

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| F A R T E | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|--|----------------------|----------|--------------------|-----------|
| | 184-10-3(27)(3-1) BP | SANGAMON | 19 | 1 |
| FAI 72A, FAP 662, 666 (I-72, I-55 BUS, IL 4) | | | CONTRACT NO. 72K74 | |

189

FOR INDEX OF SHEETS, SEE SHEET NO. 2

PROPOSED BRIDGE PAINTING

FAI 72A, FAP 662, 666 (I-72, I-55 BUS, IL 4)
SECTION (84-10-3)(27)(3-1) BP
PROJECT NHPP-SA7Z(851)
BRIDGE PAINTING
SANGAMON COUNTY

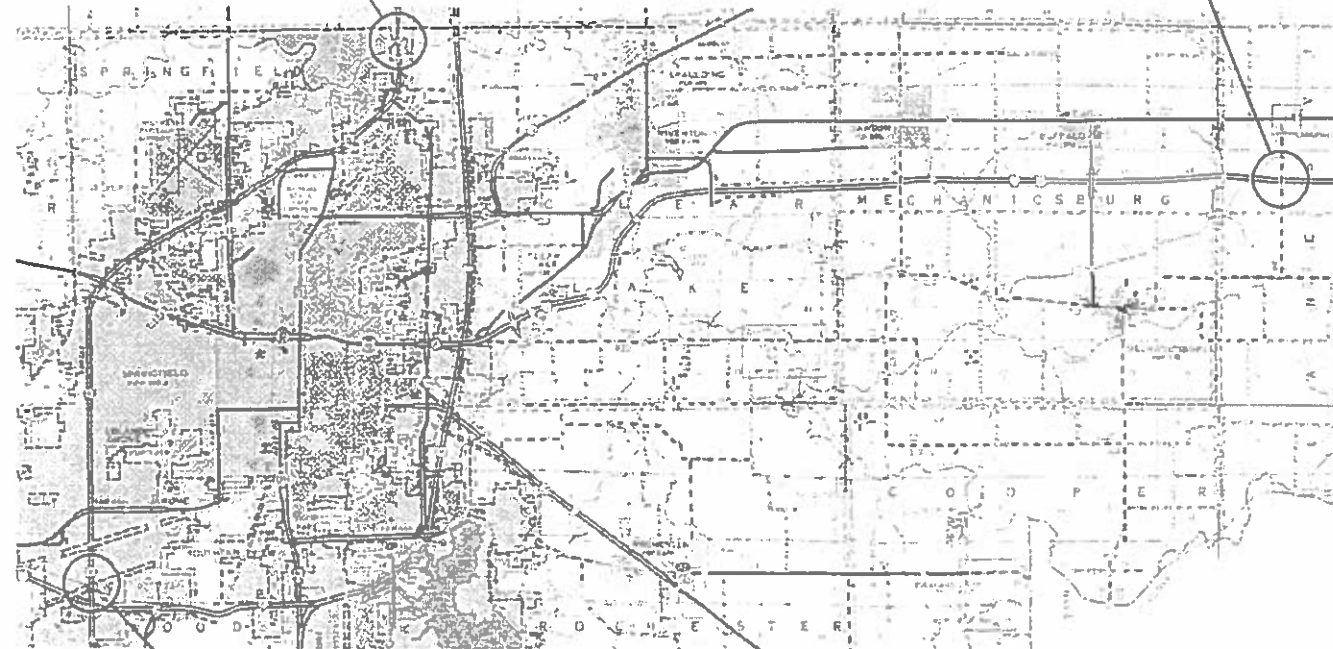
C-96-108-18

D-96-060-18



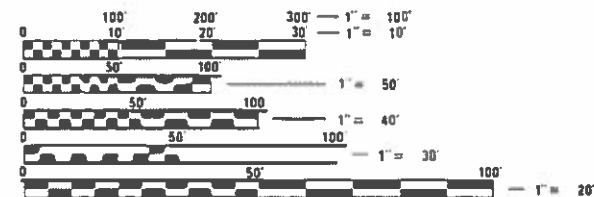
LOCATION #4
SN 084-0030
BL 55 OVER SANGAMON R
0.9 MI N DIRKSEN PKWY

LOCATION #1
SN 084-0159
LANESVILLE RD OVER I-72
3 MI E OF BUFFALO INT.



LOCATION #2
SN 084-0188
SB IL 4 OVER NS & GW RR
0.2 MI N I-72

LOCATION #3
SN 084-0189
NB IL 4 OVER NS & GW RR
0.2 MI N I-72



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

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

BRIDGE MAINTENANCE ENGINEER: BRANDON DUDLEY (217) 785-9290

GROSS LENGTH = x.xx FT. = x.xxx MILE
NET LENGTH = x.xx FT. = x.xxx MILE

CONTRACT NO. 72K74

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED 10 October 2018

[Signature]
REGIONAL ENGINEER

Dec 7 2018
ENGINEER OF DESIGN AND ENVIRONMENT

[Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

MODEL: Default
 FILE NAME: \\CENTRAL\OPERATIONS\Bridges\Bridges\CAD\72K74 - Sangamon County.pain, 2018\sheet.dgn

| CODE NO. | ITEM | UNIT | TOTAL QUANTITY | 0-01515-6004 | 0-01515-6005 |
|----------|---|--------|----------------|----------------------------------|----------------------------------|
| | | | | NHPP 90/10 | NHPP 80/20 |
| | | | | BRIDGE-RURAL 0047 SANGAMON | BRIDGE-URBAN 0047 SANGAMON |
| 67100100 | MOBILIZATION | L SUM | 1 | 0.25 | 0.75 |
| 70100207 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701402 | EACH | 2 | 2 | 0 |
| 70100310 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701421 | L SUM | 1 | 0 | 1 |
| 70400100 | TEMPORARY CONCRETE BARRIER | FOOT | 600 | 600 | 0 |
| 70400200 | RELOCATE TEMPORARY CONCRETE BARRIER | FOOT | 600 | 600 | 0 |
| 70600260 | IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3 | EACH | 2 | 2 | 0 |
| 70600332 | IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3 | EACH | 2 | 2 | 0 |
| X5060602 | CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 2 | L SUM | 1 | 0 | 1 |
| X5060603 | CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 3 | L SUM | 1 | 0 | 1 |
| X5060604 | CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 4 | L SUM | 1 | 0 | 1 |
| 70107025 | CHANGEABLE MESSAGE SIGN | CAL DA | 90 | 30 | 60 |
| Z0007101 | CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1 | L SUM | 1 | 1 | 0 |
| Z0010501 | CLEANING AND PAINTING STEEL BRIDGE NO. 1 | L SUM | 1 | 1 | 0 |
| Z0010502 | CLEANING AND PAINTING STEEL BRIDGE NO. 2 | L SUM | 1 | 0 | 1 |

REV. - MS

| | | | | | | | | | | |
|--|--|--|---|------------------------------|---|-------------------------------|--------------------|----------------|--------------------|---------------------------|
| USER NAME = dudleybm DRAWN - PLOT SCALE = 100.0000' / in. PLOT DATE = 10/5/2018 | DESIGNED - DRAWN - CHECKED - DATE - | REVISED - REVISED - REVISED - REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | SUMMARY OF QUANTITIES | F.A. RTE: * (84-10-3)(27)(3-1) BP * FAI 72A, FAP 662, 666 | SECTION COUNTY SANGAMON | TOTAL SHEETS 19 | SHEET NO. 3 | CONTRACT NO. 72K74 | ILLINOIS FED. AID PROJECT |
| SCALE: | | | | SHEET OF SHEETS | STA. TO STA. | | | | | |

B.M. #44 R.R. spike in PP on West R.O.W.
Line C.H. 34 750' L.F. @ FA.I. 72 Elev. 591.077

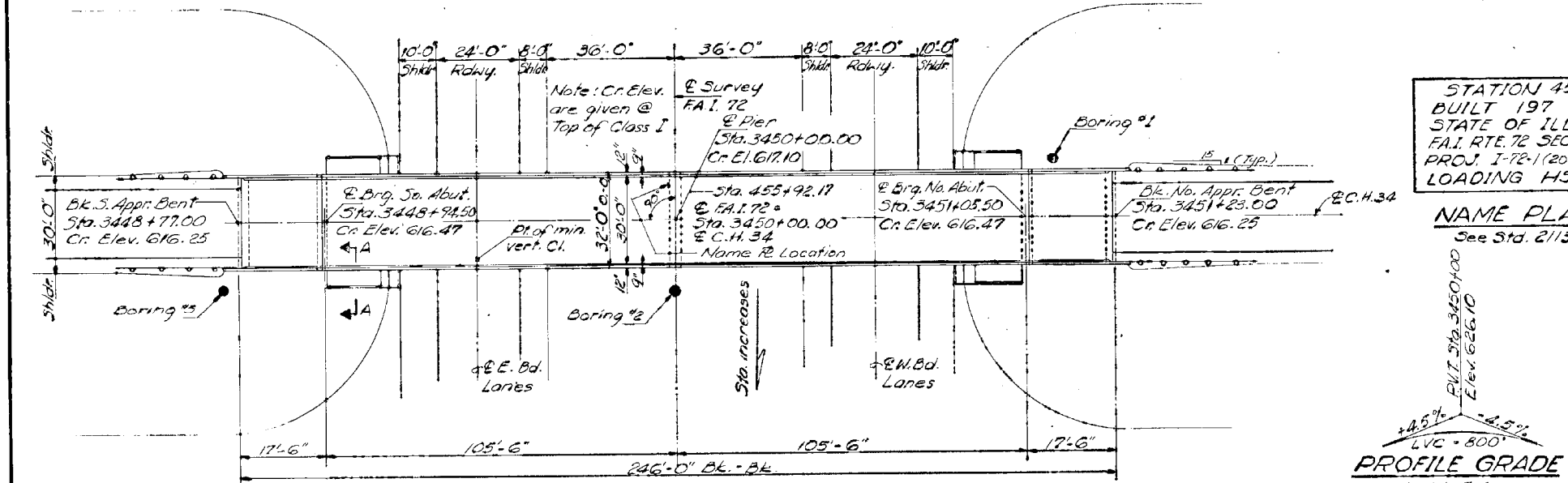
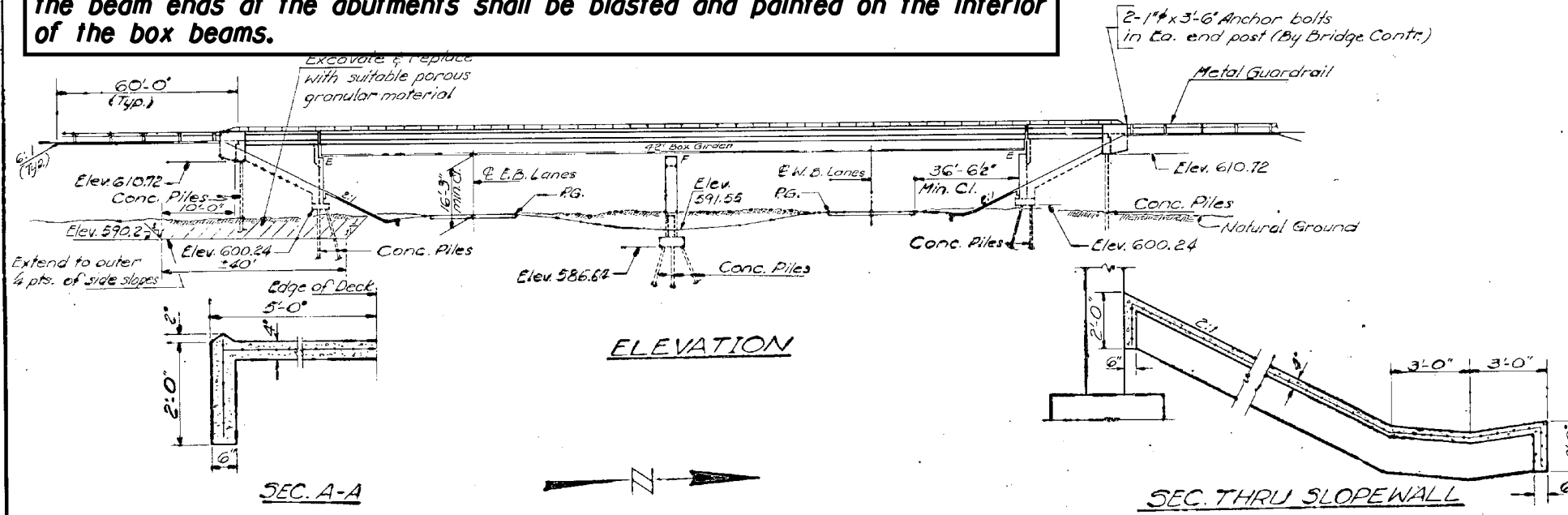
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| | | | |
|-----------|---------|-----------|--------------|
| ROUTE NO. | SECTION | SHEET NO. | TOTAL SHEETS |
| 84-10-34B | 34B | 10 | 11 |

Work shall consist of blasting and painting all exterior structural steel and steel components of bearings. Additionally, all structural steel within 5' of the beam ends at the abutments shall be blasted and painted on the interior of the box beams.

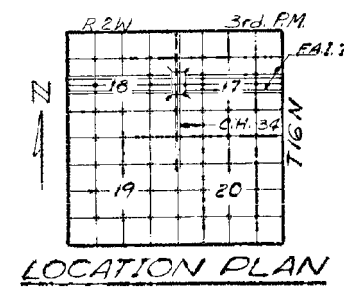
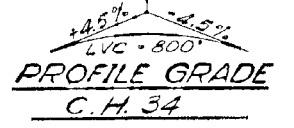
GENERAL NOTES

All reinforcement bars shall be lapped 28 diameters unless otherwise shown.
Fasteners shall be high strength bolts. Bolts 3/8" open holes 15/16", unless otherwise noted.
Calculated weight of Structural Steel = 210,700 pounds
The basic lead silico chromate paint system shall be used for shop and field painting of Structural Steel.
Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports.
Field welding in other areas will be permitted only when approved by the Engineer.
Anchor bolts shall be set before bolting diaphragms over supports.
Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 55# per 100sq. ft.
The Contractor shall drive one (1) concrete test pile in a permanent location at Pier as directed by the Engineer before ordering the remainder of piles.
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.
Protective Coat shall not be applied to surfaces to which Coal Tar Interlayer Protective Coat is applied.
All interior surfaces of Box Girders shall be given two shop coats of paint and spot painted in the field after cross frames and farms are removed. No additional field coat will be required for interior surfaces.
Concrete piles at bents shall be driven in holes prepared through the embankment in accordance with Art. 513.09(c) of the Std. Specifications.



