CITY OF KANSAS CITY, MISSOURI
BEARDSLEY ROAD BRIDGE REPAIRS (S030B42)
2018 FIRE DAMAGE & LANDSLIDE
KCMO PROJECT NO. 89005585

INDEX OF SHEETS

DESIGN DESIGNATION

THIS PROJECT IS THE REHABILITATION OF AN EXISTING BRIDGE.

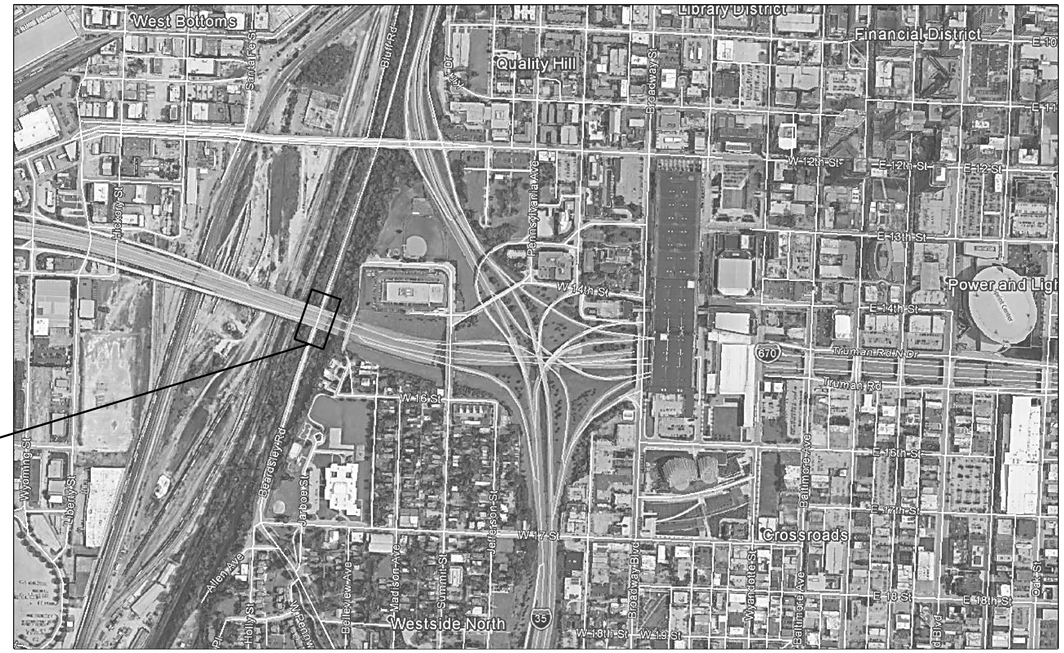
A.D.T. = 2870 (2016)

T = 10%

V = 40 M.P.H.

FUNCTIONAL CLASSIFICATION: LOCAL URBAN ARTERIAL

NO SCALE



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(816-401-3573)

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MR. RON GIPFERT
(816-275-1550)

KANSAS CITY POWER & LIGHT
MR. ANDREW CASTILLO
4400 EAST FRONT STREET
KANSAS CITY, MO. 64118
(816-372-8113)

SPIRE ENERGY (MGE)
MR. CHRIS COLLINS
(816-509-4400)

KANSAS CITY MO. WATER SERVICES
MR. KIRK ROME
4800 EAST 63RD STREET
KANSAS CITY, MO. 64130
311 OR
(816-513-0209) AFTER HOURS

KANSAS CITY MO. TRAFFIC
MR. WEI SUN
(816-513-9871)

CONVENTIONAL SYMBOLS

(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVER HEAD TELEPHONE		
UNDER GROUND TELEPHONE	-T-	-T-
OVER HEAD POWER		
UNDER GROUND POWER	-P-	-P-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE	SAN	
FIRE HYDRANT	HYD	
WATER VALVE	WV	

WATER METER	WM
DROP INLET	DI
DITCH BLOCK	
GROUND MOUNTED SIGN	SIGN
LIGHT POLE	
H-FRAME POWER POLE	
TELEPHONE PEDESTAL	PED
FENCE	
CHAIN LINK	V
WOVEN WIRE	X
GATE POST	
GRS MONUMENT	
BENCHMARK	BM

LENGTH OF PROJECT

BEARDSLEY ROAD

BEGINNING OF PROJECT STA. 21+70, C.L.
END OF PROJECT STA. 28+00, C.L.

PROJECT LENGTH APPROX. 630 FT.

APPROVED BY:

CHAD THOMPSON, ASST. CITY ENGINEER

DATE

CITY ENGINEER

DATE

SHERRI MCINTYRE, DIRECTOR OF PUBLIC WORKS

DATE

DATE

CERTIFICATION

"I HEREBY CERTIFY THAT THIS PROJECT HAS BEEN DESIGNED, AND THESE PLANS PREPARED, TO MEET OR EXCEED THE DESIGN CRITERIA OF KANSAS CITY, MISSOURI, IN CURRENT USAGE EXCEPT AS INDICATED BELOW."
EXCEPTIONS:

1.
2.
3.
4.
5.
6.

ROBERT KREWSON, P.E.

DATE

DATE 2/28/19
DATE PREPARED 02/22/19
ROUTE BEARDSLEY
STATE MO
DISTRICT KC
SHEET NO. 1
COUNTY JACKSON
KCMO PROJECT NO. 89005585
BRIDGE NO. S030B42

DESCRIPTION

DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR

REV.

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

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GENERAL NOTES

DESIGN SPECIFICATION:
2002 EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (FROM ORIGINAL DESIGN).

CONSTRUCTION SPECIFICATIONS:
2018 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION WITH PROJECT SPECIAL PROVISIONS (IF INCLUDED IN THE PROJECT MANUAL).
STANDARD SPECIFICATIONS AND DESIGN CRITERIA, CITY OF KANSAS CITY, MISSOURI.

INSPECTION REPORT:
REFER TO THE "SPECIAL INSPECTION MEMO (BEARDSLEY BRIDGE S030B42)" DATED 8/30/2018. (AVAILABLE UPON REQUEST FROM THE CITY'S PUBLIC WORKS DEPARTMENT). THE INSPECTION REPORT WILL BE REFERRED TO THROUGHOUT THESE NOTES FOR SPECIFIC ITEMS OF WORK.

EXISTING BRIDGE PLANS:
SPECIFIC SHEETS OF THE EXISTING PLANS ARE INCLUDED IN THIS PLAN FOR REFERENCE ONLY. A FULL SET OF EXISTING BRIDGE PLANS IS AVAILABLE UPON REQUEST FROM THE CITY'S PUBLIC WORKS DEPARTMENT.

