

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE 57	SECTION	QUANTITY	DATE	BY	SHEET NO. 1
57	1	127	80		9 SHEETS
SHEET NO. 1					

*(38-5)RS-1

GENERAL NOTES

All structural steel shall be AASHTO M 270 Grade 36 unless otherwise noted.

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.

Prior to pouring the new concrete for the deck, all loose rust, loose mill scale, and all other loose, detrimental foreign material shall be removed from the portions of flanges of beams or girders in contact with concrete. The removal shall be accomplished with appropriate power hand tools. Cost shall be included in "Concrete Removal."

The existing structural steel coating contains lead. The Contractor should take appropriate precautions to deal with the presence of lead on this project.

All Structural steel shall be shop painted with inorganic zinc rich primer per AASHTO M300, Type 1. The cost shall be included in "Furnishing and Erecting Structural Steel."

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 50 degrees Fahrenheit.

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

Existing longitudinal reinforcement, extending into the removal area, shall be cut 2 feet from the removal line, cleaned and straightened. New longitudinal reinforcement bars shall be lapped with existing reinforcement.

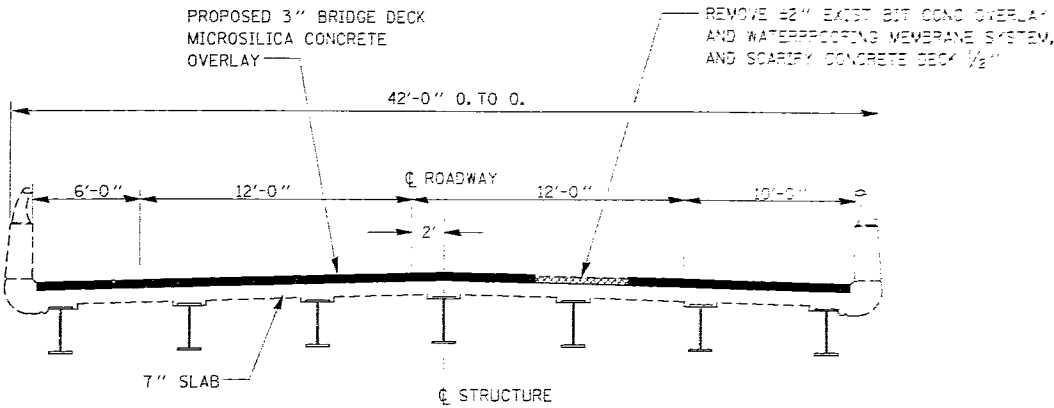
Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. This work shall be included in the cost of "Concrete Removal."

Removal of existing expansion angles shall be included in the cost of "Concrete Removal."

The limits of all concrete removal shall be saw cut prior to removal. The depth of saw cut shall be 3/4" unless shown elsewhere in the plans.

Sloped wall shall be reinforced with welded wire fabric, 6"x6" W4.0xW4.0, weighing 58 lbs. per 100 sq. ft.

Existing structural steel shall only be cleaned as required by the Special Provision "Cleaning and Painting Adjacent Areas of Existing Steel Structures."



CROSS SECTION

LOOKING NORTH
SN 038-0005

TOTAL BILL OF MATERIALS	
ITEM	QUANTITY
BRIDGE DECK GROOVING	755 SQ YD
BIT CONC REMOVAL (DECK)	755 SQ YD
CONC BR DECK SCARIFICATION (1/2 INCH)	755 SQ YD
BRIDGE DECK MICROSILICA CONC OVERLAY	755 SQ YD
DECK SLAB REPAIR (PARTIAL DEPTH)	40 SQ YD
DECK SLAB REPAIR (FULL DEPTH, TYPE 2)	5 SQ YD
FILTER FABRIC FOR USE WITH RIPRAP	20 SQ YD
FORMED CONC REPAIR (DEPTH ≤ 5")	16 SQ FT
EPOXY CRACK SEALING	41 FOOT
SLOPEWALL REMOVAL	90 SQ YD
SLOPEWALL 4 INCH	90 SQ YD
STONE DUMPED RIPRAP, CLASS A4	20 SQ YD
CONCRETE REMOVAL	27 CU YD
CONCRETE SUPERSTRUCTURE	27 CU YD
REINF BARS, EPOXY COATED	11,342 LBS
BAR SPLICERS	102 EACH
SLOPEWALL SLURRY PUMPING	60 CU YD
FLOOR DRAIN EXTENSIONS	16 EACH
JACK AND REMOVE EXISTING BEARINGS	14 EACH
ELASTOMERIC BEARING ASSEMBLY, TY 2	7 EACH
FURNISHING & ERECTING STRUCTURAL STEEL	2550 LBS
STUD SHEAR CONNECTORS	588 EACH
PREFORMED JOINT SEAL 2 1/2"	42 FOOT
PREFORMED JOINT SEAL 4"	42 FOOT
ELASTOMERIC BEARING ASSEMBLY, TY 1	7 EACH
PLUG EXISTING DECK DRAINS	16 EACH
PROTECTIVE COAT	755 SQ YD

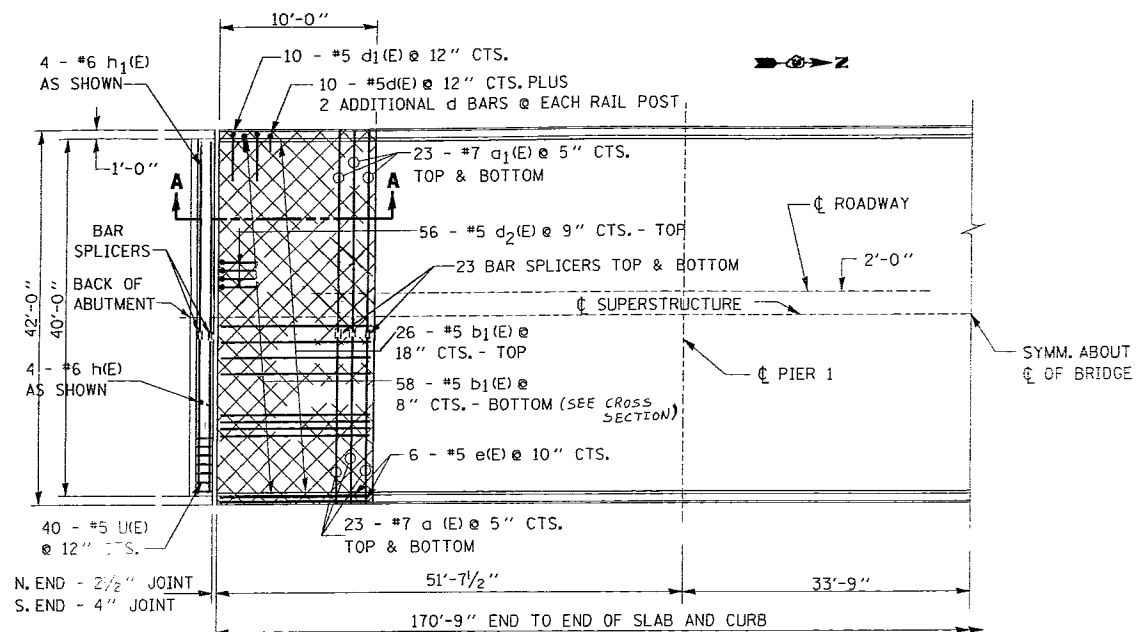
STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0005
STA. 592 + 63.65

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

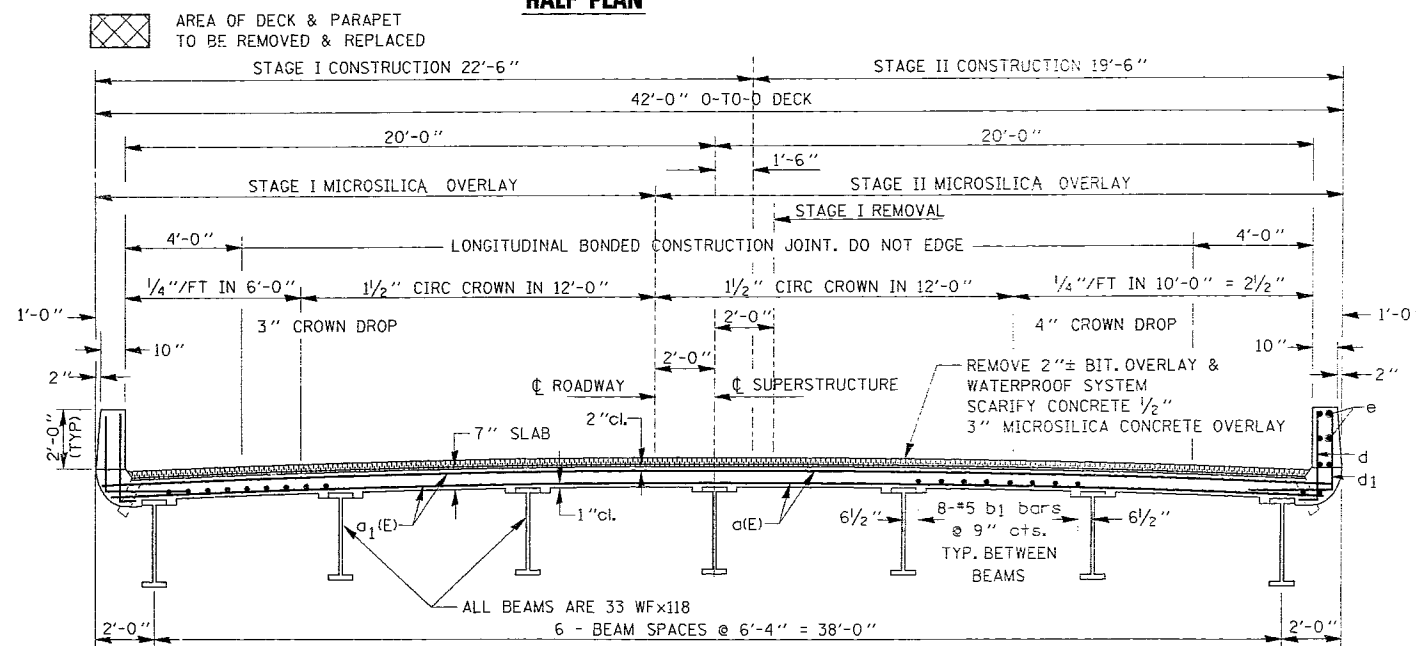
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	DATE	REV.	SHEET NO.
57	1000015	127	81	9 SHEETS

*(38-5)RS-1



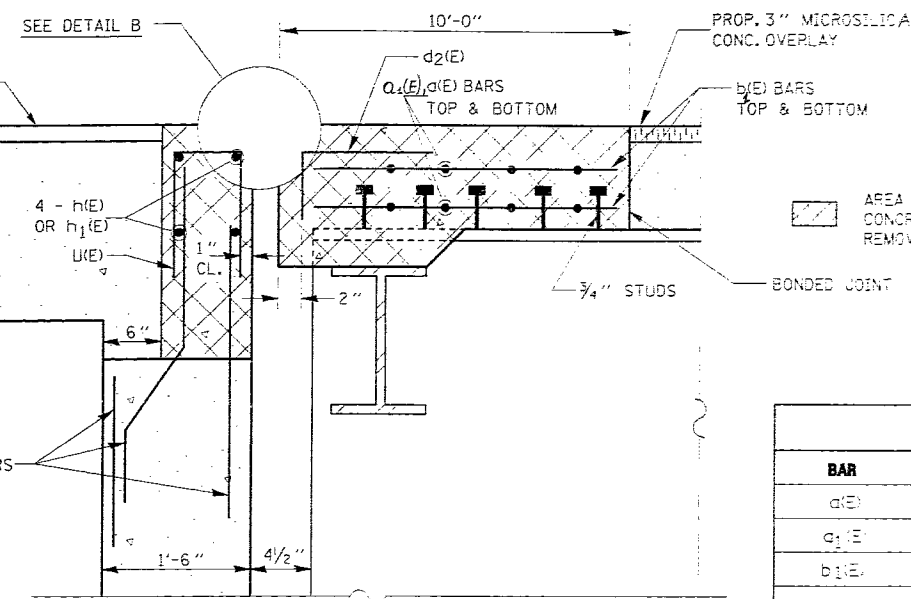
HALF PLAN



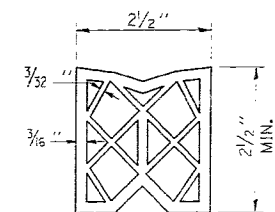
CROSS SECTION

NEAR MIDSPAN

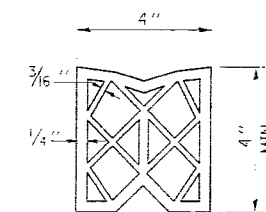
(LOOKING NORTH - S.N. 038-0005)