STATION 455+92.17
BUILT 197 BY
STATE OF ILLINOIS
FA.I. RTE. 72 SEC. 84-10-34B
PROJ. I-72-1(20)
LOADING HS 15

NAME PLATE
See Std. 2113



TOTAL BILL OF MATERIAL

| Item | Unit | Super | Sub | Total |
|-------------------------------------|----------|-------|-------|-------|
| Structure Excavation | Cu. Yd. | | 85 | 85 |
| Sand Backfill | Cu. Yd. | | 140 | 140 |
| Bituminous Concrete Surface | Ton | 66 | | 66 |
| Course Class I | Sq. Yd. | 191 | | 191 |
| Protective Coat | Sq. Yd. | 254.9 | 160.8 | 415.7 |
| Class X Concrete | Lump Sum | | | 1 |
| Structural Steel | Lump Sum | | | 1680 |
| Stud Shear Connectors | Co. | 1680 | | 1680 |
| Aluminum Railing | Lin. Ft. | 506 | | 506 |
| Reinforcement Bars | Pound | 61130 | 19150 | 80280 |
| Concrete Piles | Lin. Ft. | | 1568 | 1568 |
| Test Piles Concrete | Co. | | 1 | 1 |
| Name Plates | Co. | | 1 | 1 |
| Slope Wall (4") | Sq. Yd. | | 335 | 335 |
| Coal Tar Interlayer Protective Coat | Sq. Yd. | 776 | | 776 |
| Preformed Joint Sealer | Lin. Ft. | 64 | | 64 |
| Earth Excavation | Cu. Yd. | | 650 | 650 |
| Porous Granular Embankment | Cu. Yd. | | 650 | 650 |

DESIGN STRESSES

$f_c = 1200$ psi Deck Slab
 $f_c = 1400$ psi Curb, Parapet, Sub & Appr. Slab
 $f_s = 20000$ psi Reinf.
 $f_s = 20000$ psi Structural
 $v_c = 75$ psi Ftgs.
 $n = 10$
Design Specifications 1969 AASHTO (as applicable)
Allow for 25% Sq. Ft. for future W.S.
LOADING HS15-44

DESIGNED: [Signature]
CHECKED: [Signature]
DRAWN: [Signature]
CHECKED: [Signature]

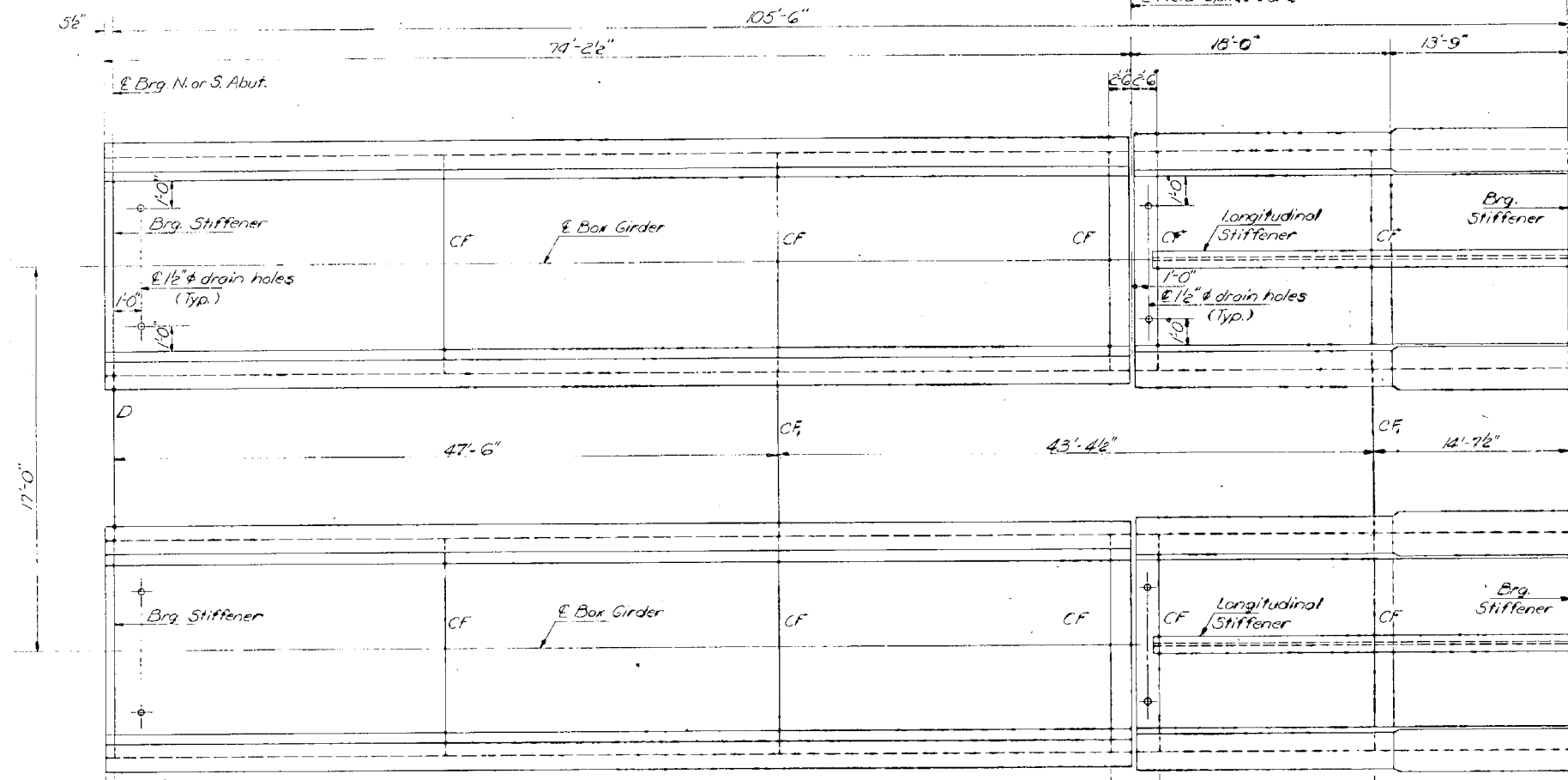
EXAMINED: [Signature]
PASSED: [Signature]
APPROVED: [Signature]

July 21 1972

GENERAL PLAN & ELEVATION
PROJECT I-72-1(20)14
C.H. 34 OVER FA.I. RTE. 72
FA.I. RTE. 72 SEC. 84-10-34B
SANGAMON COUNTY
STA. 455+92.17

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

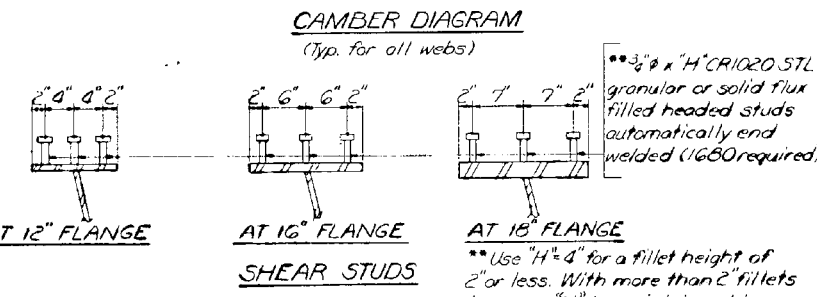
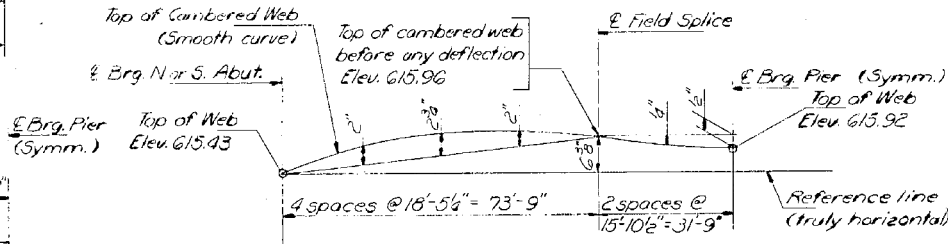
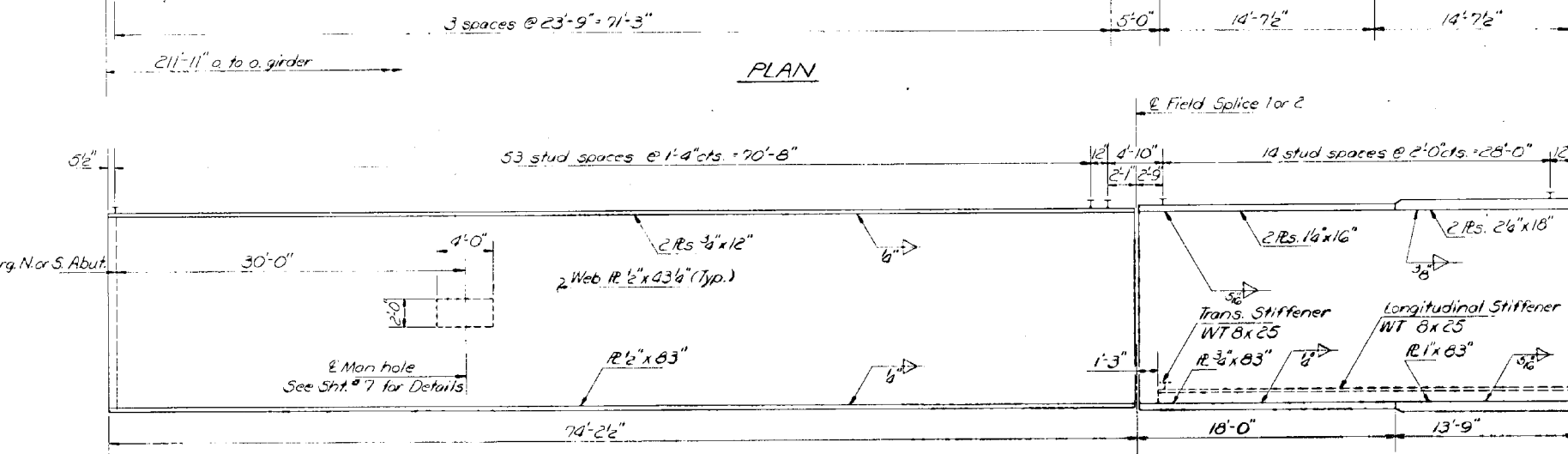
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|-----------------------|----------|------------------|--------------|-----------|-------------|
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | SHEET NO. 6 |
| F.A.I. 72 | 3HB | SANGAMON | 31 | 15 | 11 SHEETS |
| FED. ROAD DIST. NO. 1 | ILLINOIS | FED. AID PROJECT | | | |



| GIRDER MOMENT TABLE | | |
|--------------------------------|-----------|--------|
| | 0.4 Sp. 1 | Pier |
| I_s (in ⁴) | 30,902 | 85,960 |
| I_c (in ⁴) | 82,690 | 98,687 |
| S_s Top (in ³) | 1162 | 3622 |
| S_s Bott. (in ³) | 1855 | 3994 |
| S_c Top (in ³) | 8059 | 4571 |
| S_c Bott. (in ³) | 2507 | 4171 |
| I_D (k) | 2,053 | 2,053 |
| M_D (k) | 1306 | 3589 |
| $f_s D$ (ksi) | 845 | 11.89 |
| S_D (k/ft) | 1052 | 1052 |
| $M_S D$ (k) | 811 | 1485 |
| M_I (k) | 1095 | 1062 |
| M Imp. (k) | 238 | 231 |
| Total (k) | 2144 | 2778 |
| $f_s 4 + S_D$ (ksi) | 1026 | 729 |
| f_s total (ksi) | 18.71 | 19.18 |
| VR (k) | 71.9 | 69.4 |

| GIRDER REACTION TABLE | | |
|-----------------------|-------|-------|
| | Abut. | Pier |
| R_D (k) | 115.7 | 423.7 |
| R_L (k) | 53.5 | 92.3 |
| Imp. (k) | 11.6 | 20.0 |
| R Total (k) | 180.8 | 536.0 |

I_s & S_s are the moment of inertia & section modulus of the steel section.
 I_c & S_c are the moment of inertia & section modulus of the composite section.
 VR is the maximum $4 +$ Impact shear range in span used to determine shear stud spacing.



DESIGNED: [Signature]
 CHECKED: [Signature]
 DRAWN: J. Sutherland
 CHECKED: Chi Tsun Chiu

EXAMINED: [Signature]
 PASSED: [Signature]
 APPROVED: [Signature]

JULY 21 1976

| TOP OF WEB ELEVATIONS | |
|-----------------------|---------|
| | Box 162 |
| Brq. South Abut. | 615.43 |
| Splice 1 * | 615.96 |
| Brq. Pier | 615.92 |
| Splice 2 * | 615.96 |
| Brq. North Abut. | 615.43 |

(for fabrication only)

Note: See Sht. # 7 for remainder of Structural Steel Details

STRUCTURAL STEEL
 F.A.I. RT. 72 SEC. 84-10-3HB
 SANGAMON COUNTY
 STATION 455+92.17

MODEL: Default
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| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/5/2018 | DATE - | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

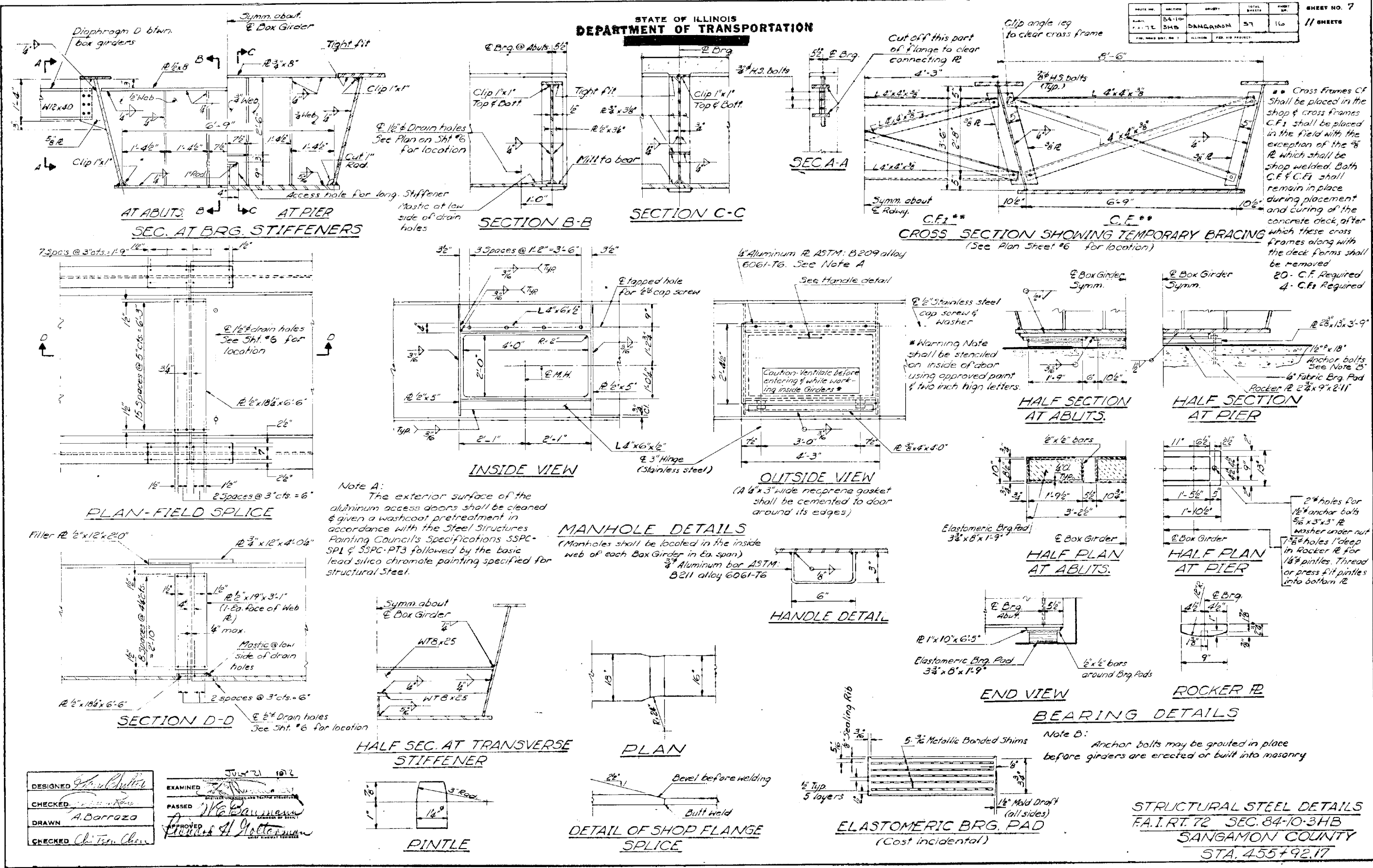
EXISTING STRUCTURE PLANS, SN 084-0159
(FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|-----------|-------------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 6 |
| | * FAI 72A, FAP 662, 666 | CONTRACT NO. 72K74 | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| | | | | |
|-----------|---------|------------------|--------------|-----------|
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 72 | 3HB | SANGAMON | 57 | 16 |
| ILLINOIS | | FED. AID PROJECT | | |



• • Cross Frames Cf shall be placed in the shop & cross frames Cf1 shall be placed in the field with the exception of the 3/8 R which shall be shop welded. Both Cf & Cf1 shall remain in place during placement and curing of the concrete deck after which these cross frames along with the deck forms shall be removed
20 - Cf Required
4 - Cf1 Required

Note A:
The exterior surface of the aluminum access doors shall be cleaned & given a washcoat pretreatment in accordance with the Steel Structures Painting Council's Specifications SSPC-SP1 & SSPC-PT3 followed by the basic lead silico chromate painting specified for structural steel.