EXISTING DIMENSION VERIFICATION:
DIMENSIONS OF THE EXISTING STRUCTURE ARE BASED ON EXISTING PLANS. VERIFY, BY FIELD MEASUREMENT, THE AS-BUILT DIMENSIONS OF THE EXISTING STRUCTURE AND SUBMIT SUCH VERIFICATION IN WRITING TO THE ENGINEER. THE VERIFICATION WILL INCLUDE SKETCHES, DRAWINGS, PHOTOGRAPHS AND DESCRIPTIONS AS NEEDED TO CLEARLY DEFINE THE AS-BUILT DIMENSIONS THAT WILL BE INCORPORATED IN THE NEW CONSTRUCTION.

SEQUENCE OF CONSTRUCTION:
THE GENERAL SEQUENCE OF CONSTRUCTION SHALL BE AS FOLLOWS:
1. HEAT STRAIGHTEN THE STRUCTURAL STEEL
2. BENT PLATE DIAPHRAGM REPLACEMENT
3. INSTALL INTERMEDIATE STIFFENERS
4. CONCRETE REPAIR OF CAP AT BENT 2
5. BEARING DEVICE REPLACEMENT
6. INSTALL ROCK BLANKET
7. SLOPE STABILITY REPAIR
8. STREET LIGHT REPAIR
9. LED LUMINAIRE REPLACEMENT
10. BARRIER CURB REPAIR
11. CLEAN EXPANSION JOINTS
12. DECK OVERLAY
13. OTHER REPAIRS NOT LISTED ABOVE

ANY DEVIATION TO THE SEQUENCE OF CONSTRUCTION MUST BE APPROVED BY THE ENGINEER.

TRAFFIC CONTROL:
SEE SHEET NOS. 10 & 11 FOR TRAFFIC CONTROL PLANS.

A TRAFFIC BARRIER HAS BEEN INSTALLED ACROSS THE ROADWAY AT BOTH APPROACHES WITH GUARDRAIL POSTS INSTALLED IN THE PAVEMENT. REMOVE THE BARRIERS AND REPAIR THE PAVEMENT ACCORDING TO KCMO STANDARD PLANS SR-1, INCLUDED IN THIS PLAN SET. PAYMENT FOR BARRIER REMOVAL WILL BE COMPLETELY COVERED BY THE CONTRACT LUMP SUM PRICE FOR "TRAFFIC BARRIER REMOVAL". BARRIER MATERIALS WILL BE THE PROPERTY OF THE CITY AFTER REMOVAL. PAYMENT FOR REPAIRS TO THE PAVEMENT WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR "STREET CUT RESTORATION."

HEAT STRAIGHTENING OF STRUCTURAL STEEL:
HEAT STRAIGHTEN THE GIRDERS IN SPAN 2 OF THE BRIDGE. THE LIMITS OF THE WORK ARE DESCRIBED IN THE INSPECTION REPORT. THE CONTRACTOR SHALL SUBMIT THE SELECTED HEAT STRAIGHTENING CONTRACTOR AND PROPOSED METHOD OF HEAT STRAIGHTENING THE GIRDERS TO THE ENGINEER FOR APPROVAL AT LEAST 4 WEEKS PRIOR TO BEGINNING THE WORK.

PERFORM THE HEAT STRAIGHTENING PROCEDURE COMPLYING WITH AASHTO/AWS D1.5 (EDITION REFERENCED IN SUBSECTION 705.2E.) "BRIDGE WELDING CODE" AND THE LATEST VERSIONS OF AASHTO'S "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES"; AASHTO'S "LRFD BRIDGE CONSTRUCTION SPECIFICATIONS" AND THE FHWA REPORT, "HEAT-STRAIGHTENING REPAIRS OF DAMAGED STEEL BRIDGES". FOLLOWING THE STRAIGHTENING OF A BEND OR BUCKLE, THE SURFACE OF THE METAL WILL BE INSPECTED BY THE ENGINEER FOR EVIDENCE OF FRACTURE, USING THE DYE PENETRANT OR MAGNETIC PARTICLE INSPECTION METHOD.

CONCRETE PATCHING:
PATCH SPALL ON THE SOUTH FACE AND TOP OF BENT 2 (APPROX. 353 SQ. FT.). PAYMENT WILL BE MADE AS "SUBSTRUCTURE REPAIR (FORMED)".

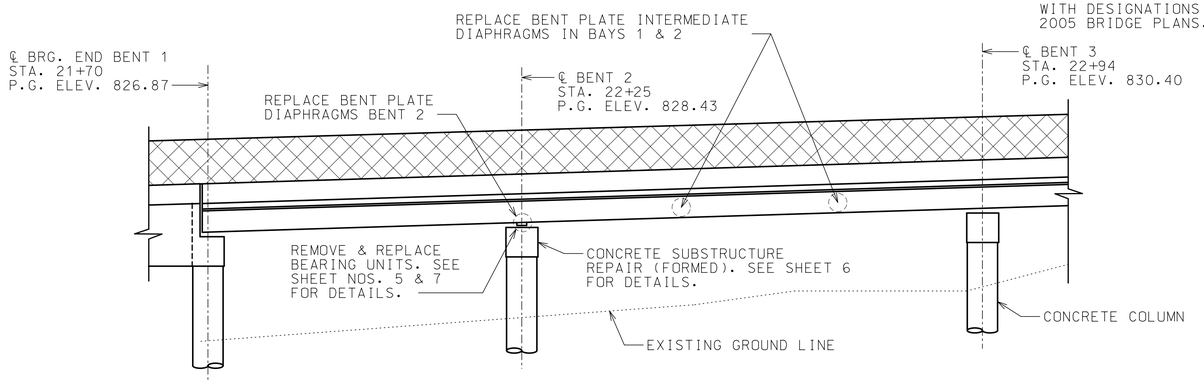
BEARING DEVICE REPLACEMENT:
THE BEARING DEVICES AT BENT 2 WILL BE REPLACED. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED METHOD OF REPLACEMENT TO THE ENGINEER FOR APPROVAL 4 WEEKS PRIOR TO BEGINNING WORK. THE STEEL ROLLED BEAMS SHALL BE JACKED SIMULTANEOUSLY A DISTANCE NOT MORE THAN 1 INCH GREATER THAN THE HEIGHT OF THE EXISTING BEARING DEVICE AS DETAILED IN THE EXISTING PLANS. SUBMIT BEARING DEVICE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL 4 WEEKS PRIOR TO BEGINNING FABRICATION. BEARING DEVICE REPLACEMENT AND THE TEMPORARY SHORING SYSTEM SHALL BE PAID FOR AS "TYPE N PTFE BEARINGS". THE TEMPORARY SUPPORTS MUST BE CAPABLE OF SAFELY SUPPORTING A SERVICE LOAD OF APPROXIMATELY 50 TONS PER BEAM (FACTOR OF SAFETY NOT INCLUDED).

