

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

F.A.I. ROUTE 290 / F.A.P. ROUTE 342 I-290 / ILL 53
US 12 (RAND RD.) TO ILL 72 (HIGGINS RD.)
SECTION: (531-3.1, 0305-302 K) RS-5
RESURFACING, BRIDGE DECK REPAIR, JOINT REPAIR

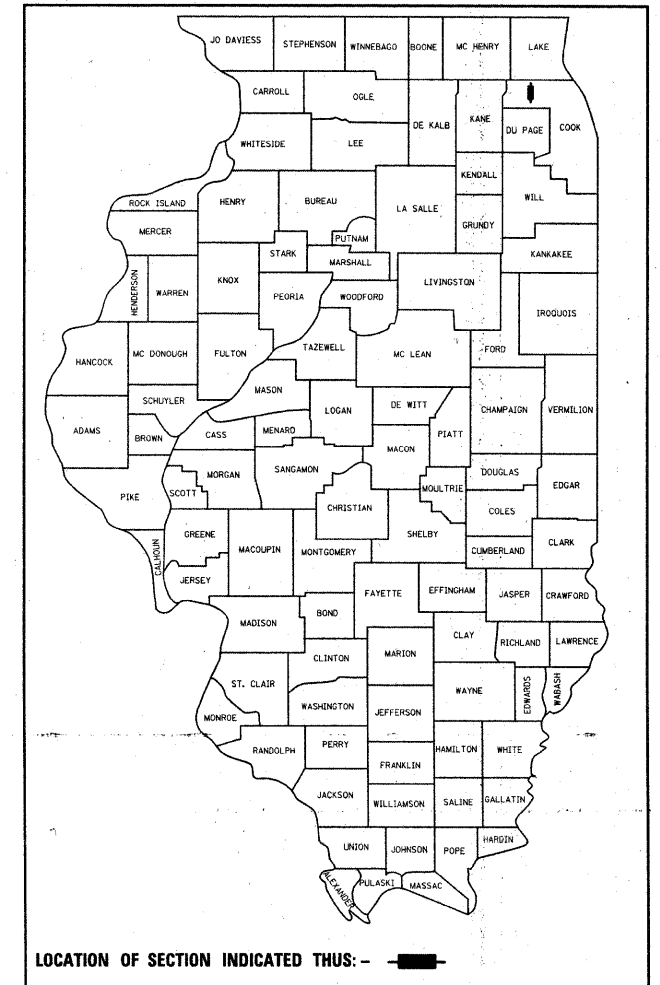
PROJECT: --
COOK COUNTY
C-91-033-10

FOR INDEX OF SHEETS, SEE SHEET NO. 2

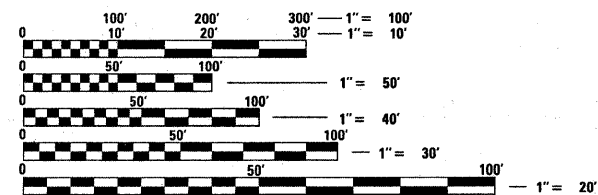
| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-----------------------|-------------------------|----------|--------------------|-----------|
| 290 | (531-3.1, 0305-302)RS-5 | COOK | 314 | 1 |
| FED. ROAD DIST. NO. 1 | | ILLINOIS | CONTRACT NO. 60138 | |

*314+2=316

D-91-033-10



PROJECT IS LOCATED IN THE CITY OF ROLLING MEADOWS AND THE VILLAGES OF ARLINGTON HEIGHTS, PALATINE, & SCHAUMBURG



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.

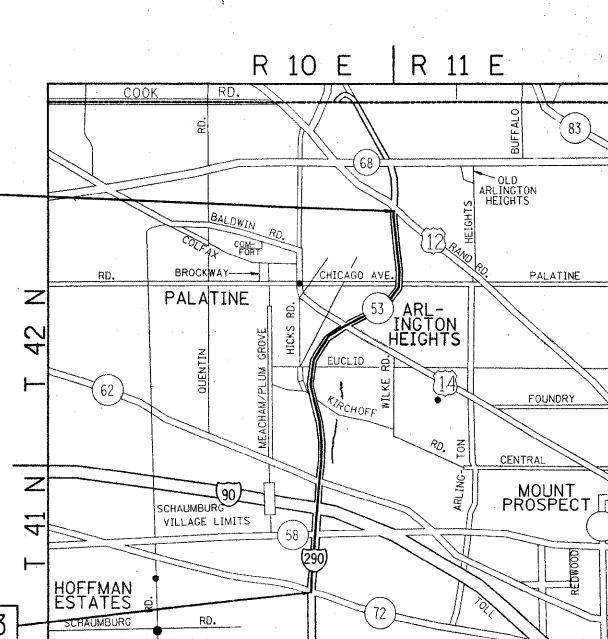
J.U.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENDS STA. 436+00

RESURFACING OMISSIONS:

- STA. 81+05 TO STA. 82+71
- STA. 109+80 TO STA. 112+01
- STA. 133+91 TO STA. 137+47
- STA. 153+26 TO STA. 154+74
- STA. 173+87 TO STA. 178+97
- STA. 224+22 TO STA. 230+98
- STA. 274+37 TO STA. 280+65
- STA. 298+84 TO STA. 308+60
- STA. 360+26 TO STA. 366+78
- STA. 383+64 TO STA. 389+05
- STA. 433+68 TO STA. 436+00

PROJECT BEGINS STA. 58+43



PALATINE, SCHAUMBURG & ELK GROVE TOWNSHIPS

TRAFFIC DATA (MAINLINE)
SPEED LIMIT: 55 MPH
2007 ADT: 194,100

PROJECT ENGINEER: DAN WILGREEN (847) 705-4240
PROJECT MANAGER: KEN ENG

CONTRACT NO. 60138

GROSS LENGTH OF PROJECT = 37,757 FEET (7.2 MILES)
NET LENGTH OF PROJECT = 32,651 FEET (6.2 MILES)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED FEBRUARY 3, 2010

Diana M. O'Keefe
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

March 19, 2010
Scott E. Stott, PE
Acting ENGINEER OF DESIGN AND ENVIRONMENT

March 19, 2010
Christine M. Reed
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

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STATE STANDARDS

| | |
|-----------|--|
| 000001-05 | STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS |
| 442201-03 | CLASS C AND D PATCHES |
| 482011-03 | HMA SHLD. STRIPS/SHLDS. WITH RESURFACING OR WIDENING AND RESURFACING PROJECTS |
| 602001-01 | CATCH BASIN TYPE A |
| 604036-02 | GRATE TYPE 8 |
| 606401-01 | PAVED DITCH |
| 635006-03 | REFLECTOR AND TERMINAL MARKER PLACEMENT |
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| 701101-02 | OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE |
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| 701400-04 | APPROACH TO LANE CLOSURE, FREEWAY/ EXPRESSWAY |
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| 701411-06 | LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS ≥ 45 MPH |
| 701426-03 | LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPERATION, FOR SPEEDS ≥ 45 MPH |
| 701446-01 | TWO LANE CLOSURE FREEWAY/ EXPRESSWAY |
| 701601-06 | URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN |
| 701701-06 | URBAN LANE CLOSURE MULTILANE INTERSECTION |
| 701901-01 | TRAFFIC CONTROL DEVICES |
| 704001-06 | TEMPORARY CONCRETE BARRIER |
| 720011-01 | METAL POSTS FOR SIGNS, MARKERS AND DELINEATORS |
| 728001-01 | TELESCOPING STEEL SIGN SUPPORT |
| 729001-01 | APPLICATIONS OF TYPES A AND B METAL POSTS (FOR SIGNS AND MARKERS) |

GENERAL NOTES:

BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT 800-892-0123 OR 811 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS FACILITIES. (48 HOUR NOTIFICATION IS REQUIRED)

THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, THE CITY OF ROLLING MEADOWS, AND THE VILLAGES OF ARLINGTON HEIGHTS, PALATINE, & SCHAUMBURG.

THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.

ALL HOT-MIX ASPHALT PAVEMENT PATCHING SHALL BE CLASS D.

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

WHEN MILLED PAVEMENT IS OPEN TO TRAFFIC THE MAXIMUM GRADE DIFFERENTIAL BETWEEN PASSES OF THE MILLING MACHINE SHALL NOT EXCEED 1 1/2 INCHES (40MM) WHERE THE SPEED LIMIT IS 45 MPH (80KM/H) OR LESS AND 1 INCH (25 MM) WHERE THE SPEED LIMIT IS GREATER THAN 45 MPH (80 KM/H), WITH WRITTEN APPROVAL FROM THE ENGINEER, A MAXIMUM GRADE DIFFERENTIAL OF 3 INCHES (75 MM) MAY BE ALLOWED IF THE EDGE OF THE MILLING IS SLOPED A MINIMUM 1:3 (V:H).

10 FEET (3 METER) TRANSITION SHALL BE USED TO MATCH PROPOSED CURB AND GUTTER TO EXISTING CURB AND GUTTERS IN THE FIELD, UNLESS OTHERWISE SHOWN. THE TRANSITION SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PROPOSED ITEMS OF WORK SPECIFIED.

THE RESIDENT ENGINEER SHALL VERIFY THE LOCATIONS OF ALL EXISTING PAVEMENT MARKINGS PRIOR TO MILLING OR RESURFACING.

ALL PAVEMENT MARKINGS SHALL BE PLACED THROUGHOUT THE IMPROVEMENT ACCORDING TO DISTRICT 1 TYPICAL PAVEMENT MARKING.

TWO WEEKS PRIOR TO PLACING PERMANENT PAVEMENT MARKINGS, CONTACT WALLY CZARNY, AREA TRAFFIC FIELD ENGINEER AT (773) 685-4342.

RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED THROUGHOUT THE IMPROVEMENT ACCORDING TO THE DISTRICT STANDARDS AS NOTED IN THE DETAIL.

THE UNIT WEIGHT (CONVERSION FACTOR) QUOTED IS FOR THE ESTIMATING PLAN QUANTITIES ONLY. ACTUAL QUANTITIES TO FULFILL CONTRACT REQUIREMENTS WILL BE DETERMINED BASED ON UNIT WEIGHT OF APPROVED MIX DESIGN, PLAN DIMENSIONS, AND DENSITY LIMITATIONS. MAXIMUM PAYMENT WILL BE COMPUTED BASED ON WEIGHT AVERAGE DENSITIES OF THE IN-PLACE MIXTURE.

THE RESIDENT ENGINEER SHALL CONTACT THE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 A MINIMUM OF 72 HOURS PRIOR TO THE PLACEMENT OF ANY TEMPORARY TRAFFIC CONTROL DEVICES.

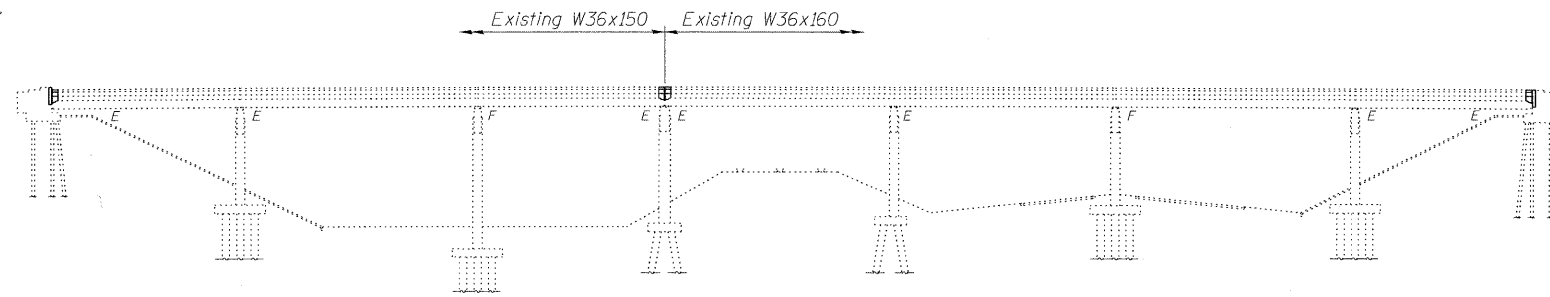
| | | | | | | | | | | | |
|--|---------------------|------------|-----------|---|--|---|----------------------------|----------------------------------|--------------|--------------------|--|
| FILE NAME = | USER NAME = obreuah | DESIGNED - | REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | I-290 / ILL 53 FROM US 12 TO ILL 72 INDEX OF SHEETS STATE STANDARDS AND GENERAL NOTES | F.A.T. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| ct:\pwork\PWIDOT\ABREUAH\0166688\010310\shp-plan.dgn | 10-11-2018 | DRAWN - | REVISED - | | | 290 | (531-3.1, 0305-302 K) RS-5 | COOK | 314 | 2 | |
| PLOT SCALE = 50,0000 ' / IN. | | CHECKED - | REVISED - | | | SCALE: 1" = 50' | | SHEET NO. OF SHEETS STA. TO STA. | | CONTRACT NO. 60138 | |
| PLOT DATE = 2/11/2018 | | DATE - | REVISED - | | | FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | | |

Existing Structure: S.N. 016-0374 built in 1964 as F.A. 61, Section 531-2-VHB at Station 270+71.17. In 1991, the deck was repaired, neoprene expansion joints were provided and an overlay was replaced. In 2000, the rocker bearings were replaced with elastomeric bearings. Existing structure is a seven span continuous steel superstructure with a 7" reinforced concrete deck and 2" overlay, supported on two-column piers and stub abutments, measuring 519'-2" back to back abutments, varies 58'-0" to 64'-9³/₄" out to out deck, with a 29°24'20" right ahead skew. Traffic is to be maintained utilizing stage construction.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCOPE OF WORK

1. Remove and replace concrete deck adjacent to expansion joints at abutments and pier 3.
2. Provide preformed joint strip seal expansion joints at abutments and pier 3.
3. Apply Concrete Sealer to top of concrete deck and top and inside vertical face of parapets.
4. Repair deck slab.
5. Clean and Reseal Relief Joints.
6. Repair deteriorated concrete on parapets, abutments and piers.