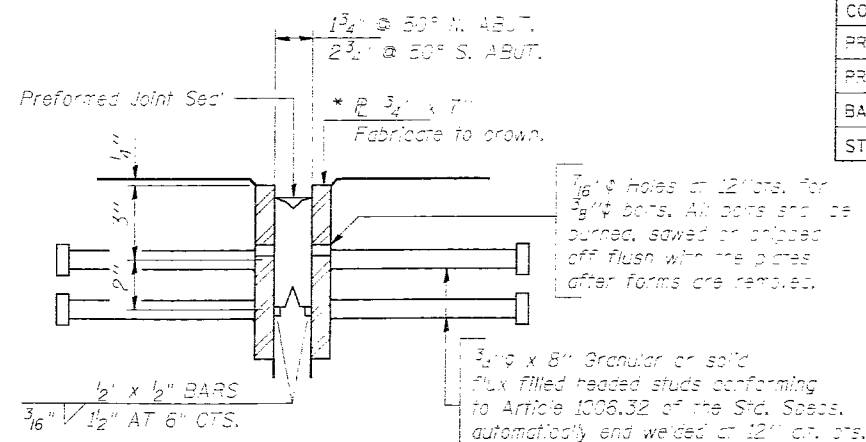
SECTION A-A



PREFORMED JOINT SEAL
(2 1/2")



PREFORMED JOINT SEAL
(4")



DETAIL B

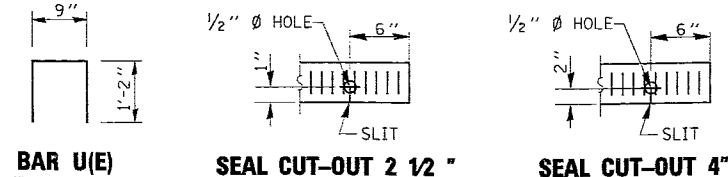
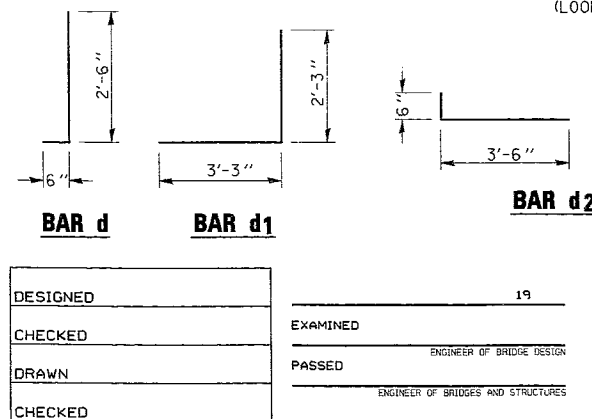
Note: After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for Structural Steel. No field painting required.

* Furnish in segments of 20 ft. maximum length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for Structural Steel.

BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	SHAPE
a1(E)	92	#7	18'-4"	
a2(E)	92	#7	22'-4"	
b1(E)	168	#5	9'-8"	
d1(E)	56	#5	5'-0"	
d2(E)	40	#5	5'-0"	
e(E)	112	#5	4'-0"	
h1(E)	24	#5	3'-8"	
h2(E)	8	#6	18'-4"	
U(E)	8	#6	21'-4"	
U(E)	80	#5	5'-1"	
CONCRETE REMOVAL			27 CU YD	
REINFORCEMENT BARS, EPOXY COATED			11,342 LBS	
CONCRETE SUPERSTRUCTURE			27 CU YD	
PREFORMED JOINT SEAL 2 1/2"			42 FOOT	
PREFORMED JOINT SEAL 4"			42 FOOT	
BAR SPLICERS			102 EACH	
STUD SHEAR CONNECTORS			688 EACH	

NOTE: REINFORCEMENT BARS DESIGNATED "E" SHALL BE EPOXY COATED.

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0005
STA. 592 + 63.65



BAR U(E)

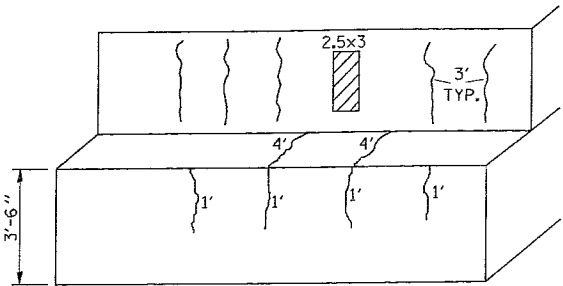
SEAL CUT-OUT 2 1/2"

SEAL CUT-OUT 4"

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

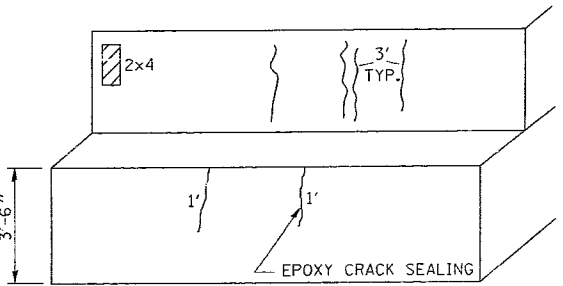
ROUTE NO.	SECTION	COUNTY	SHEET	POST	SHEET NO.
57	*	IROQUOIS	127	83	5 SHEETS
PROJECT NO. 038-57RS-1					

*(38-5)RS-1



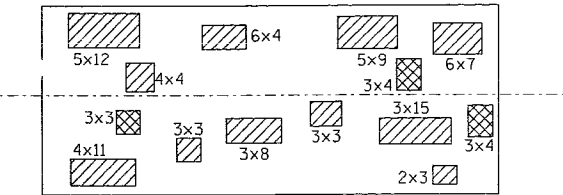
SOUTH ABUTMENT & BACKWALL

- EPOXY CRACK SEALING = 27'
FORMED CONCRETE REPAIR $\leq 5''$ = 8 SQ FT



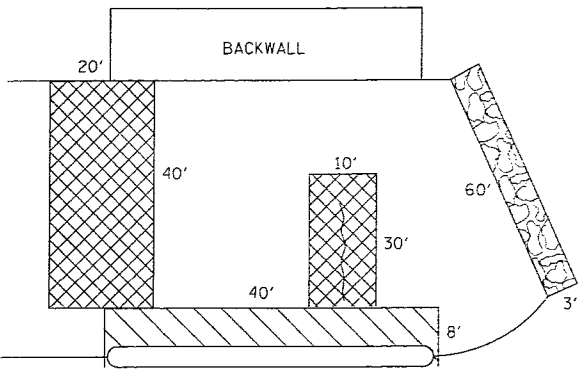
NORTH ABUTMENT & BACKWALL

- EPOXY CRACK SEALING = 14'
FORMED CONCRETE REPAIR $\leq 5''$ = 8 SQ FT



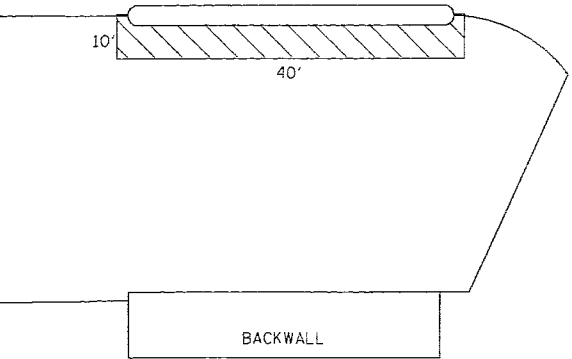
TOP OF DECK

- DECK SLAB REPAIR (PARTIAL DEPTH) = 40 SQ YD
DECK SLAB REPAIR (FULL DEPTH, TYPE 2) = 5 SQ YD



NORTH SLOPEWALL

- SLOPEWALL REMOVAL = 45 SQ YD
SLOPEWALL 4'' = 45 SQ YD
SLOPEWALL SLURRY PUMPING = 60 CU YD
STONE DUMPED RIPRAP, CLASS A4 = 20 SQ YD



SOUTH SLOPEWALL

- SLOPEWALL REMOVAL = 45 SQ YD
SLOPEWALL 4'' = 45 SQ YD

BILL OF MATERIALS	
ITEM	QUANTITY
DECK SLAB REPAIR (PARTIAL DEPTH)	40 SQ YD
DECK SLAB REPAIR (FULL DEPTH, TYPE 2)	5 SQ YD
EPOXY CRACK SEALING	41 FOOT
FORMED CONC REPAIR $\leq 5''$	16 SQ FT
STONE DUMPED RIPRAP, CLASS A4	20 SQ YD
FILTER FABRIC FOR USE WITH RIPRAP	20 SQ YD
SLOPEWALL REMOVAL	90 SQ YD
SLOPEWALL 4''	90 SQ YD
SLOPEWALL SLURRY PUMPING	60 CU YD

NOTE

Areas of deck repairs shown are estimated. The Engineer shall show actual locations of deck repairs in "As Built" plans.