DIAPHRAGM REPLACEMENT:
ONE AT A TIME, REPLACE THE BENT PLATE DIAPHRAGMS AT BENT 2 & INTERMEDIATE DIAPHRAGMS IN BAYS 1 & 2 BETWEEN BENTS 2 & 3. SEE SHEET NO. 8 FOR DETAILS.

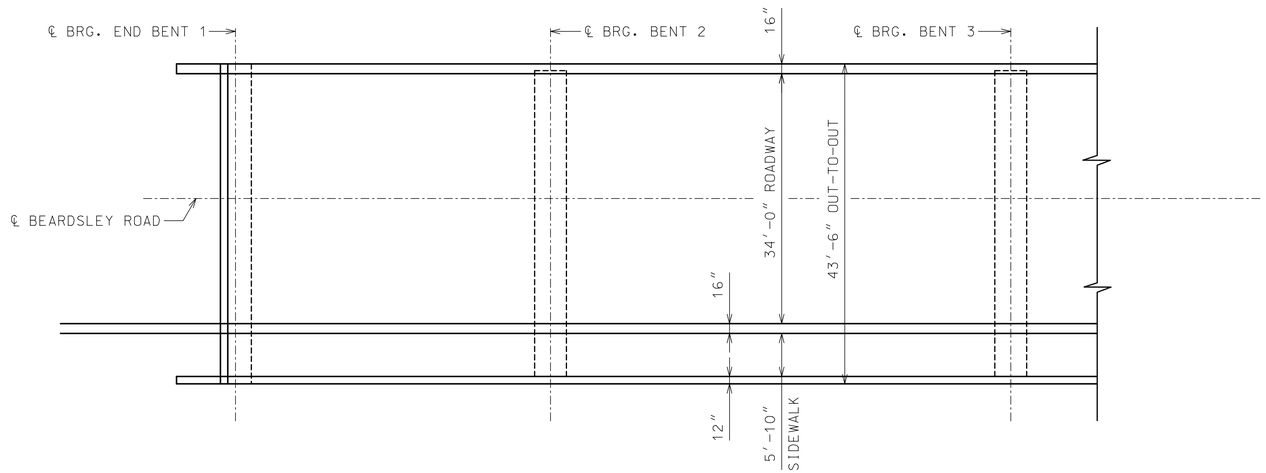
ROCK BLANKET:
INSTALL 1 TON ROCK BLANKET BELOW ENTIRE STRUCTURE (APPROX. 2750 SQ. YD.) PAYMENT WILL BE MADE AS "FURNISHING 1 TON ROCK BLANKET" AND "PLACING 1 TON ROCK BLANKET".

NOTE:

SUBSTRUCTURE DESIGNATIONS SHOWN FOR THESE REPAIR PLANS CORRESPOND WITH DESIGNATIONS IN THE EXISTING 2005 BRIDGE PLANS.



ELEVATION



PLAN

DECK EPOXY POLYMER CONCRETE OVERLAY:
CLEAN DECK AND INSTALL EPOXY POLYMER CONCRETE OVERLAY FULL AREA OF DECK SURFACE FROM END OF SLAB TO END OF SLAB AND INSIDE CURB TO INSIDE CURB. PAYMENT WILL BE MADE AS "EPOXY POLYMER CONCRETE OVERLAY", SQ. YD. OVERLAY SHALL BE APPLIED AS SHOWN IN THE BRIDGE PLANS AND IN ACCORDANCE WITH SEC 623 OF THE MODOT SPECIFICATIONS.

CONCRETE PROTECTIVE COATING:
PROTECTIVE COATING FOR CONCRETE BENTS AND PIERS (EPOXY) SHALL BE APPLIED AS SHOWN IN THE BRIDGE PLANS AND IN ACCORDANCE WITH SEC 711 OF THE MODOT SPECIFICATIONS.

REINFORCING STEEL:
WEIGHT OF 6X6 - W2.1XW2.1 WELDED WIRE FABRIC IS INCLUDED IN ESTIMATED WEIGHT OF REINFORCING STEEL.

FABRICATED STEEL CONNECTIONS:
FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH STRENGTH BOLTS AND 13/16" DIAMETER HOLES, BOLTS SHALL CONFORM TO ASTM A325-TYPE 3.

HIGH STRENGTH BOLTS, NUTS, AND WASHERS WILL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN SEC 106 OF THE MODOT SPECIFICATIONS.

FIELD WELDED FILLET WELDS SHALL BE NDT BY THE MAGNETIC PARTICLE PROCESS AS REQUIRED BY AASHTO D1.5 2002, BRIDGE WELDING CODE CLAUSE 6.7.2.

STREET LIGHT REPAIR:
RE-ENERGIZE STREET LIGHTS ALONG EAST SIDE OF BEARDSLEY ROAD FROM 12TH STREET TO 17TH STREET. REPLACE MISSING WIRING/CONDUIT, INSTALL PELCO PULL BOXES IN EACH LIGHT BASE, AND REPLACE EXISTING CONTROLLER AND POLE. PAYMENT TO RE-ENERGIZE THE STREET LIGHT SYSTEM WILL BE MADE AS "STREET LIGHT REPAIRS". UPGRADE FOUR (4) STREET LIGHTS ON BEARDSLEY ROAD BRIDGE WITH LED LUMINAIRE PER KCMO SPECIFICATIONS. PAYMENT FOR THE LED LUMINAIRES WILL BE MADE AS "LED LUMINAIRE REPLACEMENT".

GENERAL PLAN & NOTES

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE
BEARDSLEY
STATE
MO
DISTRICT
KC
SHEET NO.
2
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY:
JSB
CHECKED BY:
JMR

REV.

GENERAL NOTES (cont.)

RESIN ANCHORS:
THE CONTRACTOR SHALL USE ONE OF THE QUALIFIED RESIN ANCHOR SYSTEMS IN ACCORDANCE WITH SEC. 1039 OF THE MODOT SPECIFICATIONS.

COST OF FURNISHING AND INSTALLING THE RESIN ANCHOR SYSTEMS, COMPLETE IN PLACE, WILL BE COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR "SUBSTRUCTURE REPAIR (FORMED)", SQ. FT., OR "SAFETY BARRIER CURB", LINEAR FOOT.