ELEVATION

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The contractor shall field verify existing dimensions and details affecting new construction 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 scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

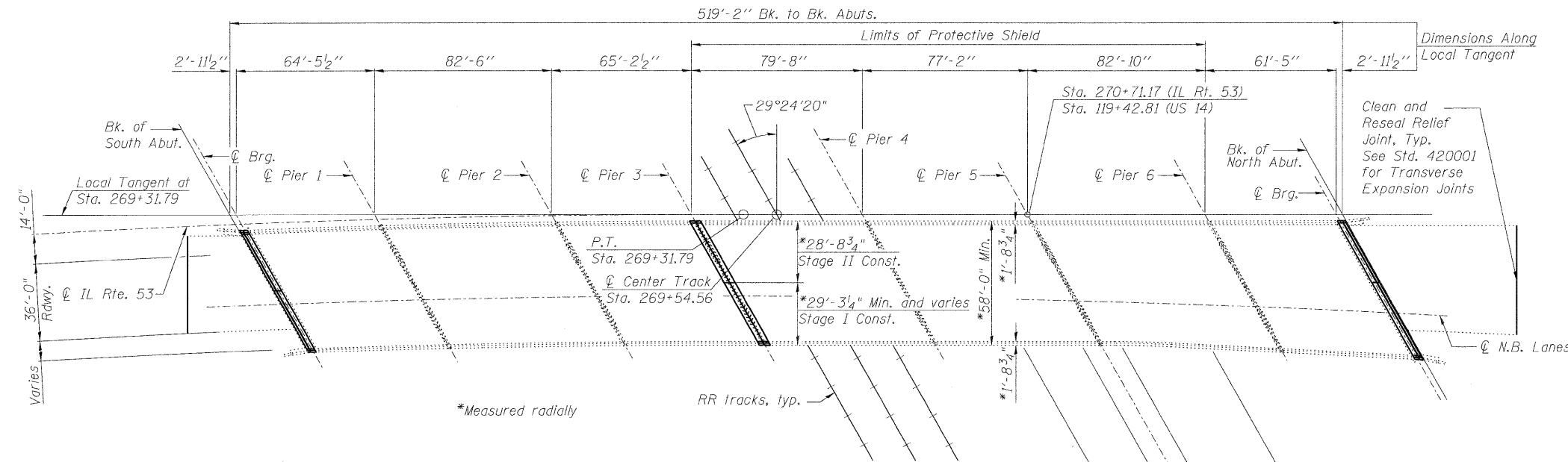
Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that can not be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

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

Joint opening shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50°F.

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.



PLAN

DESIGN STRESSES
FIELD UNITS

Existing Construction

- $f_c = 1,400$ psi (Substructure & Superstructure)
- $f_s = 20,000$ psi (Reinforcement)
- $f_s = 20,000$ psi (Structural Steel)

New Construction

- $f'_c = 3,500$ psi
- $f_y = 60,000$ psi (Reinforcement)

TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER | SUB | TOTAL |
|---|---------|-------|-----|-------|
| Concrete Removal | Cu. Yd. | 30.9 | - | 30.9 |
| Protective Shield | Sq. Yd. | 1423 | - | 1423 |
| Concrete Superstructure | Cu. Yd. | 30.9 | - | 30.9 |
| Reinforcement Bars, Epoxy Coated | Pound | 3600 | - | 3600 |
| Bar Splicers | Each | 40 | - | 40 |
| Preformed Joint Strip Seal | Foot | 201 | - | 201 |
| Concrete Sealer | Sq. Ft. | 34165 | - | 34165 |
| Structural Repair of Concrete (Depth Greater Than 5 in.) | Sq. Ft. | - | 28 | 28 |
| Structural Repair of Concrete (Depth Equal To or Less Than 5 in.) | Sq. Ft. | 205 | 115 | 320 |
| Approach Slab Repair (Partial Depth) | Sq. Yd. | 2.3 | - | 2.3 |
| Deck Slab Repair (Full Depth, Type II) | Sq. Yd. | 37.3 | - | 37.3 |
| Deck Slab Repair (Partial) | Sq. Yd. | 56.4 | - | 56.4 |
| Clean and Reseal Relief Joint | Foot | 100 | - | 100 |

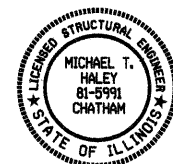
INDEX OF SHEETS

1. General Plan and Elevation
2. Stage Construction Details
3. Temporary Concrete Barrier for Stage Construction
4. Deck Slab Repair
5. Parapet Repair
6. Concrete Removal
7. Abutment Concrete Details
8. Pier 3 Concrete Details
9. Abutment Repair
10. Pier Repair
11. Preformed Joint Strip Seal
12. Bar Splicer Assembly and Mechanical Splicer Details

EXIST. CURVE DATA

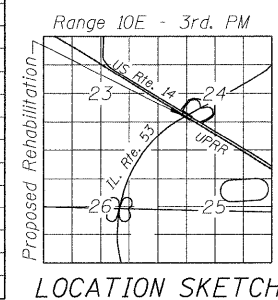
IL RTE 53

- $\Delta = 77^\circ 11' 38''$
- $D = 0^\circ 57' 17.8''$
- $T = 4789.21'$
- $L = 8083.72'$
- $E = 1677.02'$
- $R = 6000'$
- $S.E. = 0.02' /'$
- P.C. = Sta. 188+48.07
- P.T. = Sta. 269+31.79
- P.I. = Sta. 236+37.28



Michael J. Haley 2/8/10
Michael T. Haley
Licensed Structural Engineer
State of Illinois No. 81-5991
Expires 11/30/2010

GENERAL PLAN AND ELEVATION
NB IL RTE 53 OVER US 14 & UP R.R.
F.A.I. RTE 290
SECTION (531-3.1,0305-302K)RS-5
COOK COUNTY
STATION 270+71.17
STRUCTURE NO. 016-0374



LOCATION SKETCH

DESIGN SPECIFICATIONS

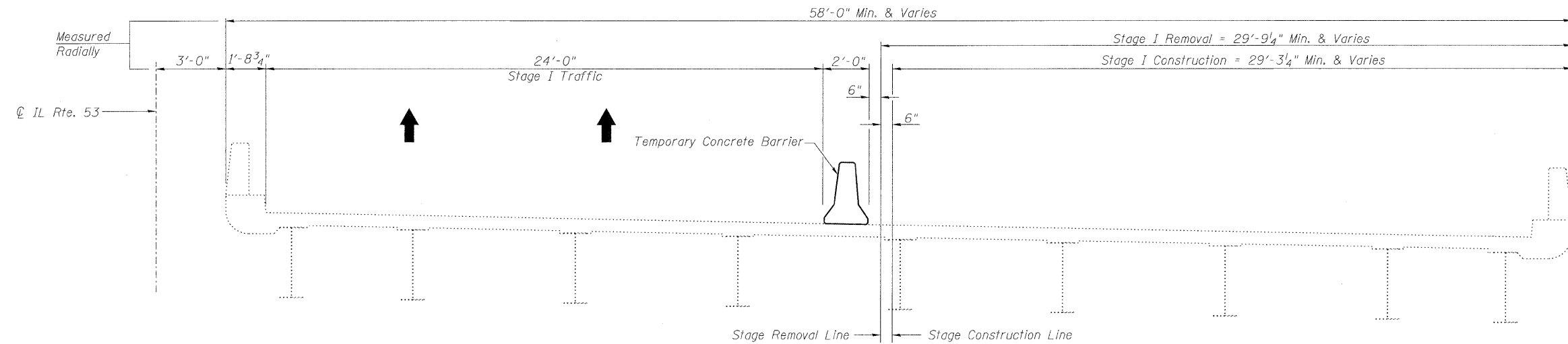
(New Construction)
2002 AASHTO "Standard Specifications for Highway Bridges", 17th Edition

LOADING HS 20-44

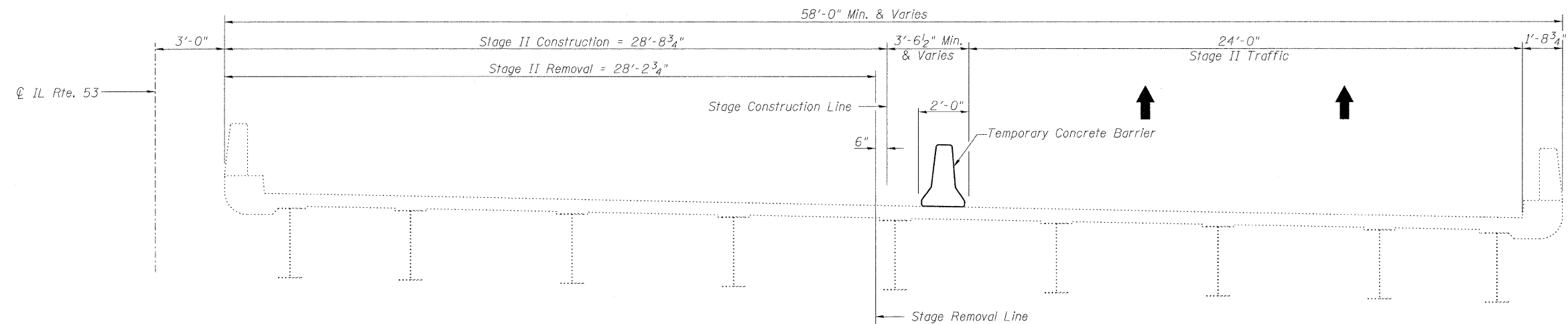
(Original Construction)

| | | | | | | |
|---|-------------|--------------------|---------------------------------|---|------------------|---------------|
| Consulting Engineers Chatham, Illinois | SHEET NO. 1 | F.A.I. RTE. 290 | SECTION (531-3.1,0305-302K)RS-5 | COUNTY COOK | TOTAL SHEETS 314 | SHEET NO. 184 |
| | 12 SHEETS | CONTRACT NO. 60138 | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



STAGE I REMOVAL & CONSTRUCTION
(Looking North)



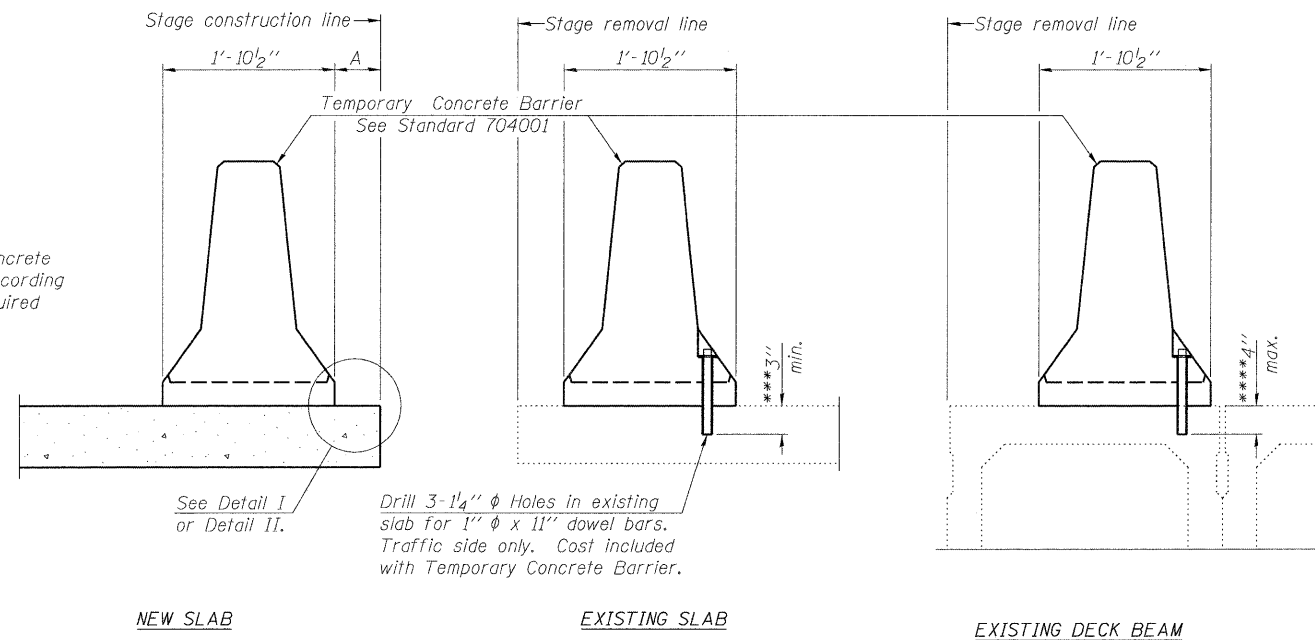
STAGE II REMOVAL & CONSTRUCTION
(Looking North)

STAGE CONSTRUCTION DETAILS
STRUCTURE NO. 016-0374

| | | | | | | |
|---|------------------------------|---|-------------------------|--------|--------------|-----------|
| <p>LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois</p> | SHEET NO. 2 12 SHEETS | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 185 |
| Designed By: RH Checked By: MTH Drawn By: RH Date: 12/2020 File: 016-0374.dgn | | CONTRACT NO. 60138 | | | | |
| | | FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT | | | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



Drill 3-1/4" ϕ Holes in existing slab for 1" ϕ x 11" dowel bars. Traffic side only. Cost included with Temporary Concrete Barrier.