MANHOLE DETAILS
(Manholes shall be located in the inside web of each Box Girder in Ea. span)
3/4" Aluminum bar ASTM B211 alloy 6061-T6

2" holes for 1/2" anchor bolts
5/8" x 3" x 3" R washer under nut
1-5/8" holes 1" deep in Rocker R for 1/2" pintles. Thread or press fit pintles into bottom R

Note B:
Anchor bolts may be grouted in place before girders are erected or built into masonry

DESIGNED: [Signature]
CHECKED: [Signature]
DRAWN: A. Barroza
CHECKED: Chi-Ton, Chou

EXAMINED: [Signature]
PASSED: [Signature]
APPROVED: [Signature]

July 21 1972

STRUCTURAL STEEL DETAILS
F.A.I.R.T. 72 SEC. 84-10-3HB
SANGAMON COUNTY
STA. 455+92.17

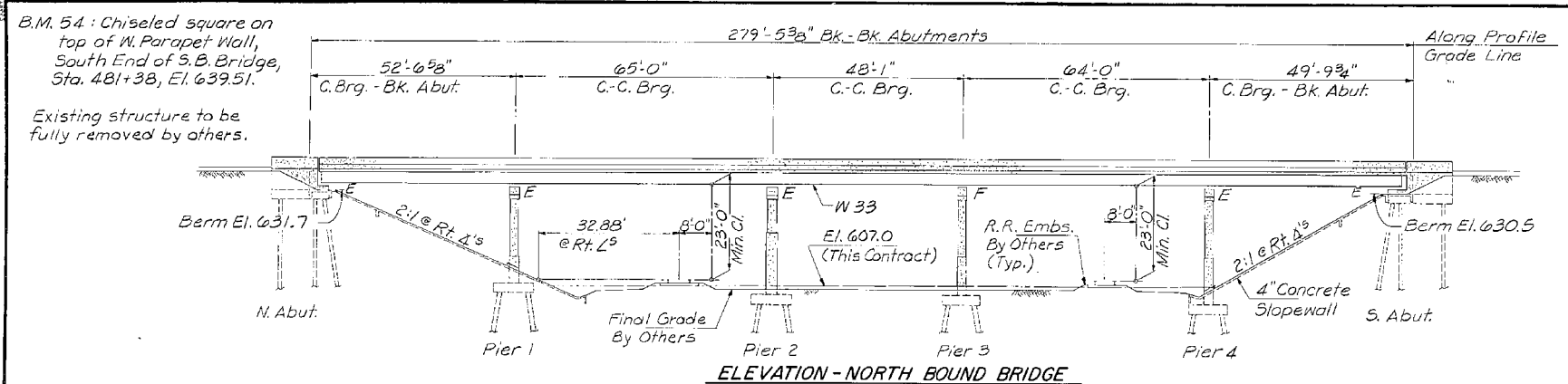
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0159
(FOR INFORMATION ONLY)

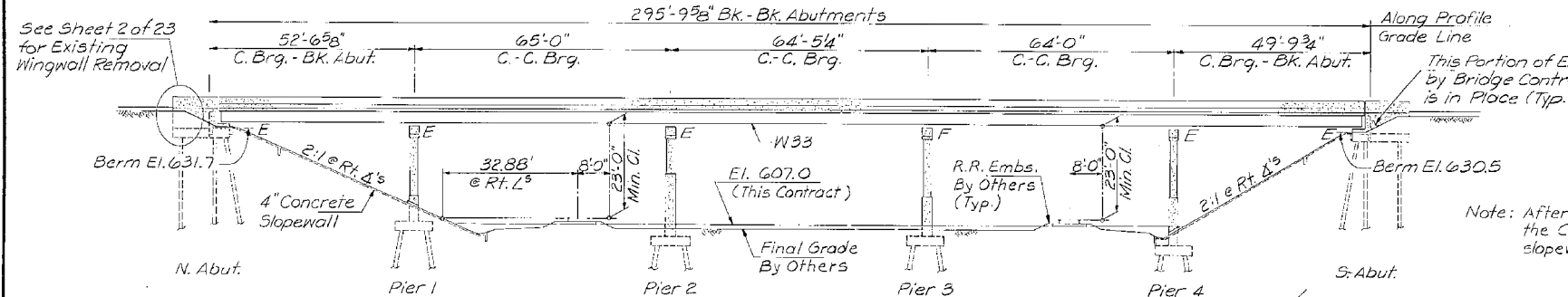
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|----------|-----------------------|-----------------|--------------|------------------|
| F.A.R.T. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 72 | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 7 |
| SCALE: | | SHEET OF SHEETS | | STA. TO STA. |
| | | ILLINOIS | | FED. AID PROJECT |

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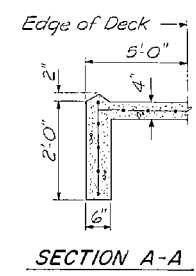
Sheet 1 of 23



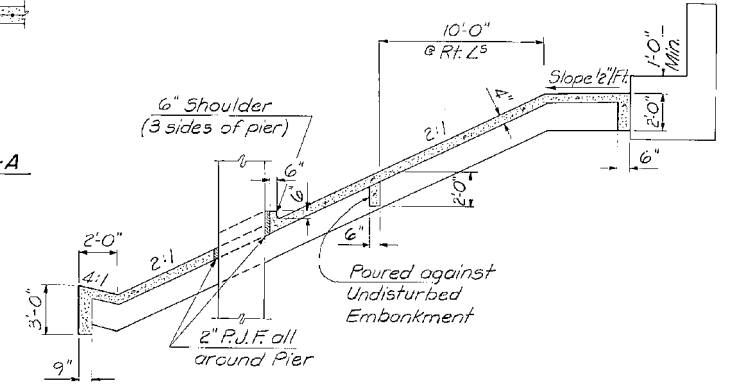
ELEVATION - NORTH BOUND BRIDGE



ELEVATION - SOUTH BOUND BRIDGE



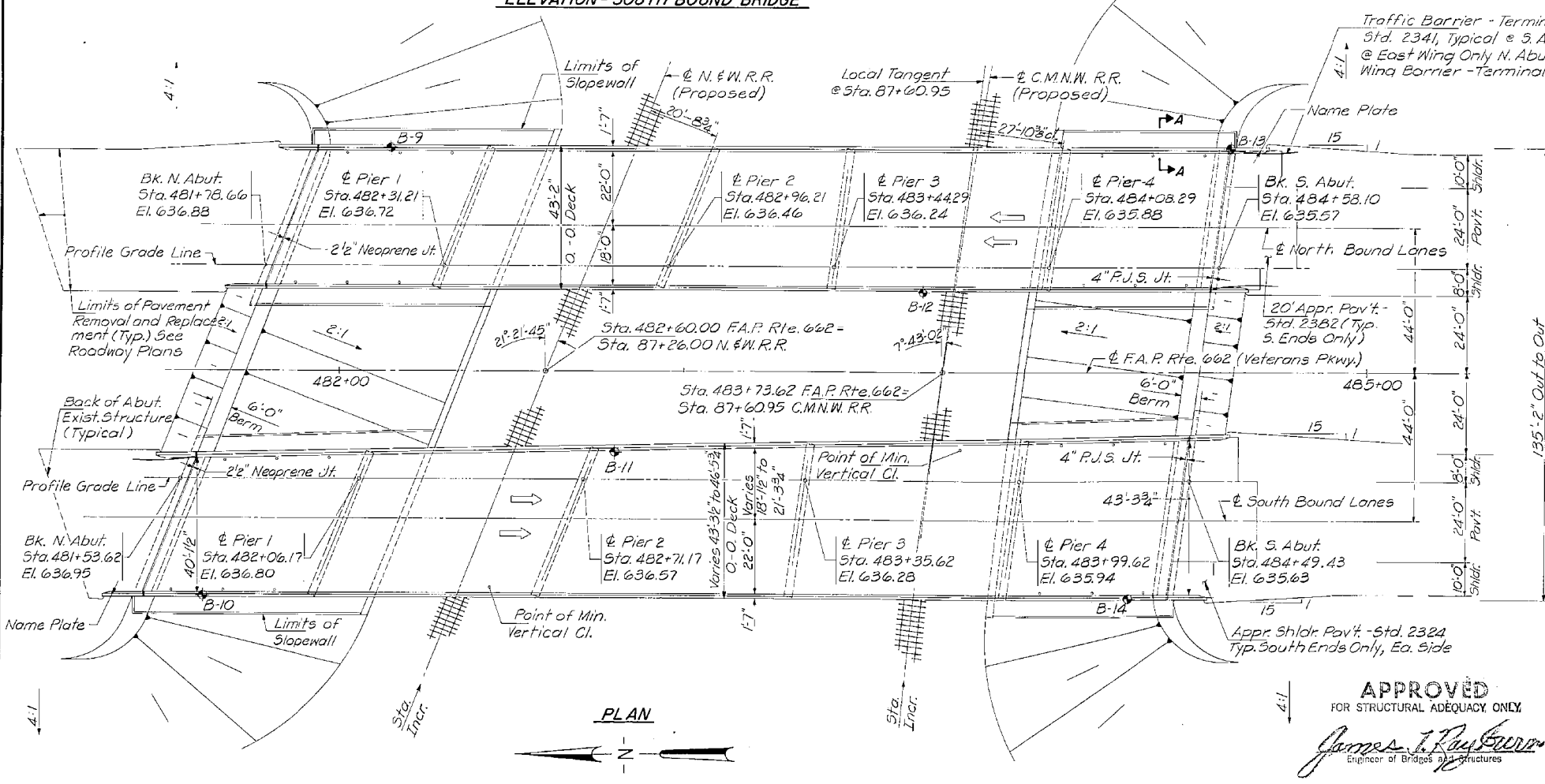
SECTION A-A



SECTION THRU SLOPEWALL

Work shall consist of blasting and painting all beam ends, end diaphragms, and steel components of bearings at both abutments on both bridges.

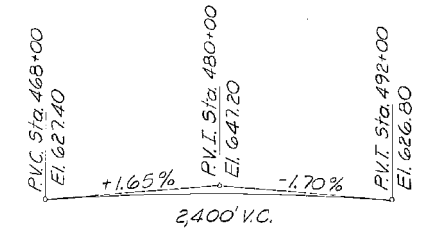
Note: After slopewall construction, the Contractor shall backfill slopewall gutters to El. 605.3



PLAN

TOP OF TRACK ELEVATIONS

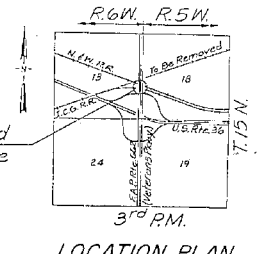
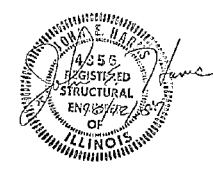
| Station | N.E.W. Track | C.M.N.W. Track |
|---------|--------------|----------------|
| 85+00 | El. 608.32 | El. 608.48 |
| 86+00 | El. 608.16 | El. 608.27 |
| 87+00 | El. 608.00 | El. 608.03 |
| 88+00 | El. 607.83 | El. 607.87 |
| 89+00 | El. 607.67 | El. 607.67 |



PROFILE GRADE LINE F.A.P. RTE. 662
(Along Edge of Pavement)

DESIGN STRESSES

Concrete: Load Factor Design
 $f'_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (Reinf.)
 Structural Steel: Load Factor Design
 $f_y = 36,000$ p.s.i. (M-183)
 Loading: AASHTO HS20-44
 Allowance for 25 p.s.f. Fut. W. 5.
 1983 AASHTO Specifications with
 1984 thru 1988 Interim Specs.



LOCATION PLAN

APPROVED
 FOR STRUCTURAL ADEQUACY ONLY
 James I. Ruffolo
 Engineer of Bridges and Structures

GENERAL PLAN & ELEVATION
 ILL. RT. 4 - VETERANS PKWY over
 C.M.N.W. and N.E.W. Railroads
 USABLE SEGMENT NO. 3, VB
 SANGAMON COUNTY
 STATION 483+05.86 (F.A. RTE 662)

DESIGNED: T.E.H. CHECKED: M.D.M. DRAWN: D.A.B. FILE NO: 8553092
 CHECKED: T.E.H. HANSON ENGINEERS INCORPORATED DATE: 4-18-89
 SPRINGFIELD, PEORIA & ROCKFORD, ILLINOIS

MODEL: Default FILE: \\hanson\c\operations\bridges\bridgeplans_cad\72k74 - Sangamon County.pnt 2019/04/18/10:40:00

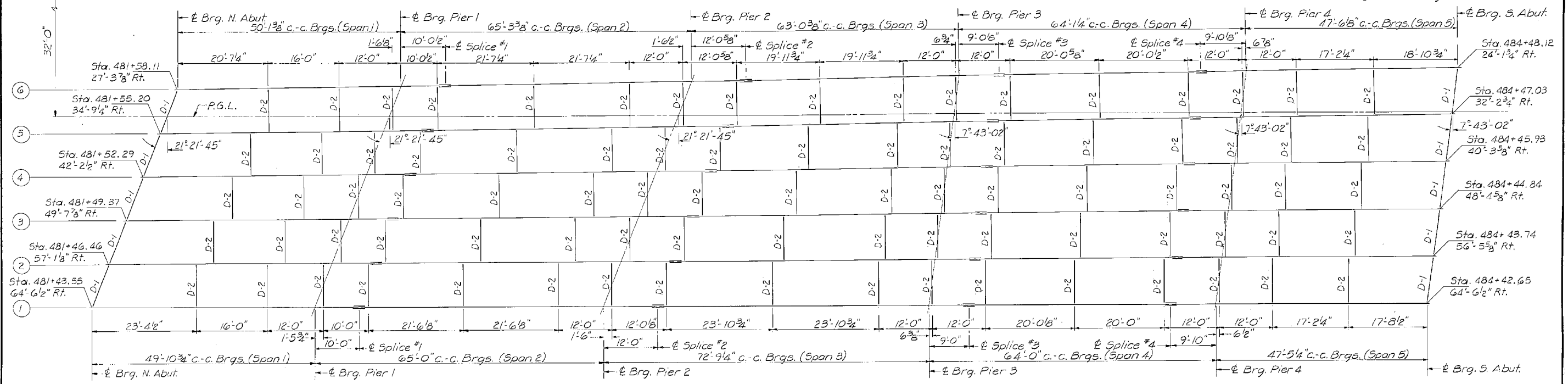
| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 1/25/2019 | DATE - | REVISED - |

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

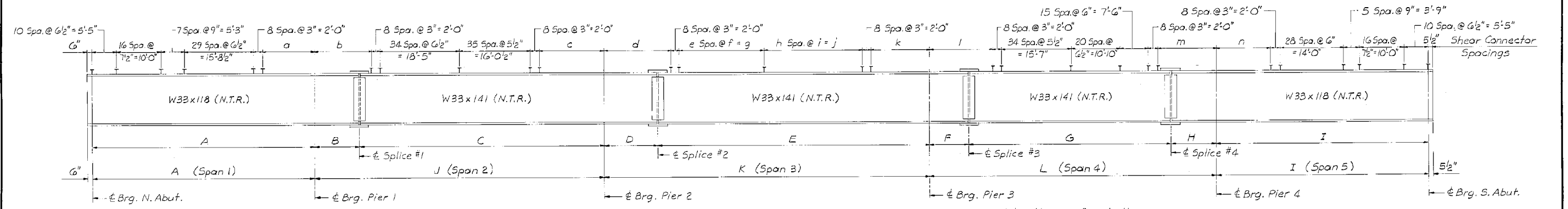
EXISTING STRUCTURE PLANS, SN 084-0188 & 0189
 (FOR INFORMATION ONLY)
 SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|-------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| - | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 8 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| ILLINOIS | | FED. AID PROJECT | | |

| CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS | | | | |
|---|--------------------|---------|----------|--------------|
| FED. AID PROJECT NO. | CCRRRA PROJECT NO. | SECTION | COUNTY | TOTAL SHEETS |
| RR-1(1) | * | * | SANGAMON | 72 |
| X-Usable Segment No. 3, VB | | | | SHEET NO. |
| | | | | 41 |