THE MINIMUM EMBEDMENT DEPTH IN CONCRETE WITH F'C = 4,000 PSI FOR THE RESIN ANCHOR SYSTEMS SHALL BE THAT REQUIRED IN ACCORDANCE WITH SEC 1039 OF THE MODOT SPECIFICATIONS BUT SHALL NOT BE LESS THAN 5".

SAFETY BARRIER CURB REPAIR/REPLACEMENT:
THE CONCRETE FOR THE BARRIER CURB REPLACEMENT SHALL BE CLASS B-1. THE MATERIAL USED FOR THE BARRIER CURB REPAIR SHALL BE MCIB "SPECIAL AGGREGATE CONCRETE SA-2" OR AN APPROVED SHOTCRETE.

PAYMENT FOR BARRIER CURB REMOVAL AND ALL CONCRETE AND REINFORCEMENT FOR SAFETY BARRIER CURB, COMPLETE-IN-PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT PRICE FOR "SAFETY BARRIER CURB", LINEAR FOOT.

MISCELLANEOUS:
OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW MATERIAL.

BARS BONDED IN OLD CONCRETE NOT REMOVED SHALL BE CLEANLY STRIPPED AND EMBEDDED INTO NEW CONCRETE WHERE POSSIBLE. IF LENGTH IS AVAILABLE, OLD BARS SHALL EXTEND INTO NEW CONCRETE AT LEAST 40 DIAMETERS FOR PLAIN BARS AND 30 DIAMETERS FOR DEFORMED BARS, UNLESS OTHERWISE NOTED.

ALTERNATE 1:
REPLACE EXISTING CHAIN LINK FENCE ON WEST SIDEWALK WITH (112 IN.) CURVED PEDESTRIAN CHAIN LINK FENCE, FULL LENGTH OF BRIDGE. INSTALL (112 IN.) CURVED CHAIN LINK FENCE TO EAST BARRIER, FULL LENGTH OF BRIDGE. PAYMENT WILL BE MADE AS "PEDESTRIAN FENCE (STRUCTURES)", LINEAR FOOT.

ALTERNATE 2:
SECURITY FENCE: INSTALL SECURITY FENCE (BETAFENCE GUARDIAN 5000 OR EQUAL) UNDERNEATH BRIDGE ON BOTH EAST AND WEST SIDES, FULL LENGTH. PROVIDE THREE (3) ACCESS GATES IN FENCE ON WEST SIDE ONLY. PAYMENT WILL BE MADE AS "SECURITY FENCE", LUMP SUM.

ALTERNATE 3:
SECURITY FENCE/CORRUGATED METAL FENCE: INSTALL SECURITY FENCE (BETAFENCE GUARDIAN 5000 OR EQUAL) UNDERNEATH BRIDGE ON WEST SIDE, FULL LENGTH. PROVIDE THREE (3) ACCESS GATES IN FENCE ON WEST SIDE ONLY. PAYMENT WILL BE MADE AS "SECURITY FENCE", LUMP SUM. INSTALL CORRUGATED METAL SHEET PILING AS FENCE UNDERNEATH BRIDGE ON EAST SIDE, FULL LENGTH. CONTRACTOR TO DETERMINE FIXITY AND DRAINAGE AT BASE OF FENCE. PAYMENT WILL BE MADE AS "GALVANIZED CORRUGATED METAL SHEET PILING", SQUARE FOOT.

BRIDGE QUANTITIES		
ITEM	UNITS	QUANTITY
MOBILIZATION	LUMP SUM	1
EPOXY POLYMER CONCRETE OVERLAY	SQ. YD.	2,422
SUBSTRUCTURE REPAIR (FORMED)	SQ. FT.	353
REINFORCING STEEL (BRIDGES)	LBS.	50
* FABRICATED STRUCTURAL LOW ALLOY STEEL (MISC.) A709 GRADE 50W	LBS.	1,980
TYPE N PTFE BEARING	EACH	5
HEAT STRAIGHTENING	LUMP SUM	1
CLEAN EXPANSION JOINTS	EACH	2
** PROTECTIVE COATING-CONCRETE BENTS AND PIERS (EPOXY)	LUMP SUM	1
FURNISHING 1 TON ROCK BLANKET	SQ. YD.	2,750
PLACING 1 TON ROCK BLANKET	SQ. YD.	2,750
STREETLIGHT REPAIRS	LUMP SUM	1
LED LUMINAIRE REPLACEMENT	LUMP SUM	1
TRAFFIC BARRIER REMOVAL	LUMP SUM	1
STREET CUT RESTORATION	SQ. YD.	15
GRADING & SITE PREPARATION	LUMP SUM	1
TRAFFIC CONTROL	LUMP SUM	1
REMOVE SLIDE DEBRIS AND HAUL OFFSITE	CU. YD.	50
SAFETY BARRIER CURB	LIN. FT.	200

* INCLUDES WEIGHT OF REPLACEMENT BENT PLATE DIAPHRAGMS AND INTERMEDIATE STIFFENERS.
** ESTIMATED QUANTITY OF 575 SQ. FT. OF PROTECTIVE COATING-CONCRETE BENTS AND PIERS (EPOXY).

ALTERNATE 1 QUANTITIES		
ITEM	UNITS	QUANTITY
PEDESTRIAN FENCE (STRUCTURES)	LIN. FT	1,262

ALTERNATE 2 QUANTITIES		
ITEM	UNITS	QUANTITY
*** SECURITY FENCE	LUMP SUM	1

*** ESTIMATED QUANTITY OF 1264 LIN . FT. OF SECURITY FENCE.

ALTERNATE 3 QUANTITIES		
ITEM	UNITS	QUANTITY
**** SECURITY FENCE	LUMP SUM	1
GALVANIZED CORRUGATED METAL SHEET PILING	SQ. FT.	7,560