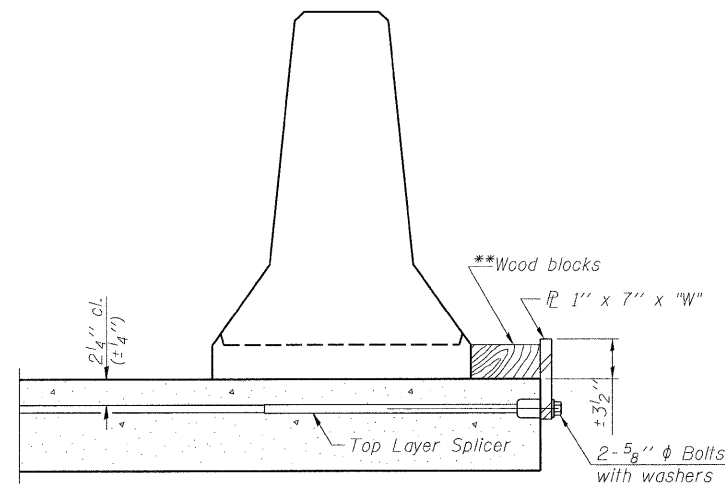
NOTES

- Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel \bar{P} to the top layer of couplers with 2-5/8" ϕ bolts screwed to coupler at approximate ϕ of each barrier panel.
- Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel \bar{P} to the concrete slab or concrete wearing surface with 2-5/8" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ϕ of each barrier panel.
- Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

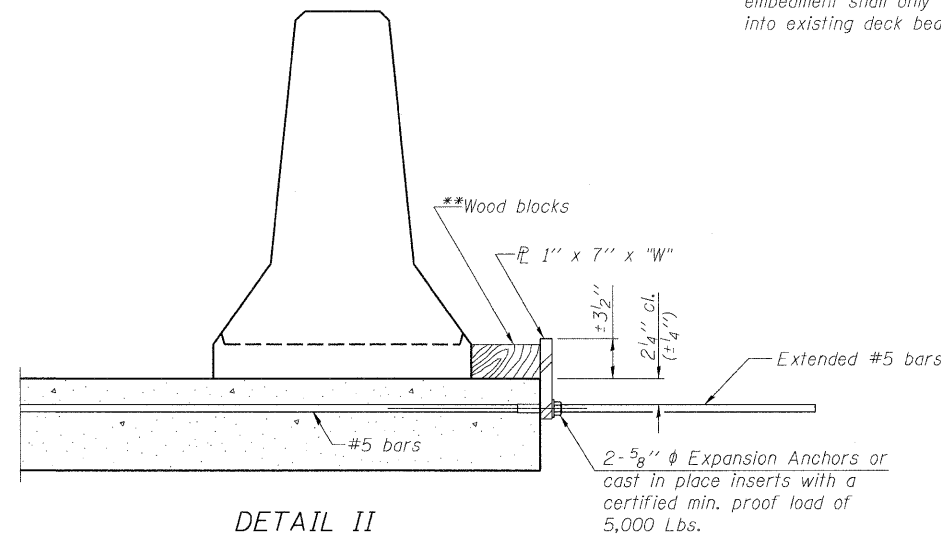
SECTIONS THRU SLAB OR DECK BEAM

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



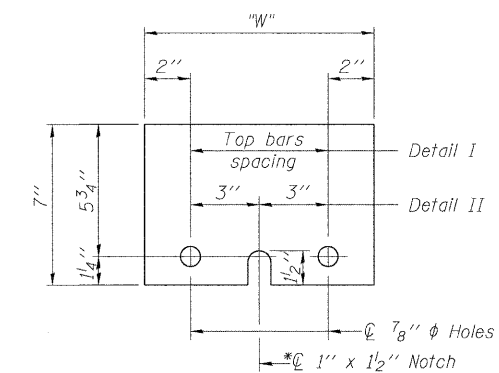
DETAIL I



DETAIL II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"



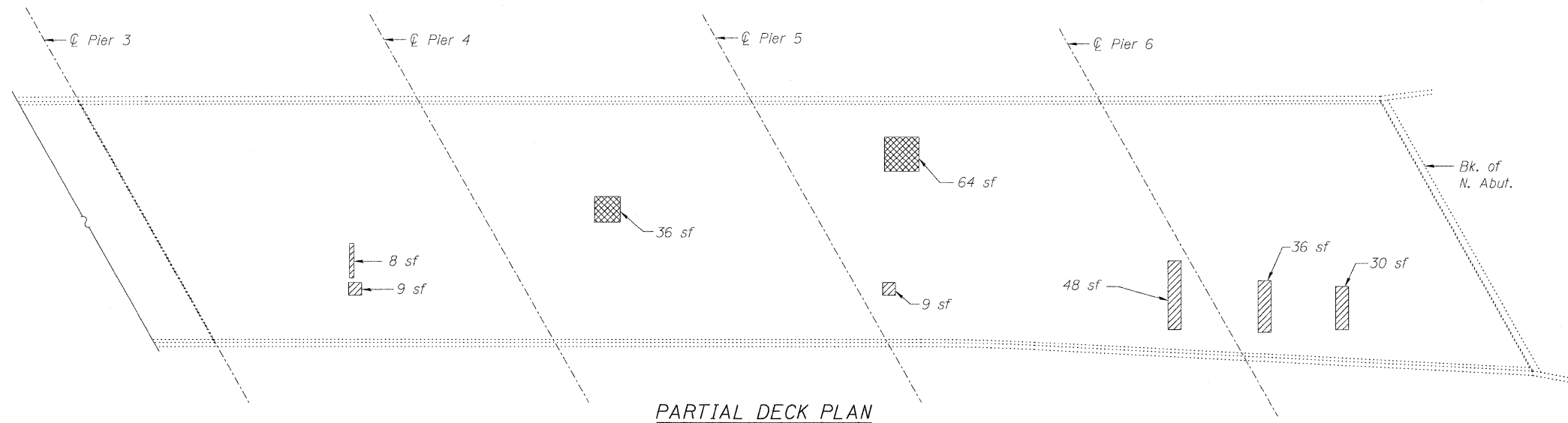
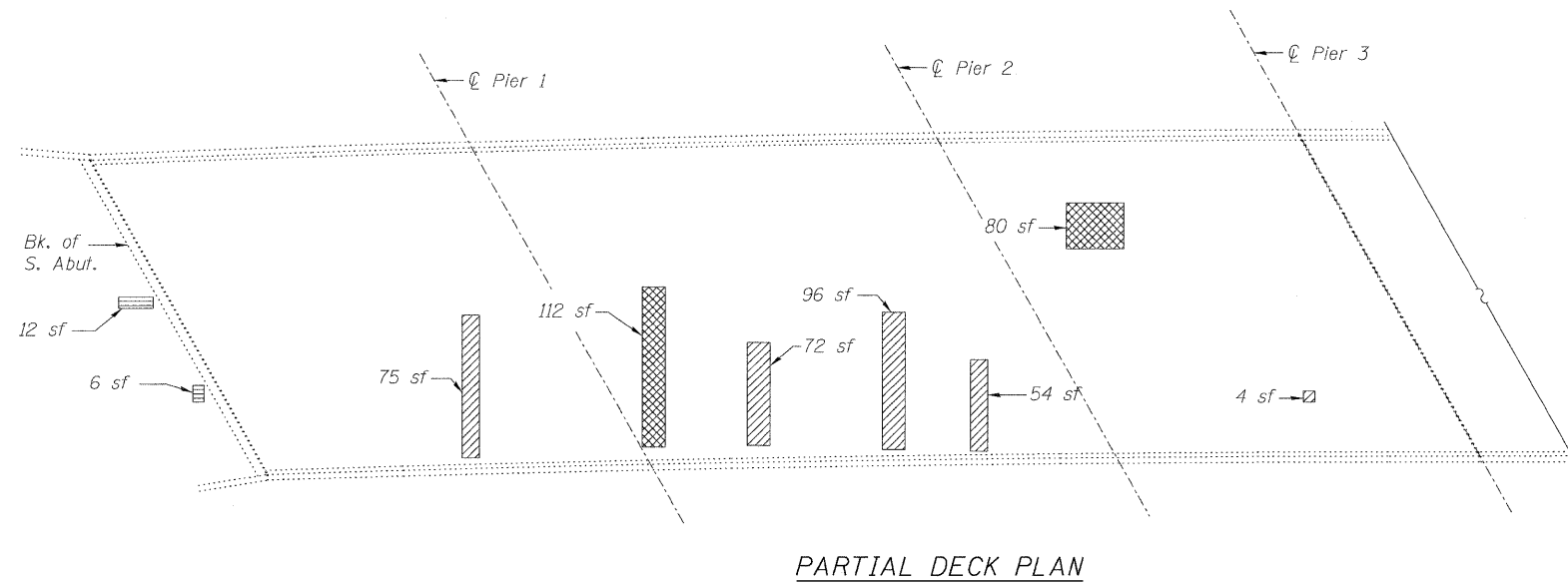
STEEL RETAINER \bar{P} 1" x 7" x 10"

* Required only with Detail II

TEMPORARY CONCRETE BARRIER
FOR STAGE CONSTRUCTION
STRUCTURE NO. 016-0374

| | | | | | | |
|---|------------------------------|---|-------------------------|--------|--------------|-----------|
| <p>LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois</p> | SHEET NO. 3 12 SHEETS | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 186 |
| | | CONTRACT NO. 60138 | | | | |
| | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |




STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



BILL OF MATERIAL


| Item | Unit | Total |
|--|---------|-------|
| Deck Slab Repair (Partial) | Sq. Yd. | 56.4 |
| Deck Slab Repair (Full Depth, Type II) | Sq. Yd. | 37.3 |
| Approach Slab Repair (Partial Depth) | Sq. Yd. | 2.3 |
| Protective Shield | Sq. Yd. | 1423 |

LEGEND

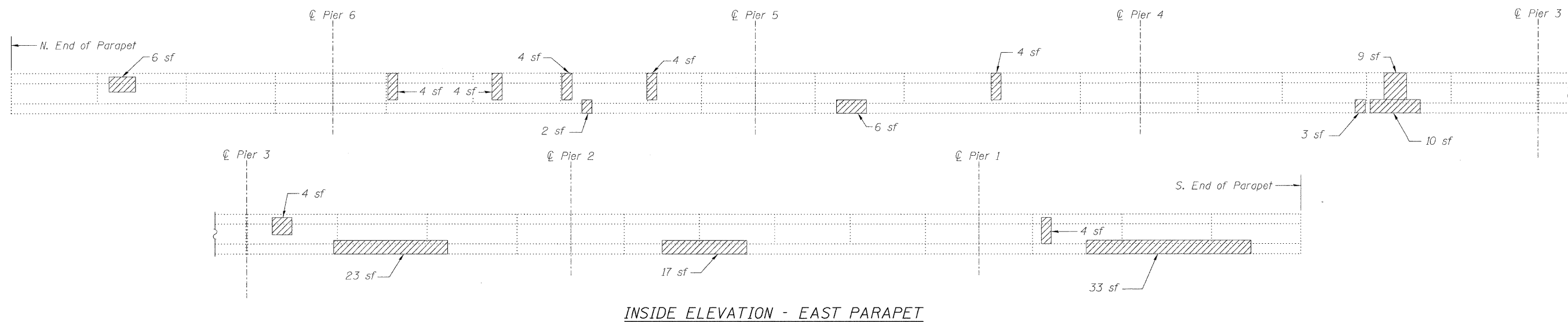
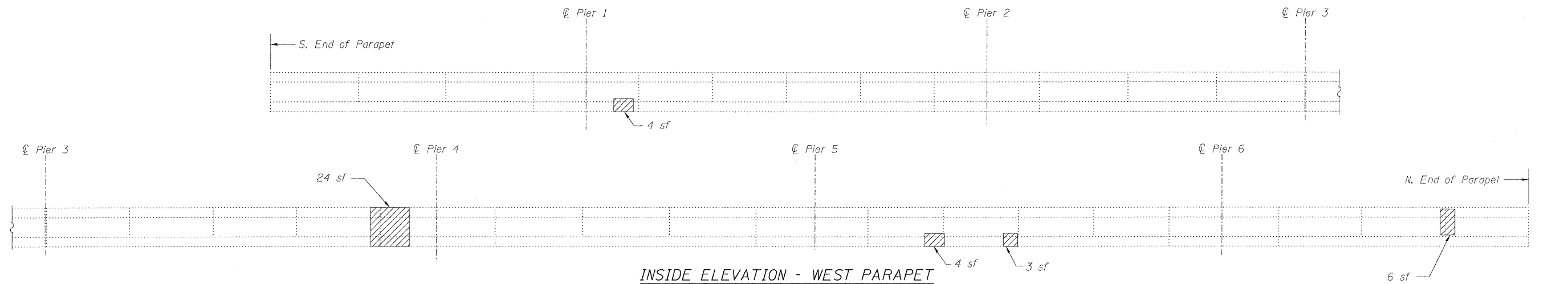
-  Deck Slab Repair (Full Depth, Type II)
-  Deck Slab Repair (Partial)
-  Approach Slab Repair (Partial Depth)
- sf Square Feet

Repair of the existing deck slab shall include but may not be limited to the areas shown. The actual areas to be repaired will be determined by the Engineer at the time of construction.