FRAMING PLAN



BEAM ELEVATION

Note: N.T.R. refers to the Supplemental Requirements for Notch Toughness.

| Beam | A | B | C | D | E | F | G | H | I | J | K | L |
|------|-------------|------------|------------|------------|-------------|-----------|------------|------------|------------|------------|-------------|------------|
| 1 | 49'-10 3/4" | 10'-0" | 55'-0" | 12'-0" | 60'-9 1/4" | 9'-0" | 45'-2" | 9'-10" | 47'-5 1/4" | 65'-0" | 72'-9 1/4" | 64'-0" |
| 2 | 49'-11 1/4" | 10'-0 1/8" | 55'-0 1/8" | 12'-0 1/8" | 58'-9 3/4" | 9'-0" | 45'-2 1/4" | 9'-10" | 47'-5 3/8" | 65'-0 1/8" | 70'-9 1/8" | 64'-0 1/4" |
| 3 | 49'-11 3/4" | 10'-0 1/8" | 55'-1 1/4" | 12'-0 1/4" | 56'-10 1/4" | 9'-0 1/8" | 45'-2 1/4" | 9'-10 1/8" | 47'-5 3/8" | 65'-1 1/8" | 68'-10 1/2" | 64'-0 1/2" |
| 4 | 50'-0 1/4" | 10'-0 1/4" | 55'-1 3/4" | 12'-0 3/8" | 54'-10 3/4" | 9'-0 3/8" | 45'-2 1/2" | 9'-10 3/8" | 47'-5 3/4" | 65'-2" | 66'-11 1/8" | 64'-0 3/4" |
| 5 | 50'-0 1/2" | 10'-0 1/2" | 55'-2 1/8" | 12'-0 1/2" | 52'-11 1/4" | 9'-0 1/2" | 45'-2 5/8" | 9'-10 1/2" | 47'-5 3/4" | 65'-2 1/4" | 64'-1 1/4" | 64'-0 1/2" |
| 6 | 50'-1 1/8" | 10'-0 1/2" | 55'-2 1/8" | 12'-0 1/2" | 50'-11 3/4" | 9'-0 1/2" | 45'-3" | 9'-10 1/2" | 47'-6 1/8" | 65'-3 1/8" | 63'-0 3/8" | 64'-1 1/4" |

| Beam | a | b | c | d | e | f | g | h | i | j | k | l | m | n |
|------|------------|------------|------------|------------|----|--------|-------------|----|--------|-------------|-------------|------------|-------------|------------|
| 1 | 11'-6 1/4" | 12'-1" | 14'-5 1/2" | 14'-6" | 34 | 7" | 19'-10" | 35 | 7 1/2" | 21'-10 1/2" | 12'-6 3/4" | 14'-2" | 11'-11" | 12'-3 1/4" |
| 2 | 11'-6 3/4" | 12'-1 1/8" | 14'-6" | 14'-5 3/8" | 35 | 6 1/2" | 18'-11 1/2" | 34 | 7 1/2" | 21'-3" | 12'-2" | 14'-2 1/8" | 11'-11 1/8" | 12'-3 3/8" |
| 3 | 11'-7 1/4" | 12'-1 1/8" | 14'-6 3/4" | 14'-4 3/4" | 34 | 6 1/2" | 18'-5" | 35 | 6 1/2" | 18'-11 1/2" | 13'-1 1/4" | 14'-2 1/4" | 11'-11 1/4" | 12'-3 5/8" |
| 4 | 11'-7 3/4" | 12'-1 1/4" | 14'-7 1/4" | 14'-5 1/8" | 34 | 6" | 17'-0" | 35 | 6" | 17'-6" | 13'-11 1/2" | 14'-2 3/8" | 11'-11 3/8" | 12'-3 3/4" |
| 5 | 11'-8 1/4" | 12'-1 3/8" | 14'-7 3/8" | 14'-5 5/8" | 35 | 5 1/2" | 16'-0 1/2" | 35 | 6" | 17'-6" | 12'-11 3/8" | 14'-2 3/8" | 11'-11 1/2" | 12'-3 3/8" |
| 6 | 11'-8 3/8" | 12'-1 1/2" | 14'-8 3/8" | 14'-10" | 34 | 5" | 14'-2" | 36 | 5 1/2" | 16'-6" | 13'-6 3/8" | 14'-2 3/8" | 11'-11 3/8" | 12'-4 1/8" |

| | Beam #1 | Beam #2 | Beam #3 | Beam #4 | Beam #5 | Beam #6 |
|------------------|---------|---------|---------|---------|---------|---------|
| € Brg. No. Abut. | 636.13 | 636.27 | 636.39 | 636.44 | 636.32 | 636.17 |
| € Brg. Pier #1 | 635.92 | 636.07 | 636.18 | 636.23 | 636.10 | 635.94 |
| € Splice #1 | 635.88 | 636.03 | 636.14 | 636.18 | 636.05 | 635.90 |
| € Brg. Pier #2 | 635.67 | 635.82 | 635.93 | 635.96 | 635.83 | 635.66 |
| € Splice #2 | 635.62 | 635.77 | 635.88 | 635.91 | 635.78 | 635.61 |
| € Brg. Pier #3 | 635.34 | 635.50 | 635.62 | 635.65 | 635.52 | 635.36 |
| € Splice #3 | 635.30 | 635.46 | 635.58 | 635.60 | 635.48 | 635.31 |
| € Splice #4 | 635.08 | 635.24 | 635.37 | 635.38 | 635.25 | 635.08 |
| € Brg. Pier #4 | 635.04 | 635.20 | 635.32 | 635.33 | 635.20 | 635.04 |
| € Brg. So. Abut. | 634.83 | 634.99 | 635.11 | 635.11 | 634.98 | 634.81 |

* For Fabrication Only

STRUCTURAL STEEL - SOUTH BOUND
ILL. RT. 4 - VETERANS PKWY. over
C.M.N.W. and N.W. Railroads
USABLE SEGMENT NO. 3, VB
SANGAMON COUNTY
STATION 483+05.86 (F.A. RTE 662)

| | | | | |
|----------|-----|--|----------|---------|
| DESIGNED | MDM | | FILE NO. | 8553092 |
| CHECKED | CRN | | DATE | 4-18-89 |
| DRAWN | DAN | | | |
| CHECKED | MDM | | | |

MODEL: Default
FILE NAME: \\CENTRAL\DESIGN\OPERATIONS\Bridges\Bridges\CAD\72K74 - Sangamon County.pdw
DATE: 11/26/2018

| | | | | | |
|------------|-------------------|----------|---|----------|---|
| USER NAME | = dudleybm | DESIGNED | - | REVISED | - |
| DRAWN | - | REVISION | - | REVISION | - |
| PLOT SCALE | = 100.0000' / in. | CHECKED | - | REVISION | - |
| PLOT DATE | = 11/26/2018 | DATE | - | REVISION | - |

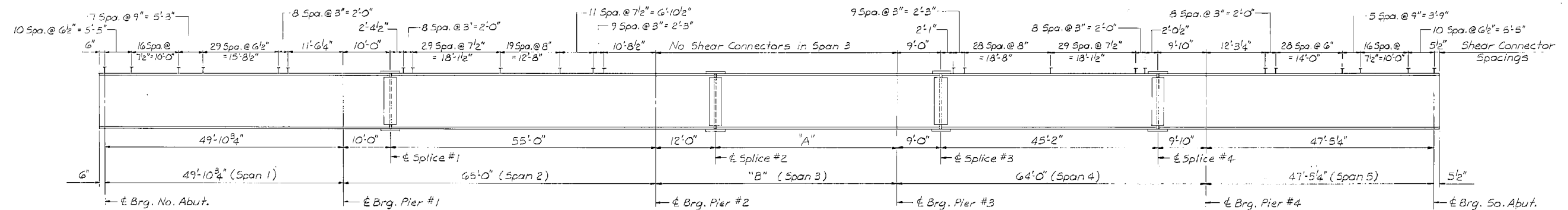
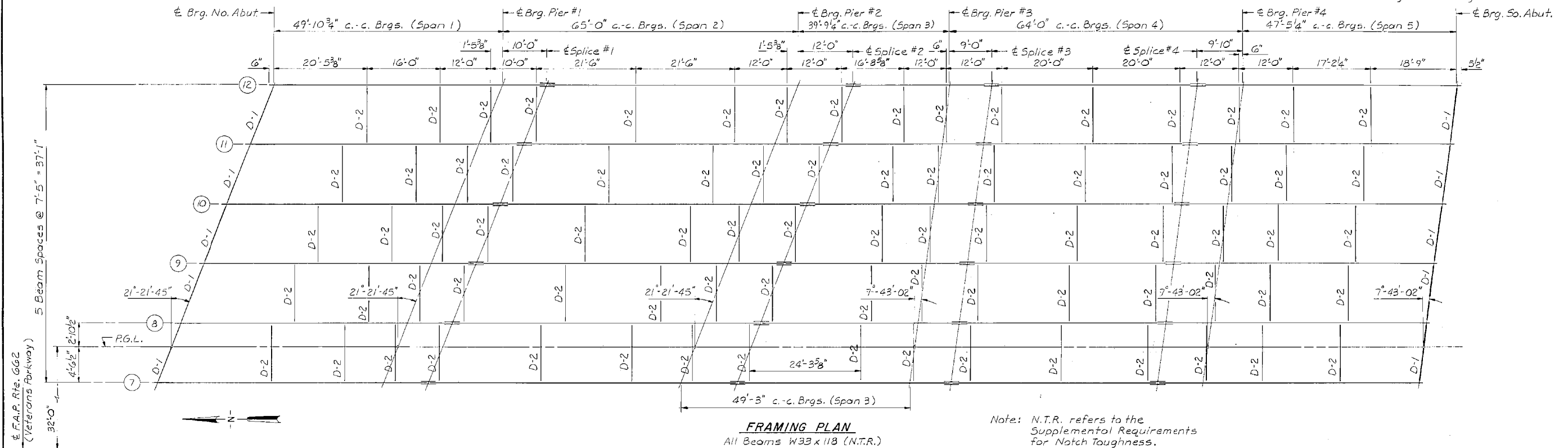
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| | | | |
|--|-------|-----------|--------------|
| EXISTING STRUCTURE PLANS, SN 084-0188 & 0189 (FOR INFORMATION ONLY) | | | |
| SCALE: | SHEET | OF SHEETS | STA. TO STA. |

| | | | | |
|-------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| * | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 9 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| ILLINOIS | | FED. AID PROJECT | | |

| CAPITAL CITY RAILROAD RELOCATION AUTHORITY SPRINGFIELD, ILLINOIS | | | | | |
|---|-------------------|---------|----------|--------------|-----------|
| FED. AID PROJECT NO. | CCRRA PROJECT NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| RR-1(1) | | X | SANGAMON | 72 | 42 |

X - Usable Segment No. 3, VB



| TOP OF BEAM ELEVATIONS * | | | | | | |
|--------------------------|----------|----------|----------|---------|---------|---------|
| | Beam #12 | Beam #11 | Beam #10 | Beam #9 | Beam #8 | Beam #7 |
| € Brg. No. Abut. | 635.99 | 636.16 | 636.29 | 636.36 | 636.25 | 636.12 |
| € Brg. Pier #1 | 635.76 | 635.92 | 636.05 | 636.13 | 636.02 | 635.89 |
| € Splice #1 | 635.71 | 635.87 | 636.01 | 636.08 | 635.97 | 635.84 |
| € Brg. Pier #2 | 635.46 | 635.62 | 635.76 | 635.83 | 635.73 | 635.60 |
| € Splice #2 | 635.40 | 635.57 | 635.70 | 635.78 | 635.68 | 635.55 |
| € Brg. Pier #3 | 635.28 | 635.44 | 635.57 | 635.63 | 635.52 | 635.39 |
| € Splice #3 | 635.24 | 635.40 | 635.53 | 635.59 | 635.48 | 635.35 |
| € Splice #4 | 634.99 | 635.15 | 635.28 | 635.34 | 635.23 | 635.10 |
| € Brg. Pier #4 | 634.94 | 635.10 | 635.23 | 635.30 | 635.19 | 635.05 |
| € Brg. So. Abut. | 634.71 | 634.87 | 635.00 | 635.07 | 634.96 | 634.83 |

* For Fabrication Only

| Beam No. | Dimension "A" | Dimension "B" |
|----------|---------------|---------------|
| 12 | 27'-9 1/4" | 39'-9 1/4" |
| 11 | 29'-8" | 41'-8" |
| 10 | 31'-6 3/4" | 43'-6 3/4" |
| 9 | 33'-5 1/2" | 45'-5 1/2" |
| 8 | 35'-4 1/4" | 47'-4 1/4" |
| 7 | 37'-3" | 49'-3" |

STRUCTURAL STEEL - NORTH BOUND
ILL. RT. 4 - VETERANS PKWY. over
C.M.W. and N.W. Railroads
USABLE SEGMENT NO. 3, VB
SANGAMON COUNTY
STATION 483+05.86 (F.A. RTE 662)

| | | |
|---------------|--|------------------|
| DESIGNED: MDM | | FILE NO. 8553092 |
| CHECKED: CRN | | DATE 4-18-89 |
| DRAWN: D.A.N. | | |
| CHECKED: MDM | | |

MODEL: Default
FILE NAME: \\CENTRAL\B\OPERATIONS\Bridges\Bridges\CAD\72K74 - Sangamon County.painr 2018.dwg

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/5/2018 | DATE - | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189
(FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

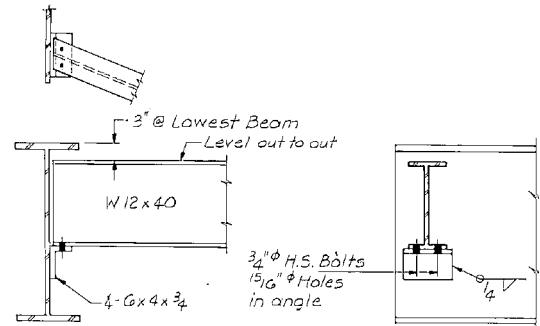
| | | | | |
|-------------------------|-----------------------|------------------|--------------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| * | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 10 |
| * FAI 72A, FAP 662, 666 | | | CONTRACT NO. 72K74 | |
| ILLINOIS | | FED. AID PROJECT | | |

SOUTH BOUND LANES

| | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.5 Span 3 | Pier 3 | 0.5 Span 4 | Pier 4 | 0.6 Span 5 |
|---------------------------------|------------|---------|------------|---------|------------|---------|------------|---------|------------|
| I_s (in ⁴) | 5,900 | 5,900 | 7,450 | 7,450 | 7,450 | 7,450 | 7,450 | 5,900 | 5,900 |
| I_c (n=27) (in ⁴) | 11,801 | — | 13,937 | — | 13,937 | — | 13,937 | — | 11,801 |
| I_c (n=9) (in ⁴) | 15,725 | — | 18,755 | — | 18,755 | — | 18,755 | — | 15,725 |
| S_s (in ³) | 359 | 359 | 448 | 448 | 448 | 448 | 448 | 359 | 359 |
| S_c (n=27) (in ³) | 473 | — | 572 | — | 572 | — | 572 | — | 473 |
| S_c (n=9) (in ³) | 519 | — | 629 | — | 629 | — | 629 | — | 519 |
| Z (in ³) | — | 415 | — | 514 | — | 514 | — | 415 | — |
| M (K) | 0.846 | 1.170 | 0.881 | 1.209 | 0.894 | 1.225 | 0.907 | 1.242 | 0.896 |
| M_e (K) | 143 | 365 | 150 | 471 | 203 | 476 | 154 | 344 | 138 |
| s_e (K) | 0.324 | — | 0.328 | — | 0.331 | — | 0.335 | — | 0.338 |
| $M_s e$ (K) | 62 | — | 71 | — | 91 | — | 72 | — | 58 |
| M_e (K) | 359 | 223 | 456 | 282 | 493 | 284 | 465 | 218 | 360 |
| M_{IMP} (K) | 102 | 61 | 120 | 73 | 126 | 74 | 123 | 60 | 104 |
| M_3 (M _e +I) (K) | 763 | 473 | 960 | 592 | 1,032 | 597 | 980 | 463 | 773 |
| M_o (K) | 1,265 | 1,089 | 1,535 | 1,382 | 1,724 | 1,395 | 1,568 | 1,049 | 1,260 |
| M_u (K) | 2,306 | 1,245 | 2,746 | 1,542 | 2,746 | 1,542 | 2,746 | 1,245 | 2,306 |
| $f_s @ non-comp$ (ksi) | 4.8 | 12.2 | 4.0 | 12.6 | 5.4 | 12.8 | 4.1 | 11.6 | 4.6 |
| $f_s @ comp$ (ksi) | 1.6 | — | 1.5 | — | 1.9 | — | 1.5 | — | 1.5 |
| $f_s @ (e+I)$ (ksi) | 17.8 | 15.8 | 18.3 | 15.9 | 19.7 | 16.0 | 18.7 | 16.5 | 17.9 |
| f_s (Overload) (ksi) | 24.2 | 28.0 | 25.8 | 28.5 | 27.0 | 28.8 | 24.3 | 27.0 | 24.0 |
| f_s (Total) (ksi) | — | Compact | — | Compact | — | Compact | — | Compact | — |
| VR (K) | 55 | — | 50 | — | 51 | — | 52 | — | 55 |