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0005
STA. 592 + 63.65

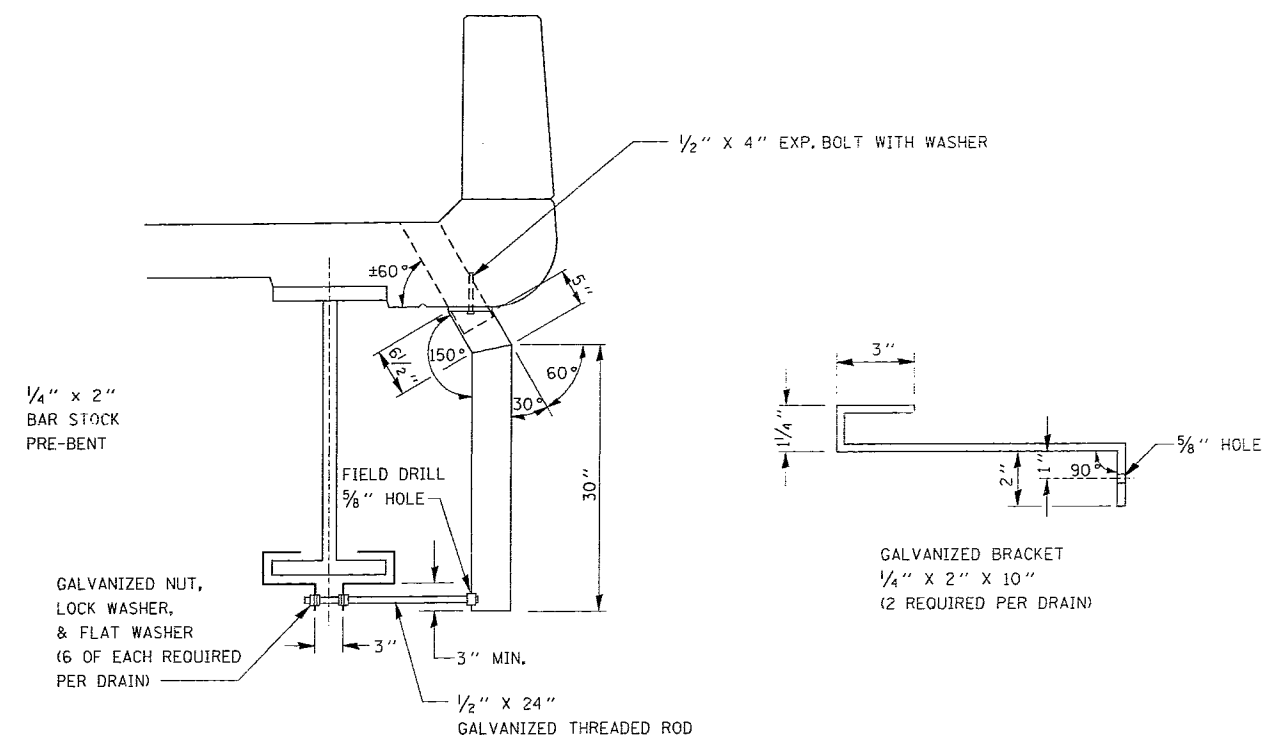
DATE OF SURVEY 01-10-00

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	

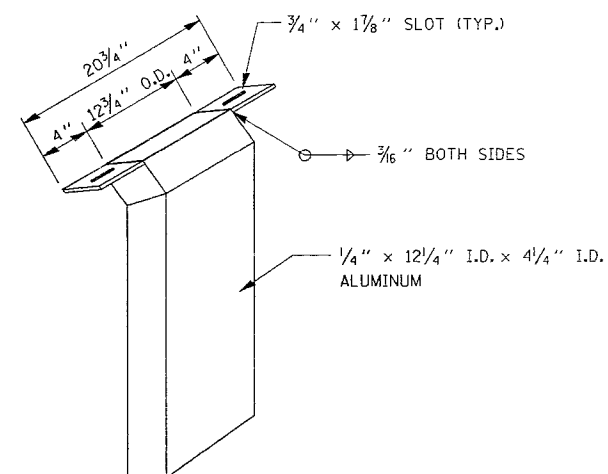
ENGINEER OF BRIDGE DESIGN
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

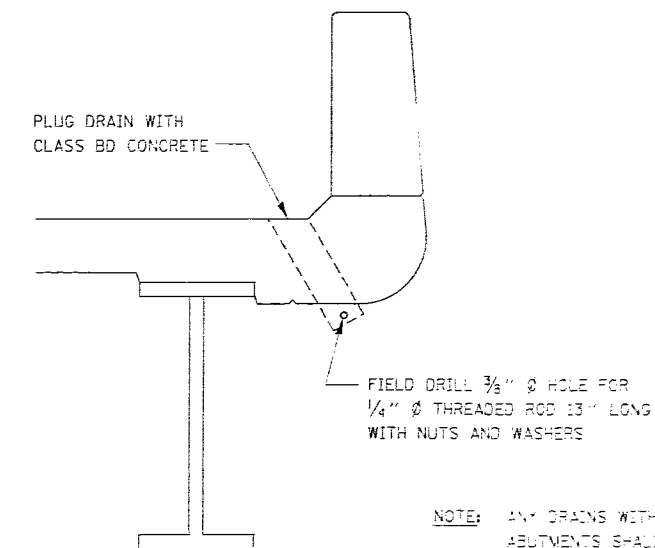
ROUTE NO.	SECTION	COUNTY	DETA	POST	SHEET NO. 5
57	*	IROQUOIS	127	84	9 SHEETS
* (38-5)RS-1					



BRACKET DETAIL



DECK DRAIN EXTENSION



NOTE: ANY DRAINS WITHIN 10' OF THE PIERS AND ABUTMENTS SHALL BE ELIMINATED. SPACING BETWEEN DRAINS SHALL BE DOUBLED BY PLUGGING EVERY OTHER EXISTING DRAIN.

SECTION AT DRAIN
DRAIN ELIMINATION DETAIL

BILL OF MATERIAL

ITEM	QTY	TOTAL
FLOOR DRAIN EXTENSIONS	EA	16
PLUG EXISTING DECK DRAINS	EA	16

DESIGNED
CHECKED
DRAWN
CHECKED

EXAMINED	19
PASSED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

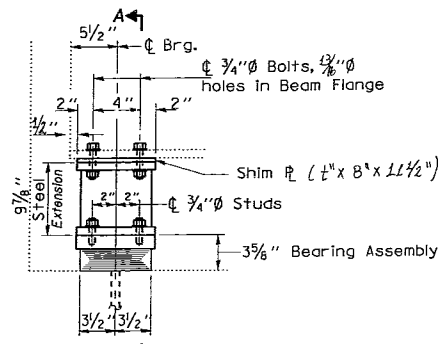
STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0005
STA. 592 + 63.65

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

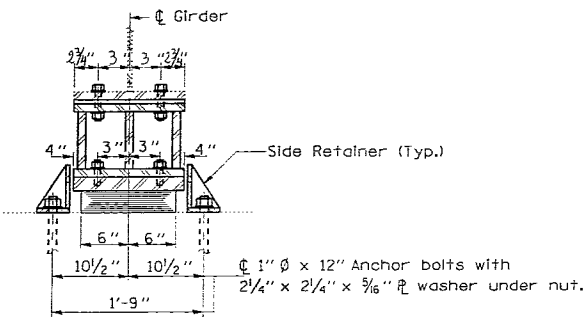
PROJECT NO.	SECTION	DATE	SHEET NO.
57	* IROQUOIS	127 85	9 SHEETS
* (38-5)RS-1			

GIRDER REACTIONS

Re	(K)	18.2
Rt	(K)	32.4
Imp.	(K)	2.2
R (Total)	(K)	60.0

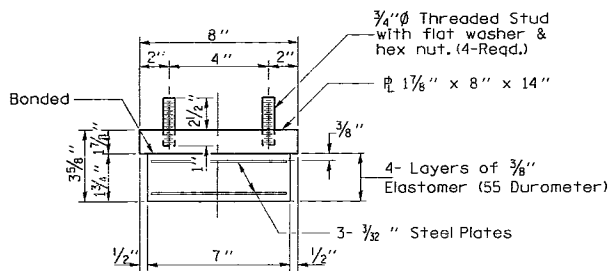


ELEVATION AT
NORTH ABUTMENT



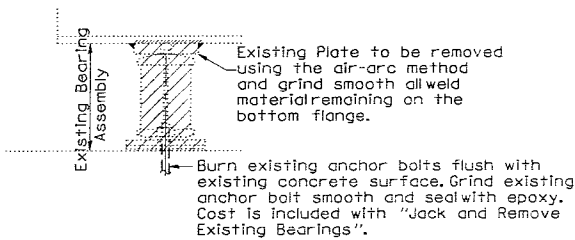
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

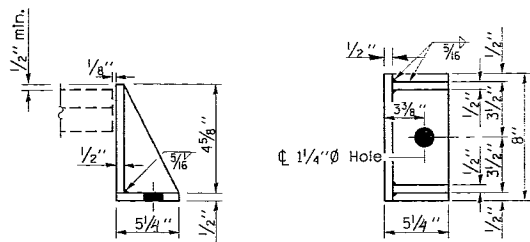


BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.



EXISTING BEARING REMOVAL DETAIL

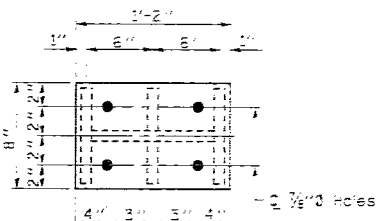


SIDE RETAINER

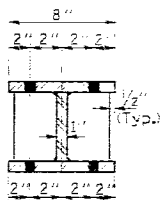
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".
New steel extensions, side retainers, shim plates, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel".
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Min. Jack capacity = 30 Tons.
Two 1/8" shims of the dimensions of the top extension plate shall be provided for each bearing in addition to all other plates or shims.

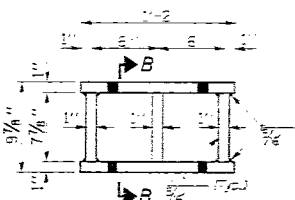
See Sheet 9 of 9 for Anchor Bolt Installation.



PLAN TOP AND BOTTOM PLATE



SECTION B-B



STEEL EXTENSION DETAIL

ADDITIONAL SOLID 1 PIECE SHIMS REQUIRED

Beam #1	2	3	4	5	6	7
±	0	0	0	1/2	1/2	0

7	
6	
5	
4	
3	
2	
BEAM 1	

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	
Furnishing & Erecting Structural Steel	S.	1300
Jack & Remove		
Exist. Bearings	Each	

TYPE I
BEARING REPLACEMENT
NORTH ABUTMENT
S.N. 038-0005
STA. 592 + 63.65

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

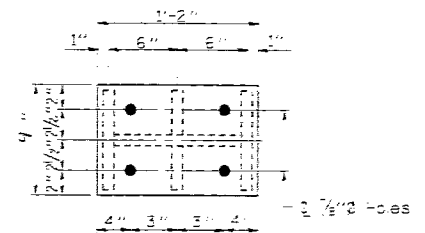
ROUTE NO.	SECTION	DATE	REV.	SHEET NO.
57	*	ILLINOIS	127 86	9 SHEETS

* 138-8:RS-1

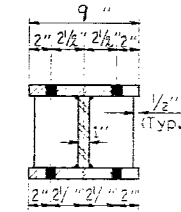
GIRDER REACTIONS

	ABUTMENTS
R ₁	(K) 18.4
R ₂	(K) 32.4
Imp.	(K) 9.2
R (Total)	(K) 60.0

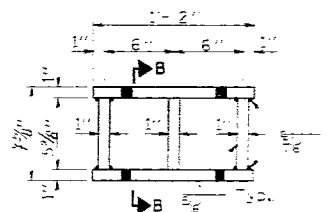
Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".
New steel extensions, side retainers, shim R's, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel".
See Sheet of for Anchor Bolt Installation.
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
Min. Jack capacity = 30 Tons
Two 1/8" shims of the dimensions of the bottom bearing plate shall be provided for each bearing in addition to all other plates or shims.