**DECK SLAB REPAIR
STRUCTURE NO. 016-0374**

| | | | | | | |
|---|-------------|---------------------------------------|-------------------------|--------------|--------------|--------------------|
|  LIN ENGINEERING LTD. Consulting Engineers Chatham, Illinois | SHEET NO. 4 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 187 |
| Designed By: RH Date: 12/2009 | | Checked By: MTH File: 016-0374.dgn | | Drawn By: RH | | CONTRACT NO. 60138 |
| FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT | | | | | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



BILL OF MATERIAL

| Item | Unit | Total |
|--|---------|-------|
| Structural Repair of Concrete (Depth equal to or less than 5 in.) | Sq. Ft. | 205 |

LEGEND

Structural Repair of Concrete
(Depth equal to or less than 5")

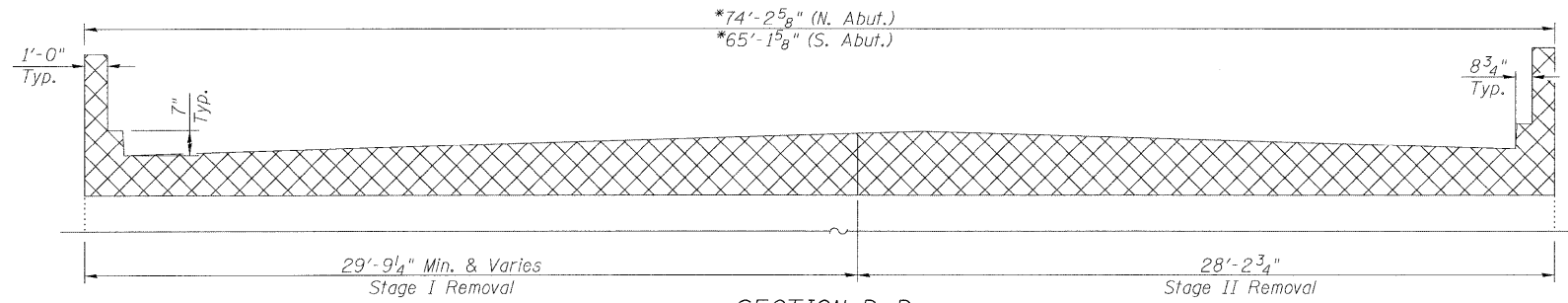
sf Square Feet

Repair of the existing parapets shall include but may not be limited to the areas shown. The actual areas to be repaired will be determined by the Engineer at the time of construction.

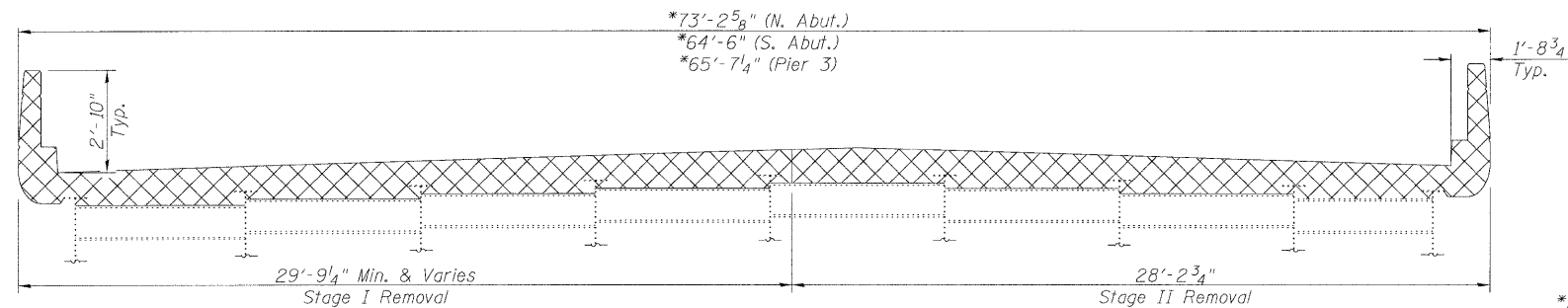
**PARAPET REPAIR
STRUCTURE NO. 016-0374**

| | | | | | | | |
|---|-------------|---|-------------------------|--------|--------------|--------------------|--|
| LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois | SHEET NO. 5 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 188 | |
| Designed By: RH Checked By: MTH Drawn By: RH Date: 12/2008 File: 016-0374.dgn | | FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT | | | | CONTRACT NO. 60138 | |

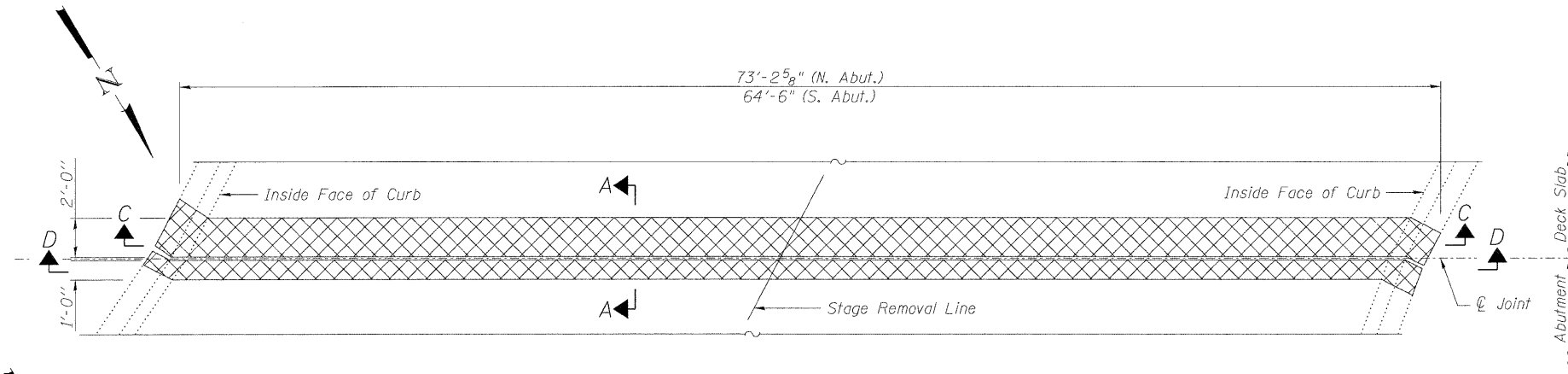
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



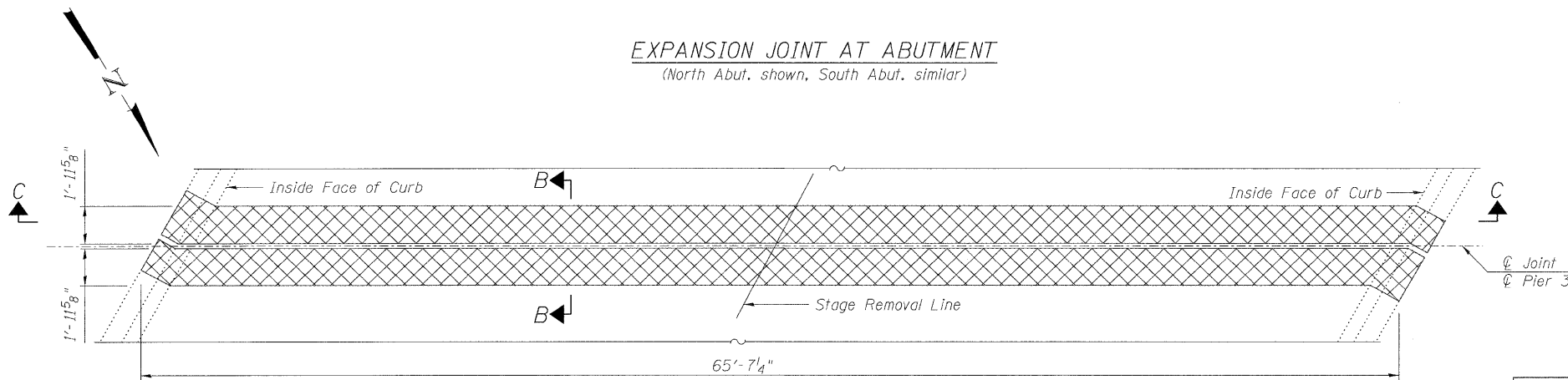
SECTION D-D
(North Abut. shown, South Abut. similar)
(Dimensions shown @ Rt. L.'s unless otherwise noted)



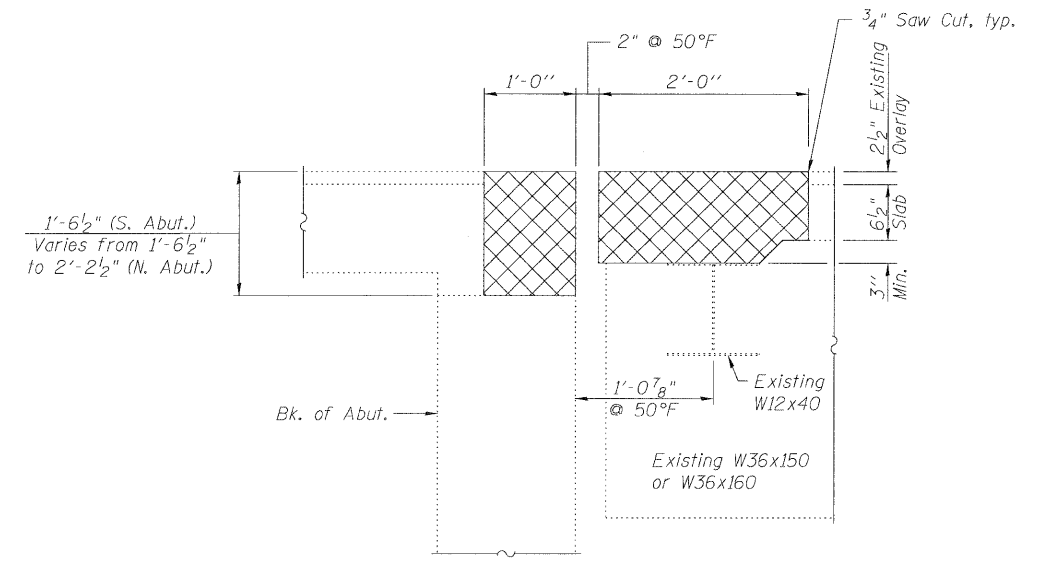
SECTION C-C
(North Abut. shown, Pier 3 and South Abut. similar)
(Dimensions shown @ Rt. L.'s unless otherwise noted)



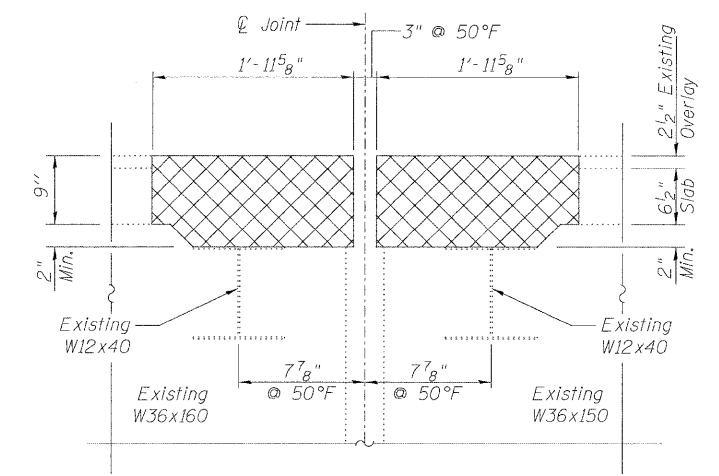
EXPANSION JOINT AT ABUTMENT
(North Abut. shown, South Abut. similar)



EXPANSION JOINT AT PIER 3



SECTION A-A
(Dimensions @ Rt. L.'s)



SECTION B-B
(Dimensions @ Rt. L.'s)

- Notes:
1. Cross hatched area indicates concrete removal.
 2. Existing reinforcement bars in the concrete removal area extending in new construction shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.
 3. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system, in accordance with IDOT Standard Specifications Article 501.03. Cost included in "Concrete Removal"
 4. Overlay removal is included in pay item Concrete Removal.