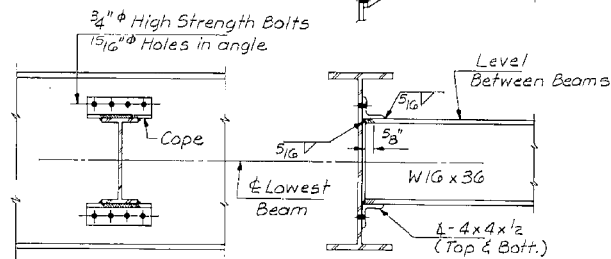
| | No. Abut. | Pier #1 | Pier #2 | Pier #3 | Pier #4 | So. Abut. |
|------------------------|-----------|---------|---------|---------|---------|-----------|
| R _e (K) | 22 | 74 | 84 | 85 | 74 | 22 |
| R _e (K) | 38 | 47 | 52 | 52 | 49 | 39 |
| Imp. (K) | 11 | 13 | 13 | 14 | 14 | 12 |
| R _{TOTAL} (K) | 71 | 134 | 149 | 151 | 137 | 73 |

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).
 I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_s (Total & Overload).
 VR is the maximum $\frac{1}{4}$ + Impact shear range in span.
 Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.
 M_o (Applied Moment) = $1.3 [M_e + M_s e + M_3 (M_e + I)]$.
 M_u is the Full Plastic Moment Capacity for Compact, Braced section.
 f_s (Overload) is the sum of the stresses due to $M_e + M_s e + M_3 (M_e + I)$.
 f_s (Total) is the sum of the stresses due to $1.3 [M_e + M_s e + M_3 (M_e + I)]$.



END DIAPHRAGM D1
(20 Required)

Note: Hardened washers shall be required over all holes in diaphragm connections.

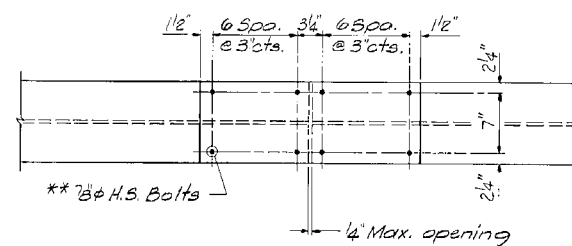


INTERIOR DIAPHRAGM D2
(165 Required)

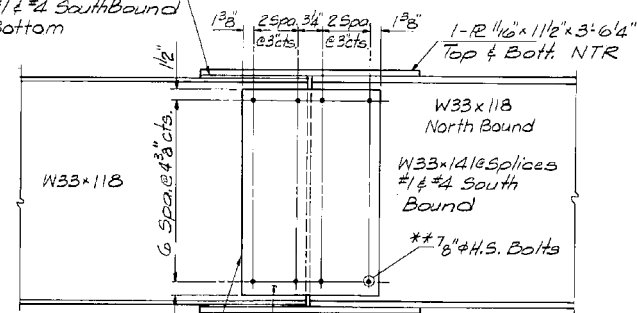
NORTH BOUND LANES

| | 0.4 Span 1 | Pier 1 | 0.5 Span 2 | Pier 2 | 0.5 Span 3 | Pier 3 | 0.5 Span 4 | Pier 4 | 0.6 Span 5 |
|---------------------------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|
| I_s (in ⁴) | 5,900 | 5,900 | 5,900 | 5,900 | 5,900 | 5,900 | 5,900 | 5,900 | 5,900 |
| I_c (n=27) (in ⁴) | 11,761 | — | 11,761 | — | — | — | 11,761 | — | 11,761 |
| I_c (n=9) (in ⁴) | 15,687 | — | 15,687 | — | — | — | 15,687 | — | 15,687 |
| S_s (in ³) | 359 | 359 | 359 | 359 | 359 | 359 | 359 | 359 | 359 |
| S_c (n=27) (in ³) | 473 | — | 473 | — | — | — | 473 | — | 473 |
| S_c (n=9) (in ³) | 519 | — | 519 | — | — | — | 519 | — | 519 |
| Z (in ³) | — | 415 | — | 415 | — | 415 | — | 415 | — |
| M (K) | 0.839 | 1.162 | 0.839 | 1.162 | 1.162 | 0.839 | 1.162 | 0.839 | 0.839 |
| M_e (K) | 131 | 397 | 181 | 293 | 30 | 292 | 178 | 375 | 113 |
| s_e (K) | 0.323 | — | 0.323 | — | — | — | 0.323 | — | 0.323 |
| $M_s e$ (K) | 59 | — | 85 | — | — | — | 83 | — | 51 |
| M_e (K) | 361 | 220 | 433 | 223 | 232 | 221 | 425 | 212 | 334 |
| M_{IMP} (K) | 103 | 60 | 114 | 62 | 67 | 61 | 112 | 59 | 97 |
| M_3 (M _e +I) (K) | 773 | 467 | 912 | 475 | 498 | 470 | 895 | 452 | 718 |
| M_o (K) | 1,252 | 1,123 | 1,513 | 1,005 | 686 | 991 | 1,503 | 1,075 | 1,147 |
| M_u (K) | 2,317 | 1,245 | 2,317 | — | 1,245 | — | 2,317 | — | 2,317 |
| $f_s @ non-comp$ (ksi) | 4.4 | 13.3 | 4.0 | 9.9 | 1.0 | 9.7 | 5.9 | 12.5 | 3.8 |
| $f_s @ comp$ (ksi) | 1.6 | — | 2.2 | — | — | — | 2.1 | — | 1.3 |
| $f_s @ (e+I)$ (ksi) | 17.9 | 15.6 | 21.1 | 15.9 | 16.6 | 15.7 | 20.7 | 15.1 | 16.6 |
| f_s (Overload) (ksi) | 23.8 | 28.9 | 29.3 | 25.8 | 17.6 | 25.4 | 28.7 | 27.6 | 21.7 |
| f_s (Total) (ksi) | — | — | — | 33.6 | — | 33.1 | — | 35.9 | — |
| VR (K) | 54 | — | 57 | — | 52 | — | 57 | — | 53 |

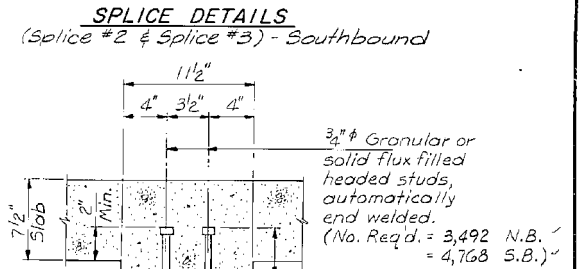
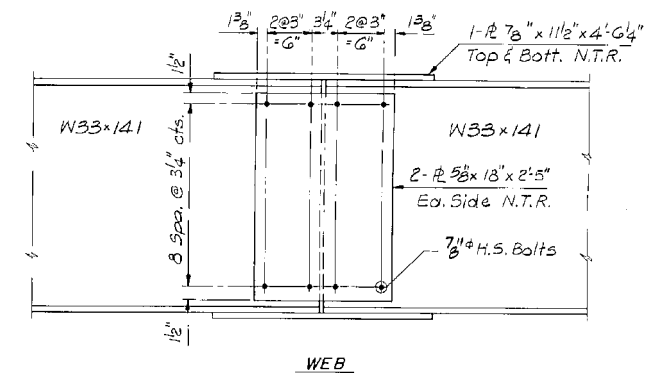
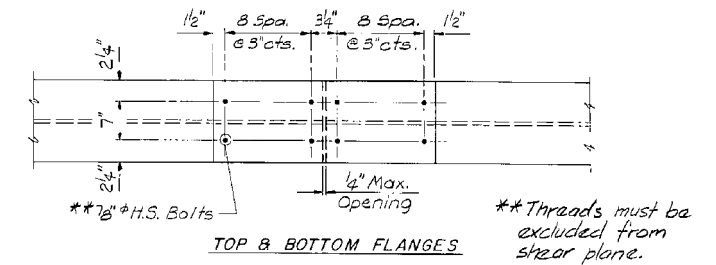
| | No. Abut. | Pier #1 | Pier #2 | Pier #3 | Pier #4 | So. Abut. |
|------------------------|-----------|---------|---------|---------|---------|-----------|
| R _e (K) | 21 | 76 | 64 | 63 | 74 | 20 |
| R _e (K) | 38 | 46 | 45 | 45 | 45 | 38 |
| Imp. (K) | 11 | 13 | 13 | 13 | 13 | 11 |
| R _{TOTAL} (K) | 70 | 135 | 122 | 121 | 132 | 69 |



TOP & BOTTOM FLANGES
Filler $R 3/16 \times 11/2 \times 19$
Splice #1 & #2 SouthBound Top & Bottom



WEB
Filler $R 1/2 \times 9 \times 2-5/4$
Splice #1 & #4 SouthBound Each Side of Web
SPLICE DETAILS
(Splice #1 & Splice #4) - SouthBound
(Splice #1 thru Splice #2) - NorthBound



SHEAR CONNECTOR DETAIL

STRUCTURAL STEEL DETAILS
 ILL. RT. 4 - VETERANS PKWY. over
 C.M.N.W. and N.B.W. Railroads
 USABLE SEGMENT NO. 3, VB
 SANGAMON COUNTY
 STATION 483 + 05.86 (F.A. RTE 662)

| | | |
|--------------|--|----------|
| DESIGNED MDM | | FILE NO. |
| CHECKED CRN | | 8553092 |
| DRAWN D.A.N. | | DATE |
| CHECKED MDM | | 4-18-89 |

MODEL: Default FILE NAME: C:\CONTRAC\OPERATIONS\Bridges\Bridges\Bridges\CAD\72K74 - Sangamon County.pnt 2019/04/23/10:00:00

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN - | REVISED - |
| PLOT DATE = 10/5/2018 | CHECKED - | REVISED - |
| | DATE - | REVISED - |

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0188 & 0189
 (FOR INFORMATION ONLY)
 SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|---------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| * | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 11 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| ILLINOIS FED. AID PROJECT | | | | |

Work shall consist of blasting and painting all beam ends, end diaphragms, and steel components of bearings at pier 4 only.

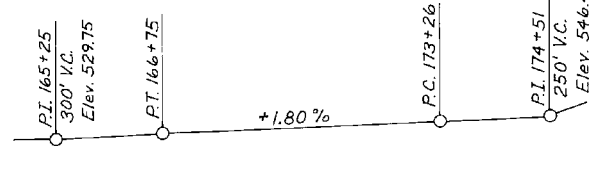
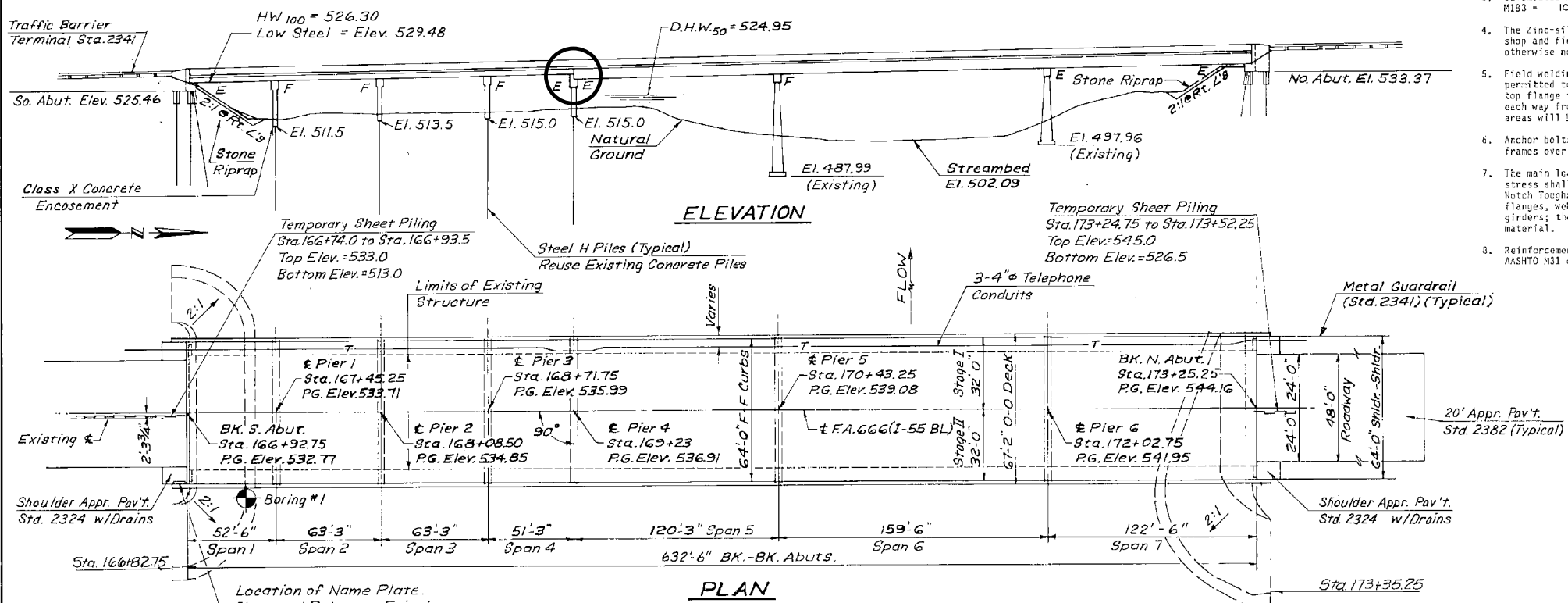
B.M. "D" Chisel "a" West end South abutment Bridge Sta 166+94 Elev. 532.72
 Existing Bridge - Structure No. 084-0030 - 7 Span reinforced concrete deck on steel beams and plate Girders w/44.6 roadway f 4.0' walkway, 631.25' long bk. - bk. abutments. Constructed in 1937 f deck rehabilitated in 1971.
 Remove superstructure. Widen & rehabilitate substructure.

GENERAL NOTES

- See Proposal for Boring Data.
- Fasteners shall be high strength bolts. Bolts 7/8" dia., open holes 15/16" dia., unless otherwise noted.
- Calculated weight of Structural Steel: M183 = 104,950 lbs. M223 Gr.50 949,620 lbs.
- The Zinc-silicate and vinyl paint system shall be used for shop and field painting of Structural Steel except where otherwise noted.
- Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
- Anchor bolts shall be set before bolting diaphragms or cross frames over supports.
- The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material of the steel girders; the wide flange beams and their splice plate material.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M53 Grade 60.
- The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimension of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
- The contractor shall drive two steel test piles in permanent locations at the South Abutment and Pier #4 as directed by the Engineer before ordering the remainder of piles.
- Layout of Stone Riprap may be varied in the field to suit ground conditions as directed by the Engineer.
- Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to normal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,080 lbs., and 3/4" x 12" hooked bolts.

