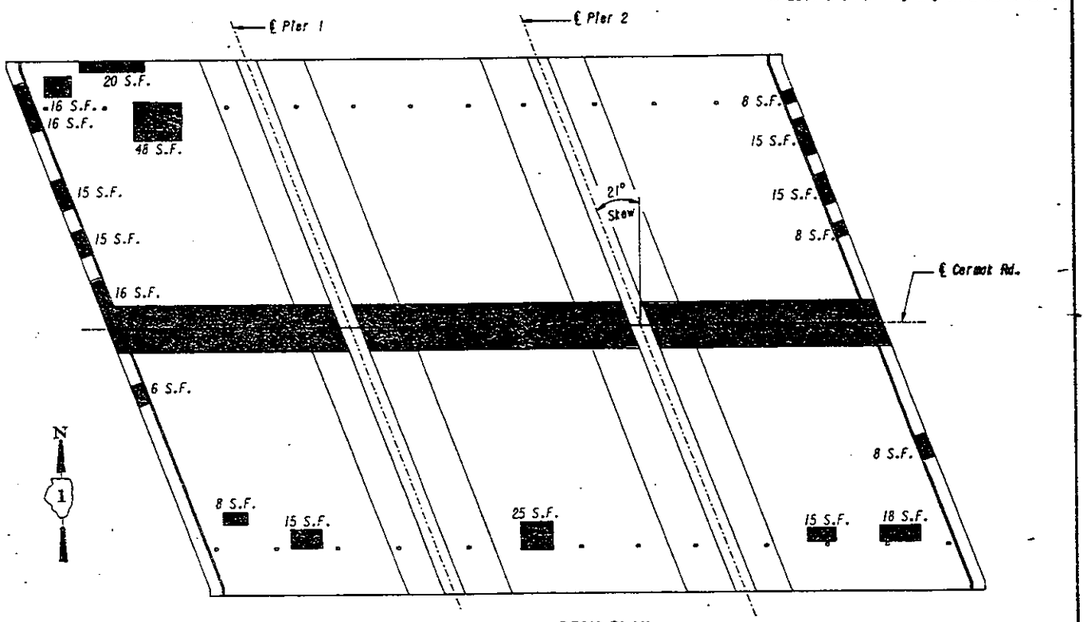
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	167
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

** 551WRS & 551 (B, XB, VB & VB-1) BR-69



DECK PLAN

Showing Removal & Repair at Top of Slab

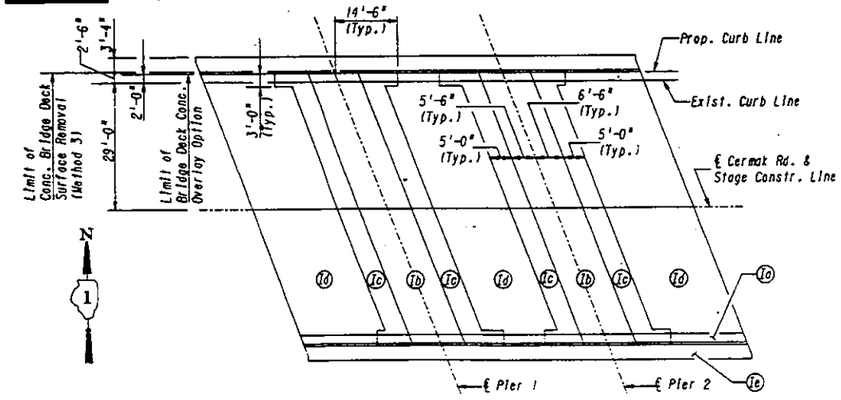


DECK PLAN

Showing Repair at Bottom of Slab

LEGEND

- Concrete Removal
- Deck Slab Removal (Full Depth)
- Formed Conc. Repair (Depth ≤ 5")



SUGGESTED CONSTRUCTION SEQUENCE

Stage I shown, Stage II Similar

NOTES

Repair areas indicated on this sheet are based on Bridge Condition Report. Actual locations & quantities of repair may vary & shall be determined by the Engineer after bit. surf. have been removed.

Suggested construction sequence shown is based on the assumption that existing top reinforcement bars to remain have sufficient embedment during stages Ib, Ic, IIb & IIc. It is the Contractor's responsibility to verify the soundness of concrete deck within 15' on either side of piers. Contractor shall then notify the Engineer of the results & the Engineer shall then determine the appropriateness of the suggested sequence.

In lieu of the suggested construction sequence shown, the Contractor has the option of shoring the entire structure. It shall be the responsibility of the Contractor to design such shoring, signed & stamped by a licensed Structural Engineer in the State of Illinois. The Contractor shall submit such drawings & calculations for Engineer's approval.

Shoring shall be mandatory if latex concrete overlay is selected.

For Sections A-A, B-B, & C-C, see Sheet 5.

For Superstructure Bill of Material, see Sheet 5.

For Superstructure-New Construction, see Sheet 4.

SUBSTAGE CONSTRUCTION PROCEDURE

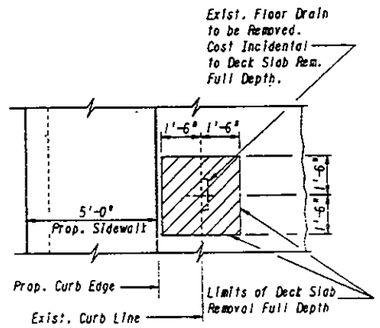
Ia — Remove 2'-6" portion of existing sidewalk

Ib — Remove conc. bridge deck surface by Method 3. Overlay bridge deck btwn. ℄ of roadway & prop. curb line. (Negative moment region)

Ic — Remove conc. bridge deck surface by Method 3. Install 2' modified drainage scuppers & overlay bridge deck btwn. ℄ of roadway & prop. curb line. (Remainder of negative moment region)

Id — Remove conc. bridge deck surface by Method 3. Overlay bridge deck btwn. ℄ of roadway & prop. curb line. (Positive moment region)

Ie — Remove remaining portion of sidewalk & construct new sidewalk with Type TP-1 Comb. Steel Railing.



PLAN
FLOOR DRAIN REMOVAL

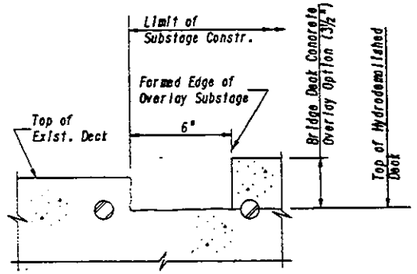
Sidewalk removal & concrete bridge deck surface removal by Method 3 shall be performed prior to floor drain removal.

Remove the exist. floor drain & concrete to limits shown without damage to existing reinforcement bars.

Replace removed concrete with the overlay material at the time of placement of overlay. The concrete shall be placed to the level of hydrodemolished deck & shall be thoroughly consolidated with hand held vibrators.

Place Bridge Deck Concrete Overlay Option.

Drain Removal shall be cost incidental to Deck Slab Removal Full Depth.



OVERLAY SUBSTAGE EDGE DETAIL

For use on Substages Ib, Ic, IIb & IIc

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK
SUPERSTRUCTURE
REMOVAL & REPAIR
F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & VB-1) BR-69
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

Donohue
Engineers & Architects

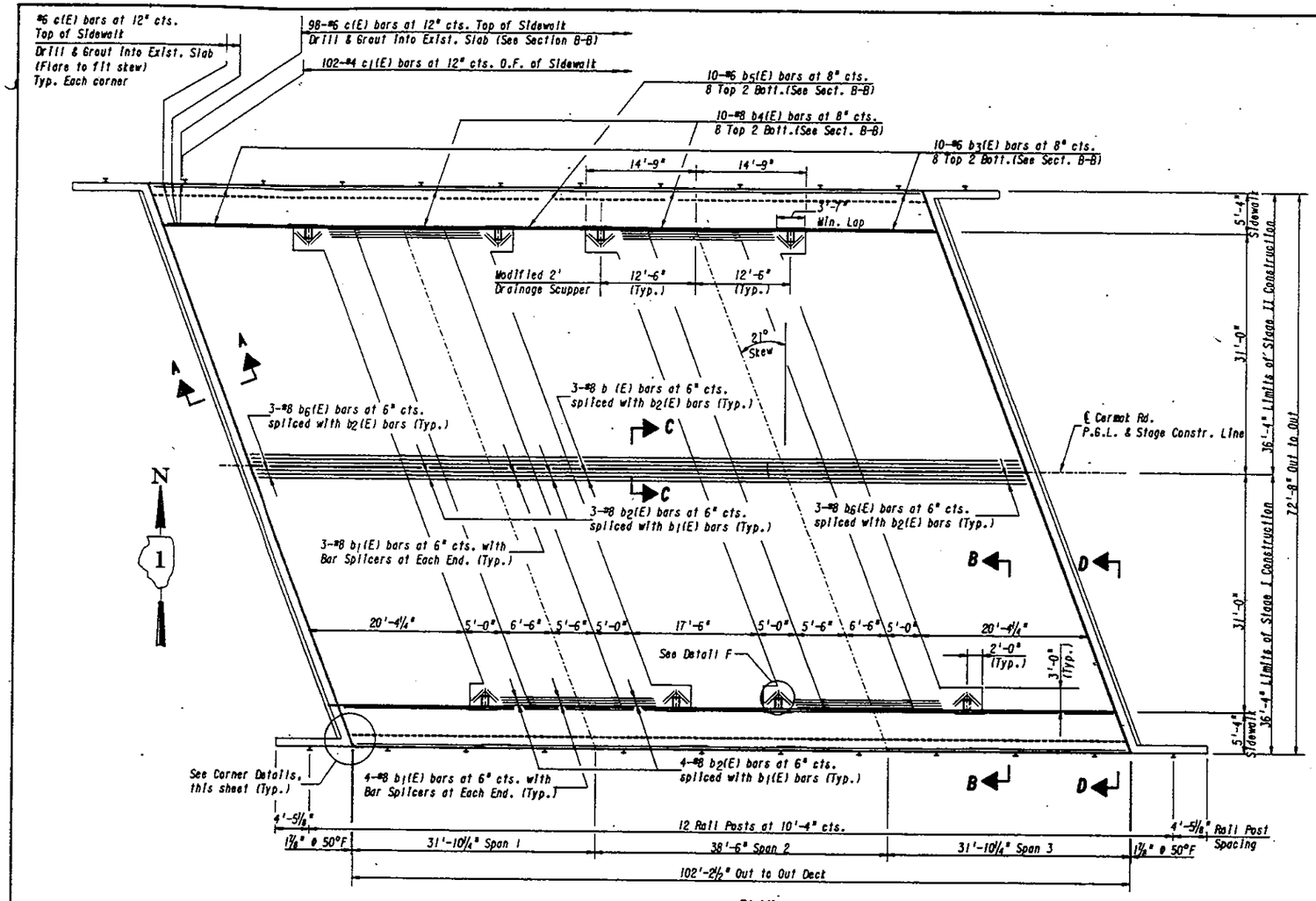
DESIGN BY: S.C.L.	DESIGN CK'D. BY: P.D.F.	DRAWN BY: E.Z.	CHECKED BY: H.S.