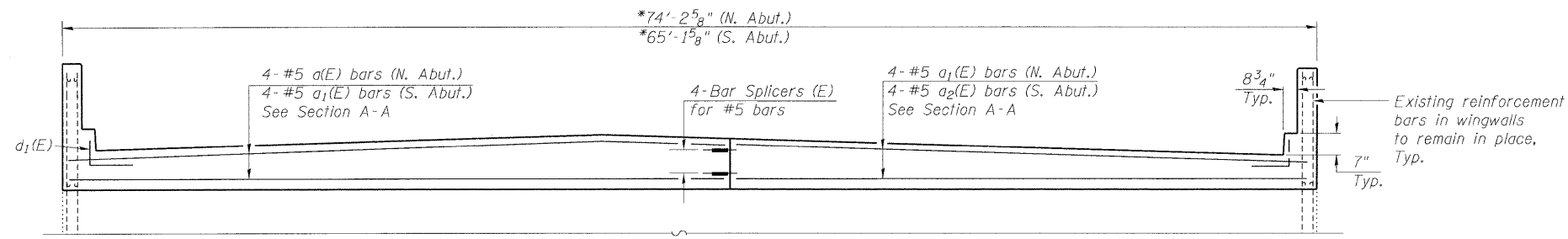
BILL OF MATERIAL

| Item | Unit | Total |
|------------------|---------|-------|
| Concrete Removal | Cu. Yd. | 30.9 |

**CONCRETE REMOVAL
STRUCTURE NO. 016-0374**

| | | | | | | |
|---|-------------|------------------------------|---------------------------------|--------------------|------------------|---------------|
| <p>LIN ENGINEERING, LTD. Consulting Engineers Chattanooga, Illinois</p> | SHEET NO. 6 | F.A.I. RTE. 290 | SECTION (531-3.1,0305-302K)RS-5 | COUNTY COOK | TOTAL SHEETS 314 | SHEET NO. 189 |
| | 12 SHEETS | FED. ROAD DIST. NO. ILLINOIS | | CONTRACT NO. 60138 | | |

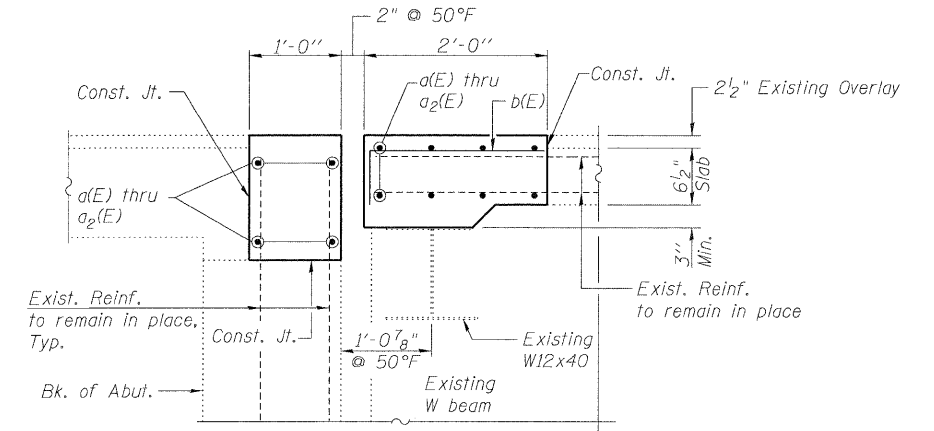
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



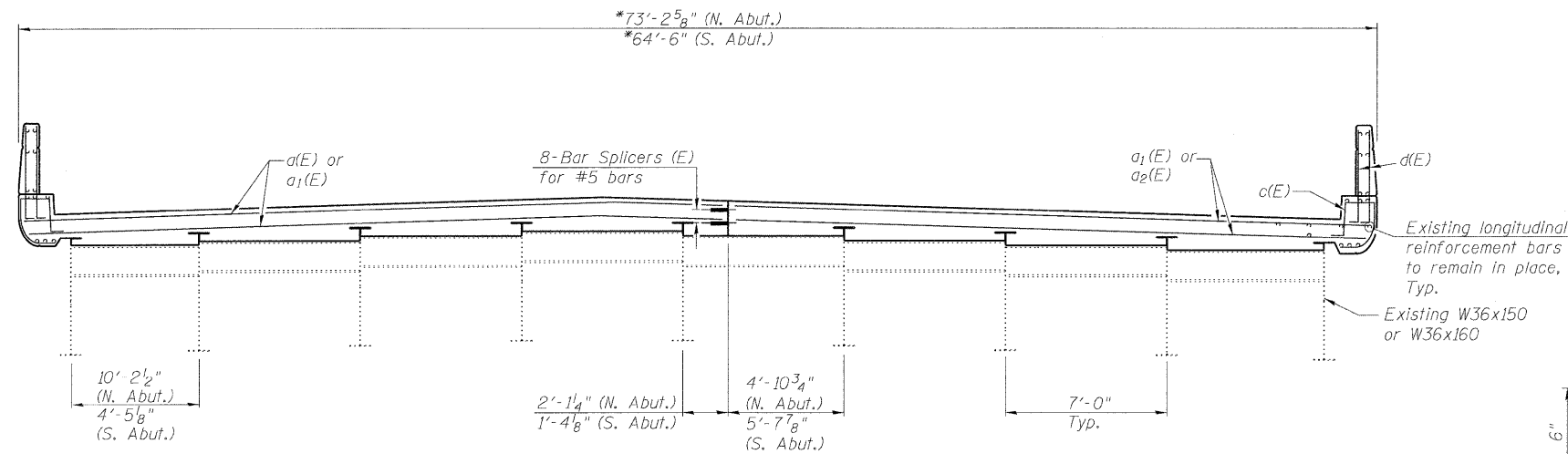
SECTION C-C

(Dimensions @ Rt. L's unless otherwise noted)
(North Abut. shown, South Abut. similar)

* Measured along skew

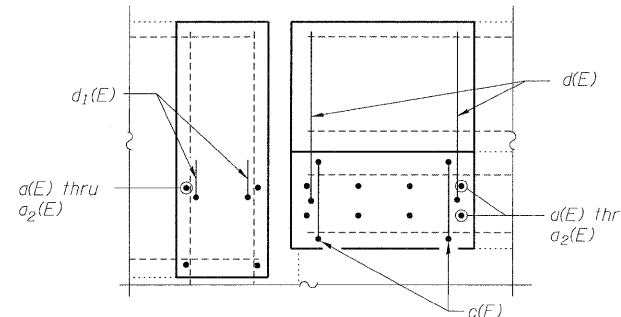


SECTION A-A
(Dimension @ Rt. L's)



SECTION B-B

(Dimensions @ Rt. L's unless otherwise noted)
(North Abut. shown, South Abut. similar)

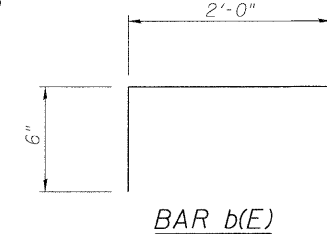


SECTION D-D

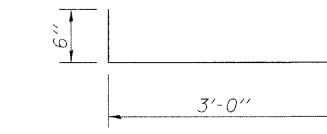
BILL OF MATERIAL

(Both Abutments)

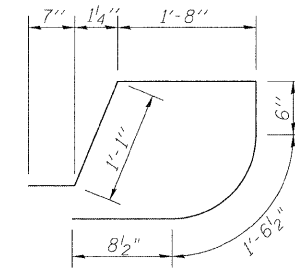
| Bar | No. | Size | Length | Shape | |
|----------------------------------|-----|------|--------|---------|------|
| a(E) | 12 | #5 | 41'-2" | — | |
| a1(E) | 24 | #5 | 32'-8" | — | |
| a2(E) | 12 | #5 | 32'-1" | — | |
| b(E) | 78 | #5 | 2'-6" | ┌ | |
| c(E) | 12 | #5 | 6'-1" | └ | |
| d(E) | 24 | #5 | 3'-6" | ┌ | |
| d1(E) | 8 | #5 | 3'-0" | ┌ | |
| Reinforcement Bars, Epoxy Coated | | | | Pound | 2130 |
| Concrete Superstructure | | | | Cu. Yd. | 20.3 |



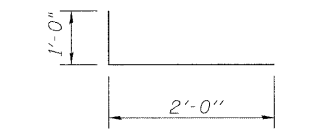
BAR b(E)



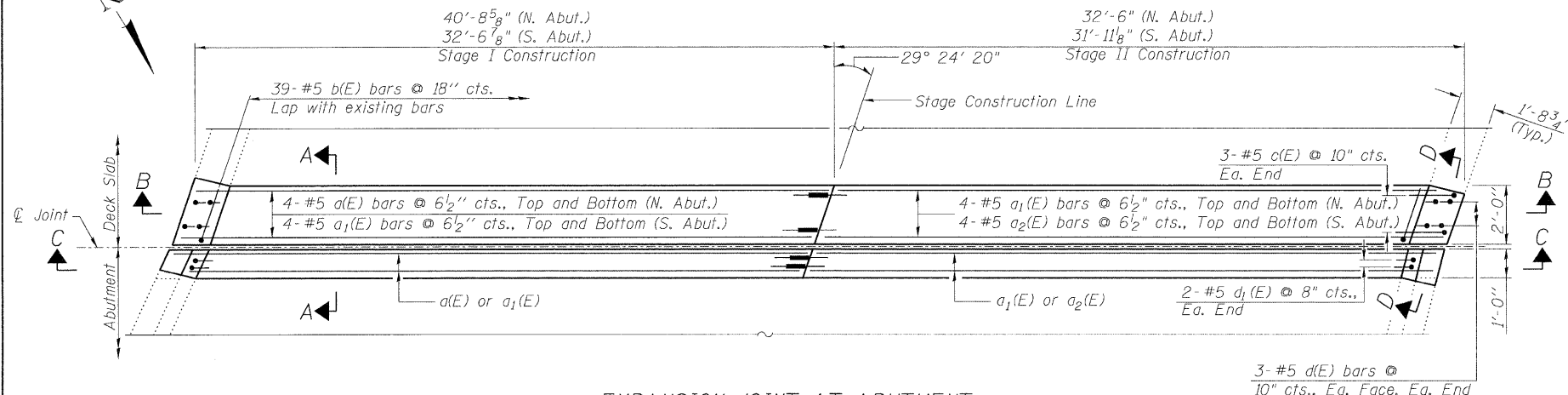
BAR d(E)



BAR c(E)



BAR d1(E)

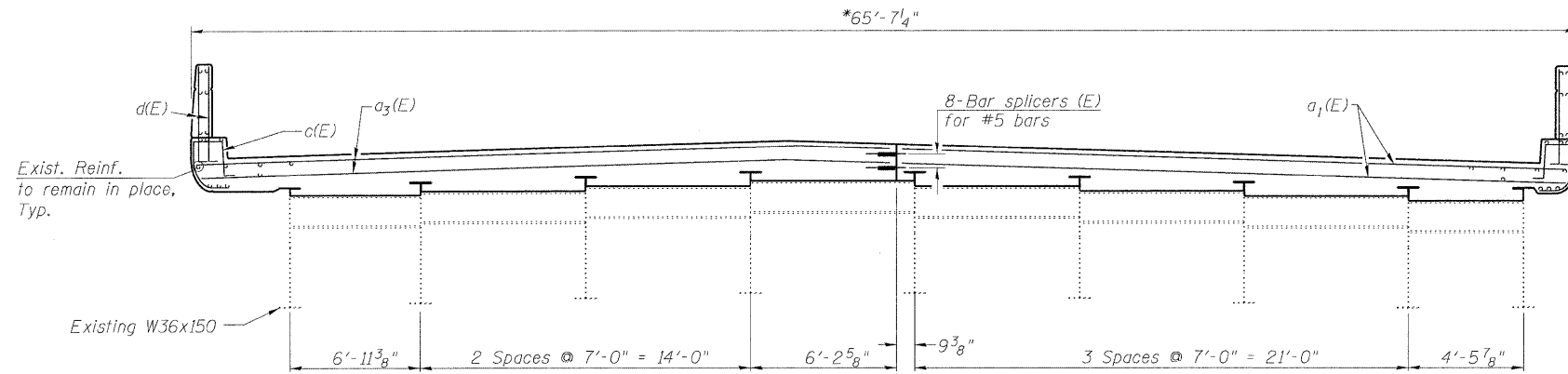


EXPANSION JOINT AT ABUTMENT
(North Abut. Shown, South Abut. Similar)