PLAN TOP AND BOTTOM PLATE



SECTION B-B



STEEL EXTENSION DETAIL

ADDITIONAL SOLID 1 PIECE SHIMS REQUIRED

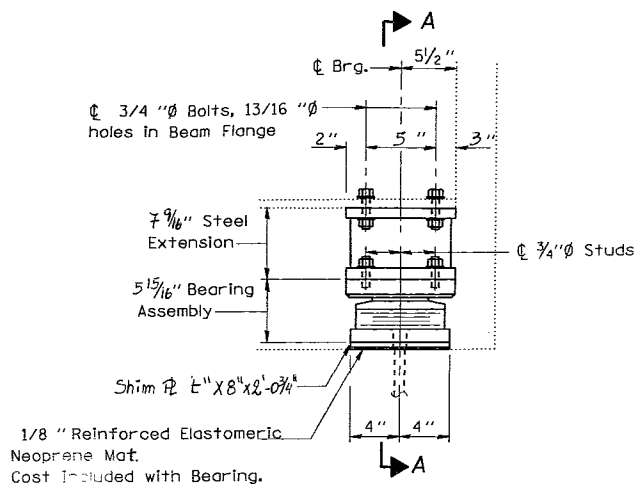
	Beam #1	2	3	4	5	6	7
t	0	0	0	1/8"	1/8"	0	0

7	
6	
5	
4	
3	
2	
1	BEAM 1

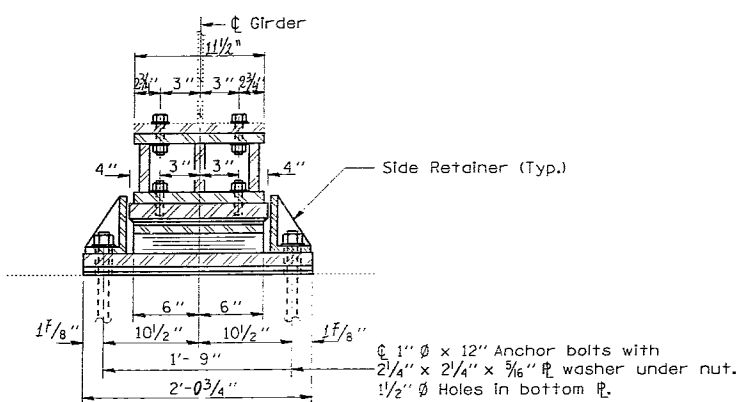
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	EACH	7
Furnishing & Erecting Structural Steel	S.	1280
Jack & Remove Exist. Bearings	EACH	7

TYPE II
BEARING REPLACEMENT
SOUTH ABUTMENT
S.N. 038-0005
STA. 592 + 63.65

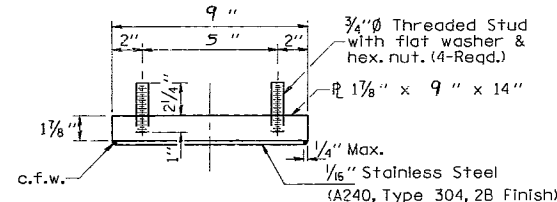


ELEVATION AT SOUTH ABUTMENT

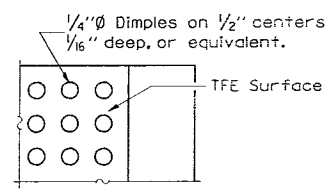


SECTION A-A

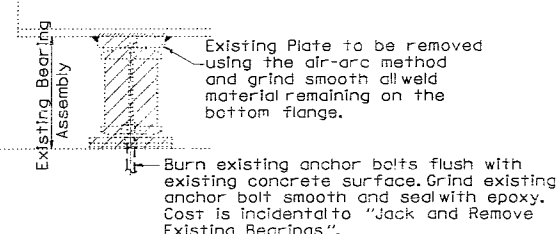
TYPE II TFE ELASTOMERIC EXP. BRG.



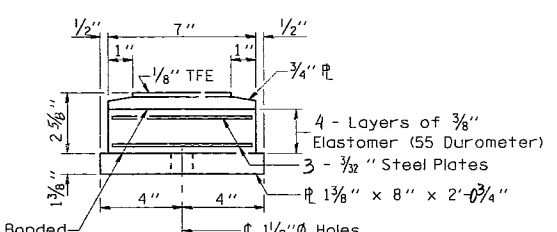
TOP BEARING ASSEMBLY



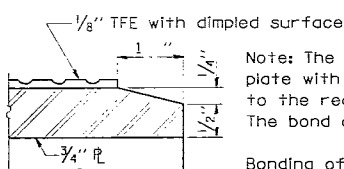
PLAN-TFE SURFACE



EXISTING BEARING REMOVAL DETAIL



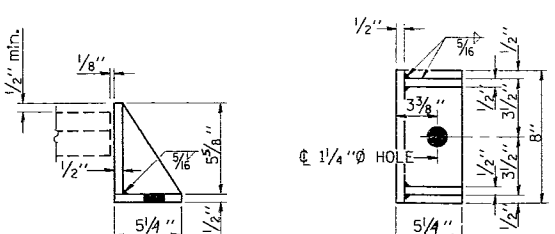
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

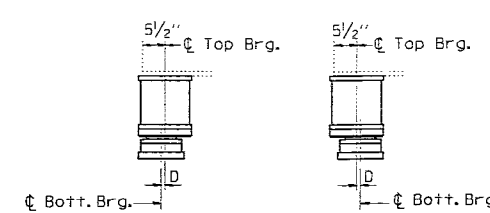
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

DESIGNED	19
CHECKED	
DRAWN	
CHECKED	

EXAMINED	ENGINEER OF BRIDGE DESIGN
PASSED	ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

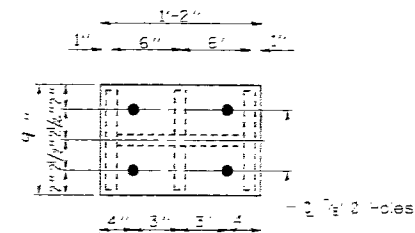
ROUTE NO.	SECTION	DATE	REV.	SHEET NO.
57	*	ILLINOIS	127 86	9 SHEETS

* 138-S.RS-1

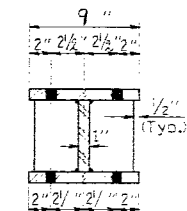
GIRDER REACTIONS

	ABUTMENTS
R ₁	(K) 18.4
R ₂	(K) 32.4
Imp.	(K) 9.2
R (Total)	(K) 60.0

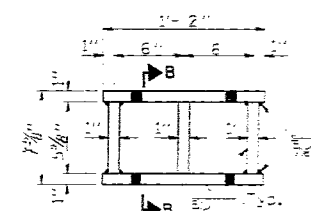
Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".
New steel extensions, side retainers, shim R's, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel".
See Sheet of for Anchor Bolt Installation.
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.
Min. jack capacity = 30 Tons
Two 1/8" shims of the dimensions of the bottom bearing plate shall be provided for each bearing in addition to all other plates or shims.



PLAN TOP AND BOTTOM PLATE



SECTION B-B



STEEL EXTENSION DETAIL

ADDITIONAL SOLID 1 PIECE SHIMS REQUIRED

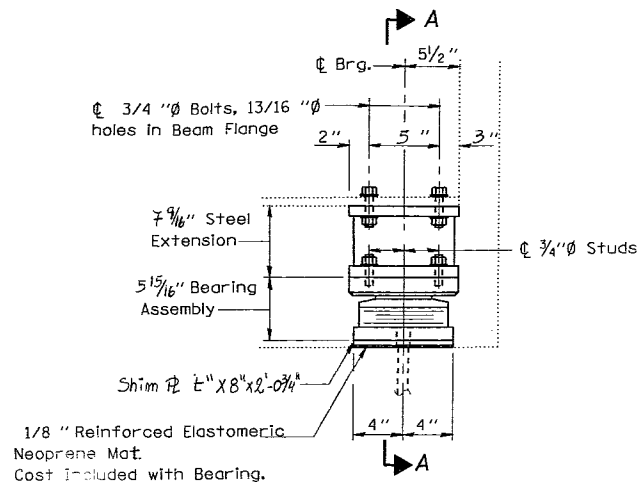
	Beam #1	2	3	4	5	6	7
t	C	C	C	1/8"	1/8"	C	C

7	
6	
5	
4	
3	
2	
BEAM 1	

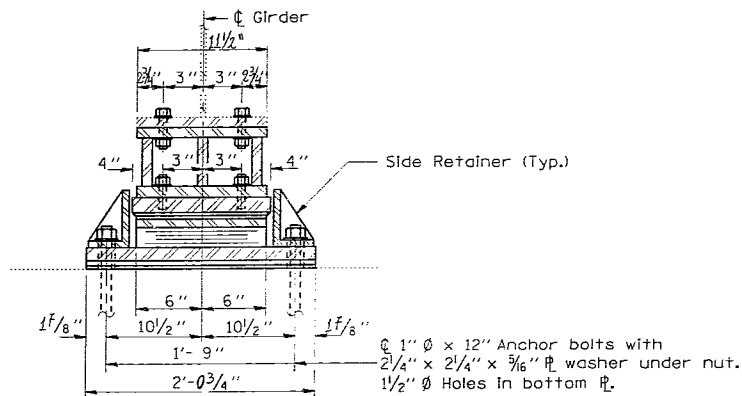
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	EACH	7
Furnishing & Erecting Structural Steel	S.	1280
Jack & Remove Exist. Bearings	EACH	7

TYPE II
BEARING REPLACEMENT
SOUTH ABUTMENT
S.N. 038-0005
STA. 592 + 63.65

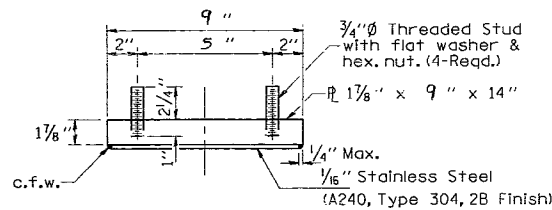


ELEVATION AT SOUTH ABUTMENT

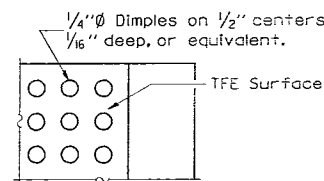


SECTION A-A

TYPE II TFE ELASTOMERIC EXP. BRG.



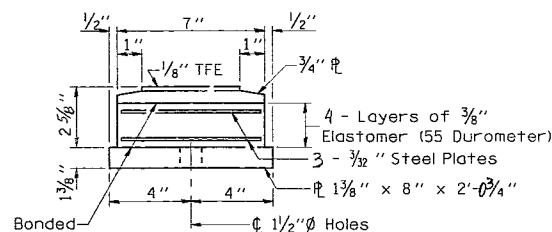
TOP BEARING ASSEMBLY



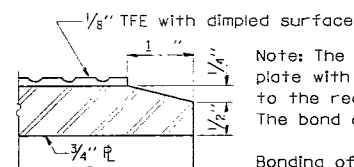
PLAN-TFE SURFACE

Existing Bearing Assembly
Existing Plate to be removed using the air-arc method and grind smooth all weld material remaining on the bottom flange.
Burn existing anchor bolts flush with existing concrete surface. Grind existing anchor bolt smooth and seal with epoxy. Cost is incidental to "Jack and Remove Existing Bearings".