PROJECT NUMBER 18046.200

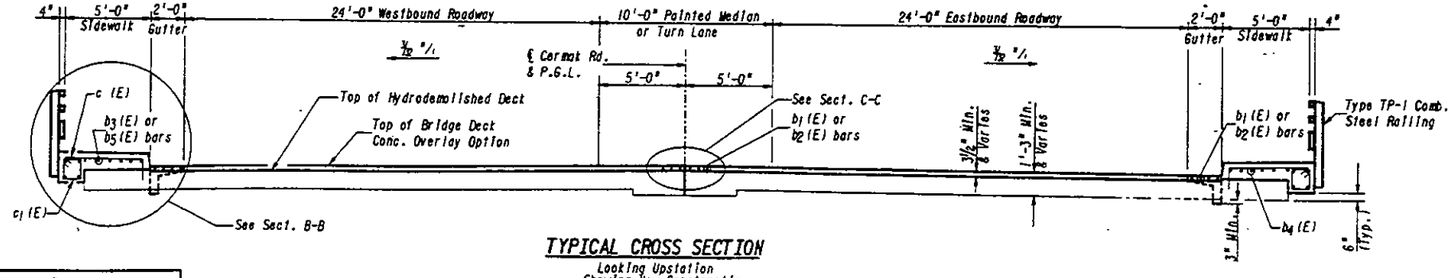
PRF=super1.000 TAPE NO.
FILE=super1.dgn DATE:
W.U.=
SCALE=

	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	168
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

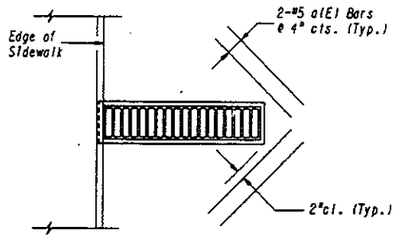
** 551WRS & 551 (B, XB, YB & YB-1) BR-89



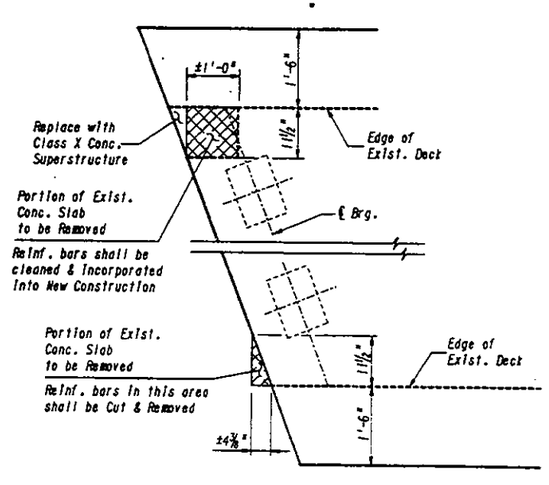
PLAN



TYPICAL CROSS SECTION
Looking Upstation
Showing New Construction



DETAIL F



CORNER DETAILS

NOTES

For Sections A-A, B-B & C-C, see Sheet 5.

For Superstructure Bill of Material, See Sheet 5.

Reinforcement bars designated (E) shall be epoxy coated.

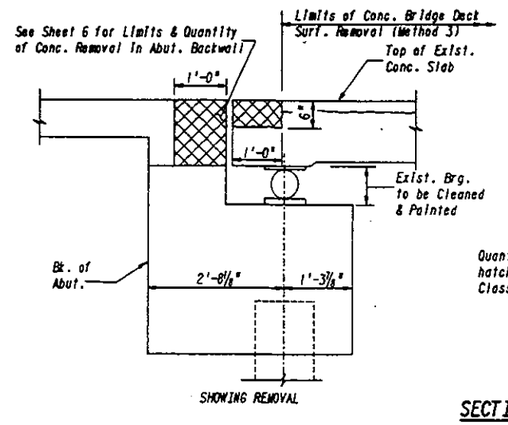
PRF=super2.000 TAPE NO.
FILE=super2.dgn DATE:
W.U.= SCALE=

Donohue Engineers & Architects

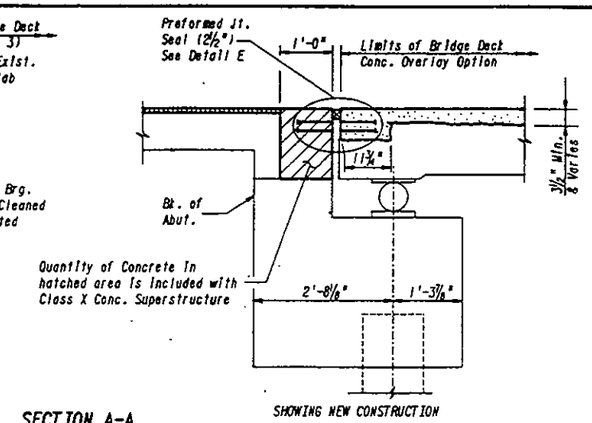
DESIGN BY: S.C.L.	DESIGN CK'D. BY: P.D.F.	DRAWN BY: E.Z.	CHECKED BY: H.S.

PROJECT NUMBER 18046.200

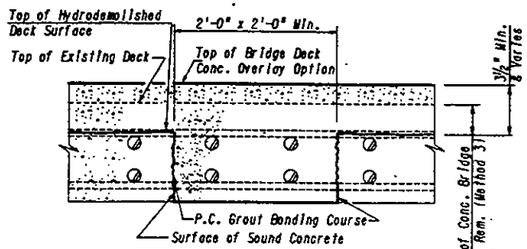
ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK
SUPERSTRUCTURE
NEW CONSTRUCTION
F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, YB & YB-1) BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992



SHOWING REMOVAL



SHOWING NEW CONSTRUCTION



BRIDGE DECK CONC. OVERLAY - METHOD 3

Remove existing variable thickness bituminous concrete overlay. Contractor shall exercise care not to remove deck conc. during Bit. Conc. Removal (Deck) operation.

Remove the entire surface area of the concrete deck as shown on the plans, to a depth that will generally expose the upper half of the topmost bars in the main upper reinforcing mat. Removal shall be accomplished using hydrodemolition equipment.

After the hydrodemolition is complete & the deck surface has been cleaned, the Engineer may direct additional removal. This removal shall be accomplished using power-driven hand tools or hydrodemolition equipment if approved by the Engineer.

Where concrete removal by hydrodemolition has exposed the lower mat of reinforcement, the involved area shall be removed full-depth as directed by the Engineer.

Provide Protective Shield beneath Deck Slab Removal (Full Depth).

Clean exist. reinforcement bars by sandblasting, as directed by the Engineer.

Any existing reinforcement bars which have a loss of more than 25% of their cross-section through corrosion shall be replaced as directed by the Engineer. No welding of bars will be permitted. New bars should be lapped a minimum of 30 bar diameters to existing bars.

Forms shall be provided to enable placement of new concrete. Immediately ahead of placing the overlay mixture, a thin coating of grout shall be placed.

All patches shall be poured using the overlay material at the time of placement of the overlay. The concrete shall be placed to the level of hydrodemolished deck & shall be thoroughly consolidated with hand-held vibrators.

Place Bridge Deck Concrete Overlay Option.

See Special Provisions for Bridge Deck Concrete Overlay.