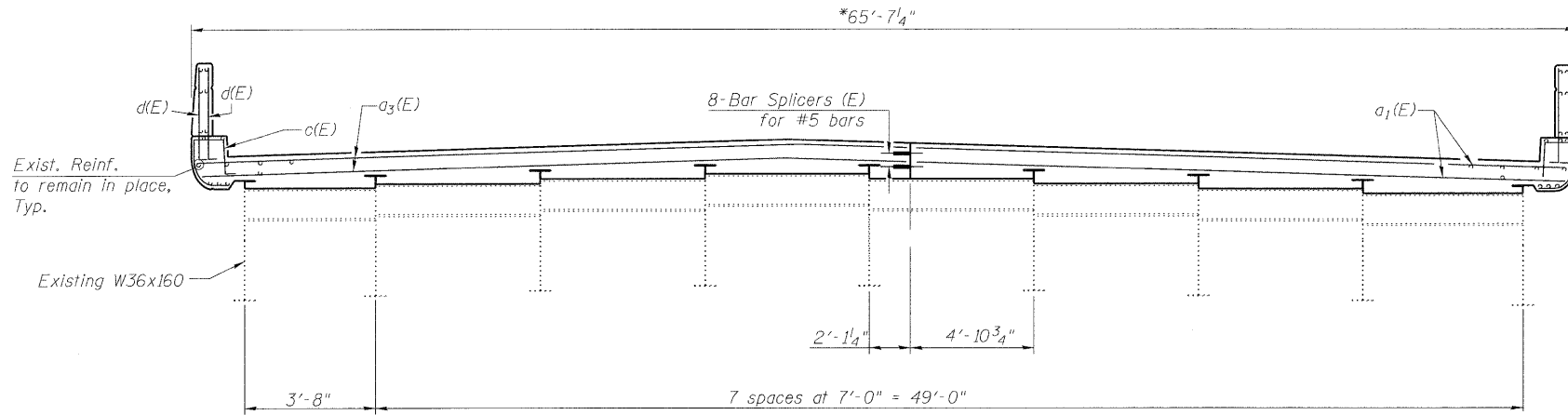
ABUTMENT CONCRETE DETAILS
STRUCTURE NO. 016-0374

| | | | | | | |
|---|-------------|---------------------------------------|-------------------------|--------------------|--------------|-----------|
| | SHEET NO. 7 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 190 |
| Designed By: RH Date: 12/2009 | | Checked By: WTH File: 016-0374.rdp | | CONTRACT NO. 60138 | | |
| FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT | | | | | | |

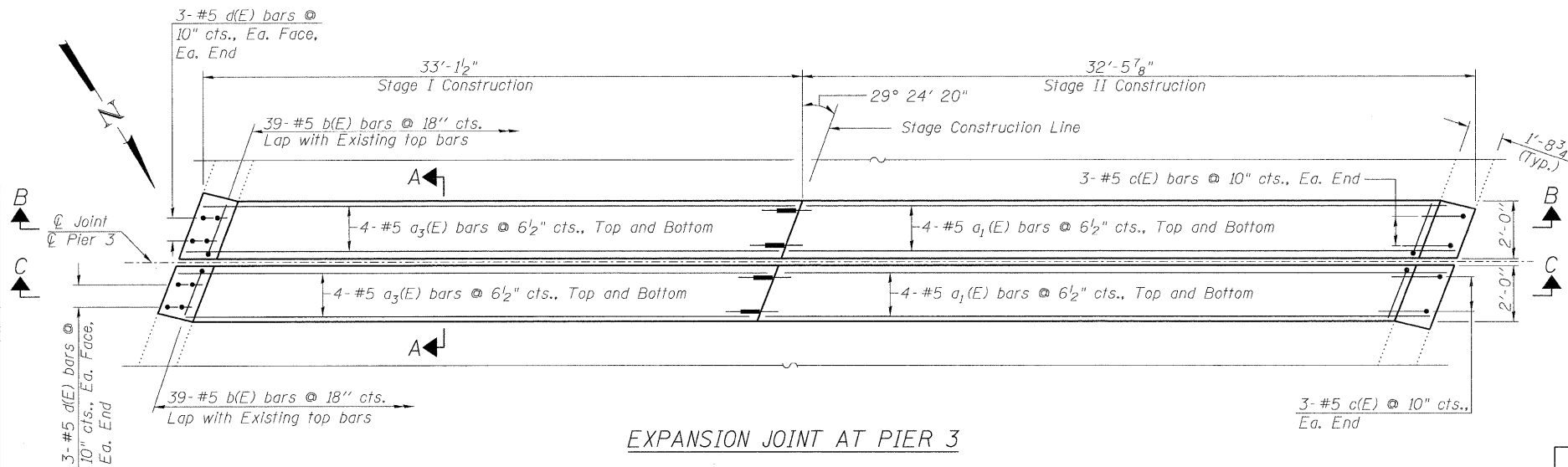
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



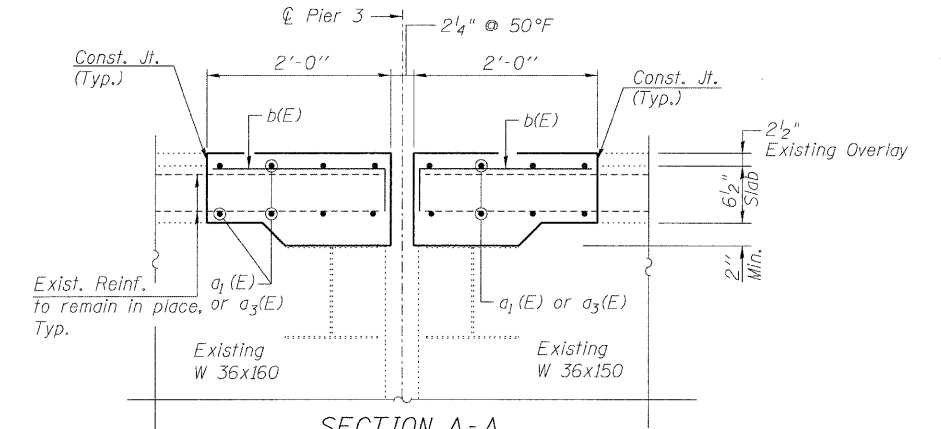
SECTION B-B
(Dimension @ Rt. L's unless otherwise noted)



SECTION C-C
(Dimension @ Rt. L's unless otherwise noted)

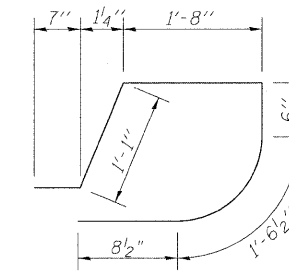


EXPANSION JOINT AT PIER 3

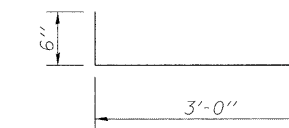


SECTION A-A
(Dimension @ Rt. L's)

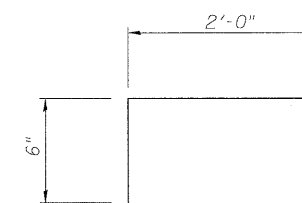
* Measured along skew



BAR c(E)



BAR d(E)



BAR b(E)

BILL OF MATERIAL

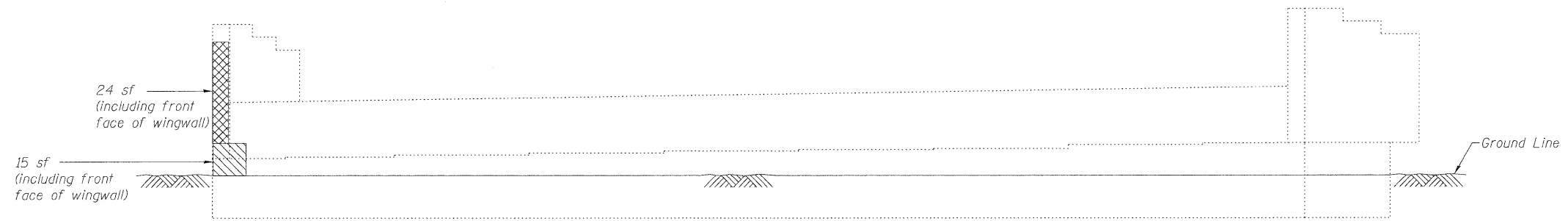
(Pier 3)

| Bar | No. | Size | Length | Shape |
|----------------------------------|-----|----------|--------|-------|
| a ₁ (E) | 16 | #5 | 32'-8" | — |
| a ₃ (E) | 16 | #5 | 33'-4" | — |
| b(E) | 78 | #5 | 2'-6" | ┌ |
| c(E) | 12 | #5 | 6'-1" | ┌ |
| d(E) | 24 | #5 | 3'-6" | ┌ |
| Reinforcement Bars, Epoxy Coated | | Pound | 1470 | |
| Concrete Superstructure | | Cu. Yds. | 10.6 | |

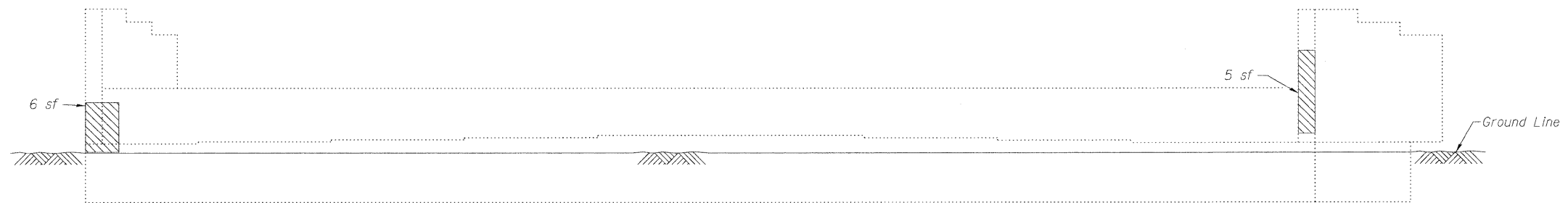
PIER 3 CONCRETE DETAILS
STRUCTURE NO. 016-0374

| | | | | | | |
|--|-------------|---|-------------------------|--------|--------------|-----------|
| LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois | SHEET NO. 8 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 191 |
| | | CONTRACT NO. 60138 | | | | |
| | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SOUTH ABUTMENT
(Looking South)



NORTH ABUTMENT
(Looking North)


BILL OF MATERIAL

| Item | Unit | Total |
|--|---------|-------|
| Structural Repair of Concrete (Depth greater than 5 in.) | Sq. Ft. | 28 |
| Structural Repair of Concrete (Depth equal to or less than 5 in.) | Sq. Ft. | 30 |

Repair of the existing abutments shall include but may not be limited to the areas shown. The actual areas to be repaired will be determined by the Engineer at the time of construction.