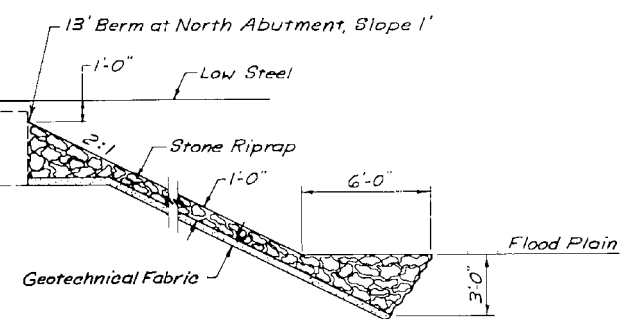
TOTAL BILL OF MATERIAL

| Item | Units | Superstructure | Substructure | Total |
|---------------------------------------|----------|----------------|--------------|---------|
| Removal of Existing Superstructures | Each | | | 1 |
| Concrete Removal | Cu. Yd. | | 133.3 | 133.3 |
| Floor Drains | Each | 50 | | 50 |
| Protective Coat | Sq. Yd. | 5007 | | 5007 |
| Neoprene Expansion Joint (4") | Lin. Ft. | 132 | | 132 |
| Elastomeric Bearing Assembly, Type II | Each | 50 | | 50 |
| Class X Concrete | Cu. Yd. | 1,190.4 | 298.8 | 1,489.2 |
| Steel and Erect Structural Steel | L. Sum. | 1 | | 1 |
| Stud Shear Connectors | Each | 13,090 | | 13,090 |
| Reinforcement Bars | Lbs. | | 28,160 | 28,160 |
| Reinforcement Bars (Epoxy Coated) | Lbs. | | 278,570 | 278,570 |
| Furn. Steel Piles HP10 x 42 | Lin. Ft. | | 1,019 | 1,019 |
| Furn. Steel Piles HP12 x 53 | Lin. Ft. | | 371 | 371 |
| Driving Steel Piles | Lin. Ft. | | 1,318 | 1,318 |
| Test Pile Steel HP10 x 42 | Each | | 1 | 1 |
| Test Pile Steel HP12 x 53 | Each | | 1 | 1 |
| Class X Concrete Encasement | Cu. Yd. | | 19.0 | 19.0 |
| Metal Shoes | Each | | 27 | 27 |
| Name Plates | Each | | 1 | 1 |
| Stone Riprap | Sq. Yd. | | | 1,028 |
| Temporary Concrete Barrier | Lin. Ft. | | | 1,300 |
| Expansion Bolts, 3/4" inch | Each | | 136 | 136 |
| Preformed Joint Seal 4" | Lin. Ft. | 68 | | 68 |
| Setting Piles in Rock | Each | | 6 | 6 |
| Temporary Sheet Piling | Sq. Ft. | | | 900 |



STATION 170+09
 REBUILT 198 BY
 STATE OF ILLINOIS
 F.A. RT. 666 SEC. 27 BR
 F.A. PROJ. BR-666 ()
 LOADING HS 20
 STR. NO. 084-0030

NAME PLATE
 See Standard #2113



WATERWAY INFORMATION

* Drainage Area = 2736 Sq. Mi. Low Grade Elev. 527.74 @ Sta. 150+00

| Flood | Freq. Yr. | Q CFS. | Opening Sq. Ft. | | Nar. | Head-Fr. | | Headwater-El. | |
|-------------|-----------|--------|-----------------|-------|--------|----------|-------|---------------|--------|
| | | | EXIST. | PROP. | | EXIST. | PROP. | EXIST. | PROP. |
| Design | 50 | 43,000 | 6785 | 6785 | 524.95 | .37 | .37 | 525.32 | 525.32 |
| Base | 100 | 46,950 | 7504 | 7504 | 526.30 | .51 | .51 | 526.81 | 526.81 |
| Overtopping | 200 | 50,300 | 8245 | 8245 | 527.65 | .58 | .58 | 528.23 | 528.23 |
| Max. Calc. | 500 | | | | | | | | |

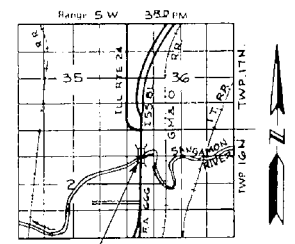
* Includes Area for Overflow Structure No. 084-0179

DESIGN SPECIFICATIONS
 AASHTO (1983) & 1984 Interim Load Factor Design

LOADING HS 20-44
 Allow 25 p.s.f. for future wearing surface

DESIGN STRESSES

$f_p = 3,500$ p.s.i.
 $f_y = 60,000$ (Reinf.)
 $f_y = 50,000$ (Struct.) M223 Gr.50
 $f_y = 36,000$ p.s.i. (M183)



LOCATION SKETCH



William L. Wells 2-20-86
 William L. Wells Date
 Registered Structural Engineer
 State of Illinois No. 4362

APPROVED
 FOR STRUCTURAL ADEQUACY ONLY
 James J. Rayburn
 Engineer of Bridges and Structures

KLINGNER & ASSOCIATES, P.C.
 CONSULTING ENGINEERS
 613 BROADWAY
 QUINCY, ILLINOIS 62301 217-223-3670

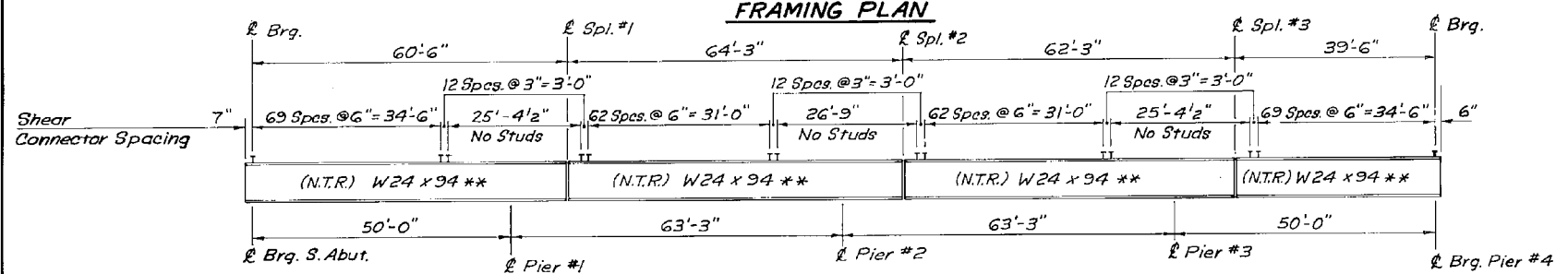
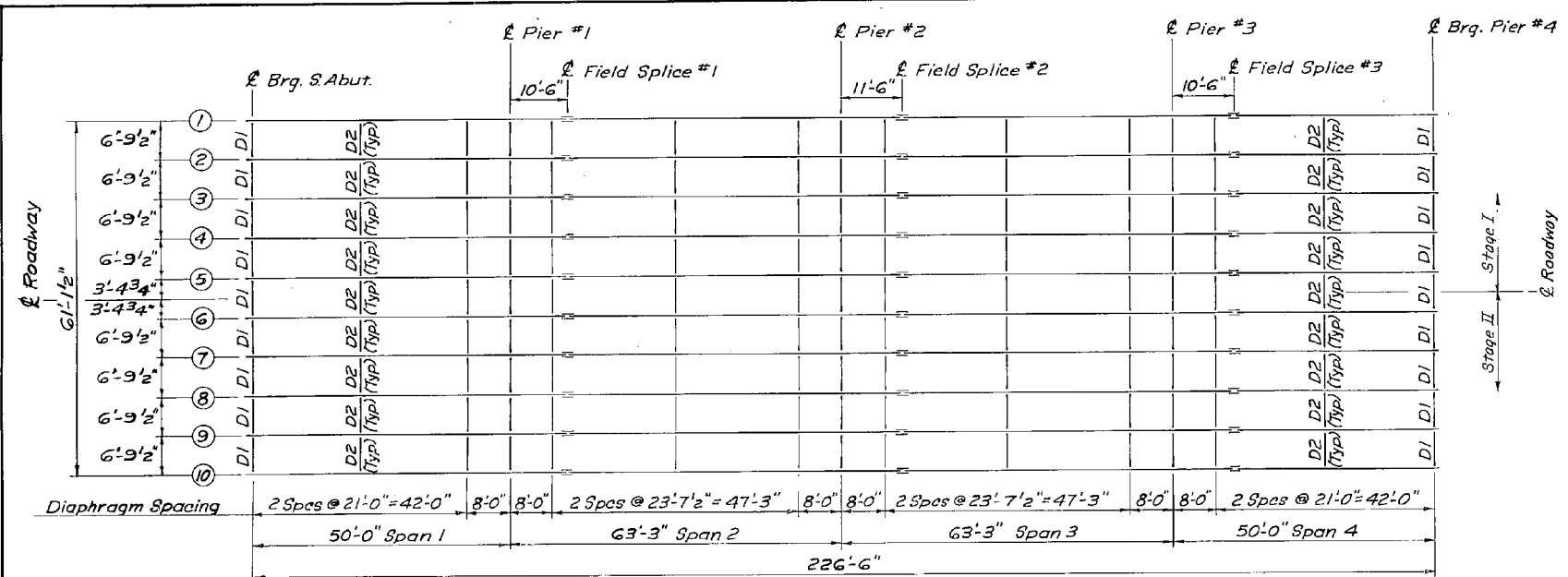
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030
 (FOR INFORMATION ONLY)

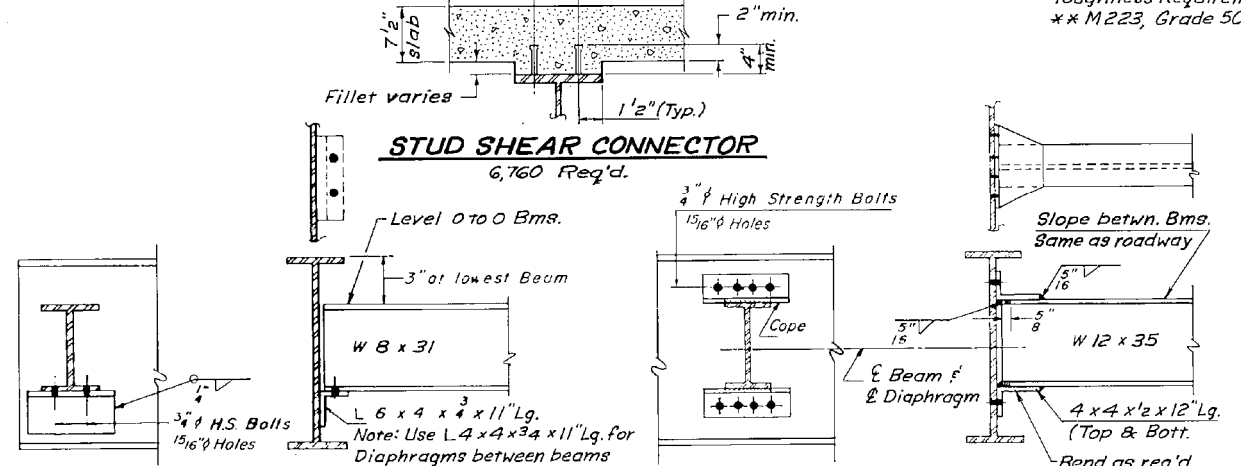
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|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 1/25/2019 | DATE - | REVISED - |

SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|---------------------------|-----------------------|----------|--------------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 14 |
| * FAI 72A, FAP 662, 666 | | | CONTRACT NO. 72K74 | |
| ILLINOIS FED. AID PROJECT | | | | |



3/4" Granular or solid Flux filled headed studs automatically end welded



Note: Two hardened washers shall be required over all 1 5/16" holes in diaphragm connections.

KLINGNER & ASSOCIATES, P.C.
CONSULTING ENGINEERS
613 BROADWAY
QUINCY, ILLINOIS 62301 217-223-3670

NOTES

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

I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_s (Total and Overload).

V_R is the maximum LL + impact shear range in span.

Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

The Fully Plastic Moment Capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.

f_s (Total) is the sum of the stresses due to $1.3 [M_{DL} + M_{SDL} + 5/3 (M_{LL} + I)]$

f_s (Overload) is the sum of the stresses due to $M_{DL} + M_{SDL} + 5/3 (M_{LL} + I)$

M_{DL} - Moment due to dead loads on non-composite section.

M_{SDL} - Moment due to dead loads on composite section.

M_{LL} - Moment due to Live Load on non-composite or composite section.

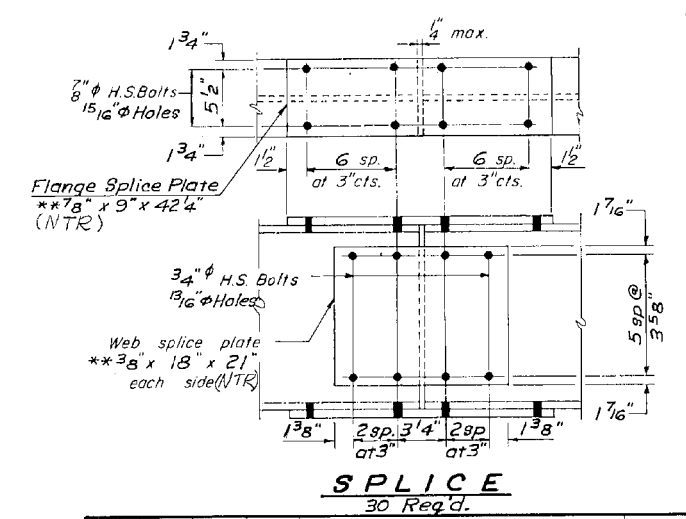
I - Live Load Impact

TOP OF BEAM ELEVATIONS (For Fabrication Only)

| Beam Line | ℓ Brg. S. Abut. | Pier 1 | Splice 1 | Pier 2 | Splice 2 | Pier 3 | Splice 3 | ℓ Brg. Pier 4 |
|-----------|-----------------|--------|----------|--------|----------|--------|----------|---------------|
| 1 and 10 | 531.51 | 532.41 | 532.62 | 533.55 | 533.78 | 534.69 | 534.89 | 535.59 |
| 2 and 9 | 531.65 | 532.55 | 532.76 | 533.69 | 533.92 | 534.83 | 535.03 | 535.73 |
| 3 and 8 | 531.79 | 532.69 | 532.90 | 533.83 | 534.06 | 534.97 | 535.18 | 535.87 |
| 4 and 7 | 531.93 | 532.83 | 533.04 | 533.97 | 534.19 | 535.10 | 535.31 | 536.00 |
| 5 and 6 | 532.07 | 532.97 | 533.18 | 534.11 | 534.30 | 535.21 | 535.41 | 536.11 |

INTERIOR BEAM MOMENT TABLE

| Units | 0.4 Span 1 if 0.6 Span 4 | Piers 1 & 3 | 0.5 Spans 2 & 3 | Pier 2 |
|-------------------------------|--------------------------|-------------|-----------------|--------|
| I_s (in ⁴) | 2700 | 2700 | 2700 | 2700 |
| I_c (in ⁴) | 8309 | 8309 | 8309 | 8309 |
| S_s (in ³) | 222 | 222 | 222 | 222 |
| S_c (in ³) | 349 | 349 | 349 | 349 |
| Z (in ³) | | 254 | | 254 |
| DL (k/ft) | 0.760 | 1.002 | 0.760 | 1.002 |
| M _{DL} (k) | 140.7 | 273.2 | 155.3 | 290.5 |
| S _{DL} (k/ft) | 0.242 | | 0.242 | |
| M _{SDL} (k) | 51.9 | | 65.7 | |
| M _{LL} (k) | 342.1 | 167.8 | 408.4 | 185.6 |
| I (k) | 97.8 | 46.1 | 108.6 | 49.4 |
| 5/3 (M _{LL} + I) (k) | 733.2 | 356.2 | 861.7 | 391.7 |
| M _a (k) | 1203.5 | 818.6 | 1407.5 | 886.9 |
| * M _u (k) | 2016 | 1058 | 2016 | 1058 |
| f_s DL (non-comp) (KSI) | 7.6 | 12.9 | 8.4 | 13.7 |
| f_s DL (comp) (KSI) | 1.8 | | 2.3 | |
| f_s 5/3 (LL+I) (KSI) | 25.2 | 16.8 | 29.6 | 18.5 |
| f_s (Overload) (KSI) | 34.6 | 29.7 | 40.3 | 32.2 |
| V _R (k) | 50.3 | | 42.0 | |