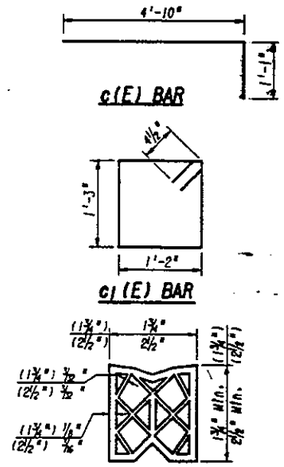
SUPERSTRUCTURE BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a(E)	32	#5	2'-0"	
b(E)	6	#8	17'-6"	
b1(E)	28	#8	11'-9"	
b2(E)	56	#8	5'-0"	
b3(E)	40	#6	20'-10"	
b4(E)	40	#8	28'-4"	
b5(E)	20	#6	18'-0"	
b6(E)	12	#8	20'-4"	
c(E)	204	#6	6'-2"	
c1(E)	204	#4	5'-7"	
Reinforcement Bars, Epoxy Coated			Pound	10,100
Concrete Removal			Cu. Yd.	52.4
Preformed Joint Seal 1¾"			Lin. Ft.	102
Preformed Joint Seal 2½"			Lin. Ft.	156
Class X Concrete Superstructure			Cu. Yd.	52.1
Handrail Removal			Lin. Ft.	204
Bit. Conc. Removal (Deck)			Sq. Yd.	624.9
Protective Coat			Sq. Yd.	206
Bridge Deck Concrete Overlay Option (t=3½")			Sq. Yd.	704.1
Deck Slab Repair (Full Depth, Type I)			Sq. Yd.	48.1
Formed Conc. Repair (Depth ≤ 5")			Sq. Yd.	97
Protective Shield			Sq. Yd.	120
Conc. Bridge Deck Surf. Rem. (Method 3)			Sq. Yd.	715.8

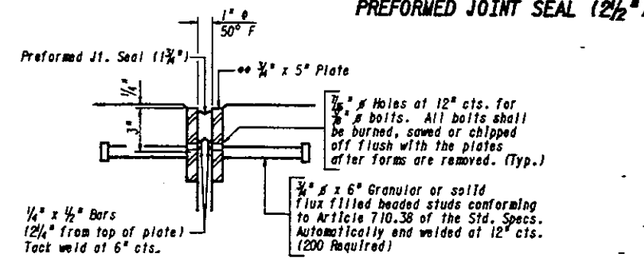
Reinforcement bars designated (E) shall be epoxy coated.

CONTR.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	00	COOK	233	185
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

00 551WRS & 551 (B, XB, VB & VB-1) BR-89

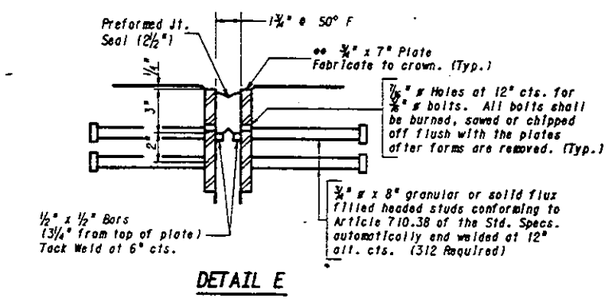


PREFORMED JOINT SEAL (1¾")
PREFORMED JOINT SEAL (2½")

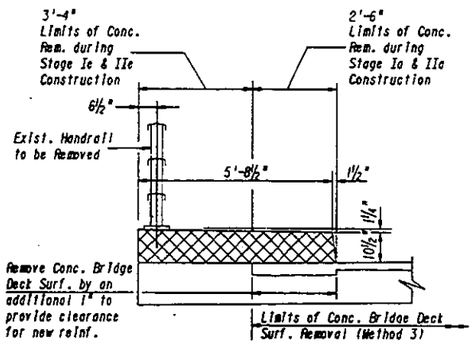


DETAIL D

00 Furnish in segments of 20 ft. max. length. Maximum space between installed segments shall be ⅜". Seal space with Silicone Sealant suitable for Structural Steel.

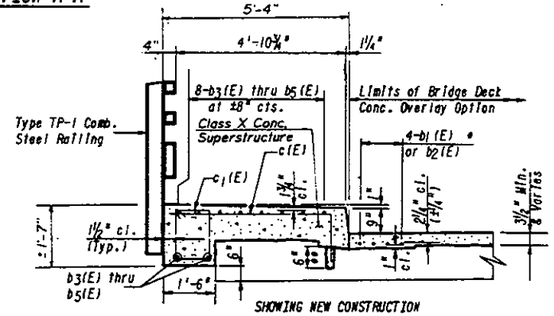


DETAIL E



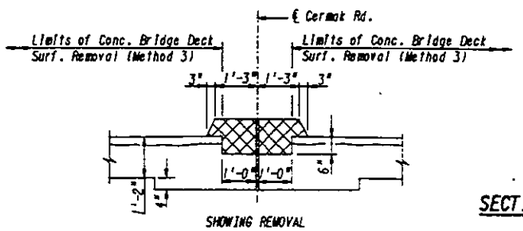
SHOWING REMOVAL

SECTION B-B



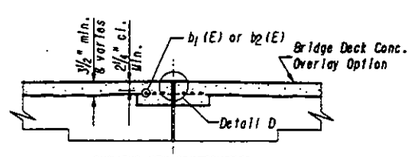
SHOWING NEW CONSTRUCTION

- * Additional deck surface removal may be required as directed by the Engineer, to insure minimum clear cover over bars.
- ** Epoxy grout c(E) bars in 1" ø x 6" min. holes. See Special Provisions.

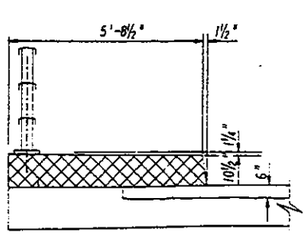


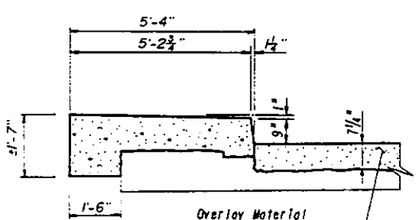
SHOWING REMOVAL

SECTION C-C

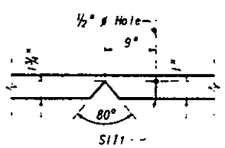


SHOWING NEW CONSTRUCTION

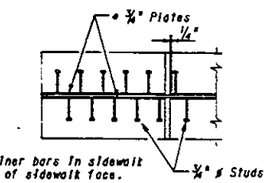




SECTION D-D



SEAL CUT-OUT AT CURB



TYPICAL SEAL TREATMENTS AT SIDEWALK

LEGEND

- Concrete Removal
- Bridge Deck Concrete Overlay Option

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

SUPERSTRUCTURE DETAILS

F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & VB-1) BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

Donohue
Engineers & Architects

DESIGN BY: S.C.L.	DESIGN CK'D. BY: P.D.F.	DRAWN BY: E.Z.	CHECKED BY: S.C.L.

PROJECT NUMBER 18046.200

PRF=super3.000 TAPE NO.
FILE=super3.dgn DATE:
W.U.= SCALE=

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	170
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

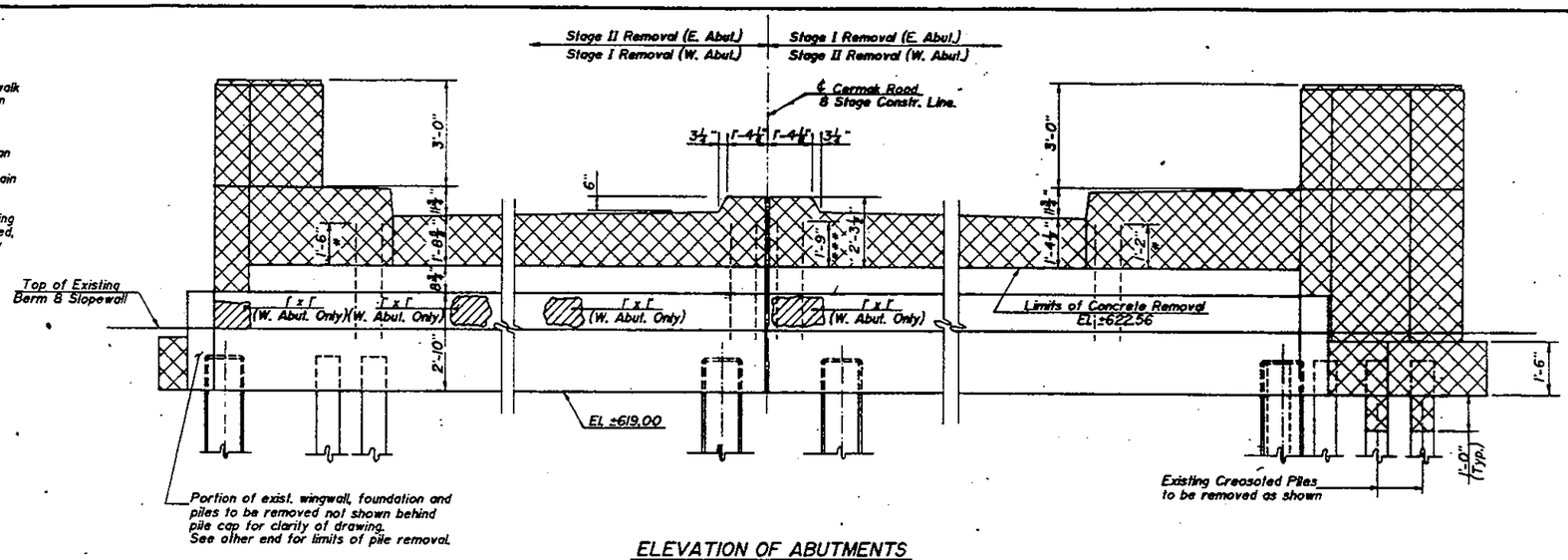
**55WRS & 55(B, XB, VB & VB-J) BR-89

NOTES:

* Cut first 2 vertical reinf. bars in sidewalk (each face) so that bar extension from exist. structure to remain shall be as indicated.

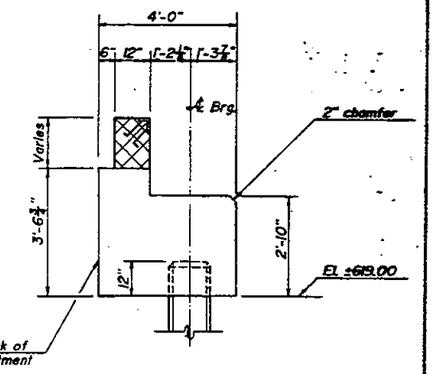
** Cut first 2 vertical reinf. bars in median (each side, each face) so that bar extension from exist. structure to remain shall be 1'-9".