LEGEND

 Structure Repair of Concrete
(Depth greater than 5")

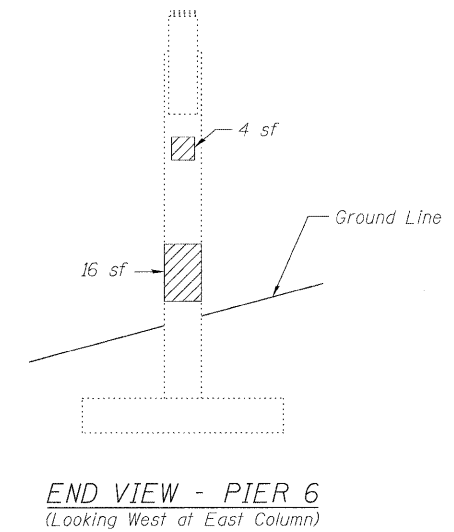
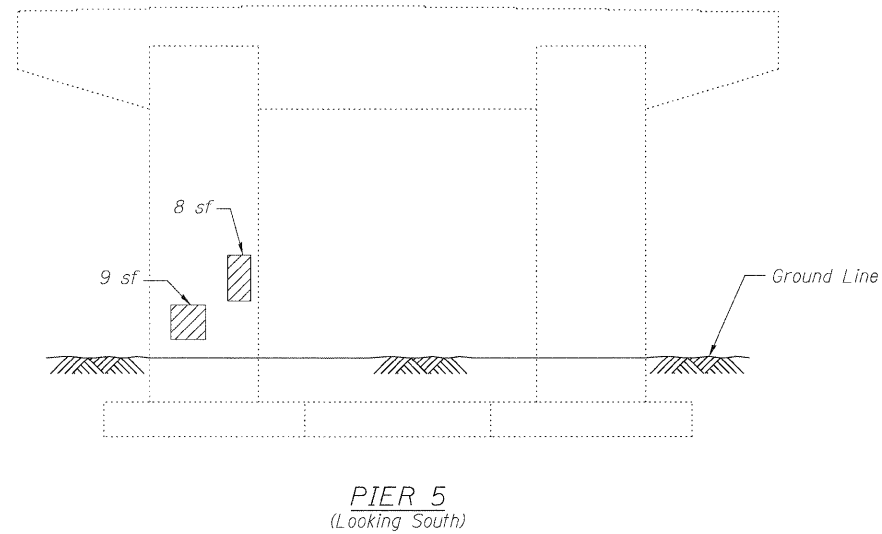
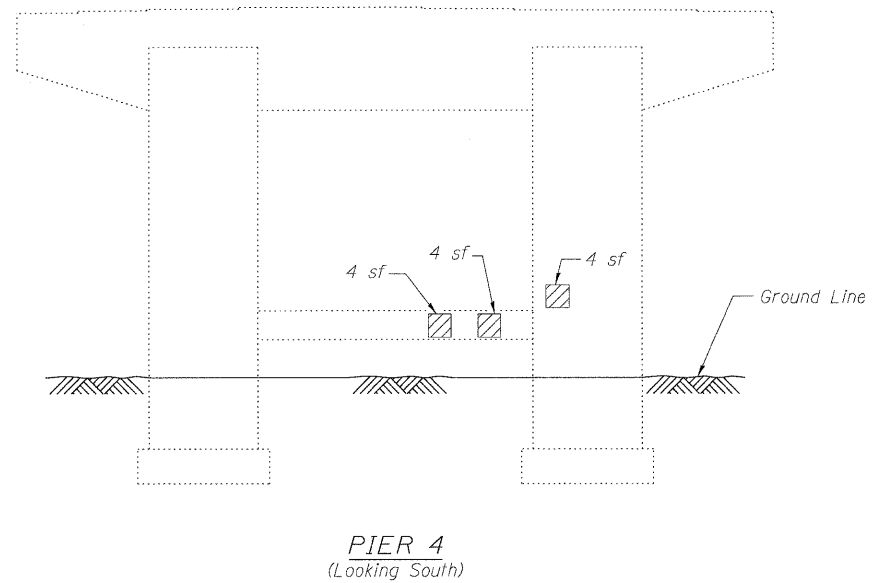
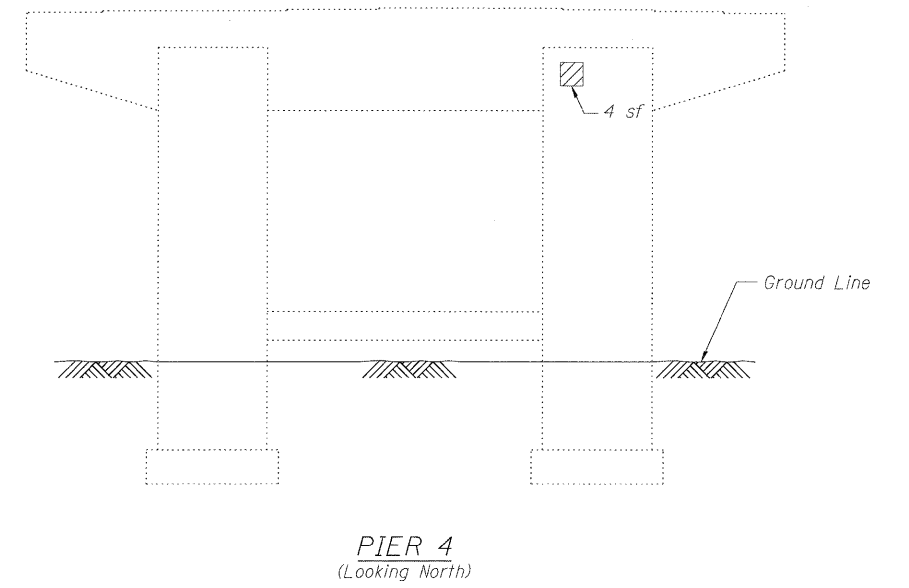
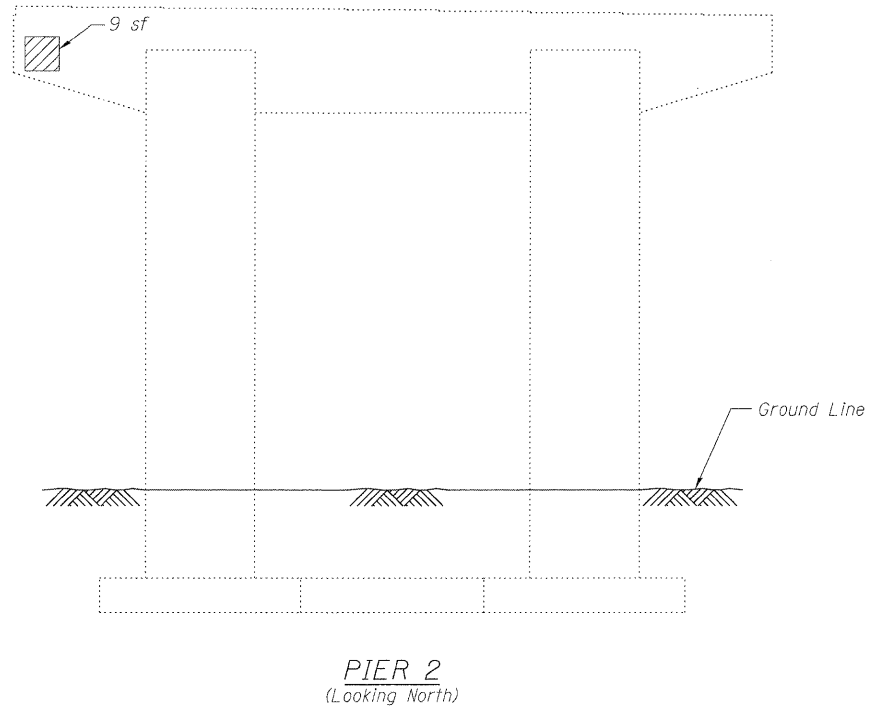
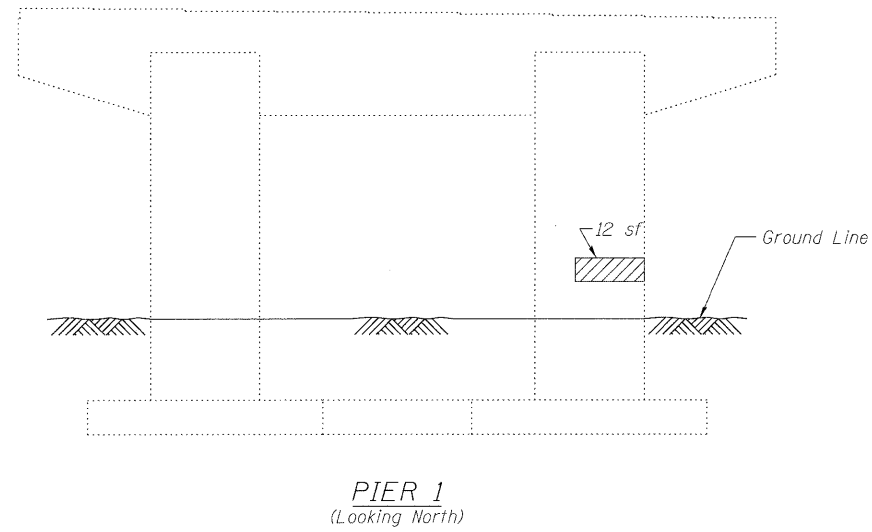
 Structure Repair of Concrete
(Depth equal to or less than 5")

sf Square Feet

ABUTMENT REPAIR
STRUCTURE NO. 016-0374

| | | | | | | | |
|--|-------------|---|-------------------------|--------|--------------|--------------------|--|
|  LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois | SHEET NO. 9 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 192 | |
| <small>Designed By: RH Checked By: MTH Drawn By: RH Date: 12/2/09 File: 016-0374.dwg</small> | | FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT | | | | CONTRACT NO. 60138 | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION




BILL OF MATERIAL


| Item | Unit | Total |
|--|---------|-------|
| Structure Repair of Concrete (Depth equal to or less than 5") | Sq. Ft. | 85 |

Repair of the existing piers shall include but may not be limited to the areas shown. The actual areas to be repaired will be determined by the Engineer at the time of construction.

LEGEND

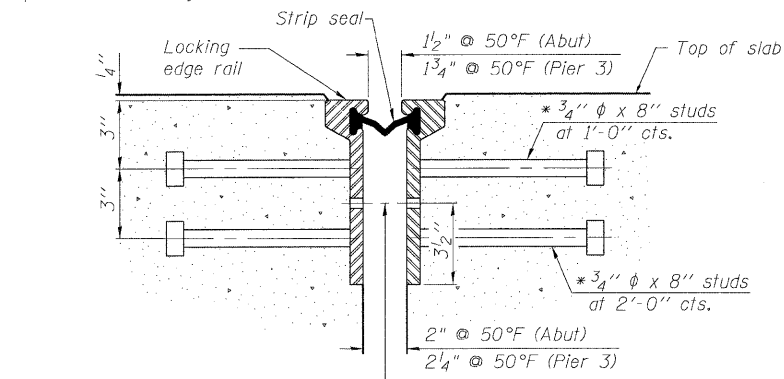
 Structure Repair of Concrete
(Depth equal to or less than 5")
sf Square Feet

**PIER REPAIR
STRUCTURE NO. 016-0374**

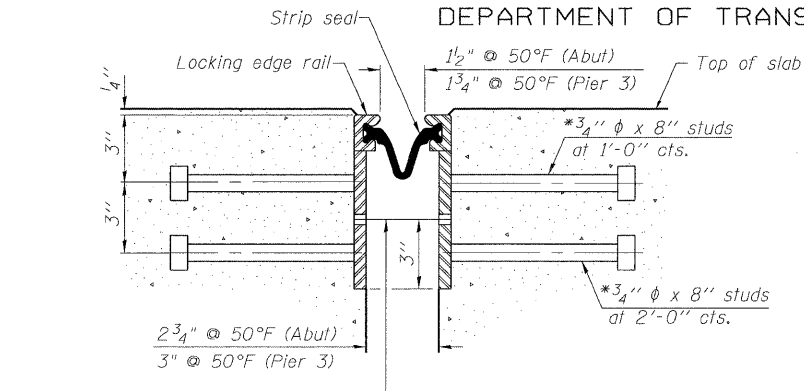
| | | | | | | |
|---|--------------|---------------------------------------|-------------------------|--------------------|--------------|---|
|  LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois | SHEET NO. 10 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 12 SHEETS | 290 | (531-3.1,0305-302K)RS-5 | COOK | 314 | 193 |
| Designed By: RH Date: 12/2002 | | Checked By: MTH File: 016-0374.dgn | | CONTRACT NO. 60138 | | FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



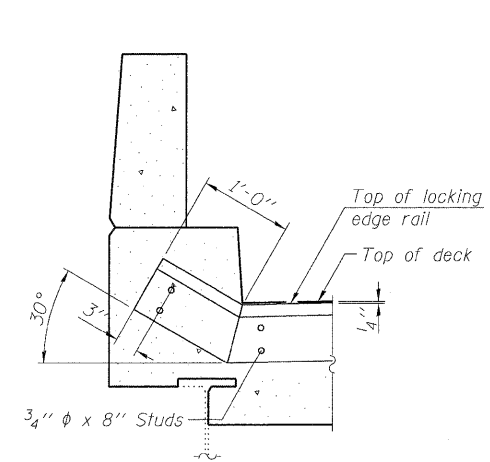
SECTION THRU
ROLLED RAIL JOINT



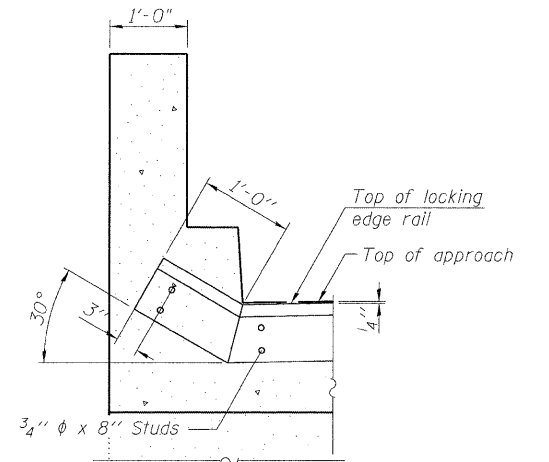
SECTION THRU
WELDED RAIL JOINT

7/16" φ holes at 4'-0" cts. for 3/8" φ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