**** ESTIMATED QUANTITY OF 632 LIN . FT. OF SECURITY FENCE.

ALTERNATE 4 QUANTITIES		
ITEM	UNITS	QUANTITY
INSTALL SHOTCRETE	SQ. FT.	4,750
INSTALL ROCK DOWELS	EACH	190

GENERAL NOTES & QUANTITIES

Detailed FEB 2019
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DATE
2/28/19
DATE PREPARED
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ROUTE
BEARDSLEY
STATE
MO
DISTRICT
KC
SHEET NO.
3
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
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DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY:
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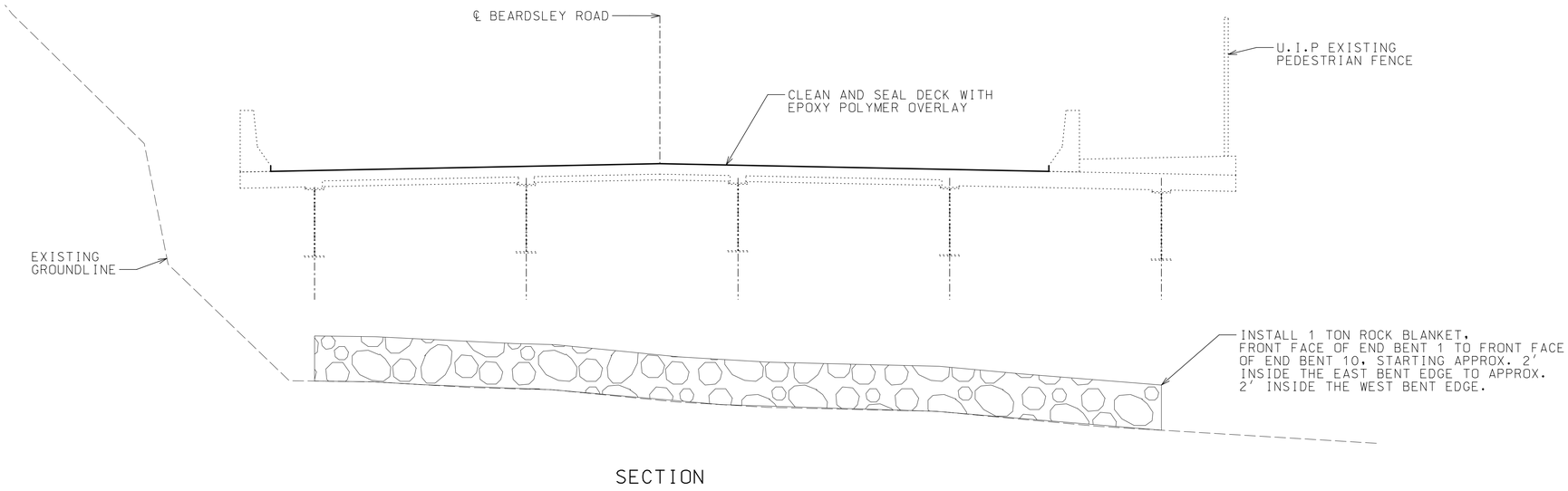
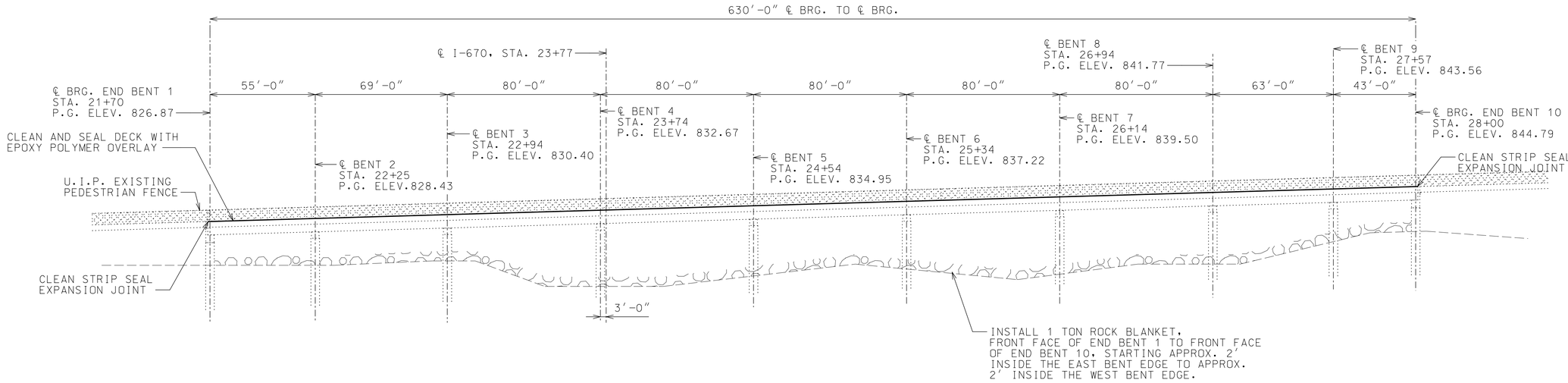
CHECKED BY:
JMR

REV.



SECTION



ELEVATION

NOTES:

THE EPOXY POLYMER CONCRETE OVERLAY SHALL BE A LOW VISCOSITY POLYMER, OBTAINED FROM "KWIK BOND POLYMERS" OR EQUIVALENT LISTED IN THE MODOT PRE-ACCEPTANCE LIST (PAL) FOR CONCRETE CRACK FILLER.

THE COMPOSITION OF THE EPOXY POLYMER CONCRETE OVERLAY MUST MEET ALL REQUIREMENTS LISTED IN SECTION 1039.60.3 OF THE 2018 MISSOURI SPECIFICATIONS. APPLY OVERLAY IN ACCORDANCE WITH SEC 623.30 OF THE MODOT SPECIFICATIONS.

THE ROCK BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE 1 TON GRADING IN SEC 2303 OF THE KANSAS CITY STANDARD SPECIFICATIONS.

FOR PROCEDURE FOR CLEANING STRIP SEAL EXPANSION JOINTS, SEE TECHNICAL SPECIFICATIONS.

REPAIR PLAN - BASE

Detailed FEB 2019
Checked FEB 2019

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DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 4
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
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CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.

BEAM SUPPORT

TEMPORARY SUPPORT SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL 4 WEEKS PRIOR TO BEGINNING WORK.

ALL EXISTING BEAMS IN THE SPAN BEING SUPPORTED SHALL BE RAISED SIMULTANEOUSLY 1" ABOVE EXISTING BEARINGS AND SUPPORTED DURING CONCRETE SUBSTRUCTURE REPAIR AND BEARING REPLACEMENT AT BENT NO. 2.

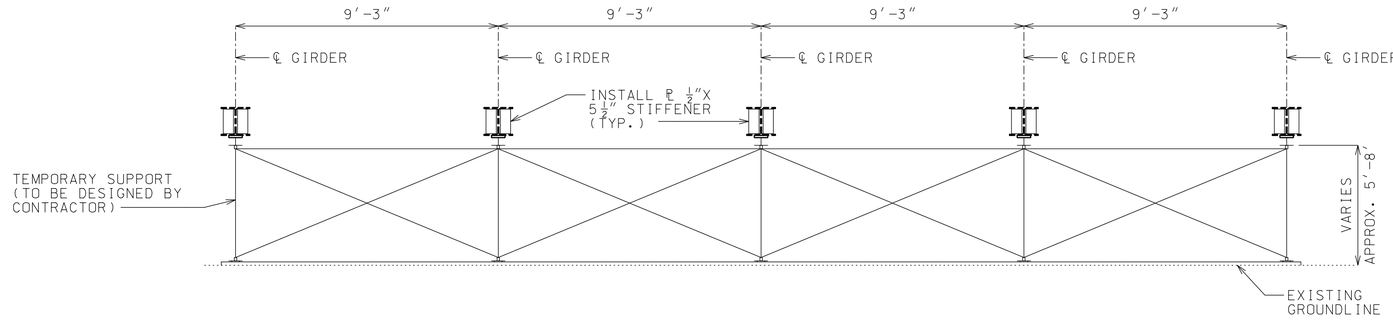
THE TEMPORARY SUPPORTS MUST BE CAPABLE OF SAFELY SUPPORTING 50 TONS PER BEAM (FACTOR OF SAFETY NOT INCLUDED). SEE SPECIAL PROVISIONS.