- All vertical reinforcement bars extending from abutment backwall shall be cleaned, straightened and incorporated into new construction.

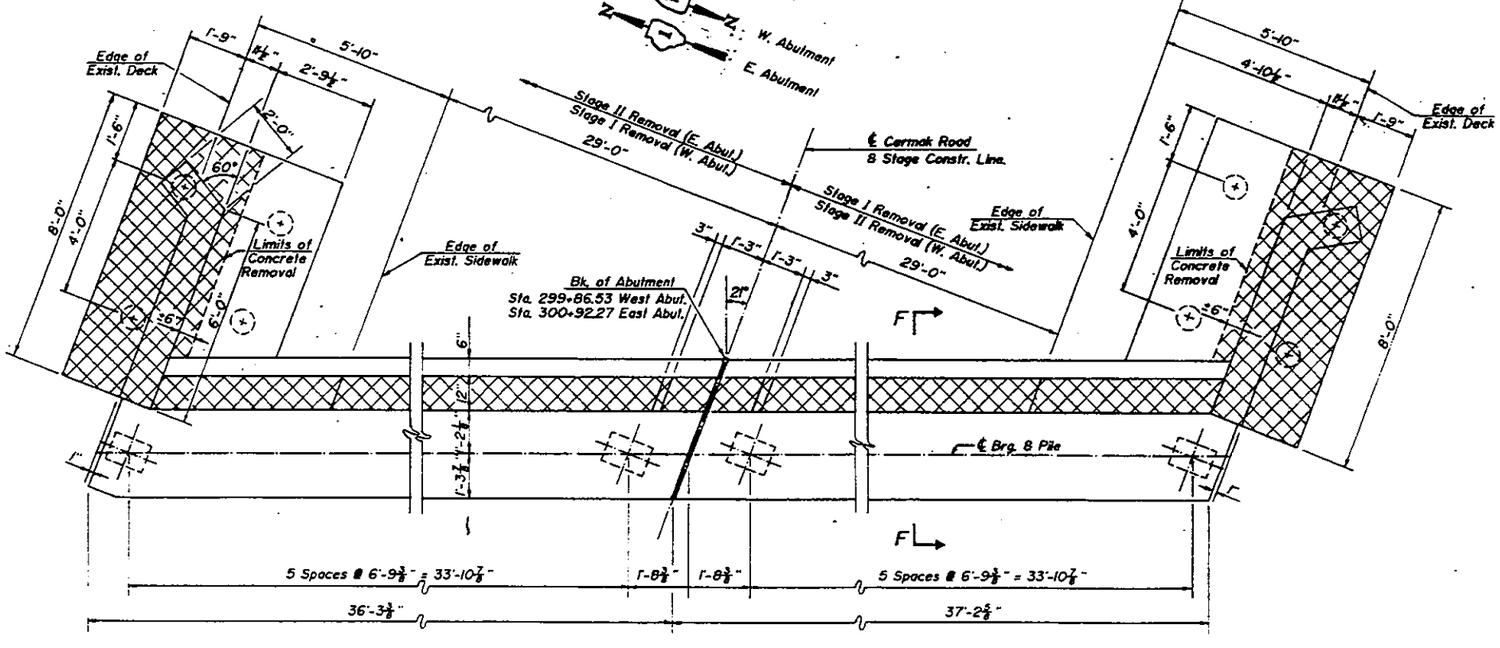


ELEVATION OF ABUTMENTS

(Elevation for East & West Abutments identical)
All reinf. bars in cross-hatched area shall be removed unless otherwise noted (see NOTES).



SECTION F-F



PLAN

LEGEND

Concrete Removal

Delaminated Area Formed Conc. Repair* (Depth ≤ 5")

BILL OF MATERIAL
(For Two Abutments)

ITEM	UNIT	TOTAL
Concrete Removal	Cu. Yd.	26.0
Formed Conc. Repair (Depth 5")	Sq Yd.	0.5

NOTES:
Quantities and Location for delaminated areas are for information purposes only. Engineer shall determine location and dimensions repair requires.

REVISIONS	
NAME	DATE

Donohue
Engineers & Architects

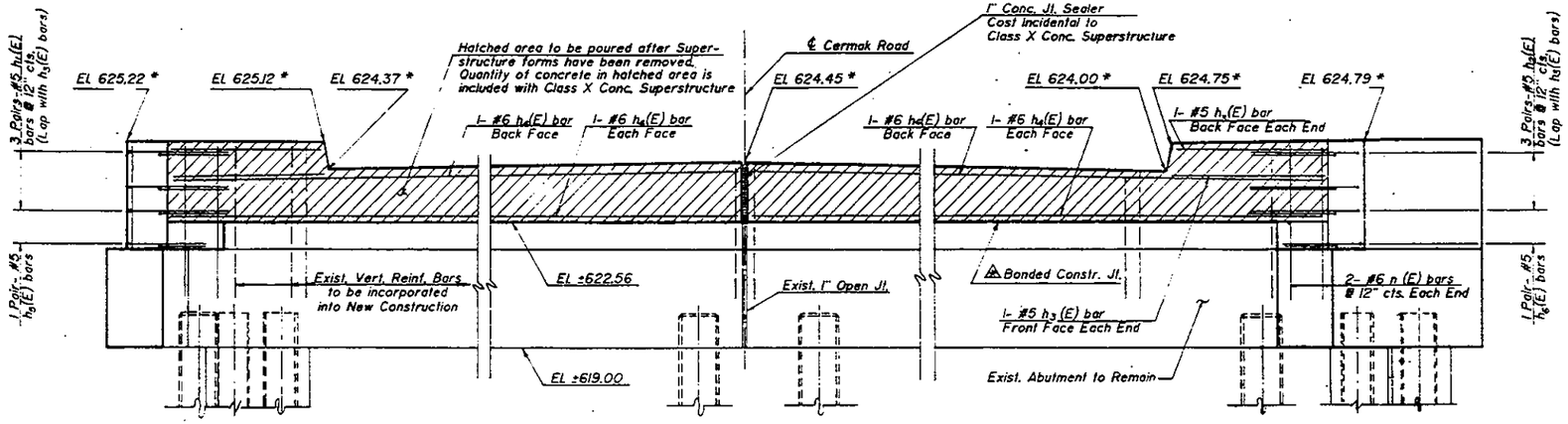
DESIGN BY: JHR	DESIGN CK'D. BY: SL	DRAWN BY: JLM	CHECKED BY: HS

PROJECT NUMBER 18046.200

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK
EXISTING ABUTMENTS SHOWING REMOVAL
F.A.U. RTE 1453
SECTION 55WRS & 55(B, XB, VB & VB-J) BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

F.A.S. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	171
STA.		TO STA.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

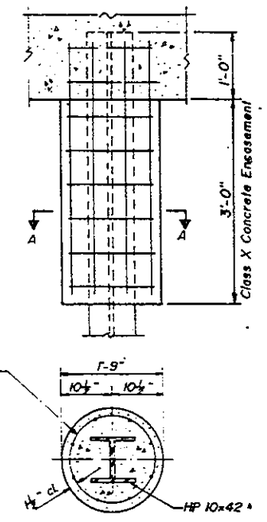
** 55IWRS & 55K(B, XB, VB & VB-1) BR-89



ELEVATION OF ABUTMENTS

(Elevations for East & West Abutments Identical)

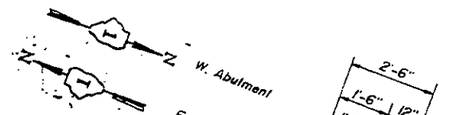
Welded wire fabric 6x6-W4.0xW4.0 weighing 58 /100 sq. ft. The cost of Excavation, Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing piles. Forms for encasement may be omitted when soil conditions will permit.



SECTION A-A

HP PILE ENCASEMENT

(Typical at both Abutments)



PLAN

PILE DATA

Type- Steel HP 10 x 42
Capacity- 25 Tons (Drive to 38 Ton)
Estimated length- 34 Ft. (W. Abut.) 27 Ft. (E. Abut.)
No. Required- 8' (4 per abutment)

NOTES:

See Sheet 8 for Bill of Materials, Details & Sections.

* Elevations are at front face of Abutment Backwall.

△ See Art. 504.13 (a)(2) of the Standard Specs.

Reinforcement bars designated (E) shall be epoxy coated.