EXISTING BEARING REMOVAL DETAIL



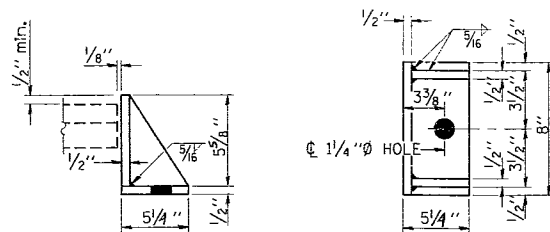
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

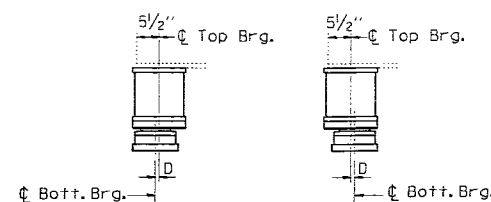
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BELOW 50°F.
(Move bott. brg. away from fixed brg.)
ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

DESIGNED	19
CHECKED	
DRAWN	
CHECKED	

EXAMINED	ENGINEER OF BRIDGE DESIGN
PASSED	ENGINEER OF BRIDGES AND STRUCTURES

NOTES
* (38-5)RS-1

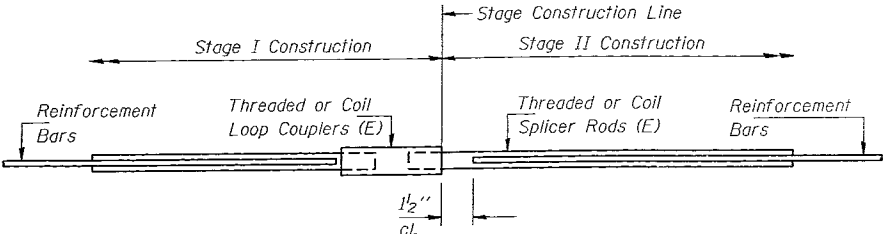
Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.
Splicer rods shall be of minimum 60 ksi yield strength, threaded or rolled full length.
All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.
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 and the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity = $1.25 \times f_y \times A_s$
(Tension in kips)
- ② Minimum "Pull-out Strength" = $1.25 \times f_{saw} \times A_s$
(Tension in kips)

Where f_y = Yield strength of lapped reinforcement bars in ksi
 f_{saw} = Allowable tensile stress in lapped reinforcement bars in ksi Service Load
 A_s = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

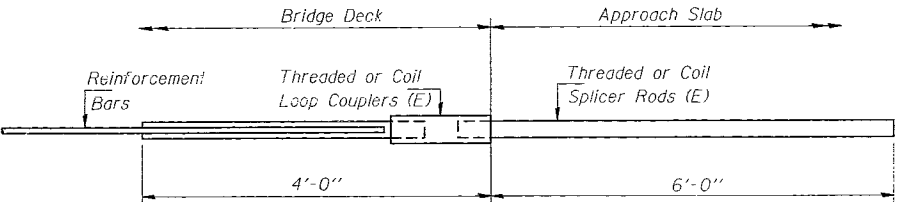
BAR SPLICER ASSEMBLIES				
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements		
		Min. Capacity (kips - tension)	Min. Pull-Out Strength (kips - tension)	
#5	2'-0"	23.0	9.2	
#6	2'-7"	33.0	13.3	
#7	3'-5"	45.0	18.0	
#8	4'-6"	55.9	22.6	

Bar splicer assemblies shall be according to Section E23 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."



SPLICER DETAIL

Bar Size	No. Assemblies Required	Location
#6	72	EXPANSION JOINT & END OF DECK



INTEGRAL ABUTMENT
BAR SPLICER ASSEMBLY DETAIL
FOR #5 BAR

Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =

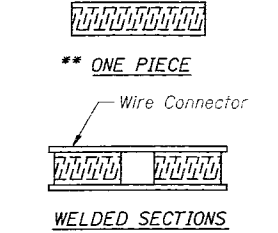
DESIGNED
CHECKED
DRAWN
CHECKED

BSD-1 4-30-99

EXAMINED	19
PASSED	ENGINEER OF BRIDGE DESIGN
	ENGINEER OF BRIDGES AND STRUCTURES

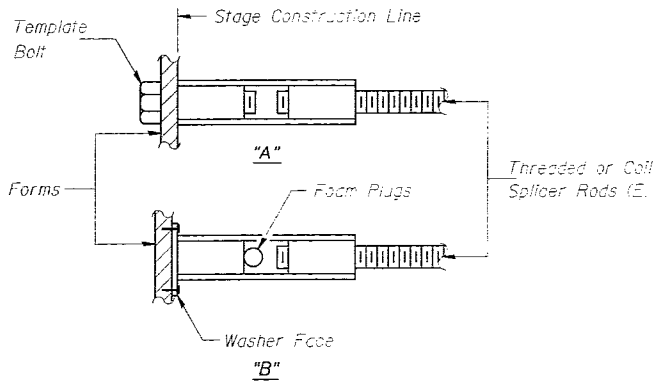
The diameter of this part is equal or larger than the diameter of bar spliced.
The diameter of this part is the same as the diameter of the bar spliced.

ROLLED THREAD DOWEL BAR



BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, 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 rolling to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

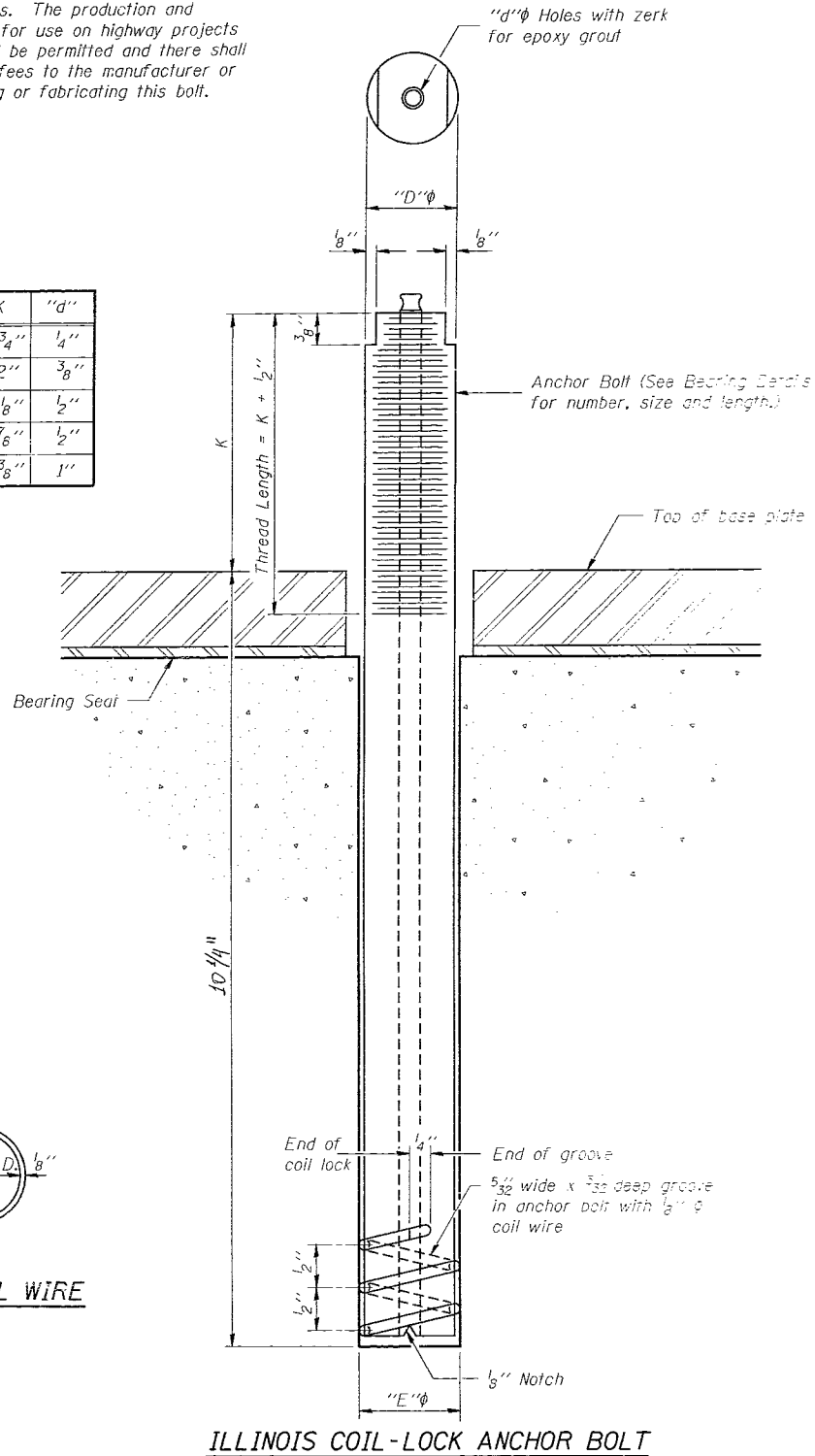
STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY

BAR SPLICER ASSEMBLY DETAILS

S.N. 038-0005
STA. 592 + 63.65

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	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/2"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 3/8"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



PLAN-COIL WIRE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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 519, Grade 1026, CW and supplied with hexagonal nuts 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

1. 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 tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zero 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	Type
ABUTMENT	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

ROUTE NO.	SECTION	SHEET	SHEET NO.
57	*	127	88

*138-5.RS-1

GENERAL NOTES

Holes in the masonry for anchor bolts and be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.

Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.

The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately, but shall be included in the unit price for "Furnishing and Erecting Structural Steel".

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
ANCHOR BOLT DETAILS
FOR BEARINGS