NO LIVE LOAD OR CONSTRUCTION LOADS SHALL BE ALLOWED ON SPANS 1 OR 2 WHILE ON TEMPORARY SUPPORTS.

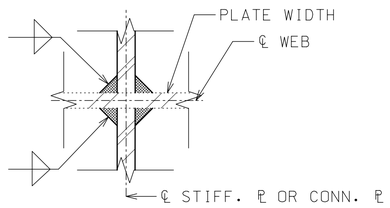
FIELD WELDED FILLET WELDS SHALL BE NDT BY THE MAGNETIC PARTICLE PROCESS AS REQUIRED BY AASHTO/AWS D1.5 2002, BRIDGE WELDING CODE CLAUSE 6.7.2.

PAYMENT FOR THE TEMPORARY SHORING SYSTEM SHALL BE SUBSIDIARY TO "TYPE N PTFE BEARINGS", EACH.

MATERIAL AND LABOR REQUIRED IN THE INSTALLATION OF THE INTERMEDIATE BEARING STIFFENERS SHALL BE CONSIDERED TO BE COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR FABRICATED STRUCTURAL LOW ALLOY STEL (MISC.) A709 GR. 50W.



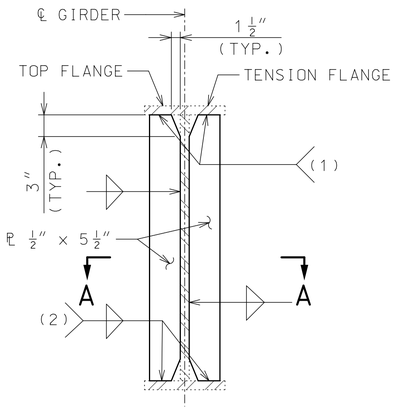
SECTION VIEW OF TEMPORARY SHORING



SECTION A-A
STIFFENER WELDING DETAIL

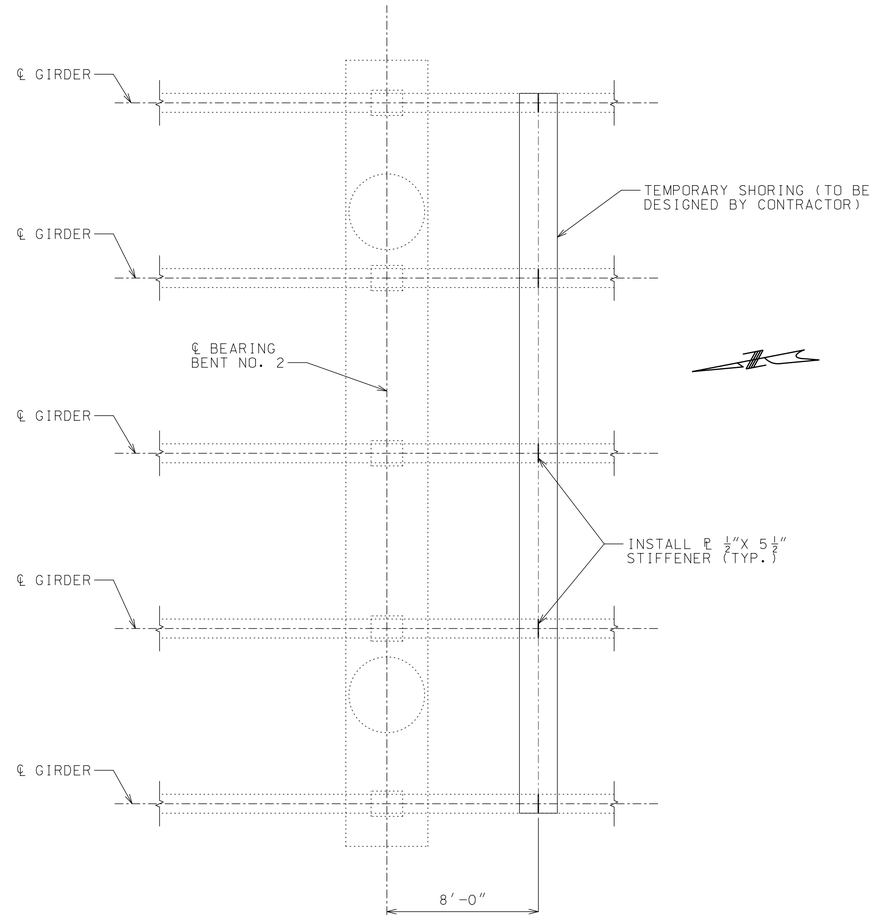
NOTES:

FABRICATED STRUCTURAL STEEL FOR STIFFENERS SHALL BE ASTM A709 GRADE 50W.