REVISIONS	
NAME	DATE

Donohue
Engineers & Architects

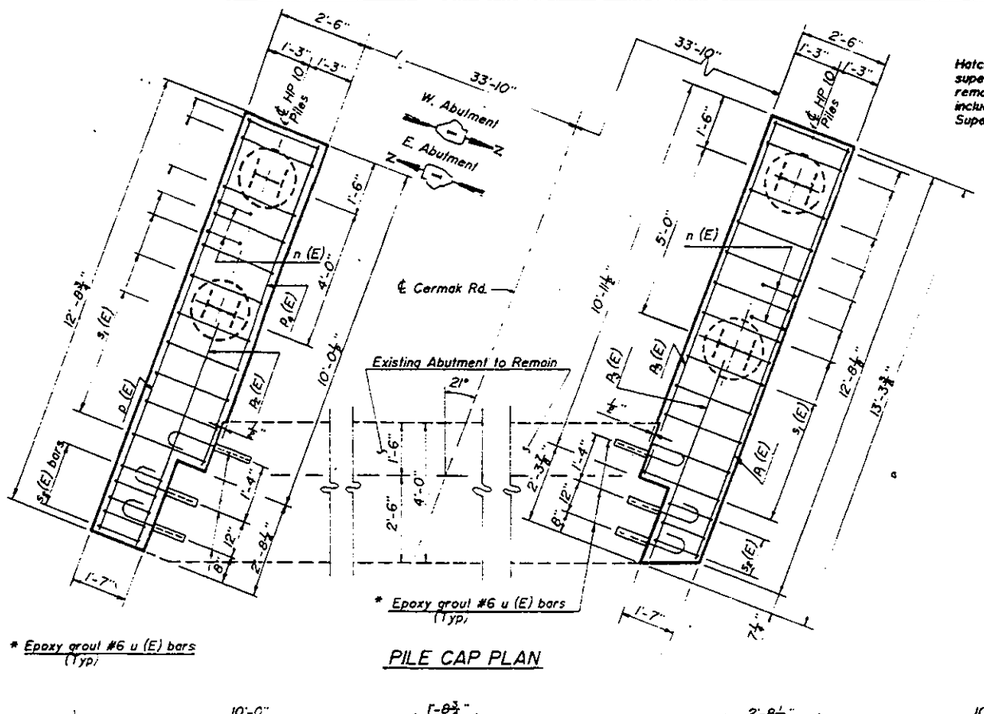
DESIGN BY:	DESIGN CK'D. BY:	DRAWN BY:	CHECKED BY:
JHR	SL	JLM	HS

PROJECT NUMBER 18046.200

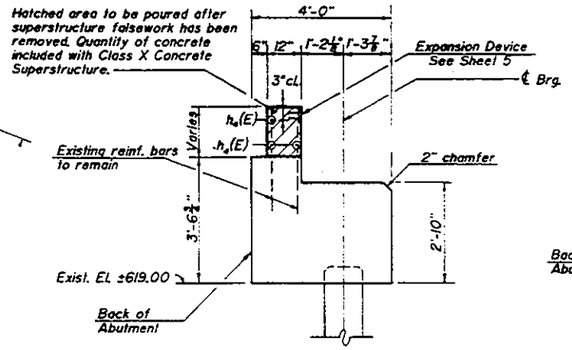
ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK
PROPOSED
ABUTMENTS & WINGWALLS
F.A.U. RTE 1453
SECTION 55IWRS & 55I (B, XB, VB & VB-1) BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453 **	COOK	233	172
STA	TO STA		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

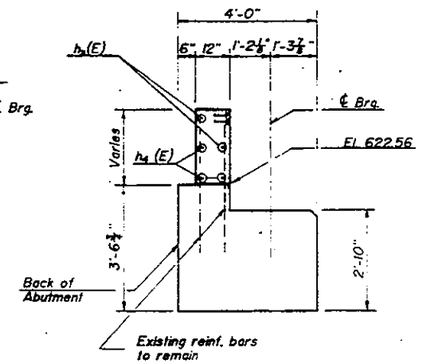
** 55(WRS & 55(B, XB, VB & VB-1) BR-89



PILE CAP PLAN



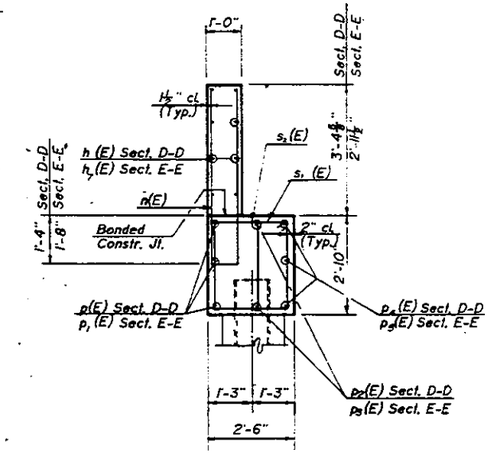
SECTION A-A



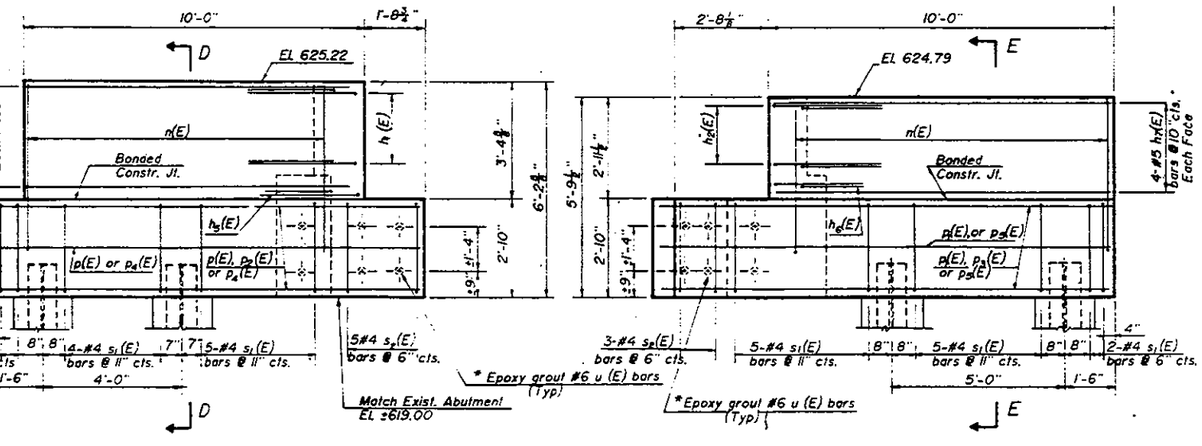
SECTION B-B

BILL OF MATERIAL
(Both Abutments)

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	16	#5	9'-4"	—
h_1(E)	12	#5	5'-4"	L
h_2(E)	12	#5	5'-4"	J
h_3(E)	8	#5	5'-0"	—
h_4(E)	12	#6	37'-6"	—
h_5(E)	4	#5	3'-9"	L
h_6(E)	4	#5	3'-9"	J
h_7(E)	16	#5	9'-8"	—
n (E)	48	#6	9'-9"	U
p(E)	6	#7	12'-4"	—
p_1(E)	6	#7	12'-4"	—
p_2(E)	4	#7	6'-8"	—
p_3(E)	4	#7	6'-3"	—
p_4(E)	6	#7	9'-8"	—
p_5(E)	6	#7	10'-7"	—
s_1(E)	46	#4	10'-1"	□
s_2(E)	16	#4	8'-3"	□
u(E)	24	#6	2'-8"	⊃
Reinforcement Bar (Epoxy Coated)		Lbs.	3060	
Class X Concrete		Cu.Yd.	18.8	
Steel Piles HP 10x42		Lin. Ft.	210	
Test Pile Steel HP 10x42		Each.	1	
Structure Excavation		Cu. Yd.	96	

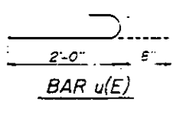


SECTIONS D-D & E-E

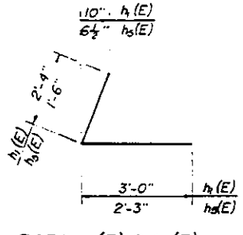


N.E. & S.W. WING WALL ELEVATION

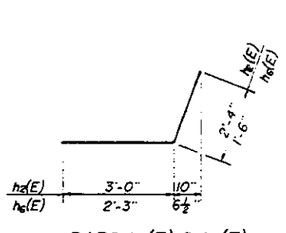
N.W. & S.E. WING WALL ELEVATION



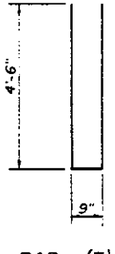
BAR u(E)



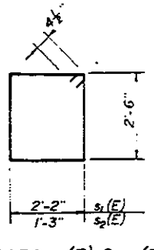
BARS h_1(E) & h_5(E)



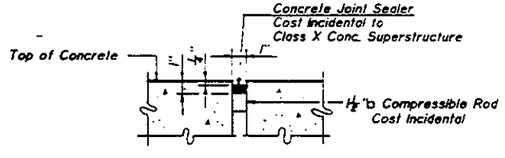
BARS h_2(E) & h_6(E)



BAR n (E)



BARS s_1(E) & s_2(E)



SECTION C-C

* Epoxy grout #6 u (E) bars in Γ ϕ x 9" minimum drilled holes. Use a grout approved by the Department or epoxy grout in accordance with BSP-11 (See Special Provisions). The method of grout application shall be approved by the Engineer.

NOTES

Work this sheet with sheet No. 7

Reinforcement bars designated (E) shall be epoxy coated.

Donohue
Engineers & Architects

DESIGN BY:	DESIGN CK'D. BY:	DRAWN BY:	CHECKED BY:
JHR	SCL	JLM	HS

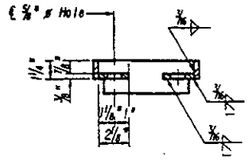
PROJECT NUMBER 18046.200

REVISIONS	
NAME	DATE

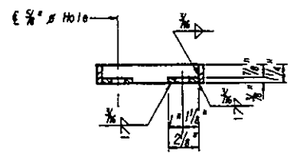
ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK
ABUTMENT & WINGWALL DETAILS
F.A.U. RTE 1453
SECTION 55(WRS & 55(B, XB, VB & VB-1) BR-89
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	173
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

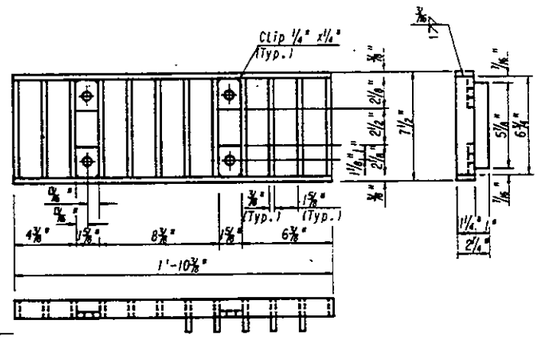
** 551WRS & 551 (B, XB, VB & VB-11) BR-89



SECTION A-A



SECTION B-B



GRATE

Notes:

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 Grade B, or A-501 Structural Steel Tubing.