S.N. 038-0005
STA. 592+63.65

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	

ABB-1 4-30-99

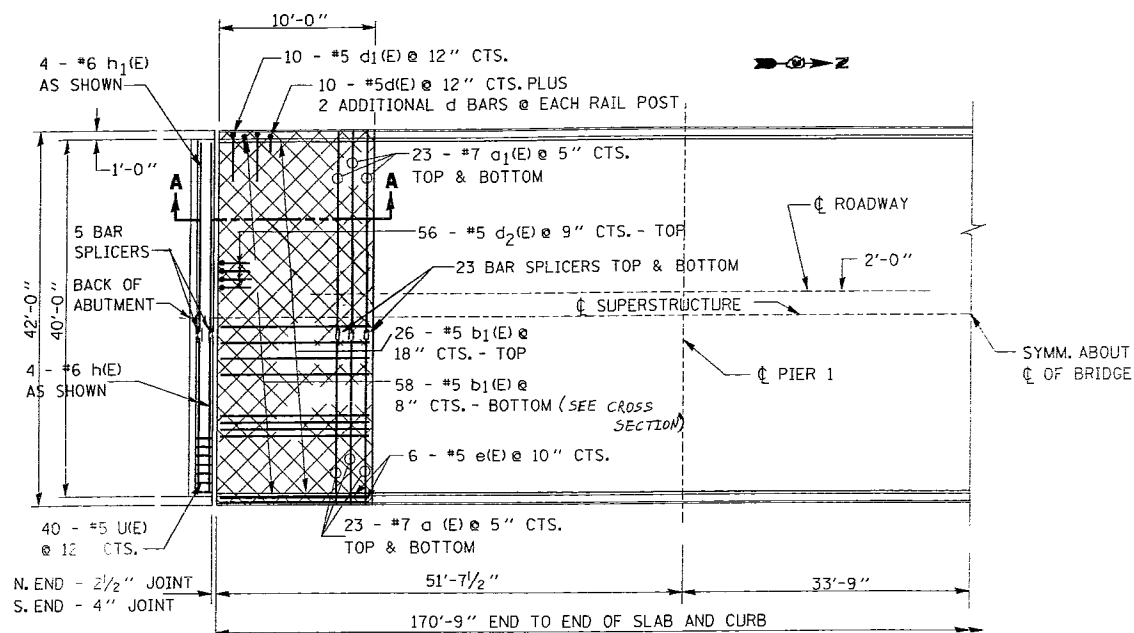
* (38-17) 25-1

MAR. 23. 2000
SP02099\BROGNET-DGN

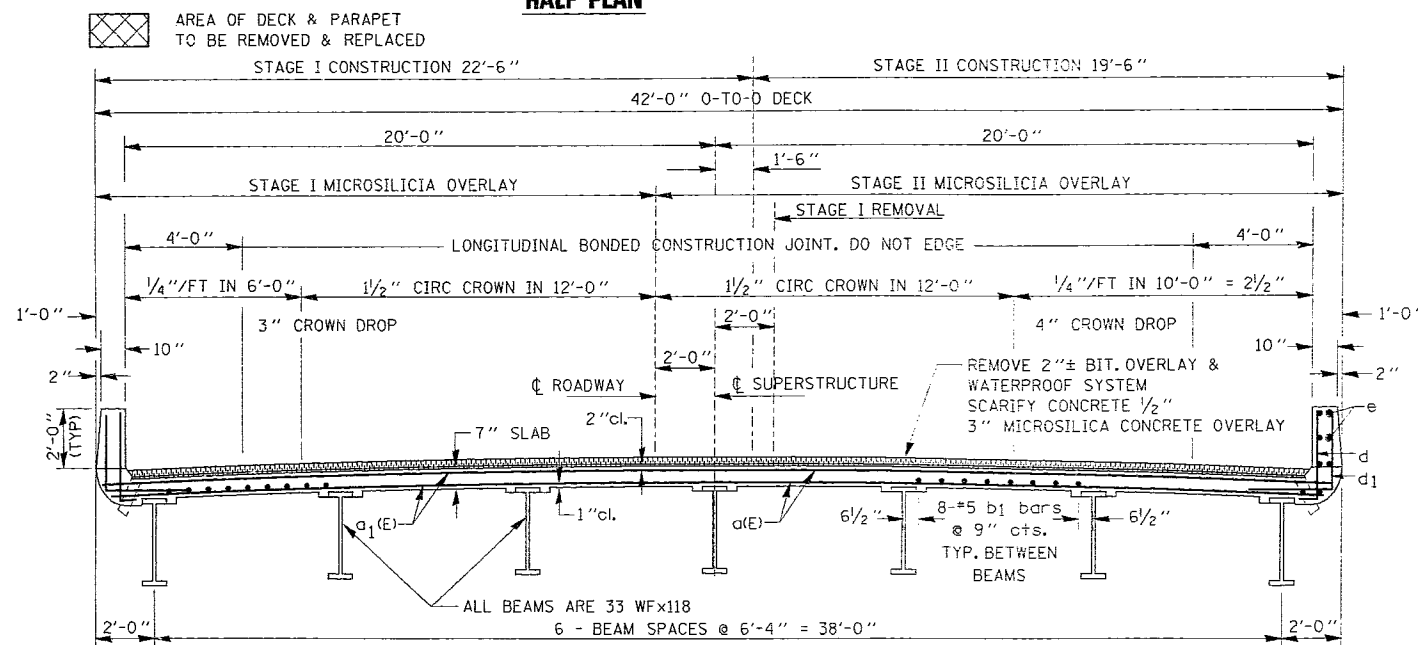
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DATE	SECTION	SEAL	2000	1-8	SHEET NO. 2
FAI 57	ILLINOIS	127	80		3 SHEETS

*(38-5)RS-1



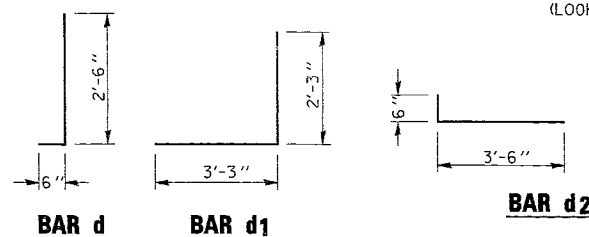
HALF PLAN



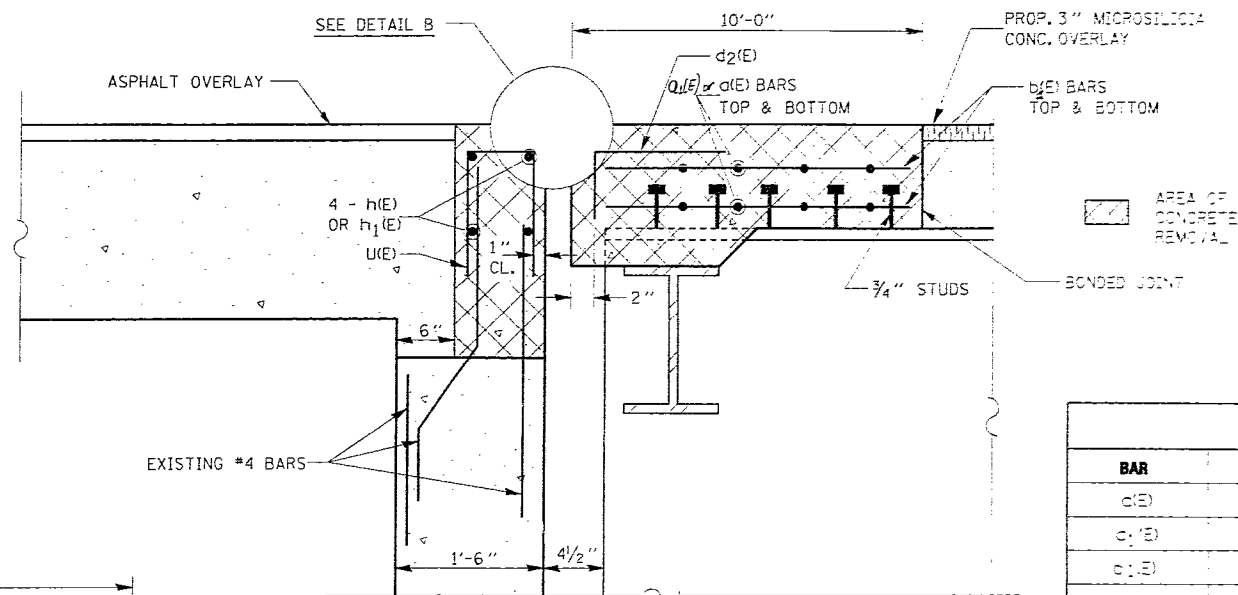
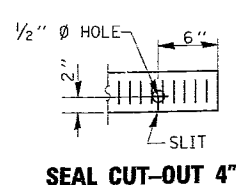
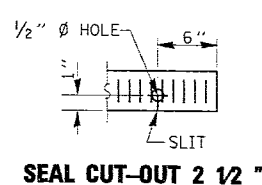
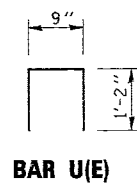
CROSS SECTION

(LOOKING SOUTH - S.N. 038-0006)

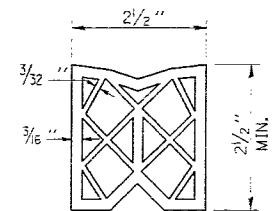
NEAR MIDSPAN



DESIGNED	19
CHECKED	ENGINEER OF BRIDGE DESIGN
DRAWN	ENGINEER OF BRIDGES AND STRUCTURES
CHECKED	

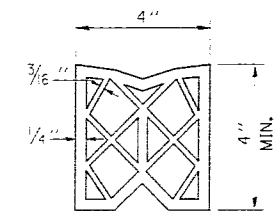


SECTION A-A



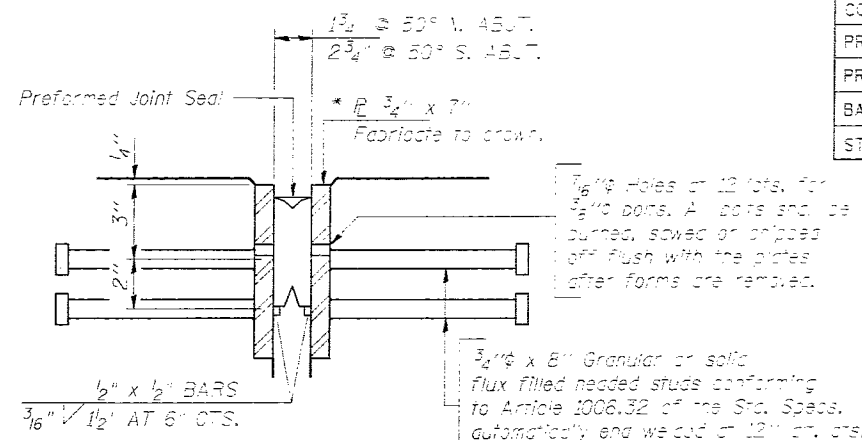
PREFORMED JOINT SEAL

(2 1/2")



PREFORMED JOINT SEAL

(4")



DETAIL B

Note: After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for Structural Steel. No field painting required.

* Furnish in segments of 20 ft. maximum length. Maximum space between installed segments shall be 1/2". Seal space with Silicone Sealant suitable for Structural Steel.

BILL OF MATERIALS				
BAR	NO.	SIZE	LENGTH	SHAPE
d(E)	92	#7	13'-4"	
d1(E)	92	#7	23'-4"	
d2(E)	168	#5	9'-8"	
b1(E)	56	#5	1'-0"	
b2(E)	40	#5	9'-8"	
e(E)	112	#5	4'-0"	
h(E)	24	#5	9'-8"	
U(E)	8	#5	13'-4"	
U1(E)	8	#5	21'-4"	
U2(E)	80	#5	3'-1"	
CONCRETE REMOVAL			27 CU YD	
REINFORCEMENT BARS, EPOXY COATED			11,542 LBS	
CONCRETE SUPERSTRUCTURE			27 CU YD	
PREFORMED JOINT SEAL 2 1/2"			42 FOOT	
PREFORMED JOINT SEAL 4"			42 FOOT	
BAR SPLICERS			102 EACH	
STUD SHEAR CONNECTORS			588 EACH	

NOTE: REINFORCEMENT BARS DESIGNATED "E" SHALL BE EPOXY COATED.

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0006
STA. 592 + 63.65

PLATE NO.	SECTION	DATE	TIME	SHEET NO.
157 *		1900.018	127	91
FED. ROAD DIST. NO.		SHEET NO.		

2 1/2" NORTH JOINT
4" SOUTH JOINT

10'

PREFORMED JOINT SEAL
SEE DETAIL B
ON PREVIOUS SHEET

1' 1'

STUDS TO BE INSTALLED
ON BRIDGE BEAMS (SEE DETAIL A)

MICROSILICA OVERLAY

APPR. PVMT.

VARIES

BONDED JOINTS

BACK OF ABUTMENT

EXISTING #4 BARS

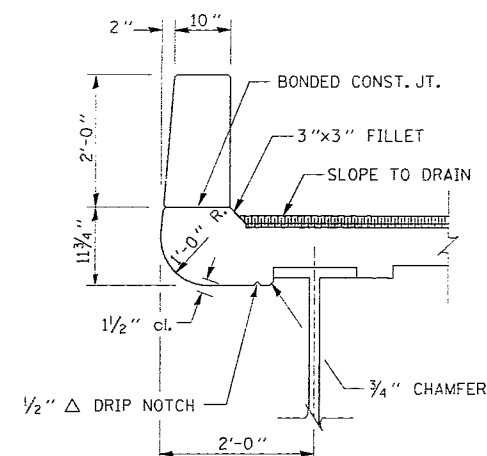
6 1/2" SLAB

3" AT BEAM 7 LEVEL

CL BEARING

5 1/2"

EXPANSION JOINT & DECK DETACHMENT REPAIR



$\frac{3}{4}$ " GRANULAR OR SOLID FLUX
 FILLED HEADED STUDS AUTOMATICALLY
 END WELDED TO FLANGE @ 8" SPACING
 AS SHOWN.