INTERIOR BEAM REACTION TABLE

| Units | S. Abut. ℓ Pier 4 | Piers 1 & 3 | Pier 2 |
|------------------------|-------------------|-------------|--------|
| R _{DL} (k) | 18.6 | 62.9 | 63.8 |
| R _{LL} (k) | 35.0 | 41.8 | 43.1 |
| Imp. (k) | 10.0 | 11.5 | 11.4 |
| R _{TOTAL} (k) | 63.6 | 116.2 | 118.3 |

(Composite in Positive Moment Area Only)

* M_u = Full Plastic Moment Capacity for Compact, Braced Section

M_a (Applied Moment) = 1.3 [M_{DL} + M_{SDL} + 5/3 (M_{LL} + I)]

REV. NO. DRAWN CHKD. APPD. DESCRIPTION DATE

1/86

F.A. ROUTE 666 (1-55 BL)
SECTION 27 BR-I
SANGAMON COUNTY, ILLINOIS
STA. 170+09.00
STRUCTURAL STEEL DETAILS
SPANS 1 THRU 4
STRUCTURE NO. 084-0030

MODEL: Defaut FILE: NAME: C:\CENTRAL\OPERATIONS\BRIDGES\Bridges\Bridges\Bridges\CAD\72K74 - Sangamon County.pbrt 2019/08/26/2019

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/5/2018 | DATE - | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

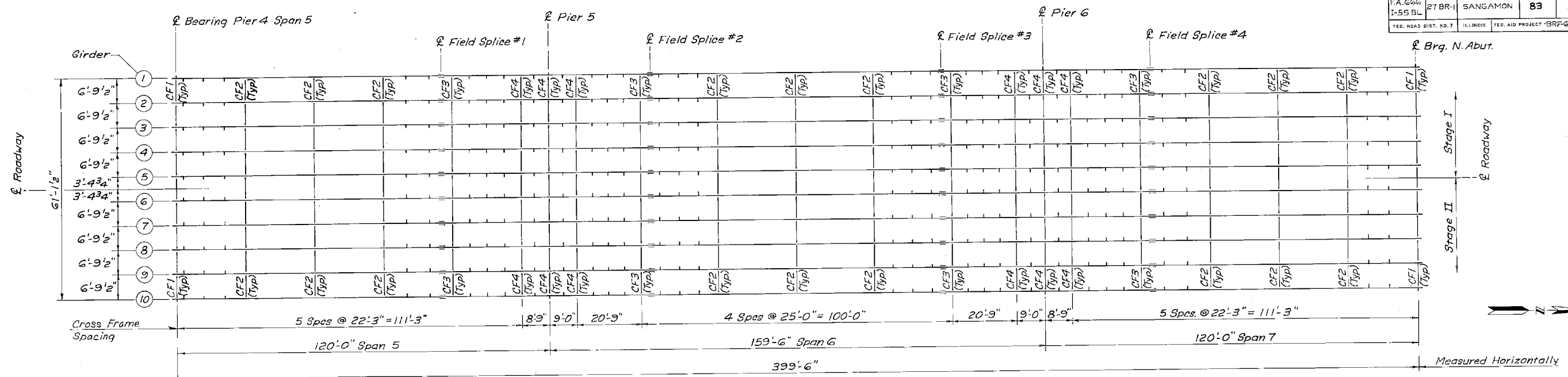
EXISTING STRUCTURE PLANS, SN 084-0030
(FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

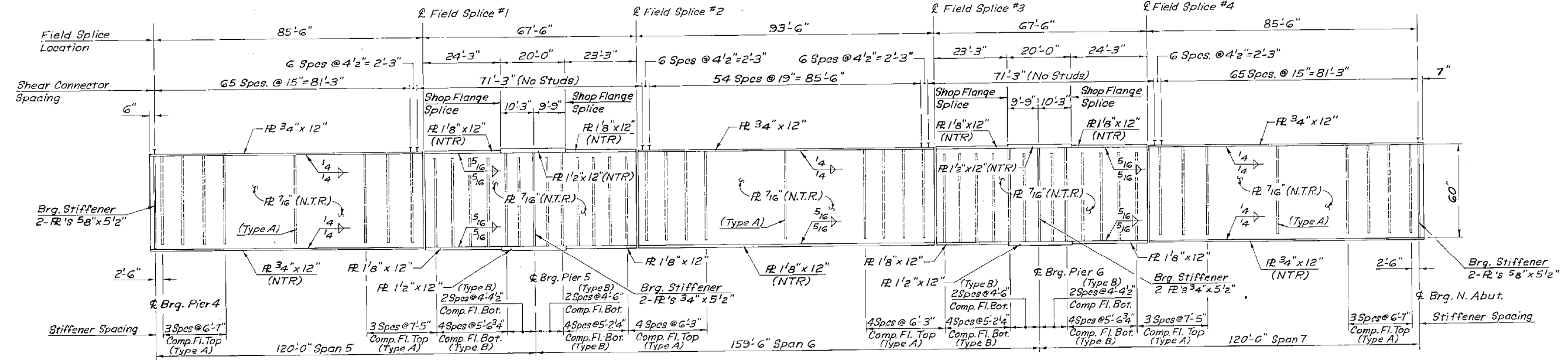
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|-------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| * | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 15 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| ILLINOIS | | FED. AID PROJECT | | |

| | | | | |
|-----------------------|----------|---------------------------|--------------|-----------|
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| FA. 666 I-55 BL | 27 BR-1 | SANGAMON | 83 | 54 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT "BRF666" | | |

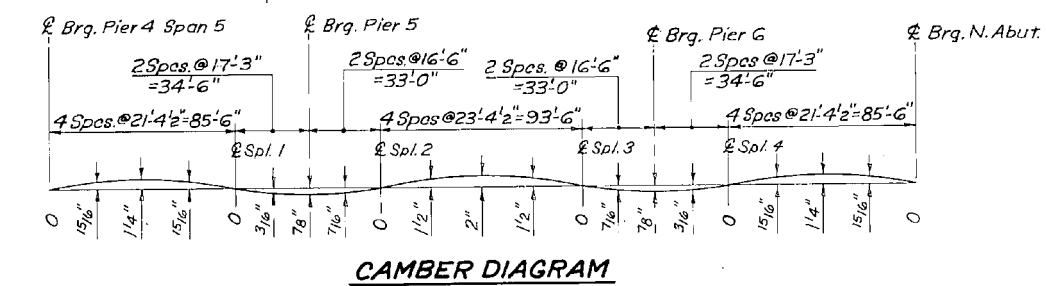
SHEET NO. 17
OF
26 SHEETS



FRAMING PLAN



GIRDER ELEVATION



CAMBER DIAGRAM

TOP OF WEB ELEVATIONS (For Fabrication Only)

| Girder Line | Brg. Pier 4 | Splice 1 | Pier 5 | Splice 2 | Splice 3 | Pier 6 | Splice 4 | Brg. N. Abut. |
|-------------|-------------|----------|--------|----------|----------|--------|----------|---------------|
| 1 and 10 | 535.47 | 537.08 | 537.63 | 538.32 | 540.01 | 540.50 | 541.19 | 542.66 |
| 2 and 9 | 535.61 | 537.22 | 537.77 | 538.46 | 540.15 | 540.64 | 541.33 | 542.80 |
| 3 and 8 | 535.75 | 537.36 | 537.91 | 538.60 | 540.29 | 540.78 | 541.47 | 542.94 |
| 4 and 7 | 535.89 | 537.50 | 538.05 | 538.74 | 540.43 | 540.92 | 541.61 | 543.08 |
| 5 and 6 | 535.99 | 537.60 | 538.15 | 538.84 | 540.53 | 541.02 | 541.71 | 543.18 |

- NOTES:**
1. N.T.R. indicates Notch Toughness Requirement
 2. All Flange Plates, Web Plates, Splice Plates, and Bearing Stiffener Plates shall be M 223, Gr. 50 Steel.

| | | | | | |
|----------|-------|--------|--------|-------------|------|
| REV. NO. | DRAWN | CHKD. | APPD. | DESCRIPTION | DATE |
| | RLW | M.D.K. | W.L.W. | | 2/86 |

F.A. ROUTE 666 (I-55 BL)
SECTION 27 BR-1
SANGAMON COUNTY, ILLINOIS
STA. 170+09.00
STRUCTURAL STEEL DETAILS
SPANS 5 THRU 7
STRUCTURE NO. 084-0030

KLINGNER & ASSOCIATES, P.C.
CONSULTING ENGINEERS
613 BROADWAY
QUINCY, ILLINOIS 62301 217-223-3670

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/5/2018 | DATE - | REVISED - |

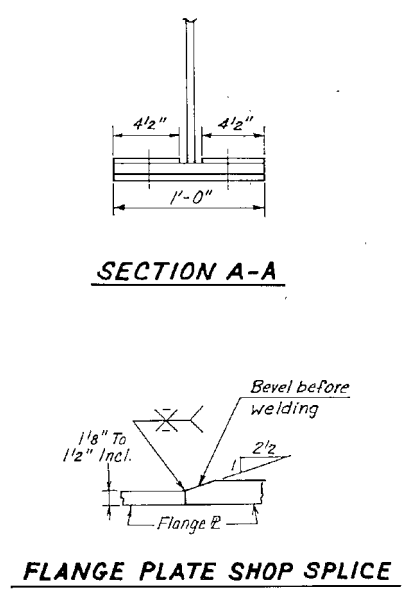
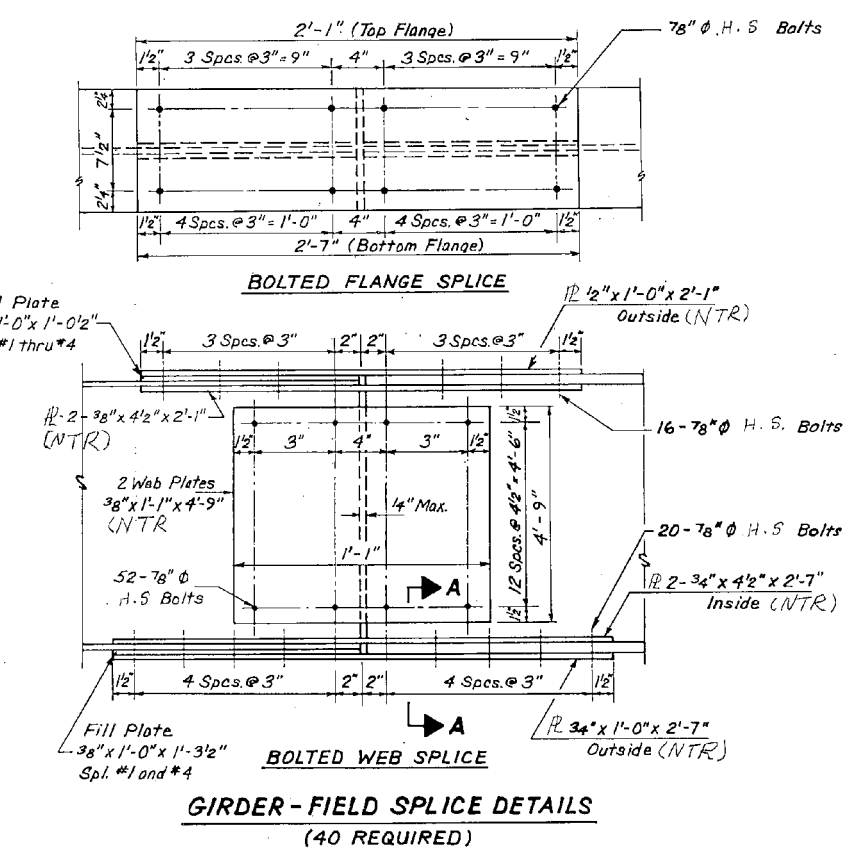
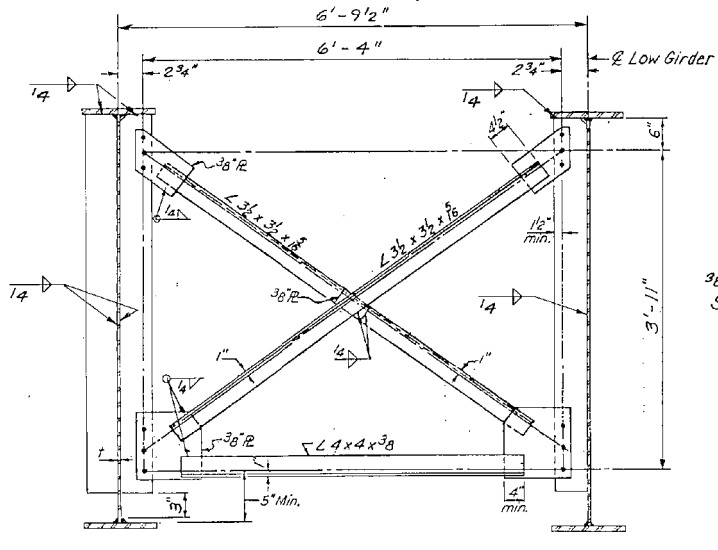
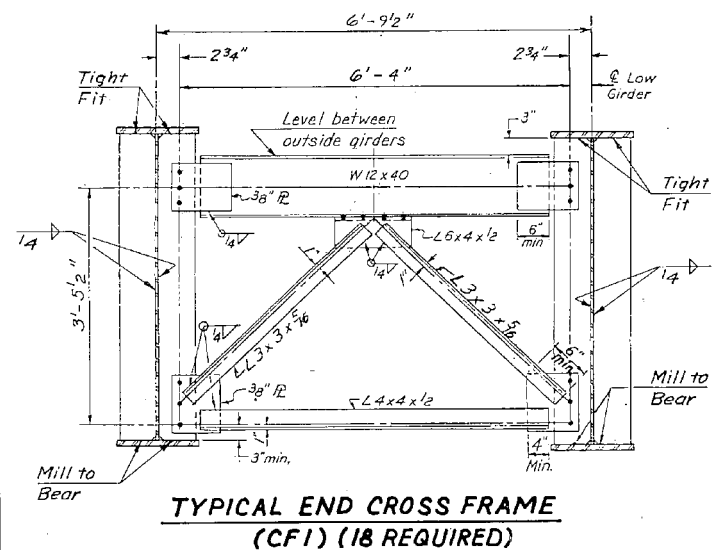
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030
(FOR INFORMATION ONLY)

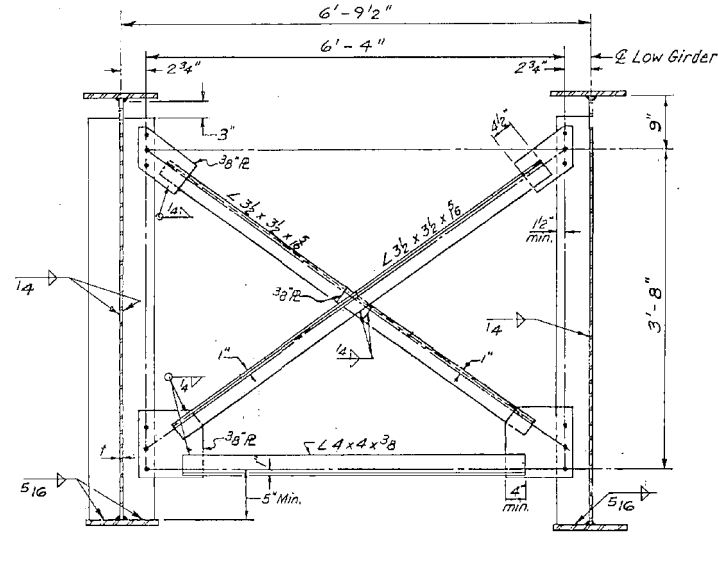
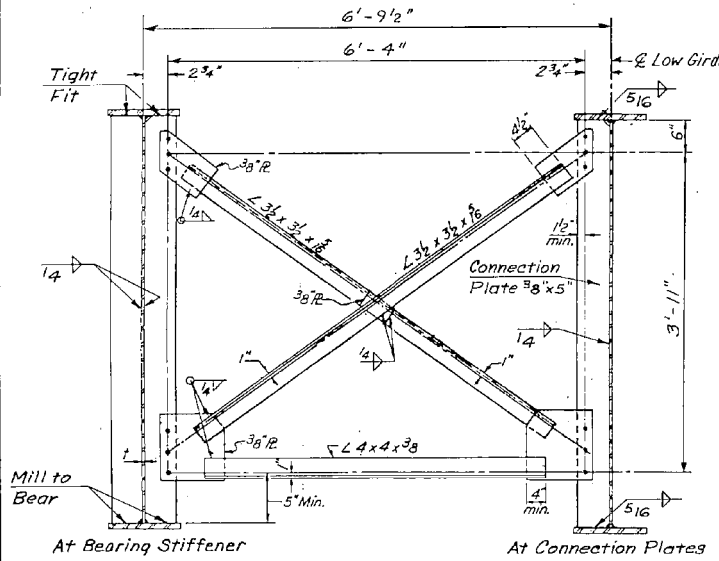
SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|-----------|-------------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 16 |
| | * FAI 72A, FAP 662, 666 | CONTRACT NO. 72K74 | | |
| | ILLINOIS | FED. AID PROJECT | | |

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Note: Connection Plate Welded to both flanges.