All other shapes, plates and bars shall conform to the requirements of AASHTO M 183.

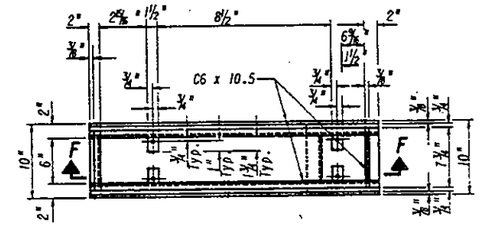
Bolts, studs, washers and nuts shall conform to the requirements of ASTM A-307.

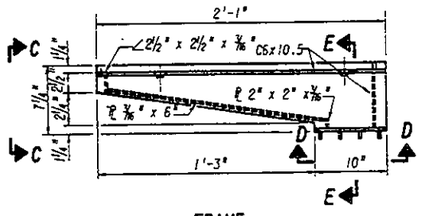
The Grate, Frame and Downspout shall be galvanized after shop fabrication in accordance with AASHTO M-111 & ASTM A-385.

All bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232.

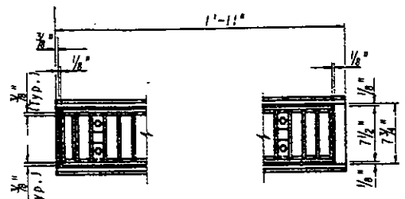
Cost of the Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper will be paid for at the unit bid price for "DRAINAGE SCUPPERS (SPECIAL)".

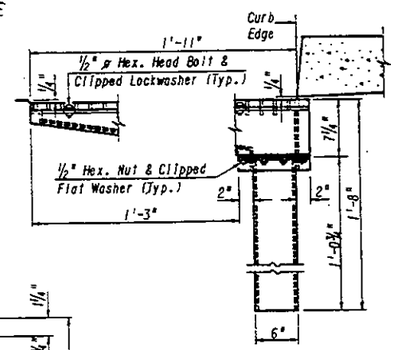
For Scupper locations, See Sheet 1.



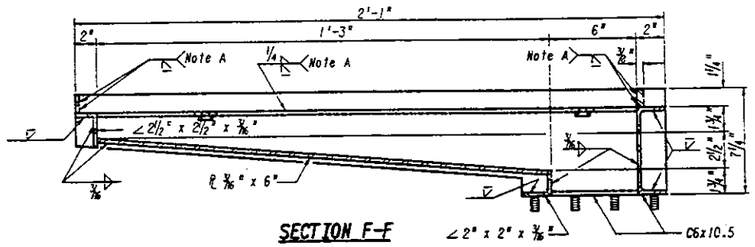


FRAME



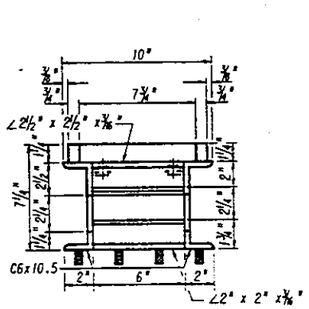


DRAINAGE SCUPPER

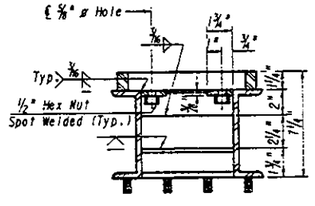


SECTION F-F

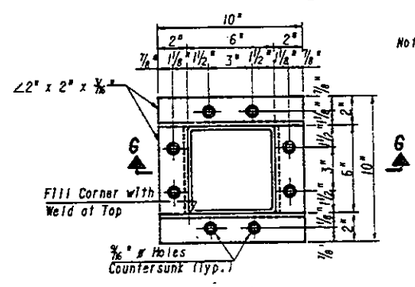
Note A: Surface of welds shall be recessed 1/16" Max. or placed flush with inside face of bars to provide clearance for Grate.

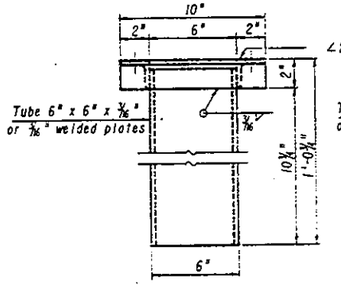


VIEW C-C

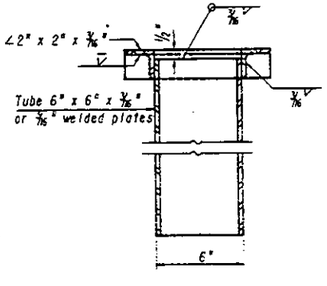


SECTION E-E

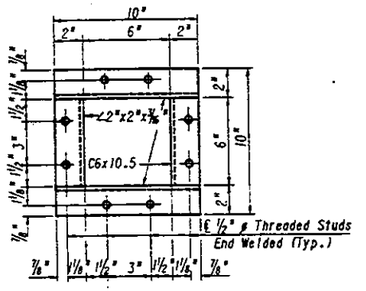




DOWNSPOUT



SECTION G-G



VIEW D-D

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scuppers (Special)	Each	8

Donohue Engineers & Architects			
DESIGN BY: S.C.L.	DESIGN CK'D. BY: P.D.F.	DRAWN BY: E.Z.	CHECKED BY: H.S.
PROJECT NUMBER 18046.200			

PRF= sculad.000 TAPE NO.
FILE= sculad.dgn DATE:
W.U.= SCALE=

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

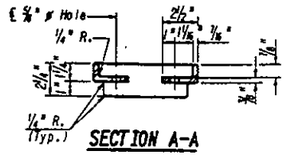
MODIFIED 2' DRAINAGE SCUPPER STEEL ALTERNATE

F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & VB-11) BR-89.
STA. 300+39.40
COOK COUNTY

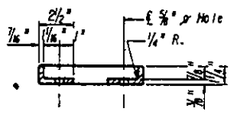
Structure #: 016-0633 Date: Jan. 1992

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	174
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

** 551WRS & 551 (B, XB, VB & VB-1) ~~88-89~~



SECTION A-A



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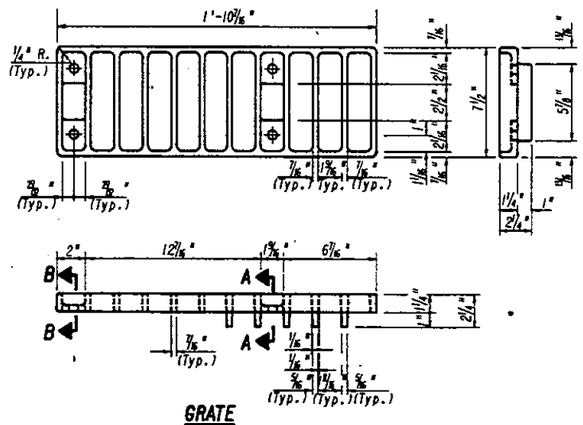
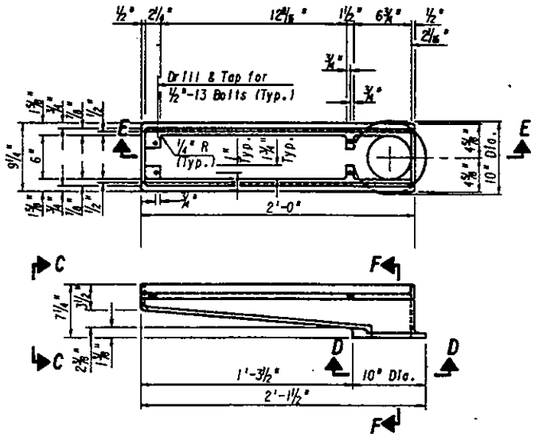
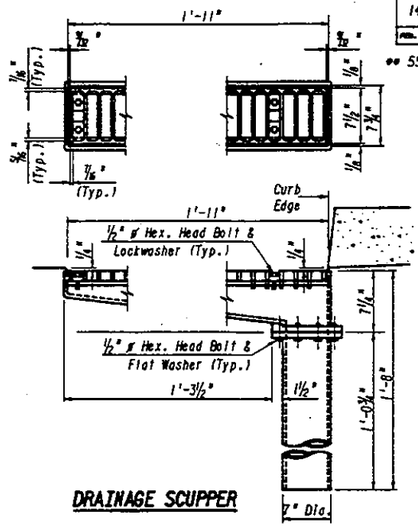
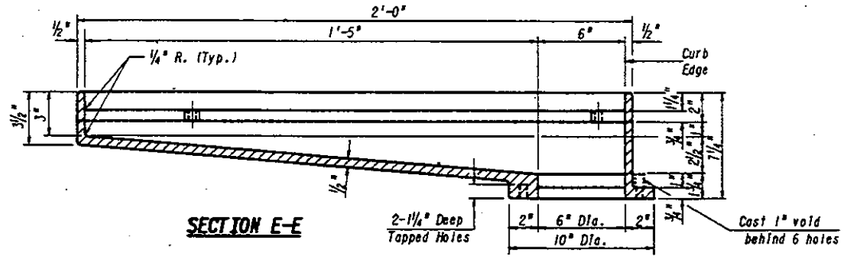
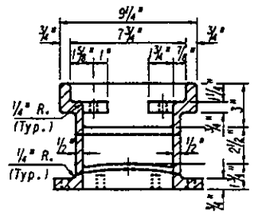
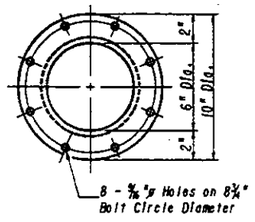


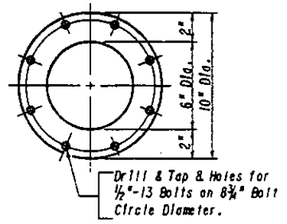


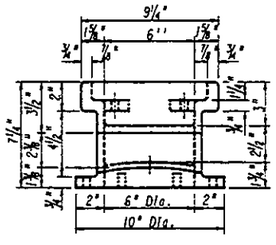


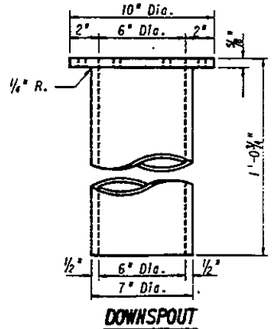












Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M-105, Class 30.