$\frac{3}{4}$ "
 8"
 8"
 9 $\frac{1}{4}$ "
 13"

Required = 42
 EACH BEAM END

DETAIL

TYPICAL REPAIR FOR EACH BEAM

- NOTES:
1. THE LIMITS OF ALL CONCRETE REMOVAL SHALL BE 5/8" OUT 3/4" INTO CONCRETE.
 2. EXISTING LONGITUDINAL BARS IN DECK AND VERTICAL BARS IN ABUTMENT BACKWALL EXTENDING INTO THE REMOVED AREA SHALL BE CLEANED, STRAIGHTENED, AND INCORPORATED INTO THE NEW CONSTRUCTION.
 3. EXISTING PARAPET REINFORCEMENT EXTENDING INTO THE REMOVED AREA SHALL BE CLEANED, STRAIGHTENED AND INCORPORATED INTO THE NEW CONSTRUCTION.
 4. THE REMOVAL AND REPLACEMENT OF CONCRETE AT THE ABUTMENT BACKWALL, PARAPET, AND DECK WILL BE PAID FOR AS CONCRETE REMOVAL AND CONCRETE SUPERSTRUCTURE.
 5. THE PARAPET SHALL BE REMOVED ON THE DECK SIDE, BUT SHALL REMAIN IN PLACE ON THE ABUTMENT SIDE. CONCRETE REMOVAL AT THE ABUTMENT SHALL BE FROM FACE OF PARAPET TO FACE OF PARAPET.
 6. THE REMOVAL OF THE EXISTING EXPANSION JOINT MATERIAL AND THE STEEL ARMOUR SHALL BE INCLUDED IN THE COST OF "CONCRETE REMOVAL."
 7. THE ALUMINUM HANDRAIL MAY HAVE TO BE PARTIALLY REMOVED DURING CONSTRUCTION. THE COST OF THIS REMOVAL, MOVEMENT OF RAIL POSTS, AND ADJUSTMENT IN RAIL LENGTH SHALL BE INCLUDED IN THE COST OF "CONCRETE REMOVAL."

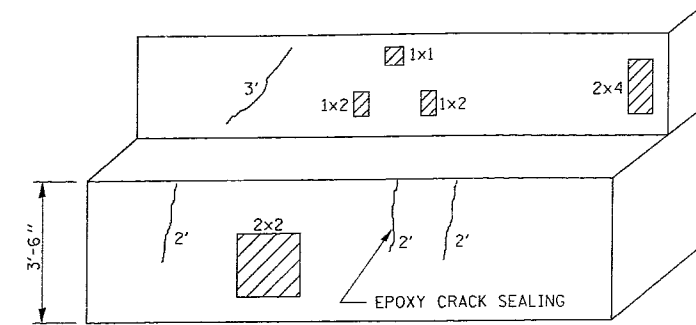
STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0006
STA. 592 + 63.65

MAR. 23, 2000
FPO3088\BROCEDET DGN

DESIGNED	19
CHECKED	EXAMINED
DRAWN	ENGINEER OF BRIDGE DESIGN
CHECKED	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

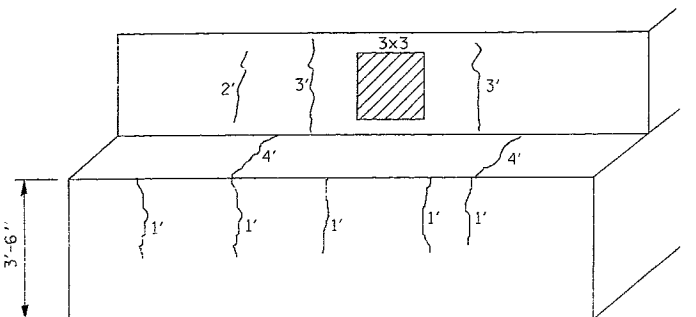
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SHEET NO.	DATE	BY	CHECKED	APPROVED
FAI 57	1	10/10/00	127	22	
* (38-5)PS-1					



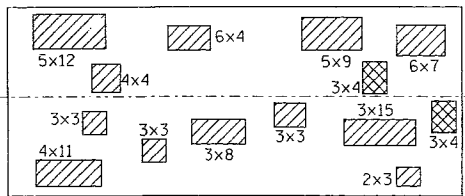
NORTH ABUTMENT & BACKWALL

EPOXY CRACK SEALING = 9'
FORMED CONCRETE REPAIR $\leq 5''$ = 17 SQ FT



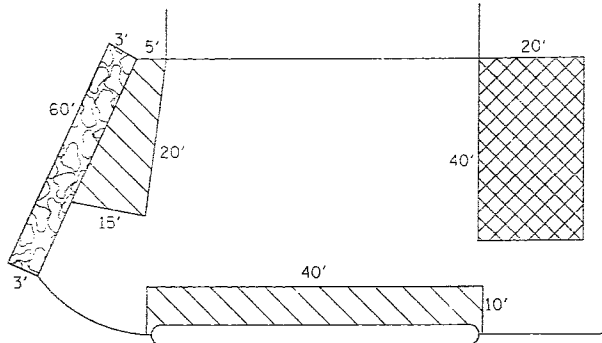
SOUTH ABUTMENT & BACKWALL

EPOXY CRACK SEALING = 21'
FORMED CONCRETE REPAIR $\leq 5''$ = 9 SQ FT



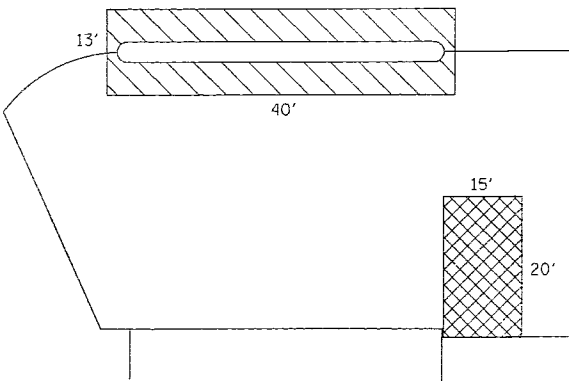
TOP OF DECK

DECK SLAB REPAIR (PARTIAL DEPTH) = 40 SQ YD
DECK SLAB REPAIR (FULL DEPTH, TYPE 2) = 5 SQ YD



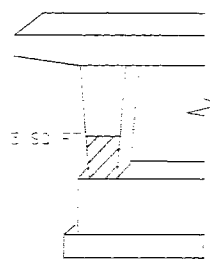
NORTH SLOPEWALL

SLOPEWALL REMOVAL = 70 SQ YD
SLOPEWALL 4'' = 70 SQ YD
STONE DUMPED RIPRAP, CLASS A4 = 20 SQ YD
SLOPEWALL SLURRY PUMPING = 40 CU YD



SOUTH SLOPEWALL

SLOPEWALL REMOVAL = 60 SQ YD
SLOPEWALL 4'' = 60 SQ YD
SLOPEWALL SLURRY PUMPING = 20 CU YD



NORTH PIER

FORMED CONCRETE REPAIR $\leq 5''$ = 3 S.F.

BILL OF MATERIALS	
ITEM	QUANTITY
DECK SLAB REPAIR (PARTIAL DEPTH)	40 SQ YD
DECK SLAB REPAIR (FULL DEPTH, TYPE 2)	5 SQ YD
EPOXY CRACK SEALING	30 FEET
FORMED CONC REPAIR $\leq 5''$	28 SQ FT
STONE DUMPED RIPRAP, CLASS A4	20 SQ YD
FILTER FABRIC FOR USE WITH RIPRAP	20 SQ YD
SLOPEWALL REMOVAL	130 SQ YD
SLOPEWALL 4''	130 SQ YD
SLOPEWALL SLURRY PUMPING	60 CU YD

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0006
STA. 592 + 63.65

NOTE

Areas of deck repairs shown are estimated. The Engineer shall show actual locations of deck repairs in "As Built" plans.

DATE OF SURVEY 01-10-00

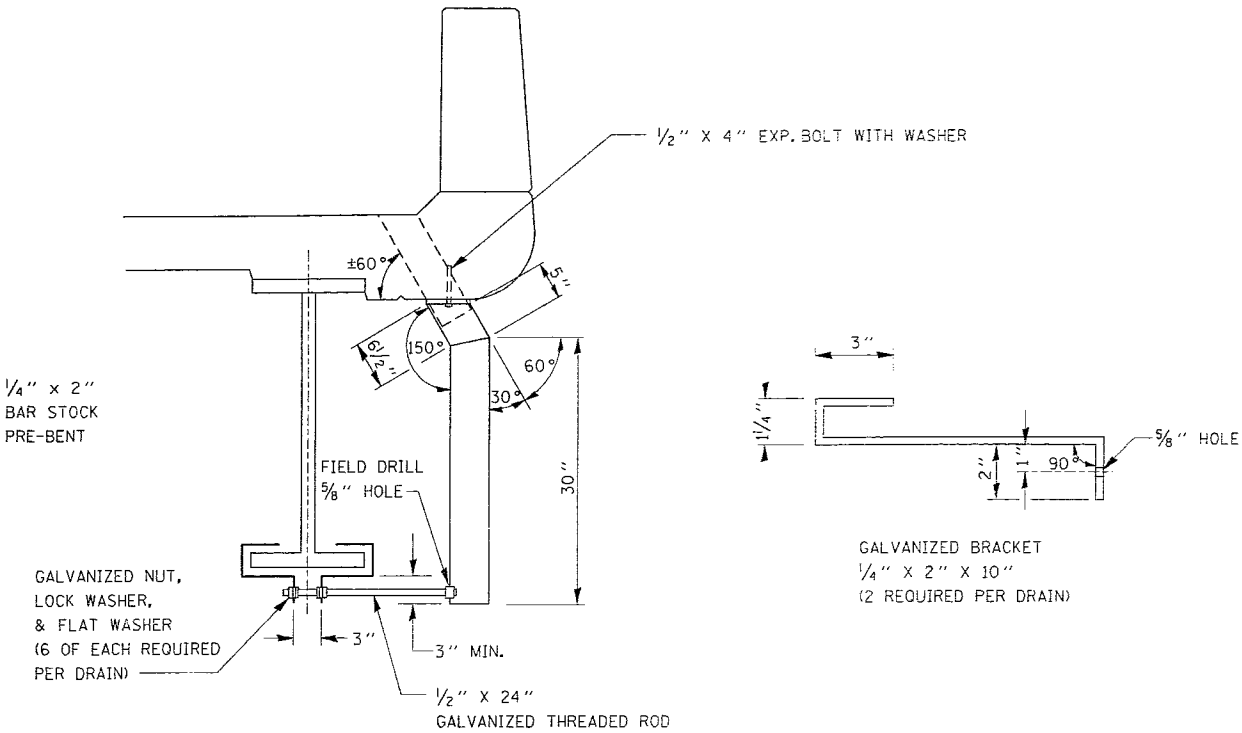
DESIGNED	19
CHECKED	
DRAWN	
CHECKED	

EXAMINED
PASSED
ENGINEER OF BRIDGE DESIGN
ENGINEER OF BRIDGES AND STRUCTURES

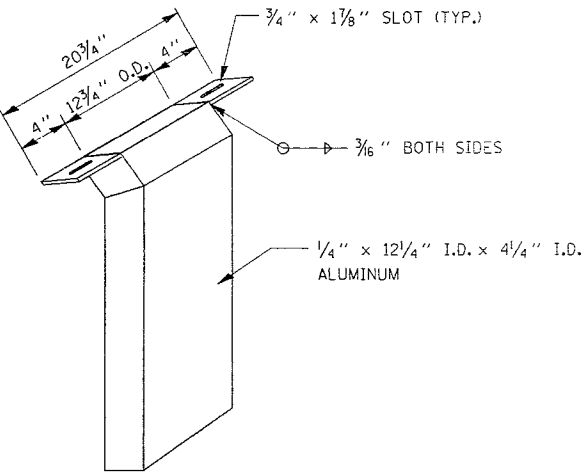
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNT	FEET	INCHES	SHEET NO.
FAI 57	* IROQUOIS	127	00		3-SHEETS
FILED NO.	DET. NO.	SHEET	FEET	INCHES	

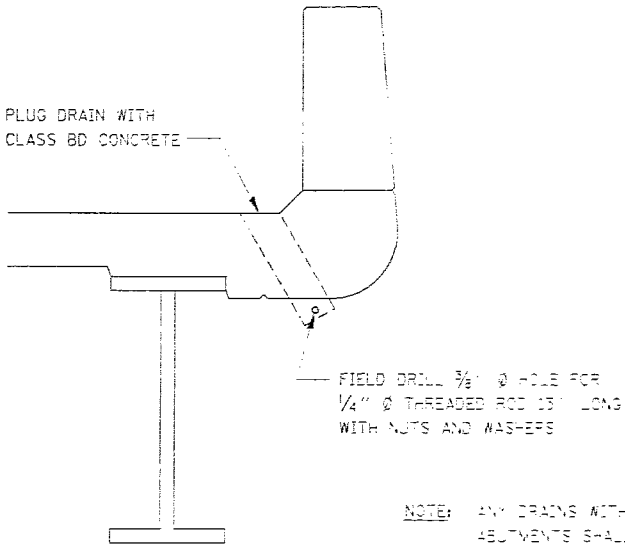
*38-5RS-1



BRACKET DETAIL



DECK DRAIN EXTENSION



NOTE: ANY DRAINS WITHIN 10' OF THE PIERS AND ABUTMENTS SHALL BE ELIMINATED. SPACING BETWEEN DRAINS SHALL BE DOUBLED BY PLUGGING EVERY OTHER EXISTING DRAIN.