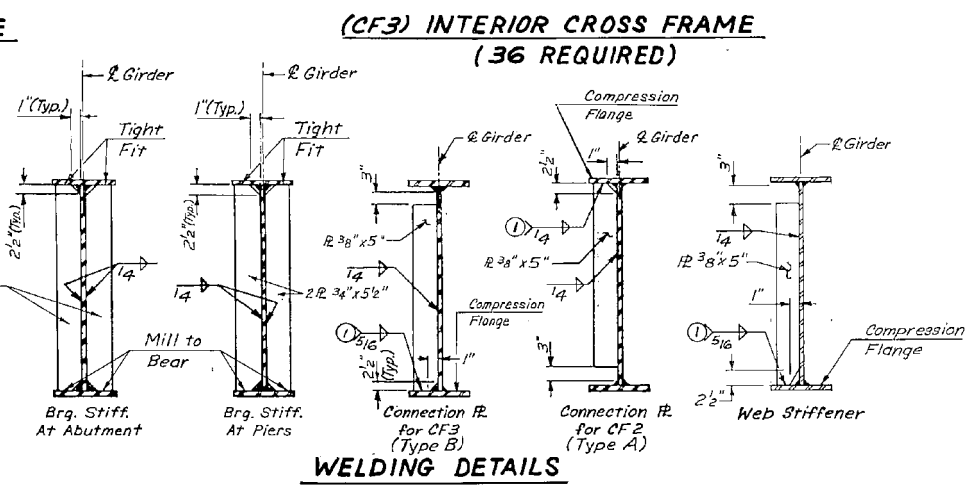
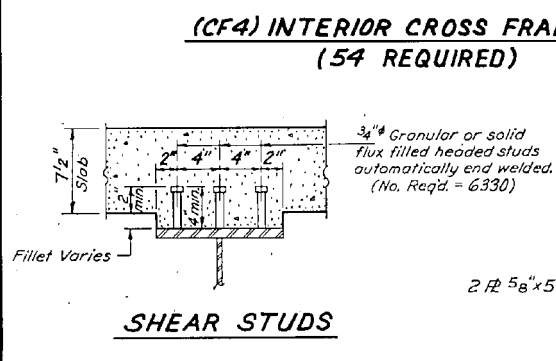


Note: For definition of I_g, S_g, I_c, S_c, V_R etc. See Sht. 16

INTERIOR GIRDER MOMENT TABLE

| Units | 0.4 Span 5 & 0.6 Span 7 | Piers 5 & 6 | 0.5 Span 6 |
|---------------------------|-------------------------|-------------|------------|
| I_s (in. ⁴) | 24483 | 41922 | 33098 |
| I_c (in. ⁴) | 58560 | | 70426 |
| S_s (in. ³) | 796 | 1331 | 1011 |
| S_c (in. ³) | 1121 | | 1392 |
| DL (k/Ft.) | .831 | 1.134 | .846 |
| MDL (Ft-k) | 710.1 | 2259.6 | 865.9 |
| SDL (k/Ft.) | .242 | | .242 |
| $MSDL$ (Ft-k) | 248.0 | 997.1 | 344.0 |
| MLL (Ft-k) | 976.6 | 1140.1 | |
| I (Ft-k) | 199.2 | 188.5 | 200.7 |
| $S/S(MLL+I)$ (Ft-k) | 1959.7 | 1976.0 | 2234.7 |
| Ma (Ft-k) | 3793.1 | 5506.3 | 4478.0 |
| $f_s DL$ (non-comp) (KSI) | 10.7 | 20.4 | 10.3 |
| $f_s DL$ (comp) (KSI) | 2.6 | | 3.0 |
| $f_s S/3(LL+I)$ (KSI) | 21.0 | 17.8 | 19.2 |
| f_s (Overload) (KSI) | 34.3 | 38.2 | 32.5 |
| f_s (Total) (KSI) | 44.6 | 49.6 | 42.3 |
| VR (K) | 53.6 | | 37.7 |

- NOTES:**
- Intermediate Stiffeners shall be located on the inside face of Girders ① and ⑩ and on either face of Girders ② thru ⑨.
 - Plates designated by (N.T.R.) shall conform to the Supplemental Requirements for Notch Toughness (Zone 2). These components are the Tension Flanges, Webs and all Splice Plate material of the Steel Girder.
 - Weld Intermediate Web Stiffeners to Compression Flanges as located on Girder Elevation.
 - Holes in Cross Frames shall be $15/16"$ ϕ holes for $3/4"$ ϕ H.S. Bolts. Holes in splices shall be detailed with $15/16"$ ϕ holes for $7/8"$ ϕ H.S. Bolts in flanges and webs. Two (2) hardened washers per bolt shall be provided for oversize holes in Diaphragm connections.



INTERIOR GIRDER REACTION TABLE

| Units | Pier 4 & N. Abut. | Piers 5 & 6 |
|--------------|-------------------|-------------|
| RDL (K) | 45.7 | 172.0 |
| RLL (K) | 40.3 | 79.9 |
| $Imp.$ (K) | 8.2 | 15.1 |
| $RTOTAL$ (K) | 94.2 | 267.0 |

KLINGNER & ASSOCIATES, P.C.
CONSULTING ENGINEERS
613 BROADWAY
QUINCY, ILLINOIS 62301 217-223-3670

F.A. ROUTE 666 (1-55 BL)
SECTION 27 BR-1
SANGAMON COUNTY, ILLINOIS
STA. 170+09.00
STRUCTURAL STEEL DETAILS
SPANS 5 THRU 7
STRUCTURE NO. 084-0030

MODEL: Default; FILE: 10-11-10; OPERATIONS: Bridge; Bridge: CAD: 7/24/14 - Sangamon County; print: 2019; 10/5/2018

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| DRAWN - | REVISED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/5/2018 | DATE - | REVISED - |

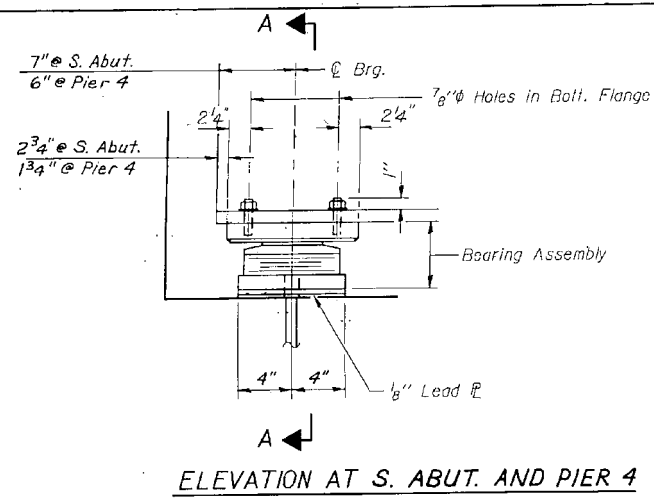
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030
(FOR INFORMATION ONLY)

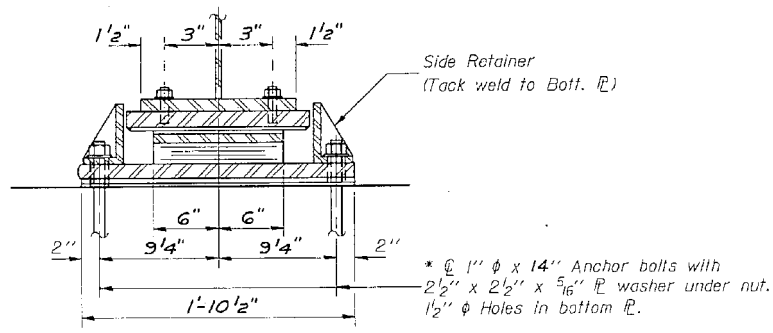
SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|-------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| - | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 17 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| | ILLINOIS | FED. AID PROJECT | | |

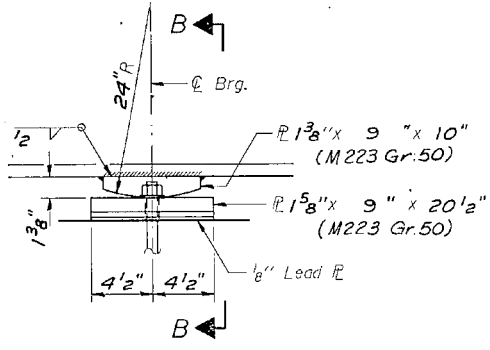
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| ROUTE NO. | SECTION | COUNTY | SHEETS | SHEET | SHEET NO. 19 OF 26 SHEETS |
| F.A. 666 1-55 BL | 27 BR-1 | SANGAMON | 83 | 56 | |
| FED. ROAD DIST. NO. 7 | BLINDS | FED. AID PROJECT - BRP-666 | | | |



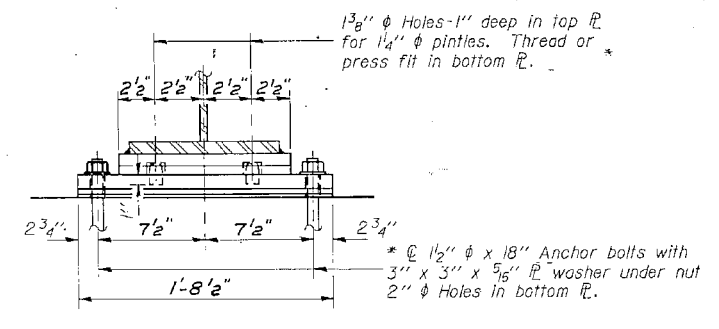
ELEVATION AT S. ABUT. AND PIER 4



SECTION A-A



ELEVATION AT PIER

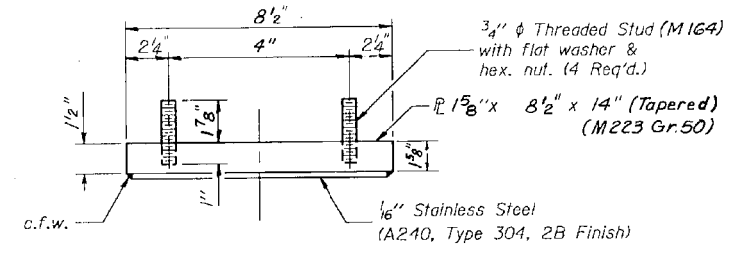


SECTION B-B

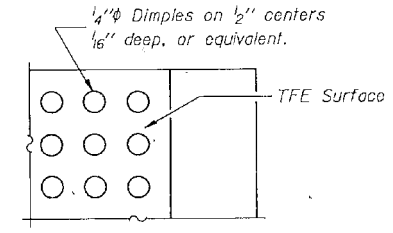
TYPE II TFE ELASTOMERIC EXP. BRG.

* Notes: Anchor bolts at fixed bearings may be built into the masonry. See sheet #21 for Anchor Bolt installation.

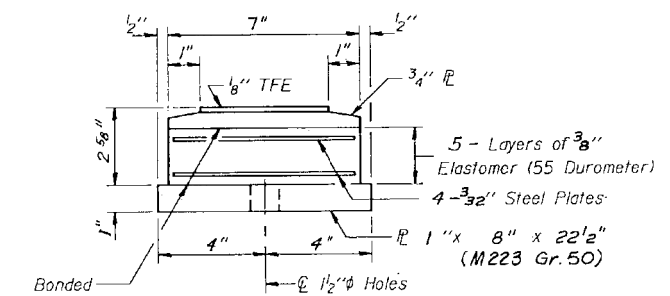
FIXED BEARING
Piers 1 thru 3
(30 Required)



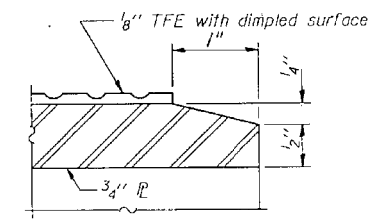
TOP BEARING ASSEMBLY



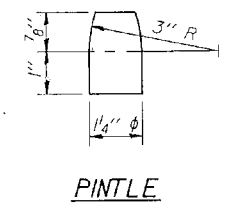
PLAN-TFE SURFACE



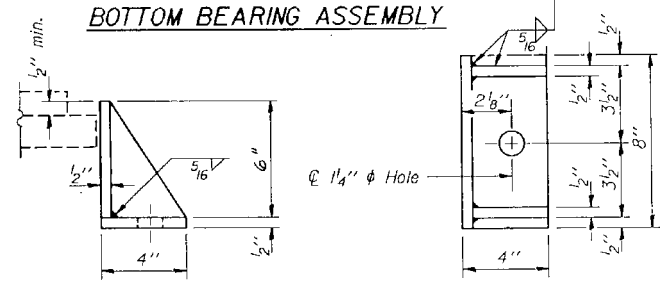
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE



PINTLE

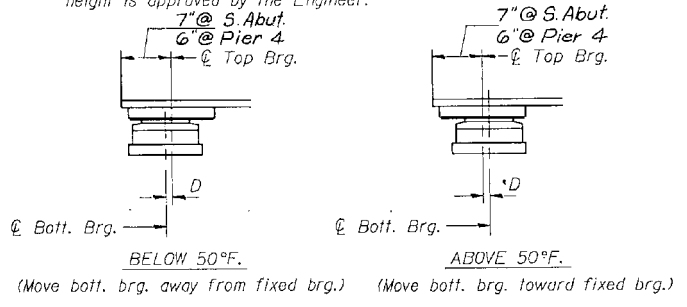


SIDE RETAINER

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

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.



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 | 20 |

| | | | | | |
|----------|-------|--------|--------|-------------|------|
| REV. NO. | DRAWN | CHKD. | APPD. | DESCRIPTION | DATE |
| | RLW | M.D.K. | W.L.W. | | 1/86 |

F.A. ROUTE 666 (1-55 BL)
SECTION 27 BR-1
SANGAMON COUNTY, ILLINOIS
STA. 170+09.00
BEARING ASSEMBLY, TYPE II
SPANS 1 THRU 4
STRUCTURE NO. 084-0030

KLINGNER & ASSOCIATES, P.C.
CONSULTING ENGINEERS
613 BROADWAY
QUINCY, ILLINOIS 62301 217-223-3670

MODEL: Default
FILE NAME: C:\CONTRACTS\OPERATIONS\Bridges\BldgPlans_CAD\72K74 - Sangamon County.pain 2019.dwg
DATE: 10/5/2018

| | | |
|------------------------------|------------|-----------|
| USER NAME = dudleybm | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN - | REVISED - |
| PLOT DATE = 10/5/2018 | CHECKED - | REVISED - |
| | DATE - | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE PLANS, SN 084-0030
(FOR INFORMATION ONLY)
SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|-------------------------|-----------------------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | (84-10-3)(27)(3-1) BP | SANGAMON | 19 | 18 |
| * FAI 72A, FAP 662, 666 | | CONTRACT NO. 72K74 | | |
| ILLINOIS | | FED. AID PROJECT | | |