7/16" φ holes at 4'-0" cts. for 3/8" φ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

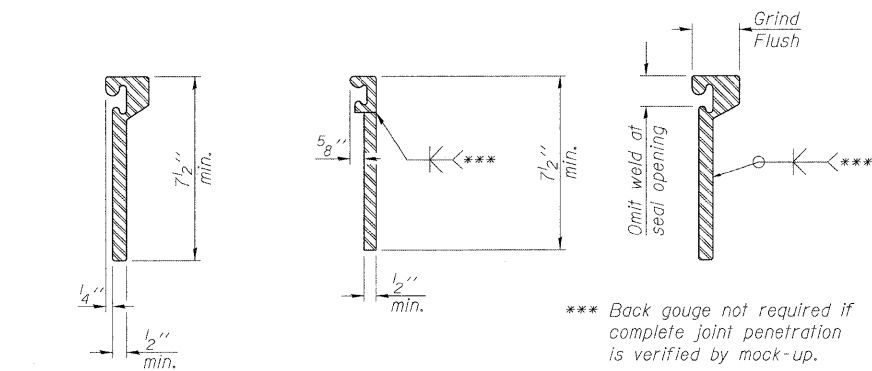


AT PARAPET



AT WING WALL

TYPICAL END TREATMENTS

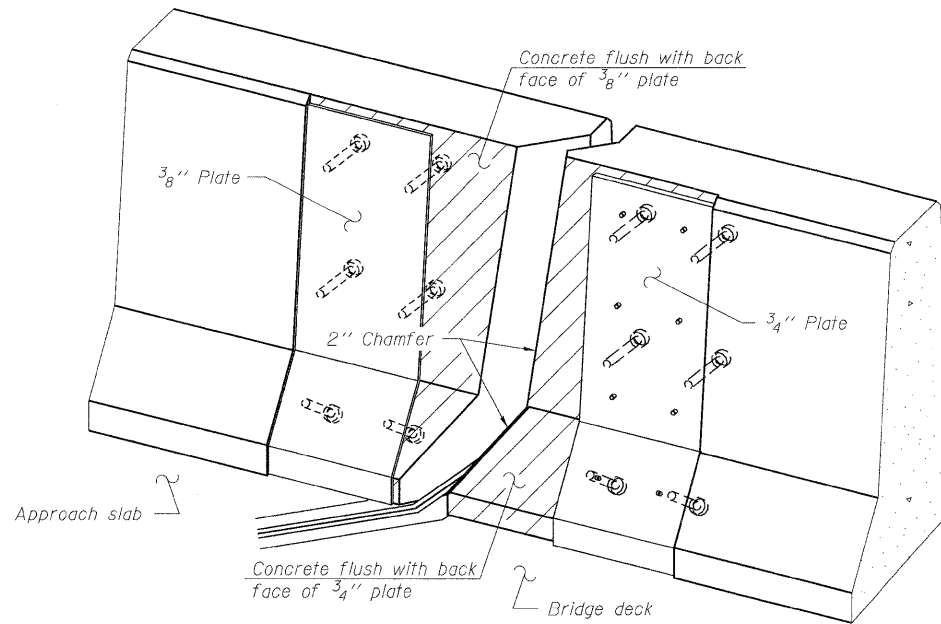


ROLLED
EXTRUDED RAIL

WELDED RAIL

LOCKING EDGE
RAIL SPLICE

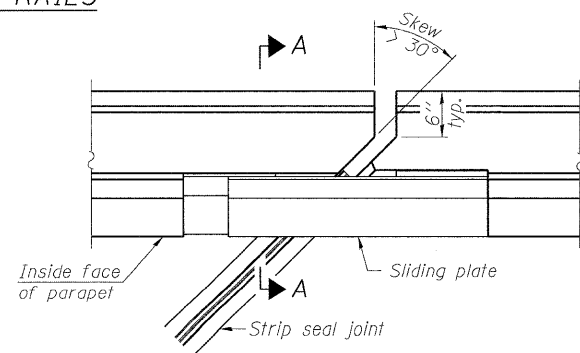
The inside of the locking edge rail groove shall be free of weld residue.
Rolled rail shown, welded rail similar.



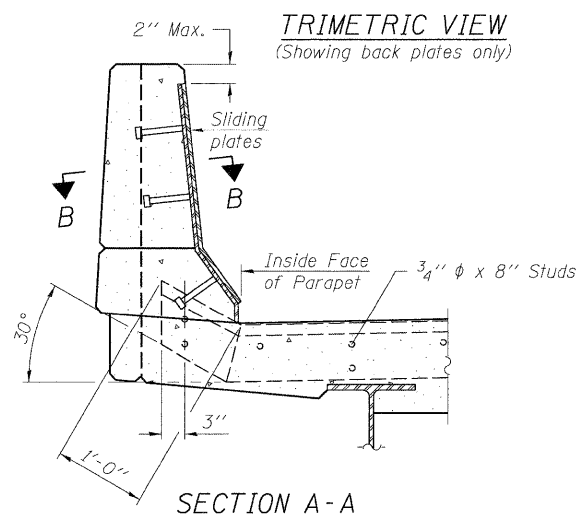
Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches. The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities. The manufacturer's recommended installation methods shall be followed. The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State. All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

LOCKING EDGE RAILS

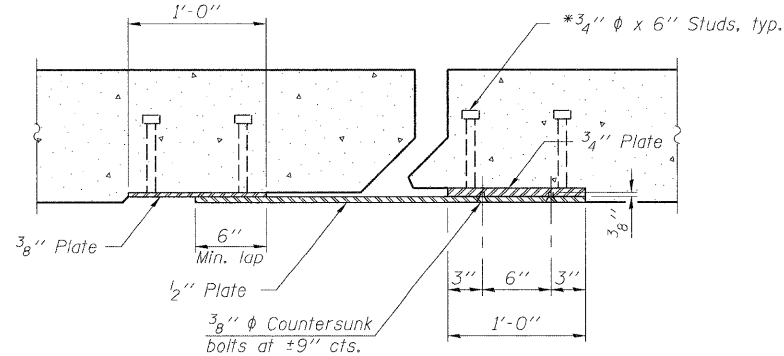


PLAN



SECTION A-A

POINT BLOCK DETAILS
(for skews > 30°)



SECTION B-B

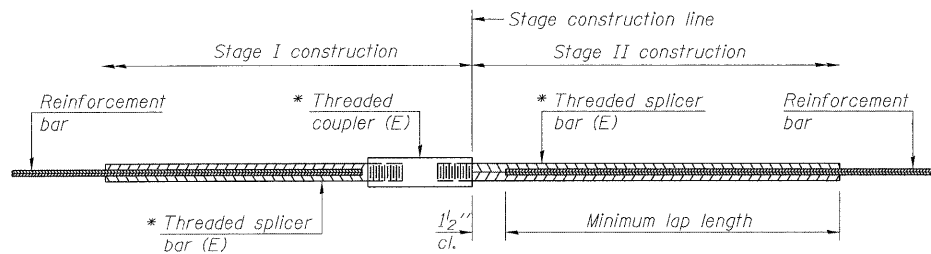
BILL OF MATERIAL

| Item | Unit | Total |
|----------------------------|------|-------|
| Preformed Joint Strip Seal | Foot | 201 |

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0374

| | | | | | | |
|---|--------------|---------------------------------------|--------------------------------|---|------------------|---------------|
| <p>LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois</p> | SHEET NO. 11 | F.A.I. RTE. 290 | SECTION (531-3.1,0305-302)RS-5 | COUNTY COOK | TOTAL SHEETS 314 | SHEET NO. 191 |
| | 12 SHEETS | CONTRACT NO. 60138 | | | | |
| Designed By: RH Date: 12/2009 | | Checked By: MTH File: 016-0374.dgn | | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



STANDARD BAR SPLICER ASSEMBLY

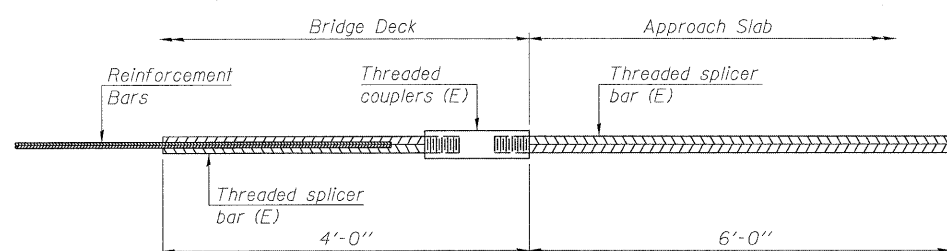
| Bar size to be spliced | Minimum Lap Lengths | | | |
|------------------------|---------------------|---------|---------|---------|
| | Table 1 | Table 2 | Table 3 | Table 4 |
| 3, 4 | 1'-5" | 1'-11" | 2'-1" | 2'-4" |
| 5 | 1'-9" | 2'-5" | 2'-7" | 2'-11" |
| 6 | 2'-1" | 2'-11" | 3'-1" | 3'-6" |
| 7 | 2'-9" | 3'-10" | 4'-2" | 4'-8" |
| 8 | 3'-8" | 5'-1" | 5'-5" | 6'-2" |
| 9 | 4'-7" | 6'-5" | 6'-10" | 7'-9" |

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

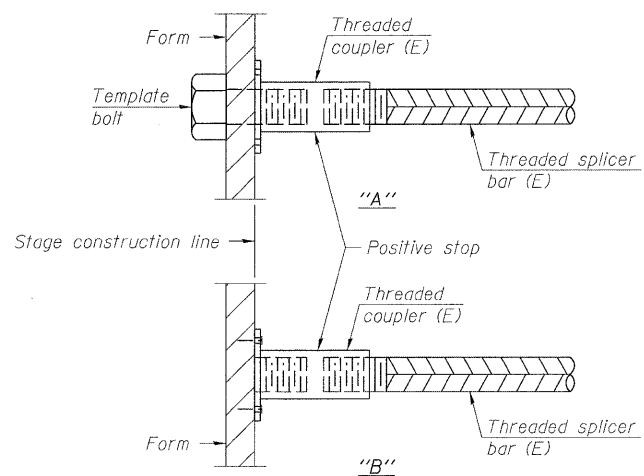
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

| Location | Bar size | No. assemblies required | Table for minimum lap length |
|----------|----------|-------------------------|------------------------------|
| Deck | #5 | 32 | Table 3 |
| Abutment | #5 | 8 | Table 3 |
| | | | |
| | | | |



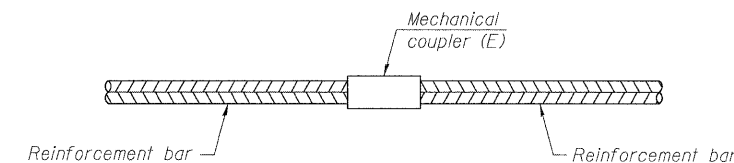
BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required =



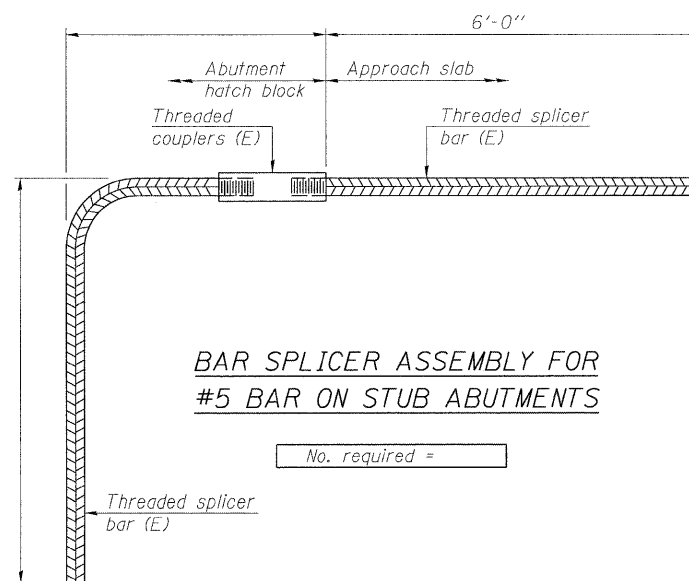
INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

| Location | Bar size | No. assemblies required |
|----------|----------|-------------------------|
| | | |
| | | |
| | | |



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
All reinforcement shall be lapped and tied to the splicer bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
See special provision for Mechanical Splicers.
See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 016-0374

| | | | | | | |
|---|--------------|-----------------------|------------------------|--------------------|------------------|-----------|
| <p>LIN ENGINEERING, LTD. Consulting Engineers Chatham, Illinois</p> | SHEET NO. 12 | F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 12 SHEETS | 290 | (531-3.1,0305-302)RS-5 | COOK | 314 | 195 |
| | | FED. ROAD DIST. NO. _ | | ILLINOIS | FED. AID PROJECT | |
| | | | | CONTRACT NO. 60138 | | |