**SECTION AT DRAIN
DRAIN ELIMINATION DETAIL**

BILL OF MATERIAL

ITEM	QTY	TOTAL
FLOOR DRAIN EXTENSIONS	EA	16
PLUG EXISTING DECK DRAINS	EA	16

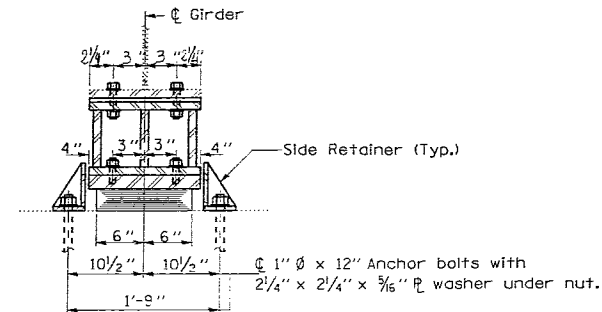
DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURE REHABILITATION
FAI 57 (RTE 57)
SECTION (38-5)RS-1
IROQUOIS COUNTY
S.N. 038-0006
STA. 592 + 63.65

PLATE NO.	SECTION	COUNTY	TOWNSHIP	RANGE	SHEET NO. 6
57	*	IRONDEQUA	127	94	9 SHEETS
FIELD NO.	DATE	BY			

* (38-5)RS-1

R _E	(K)	18.4
R _L	(K)	32.4
Imp.	(K)	9.2
R (Total)	(K)	60.0



SECTION A-A

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

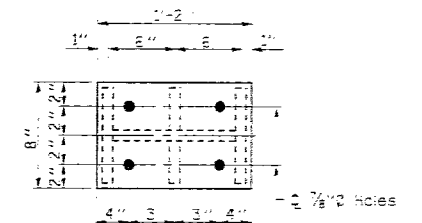
New steel extensions, slide retainers, shim R's, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel".

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

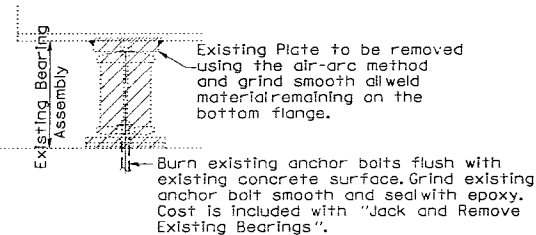
Min. Jack capacity = 30 Tons

Two $\frac{1}{8}$ " shims of the dimensions of the top extension plate shall be provided for each bearing in addition to all other plates or shims.

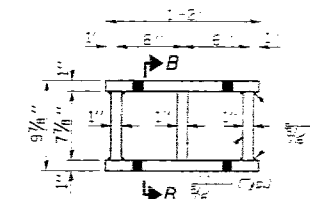
See Sheet 9 of 9 for Anchor Bolt Installation.



PLAN TOP AND BOTTOM PLATE

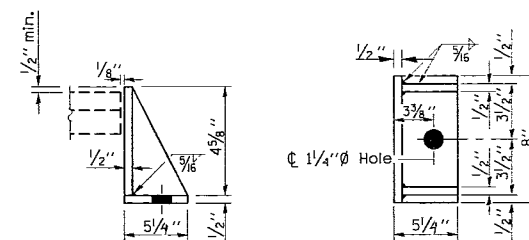


EXISTING BEARING REMOVAL DETAIL



STEEL EXTENSION DETAIL

Note: Shim plates shall not be placed under Bearing Assembly.



Equivalent rolled angle with stiffeners
will be allowed in lieu of welded plates.

DESIGNED
CHECKED
DRAWN
CHECKED

19

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

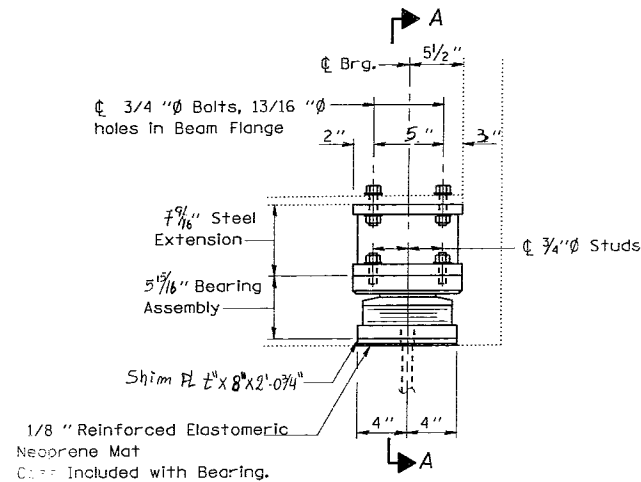
ADDITIONAL SOLID 1 PIECE SHIMS REQUIRED							
	Beam #1	2	3	4	5	6	7
t	0	0	0	1/8"	1/4"	0	0

BILL OF MATERIAL		
Item	Unit	Total
Elastomeric Bearing		
Assembly Type I	Each	7
Furnishing & Erecting		
Structural Steel	S.	1300
Jack & Remove		
Exist. Bearings	Each	7

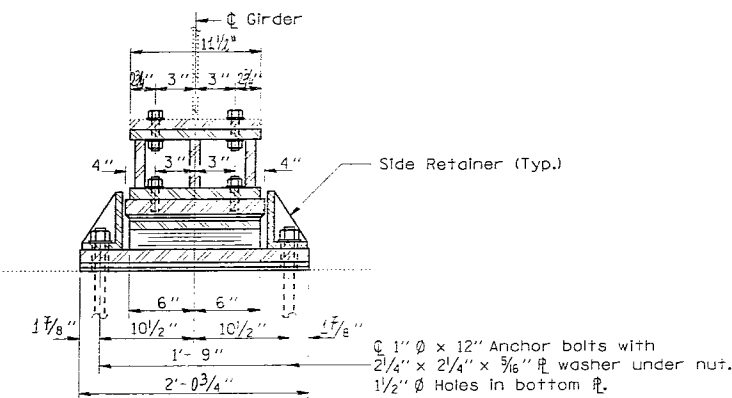
TYPE I
BEARING REPLACEMENT
NORTH ABUTMENT
S.N. 038-0006
STA. 592 + 63.65

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DATE	POST	SHEET NO. 7
100-0000	127	95		9 SHEETS
* 138-5 PS-1				



ELEVATION AT SOUTH ABUTMENT



SECTION A-A

GIRDER REACTIONS

	ABUTMENTS
R ₁	(K) 18.4
R ₂	(K) 32.4
Imp.	(K) 9.2
R (Total)	(K) 60.0

Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

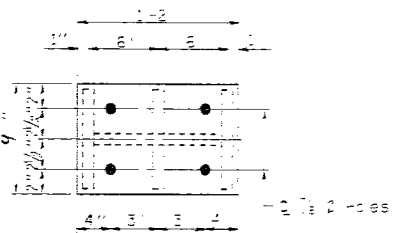
New steel extensions, side retainers, shim PL's, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel".

See Sheet 9 of 9 for Anchor Bolt Installation.

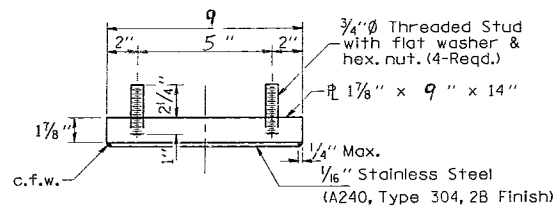
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

Min. jack capacity = 30 Tons

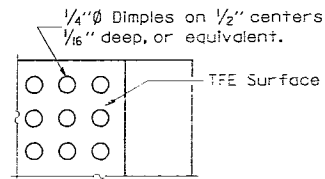
Two 1/8" shims of the dimensions of the bottom bearing plate shall be provided for each bearing in addition to all other plates or shims.



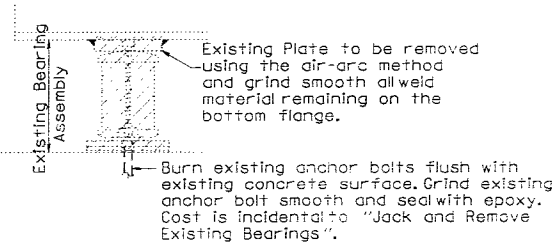
TYPE II TFE ELASTOMERIC EXP. BRG.



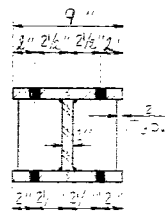
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



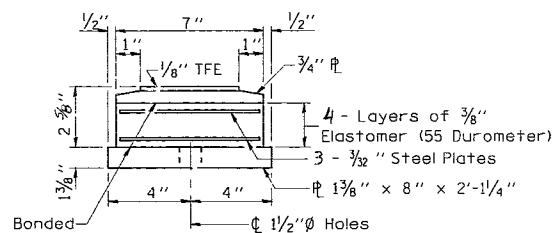
EXISTING BEARING REMOVAL DETAIL



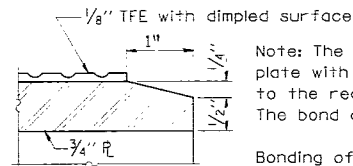
ADDITIONAL SOLID 1 PIECE SHIMS REQUIRED

	Beam #1	2	3	4	5	6	7
1/8"	0	0	0	1/8	1/8	1/8	1/8

BEAM :	
2	
3	
4	
5	
6	
7	



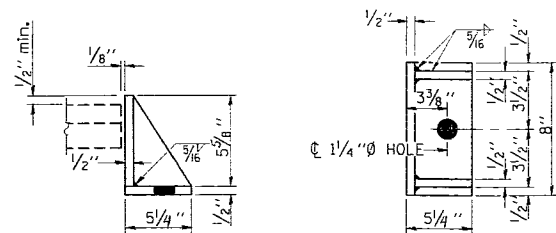
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

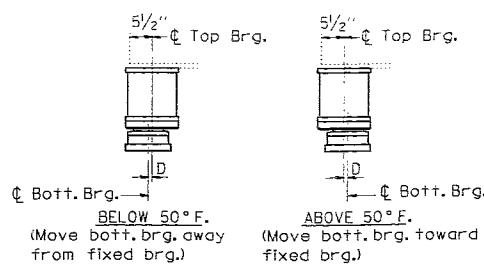
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	1
Furnishing & Erecting Structural Steel	S.	1350
Jack & Remove Exist. Bearings	Each	1

TYPE II
BEARING REPLACEMENT
SOUTH ABUTMENT
S.N. 038-0006
STA. 592 + 63.65

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

EXAMINED	19
PASSED	
ENGINEER OF BRIDGE DESIGN	
ENGINEER OF BRIDGES AND STRUCTURES	