INTERMEDIATE
BEARING STIFFENER

(1) TIGHT FIT
(2) GRIND OR MILL TO BEAR



PLAN VIEW OF TEMPORARY SHORING

TEMPORARY SHORING DETAILS - BENT NO. 2

Detailed FEB 2019
Checked FEB 2019

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STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY
STATE: MO
DISTRICT: KC
SHEET NO.: 5
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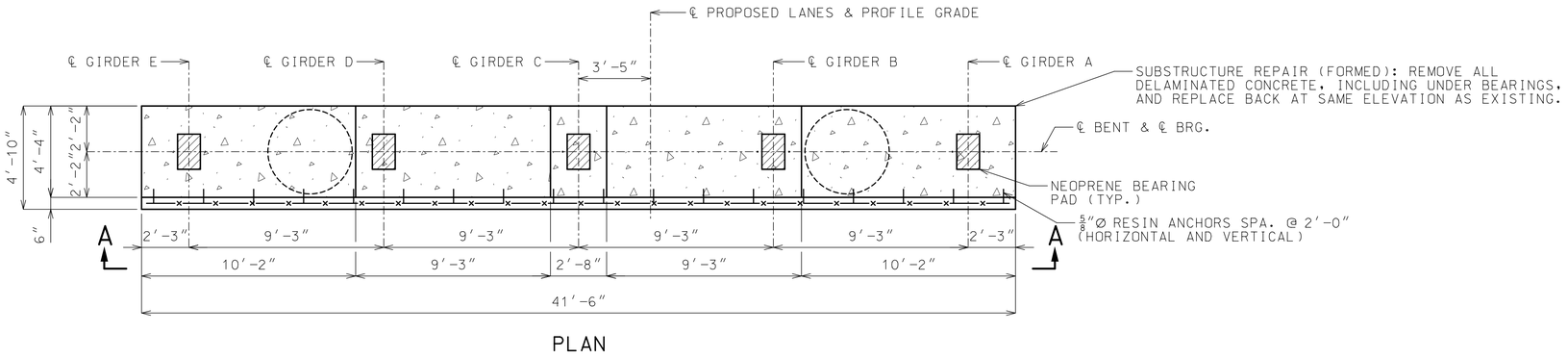
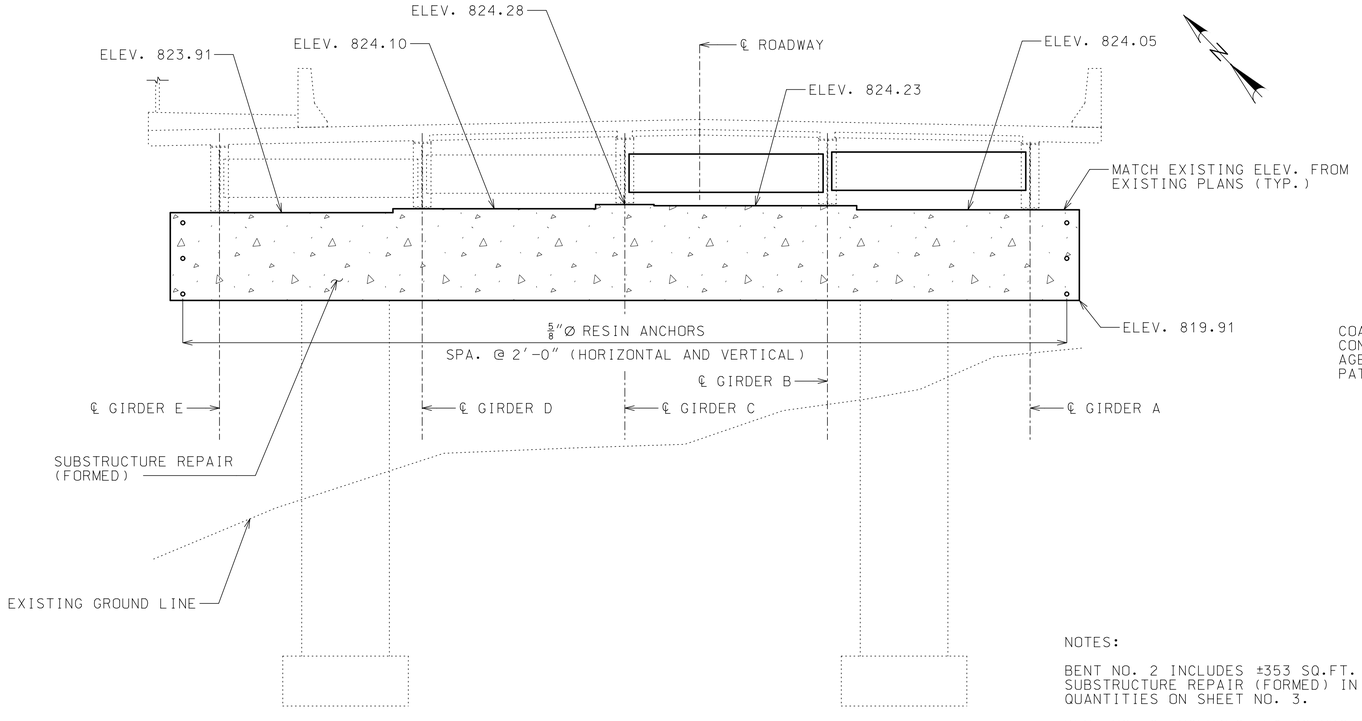
CHECKED BY: JMR
REV.

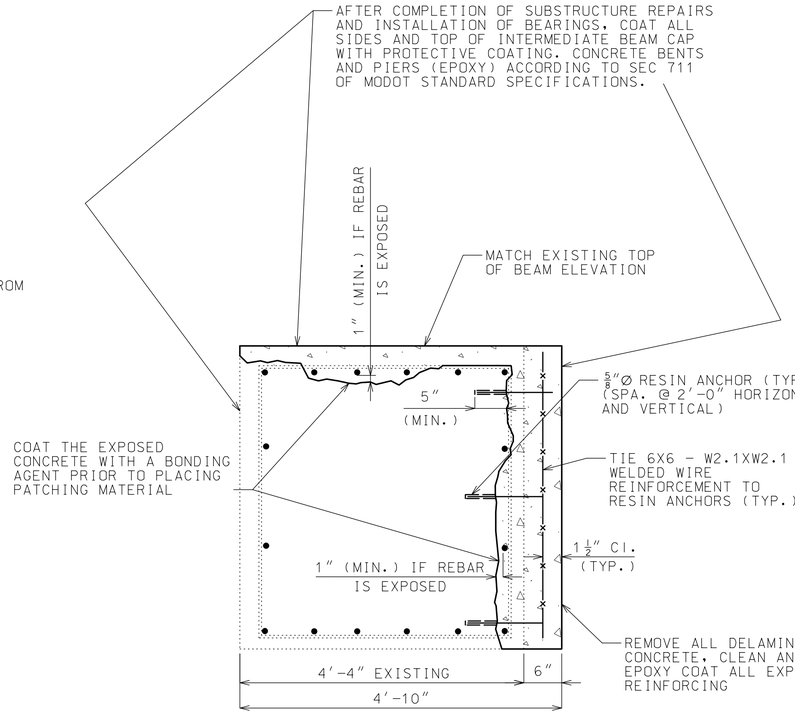


PLAN



ELEVATION A-A

(LOOKING BACK STATION)



TYPICAL SECTION SHOWING SUBSTRUCTURE REPAIR (FORMED)

NOTES:

BENT NO. 2 INCLUDES ±353 SQ.FT. OF SUBSTRUCTURE REPAIR (FORMED) IN THE ESTIMATED QUANTITIES ON SHEET NO. 3.