Bolts and washers shall conform to the requirements of ASTM A-307.

All bolts and washers shall be galvanized in accordance with AASHTO M-232.

As an alternate bolts and washers may be stainless steel conforming to the requirements of ASTM A-193, Type 304.

Cost of the Grate, Frame, Downspout, bolts and washers including complete installation of Scupper will be paid for at the unit bid price for "DRAINAGE SCUPPERS (SPECIAL)"

The Contractor may use at his option steel drainage scuppers or cast iron drainage scuppers.

For Scupper locations, see Sheet 1.

PRF=soup2ad.000 TAPE NO.
FILE=soup2ad.dgn DATE:
W.U.= SCALE=

Donohue
Engineers & Architects

DESIGN BY:	DESIGN CK'D. BY:	DRAWN BY:	CHECKED BY:
S.C.L.	P.D.F.	E.Z.	H.S.

PROJECT NUMBER 18046.200

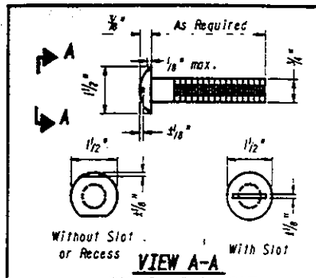
ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

MODIFIED 2' DRAINAGE SCUPPER CAST IRON ALTERNATE

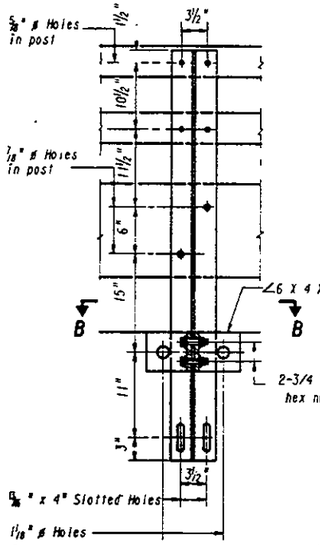
F.A.U. RTE 1453
SECTION 55 IWRS & 551 (B, XB, VB & VB-1) ~~88-89~~
STA. 300+39.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	175
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

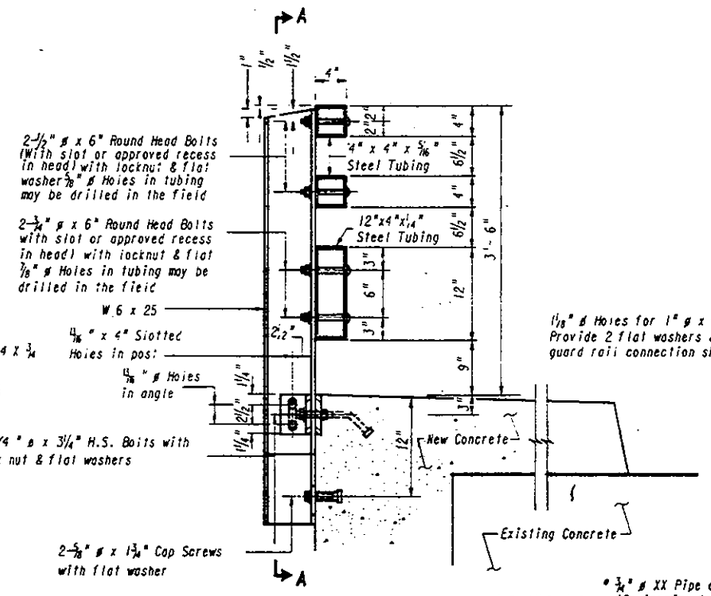
** 551WRS & 551 (B, XB, VB & VB-T) ~~BR-89~~



VIEW A-A
ROUND HEAD BOLT

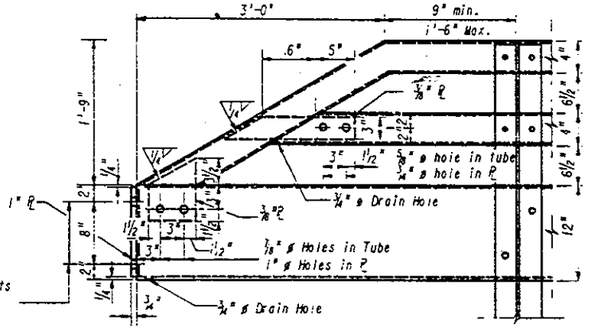


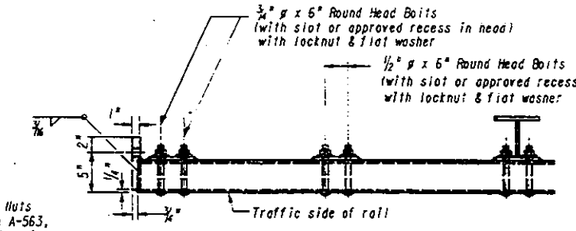
SECTION A-A



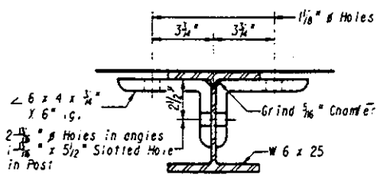
SECTION AT RAIL POST

1⅛" ø Holes for 1" ø x 4" Round Head Bolts Provide 2 flat washers & locknuts for guard rail connection shown on Std. 2340

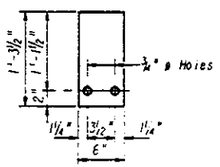




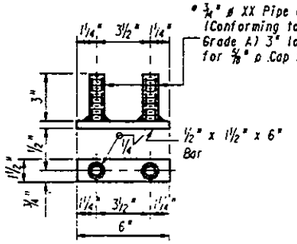
END OF RAIL DETAILS



SECTION B-B

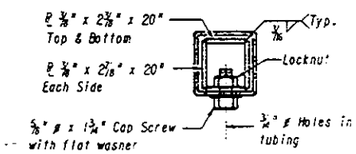


¼" SHIM PLATE

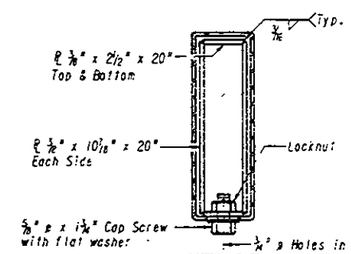


BOTTOM ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam

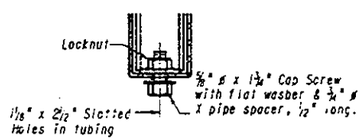


TOP RAIL

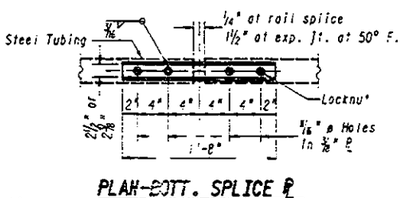


BOTTOM RAIL

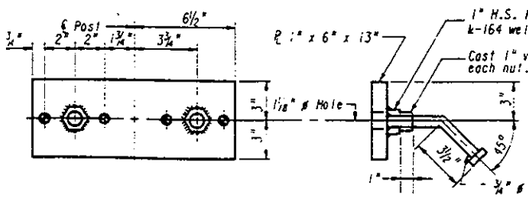
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL



TOP ANCHOR DEVICE

¾" ø x 7" Grantular or solid flux filled headed studs conforming to Art. 710.36 of the Std. Spec's. automatically end welded 4 required per ℄.

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M-183 except posts and angles shall conform to AASHTO M-223, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement 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 in accordance with AASHTO M-232.

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

Railing shall be in accordance with Section 508 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per lineal foot for STEEL RAILING, TYPE TP-1.

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

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 714.08 Type B or place ⅛" fabric bearing pad between the post and concrete.

The ¾" ø high strength bolts used to connect the 6 x 4 x ¾ angles to the post shall be tightened in accordance with Article 507.04(g)(3) of the Standard Specifications. The 1" ø high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional ⅛ turn. The ⅝" ø cap screws in bottom of posts shall be tightened to a snug fit only.

For multi-span bridges, sufficient ¼" x 6" x 1'-3½" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing.

For rail post spacing, see Sheet 4.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type TP-1	Lin. Ft.	246.0

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

TYPE TP-1
COMBINATION STEEL RAILING

F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & ~~VB-T~~ ~~BR-89~~
STA. 300+39.40
COOK COUNTY

Structure #: 016-0633 Date: Jan. 1992

Donohue
Engineers & Architects

DESIGN BY: P.D.F.	DESIGN CK'D. BY: S.C.L.	DRAWN BY: N.J.T.	CHECKED BY: P.D.F.

PROJECT NUMBER 18046.200

TAPE NO. DATE:
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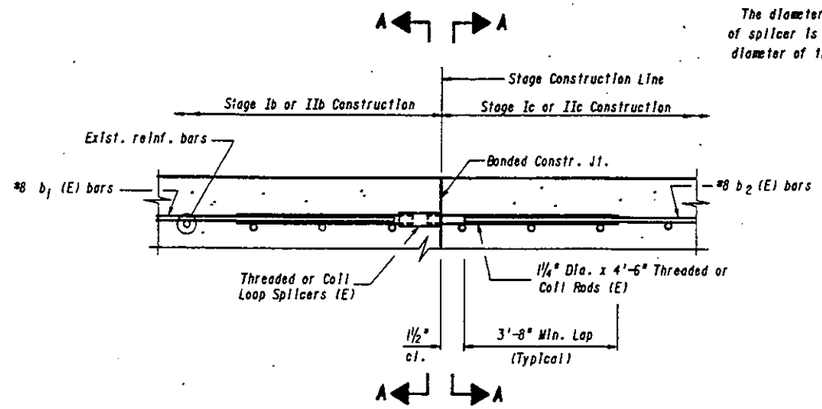
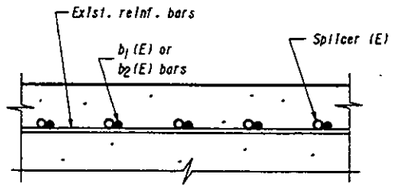
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	**	COOK	233	176
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

** 551WRS & 551 (B, XB, VB & VB-11 BR-89



SECTION THRU SLAB

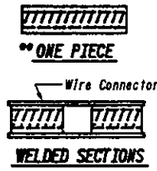


SECTION A-A

SPLICER DETAILS

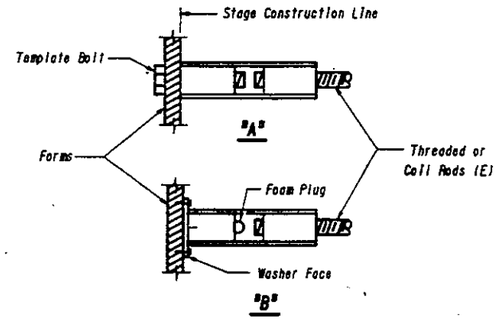
(No. Req'd. 80)
Cost Incidental to Reinforcement Bars (Epoxy Coated)

ROLLED THREADED DOWEL BAR



SPLICER ALTERNATIVES

** Heavy Hex Nuts Conforming to A.S.T.M. A563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

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

NOTES

Steel Spilcer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Steel Spilcer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal to or greater than that of the lapped reinforcement bars.

Spilcer rods shall extend minimum 1½ inches into the couplers.

All reinforcement bars shall be lapped and tied to the spilcer rods.

Spilcer (coupler) assembly in the slab shall be epoxy coated in accordance with 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 spilcer (coupler) assembly satisfies the following requirments:

① Minimum Capacity (Tension in kips) = $1.25 \times fy \times A_t$

② Minimum *Pull-out Strength (Tension in kips) = $1.25 \times fs_{allow} \times A_t$

Where fy = Yield strength of lapped reinforcement bars in k.s.i.

fs_{allow} = Allowable tensile stress in lapped reinforcement bars in k.s.i. (Service Load)

A_t = Tensile stress area of lapped reinforcement bars.

* = 28 day concrete

Typical Spilcer (Coupler) Assembly Sizes:

In Slabs	#5 bar lap with ¾" ø Spilcer (Coupler) x 2'-0" Spilcer Rods	Minimum Capacity = 23.0 kips-tension Minimum Pull-out Strength = 9.2 kips-tension
	#6 bar lap with ⅞" ø Spilcer (Coupler) x 2'-7" Spilcer Rods	Minimum Capacity = 33.1 kips-tension Minimum Pull-out Strength = 13.3 kips-tension
In Sub-Structure	#7 bar lap with 1" ø Spilcer (Coupler) x 3'-5" Spilcer Rods	Minimum Capacity = 45.1 kips-tension Minimum Pull-out Strength = 18.0 kips-tension
	#8 bar lap with 1¼" ø Spilcer (Coupler) x 4'-6" Spilcer Rods	Minimum Capacity = 58.9 kips-tension Minimum Pull-out Strength = 23.6 kips-tension

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W.U.= SCALE=

Donohue Engineers & Architects			
DESIGN BY: S.C.L.	DESIGN CK'D. BY: P.D.F.	DRAWN BY: E.Z.	CHECKED BY: H.S.
PROJECT NUMBER 18046.200			

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION

F.A.U. RTE 1453
SECTION 551WRS & 551 (B, XB, VB & VB-11 BR-89
STA. 300+39.40
COOK COUNTY

Structure #: 016-0633 Date: Jan. 1992

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1453	88	COOK	235	177
STA.		TO STA.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

** 55 RWRS & 551 1B, 2B, 3B & 3B-11 88-89

S.B. Sh. 1 of 2 Sh.

Illinois Department of Transportation

BRIDGE FOUNDATION BORING LOG

PROJECT: BRIDGE: Date: March 4, 1991
ROUTE: Bored By:
SEC: STA: Checked By:
COUNTY: Cook

Boring No. 21
Station 299+80
Offset 23' S. of C.L.
Ground Surface 625.4'

Surface Water El. 616.0'
Groundwater El. at Completion 622.0'
After Hours

Elevation	Blow/ft	N	Qu t/s.f.	w [%]
625				
	12	11	22	
	6	1.7P	16	
	4	1.0P	27	
	13	1.9	26	
	7	1.2	33	
	3	0.7	30	
	8	-	22	
	18	6.5	15	
	24	2.0	12	

Crushed limestone,damp

Dark brown-brown clay & silt,trace sand & gravel, damp,stiff - Fill

Black-dark brown clay & silt,some limestone,trace sand,very damp - Fill

Brown-dark green-brown clay, some silt,trace sand & gravel,damp,tough - Fill

Dark green-brown to green-brown clay,some silt,trace organic matter,very damp, stiff

Gray silt,some clay & sand, trace gravel,very damp

Gray silt,some clay,trace sand & gravel,damp,medium dense

Gray silt,some clay,trace sand & gravel,damp,hard

Elevation	Blow/ft	N	Qu t/s.f.	w [%]
625				
	27	2.5	11	
	29	1.7	12	
	34	4.5P	17	
	39	4.0P	11	
	45		14	
	49		17	
	50		18	
	Blows 6"			
	35		7	
	50		4	
	Blows 6"			

Gray silt,some clay,trace sand & gravel,damp,very dense

Gray fine-medium sand,trace coarse sand & gravel,very damp,dense

Gray silt,trace fine sand, very damp,very dense

Gray silt,some sand & gravel,damp,very dense

Sh. 2 of 2 Sh.

Boring #21 Sta. 299+90 Continued

Elevation	N	Qu t/s.f.	w [%]
625			
	50 Blows 4"		11
	50 Blows 4"		11
600			
575			
550			
525			
500			

Weathered limestone bedrock,very dense

End of Boring

S.B. Sh. 1 of 2 Sh.

Illinois Department of Transportation

BRIDGE FOUNDATION BORING LOG

PROJECT: BRIDGE: Date: March 4, 1991
ROUTE: Bored By:
SEC: STA: Checked By:
COUNTY: Cook

Boring No. 22
Station 300+70
Offset 20' S. of C.L.
Ground Surface 624.3'

Surface Water El. 614.0'
Groundwater El. at Completion 25.0'
After Hours

Elevation	Blow/ft	N	Qu t/s.f.	w [%]
625				
	11	3		
	12	3.0P	11	
	8	2.0	22	
	7	2.5	21	
	8	2.1	25	
	4		26	
	12	3.5	18	
	28	10.0+	13	
	33	10.0+	14	

Reinforced concrete

Limestone,damp

Brown-dark brown clay & silt,trace sand & gravel, damp,very tough

Gray silt,some clay,trace sand,very damp,loose

Gray clay,some silt,trace sand & gravel,damp,hard

Gray clay & silt,trace sand & gravel,damp,hard

Elevation	Blow/ft	N	Qu t/s.f.	w [%]
625				
	48	4.5P	8	
	35	4.0P	18	
	40 Blows 6"		5	
	42	10.0+	17	
	49	10.0+	17	
	61		16	
	50 Blows 6"		17	
	50 Blows 4"		11	

Gray clay & silt,trace sand & gravel,damp,hard

Gray fine-medium sand,some silt,& gravel,trace coarse sand,very damp,very dense

Gray clay,some silt,trace sand & gravel,damp,hard

Weathered bedrock

Sh. 2 of 2 Sh.

Boring #22 Sta. 300+70 Continued

Elevation	N	Qu t/s.f.	w [%]
625			
600			
575			
550			
525			
500			

Weathered bedrock

End of Boring

SOIL PROPERTY SYMBOLS:

N - Standard penetration test, blows per foot to drive 2" O.D. split spoon sampler 12" with 140 # hammer falling 30"

Qu - Unconfined compressive strength, TSF

W - Water content, %

TYPES OF FAILURE:

B - Bulge Failure
S - Sheer Failure
E - Estimated Value
P - Penetrometer

Donohue
Engineers & Architects

DESIGN BY:	DESIGN CK'D. BY:	DRAWN BY:	CHECKED BY:
S.C.L.	P.D.F.	E.Z.	H.S.

PROJECT NUMBER 18046.200

ILLINOIS DEPARTMENT OF TRANSPORTATION
CERMAK ROAD OVER ADDISON CREEK

BORING LOG

F.A.S. RTE 1453
SECTION 55 RWRS & 551 1B, 2B, 3B & 3B-11 88-89
STA. 300+38.40
COOK COUNTY
Structure #: 016-0633 Date: Jan. 1992