BENT NO. 2 INCLUDES ±50 POUNDS OF WELDED WIRE REINFORCEMENT INCLUDED IN THE "REINFORCING STEEL (BRIDGES)" IN THE ESTIMATED QUANTITIES ON SHEET NO. 3.

BENT NO. 2 INCLUDES ±575 SQ. FT. OF PROTECTIVE COATING - CONCRETE BENTS AND PIERS (EPOXY) INCLUDED IN THE QUANTITIES ON SHEET NO. 3.

SUBSTRUCTURE REPAIR (FORMED) SHALL MEET THE REQUIREMENTS OF MODOT STANDARD SPECIFICATIONS SECTION 704 CONCRETE MASONRY REPAIR.

THE CONTRACTOR SHALL USE ONE OF THE QUALIFIED RESIN ANCHOR SYSTEMS IN ACCORDANCE WITH SEC 1039 OF MODOT STANDARD SPECIFICATIONS.

COST OF FURNISHING AND INSTALLING THE RESIN ANCHOR SYSTEMS, COMPLETE IN PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR SUBSTRUCTURE REPAIR (FORMED).

THE MINIMUM EMBEDMENT DEPTH IN CONCRETE WITH F′C = 4,000 PSI FOR THE RESIN ANCHOR SYSTEMS SHALL BE THAT REQUIRED TO MEET THE MINIMUM ULTIMATE PULLOUT STRENGTH IN ACCORDANCE WITH SEC 1039 BUT SHALL NOT BE LESS THAN 5″.

BENT NO. 2 REPAIRS

STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 6
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

DESCRIPTION / DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

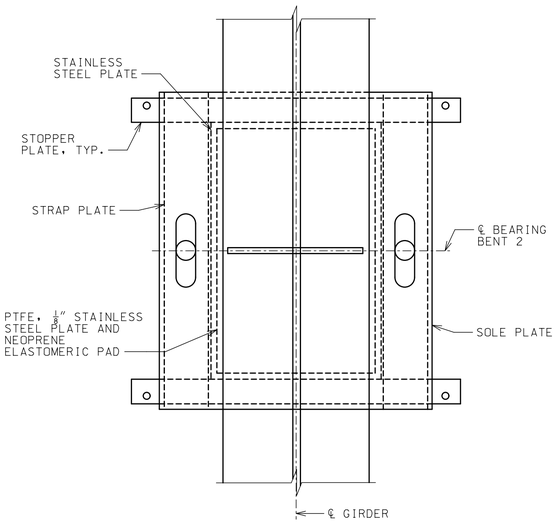
DRAWN BY: JSB
CHECKED BY: JMR
REV.

Detailed FEB 2019
Checked FEB 2019

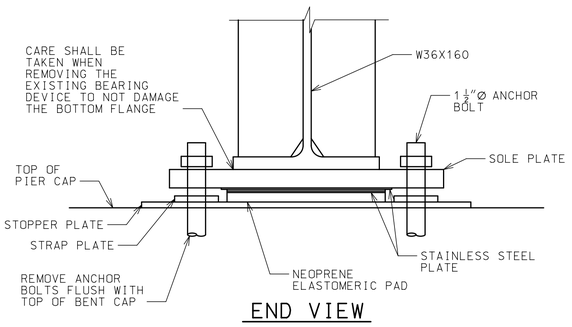
Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsely_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\006_Exist Column Repair.dgn 3:50:03 PM 3/1/2019

EXISTING BEARING DEVICE TO BE REMOVED

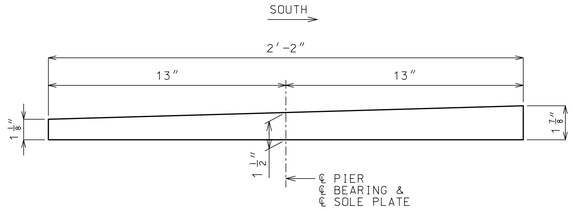


PLAN VIEW

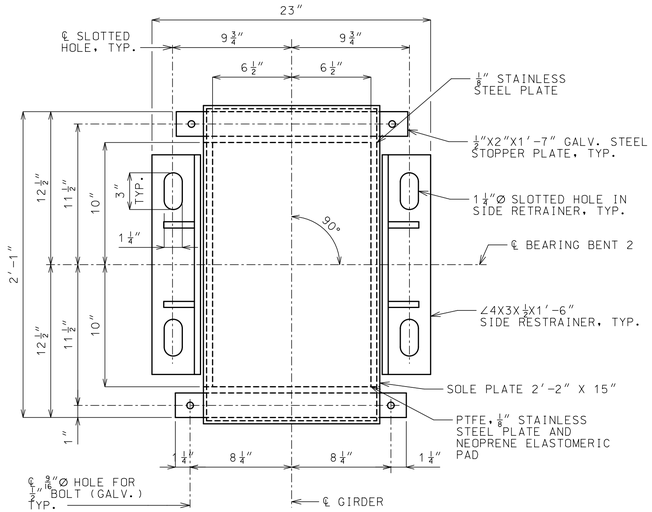


END VIEW

NOTE:
THE COST OF LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED FOR REMOVAL OF THE EXISTING BEARING DEVICES SHALL BE SUBSIDIARY TO THE BID ITEM "TYPE N PTFE BEARINGS".

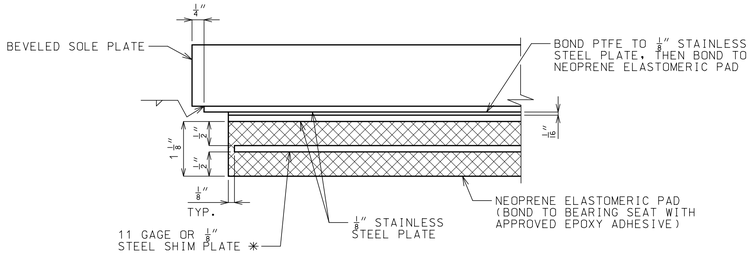


BEVELED SOLE PLATE



PLAN VIEW

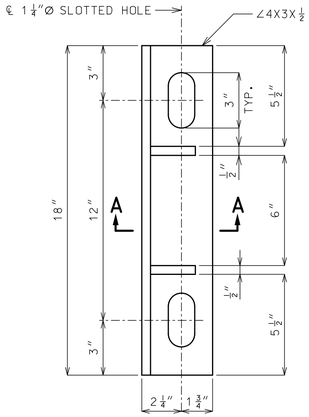
(5 REQUIRED)



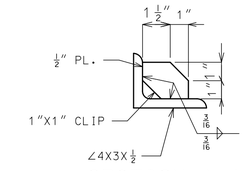
NEOPRENE ELASTOMERIC PAD

70 DUROMETER
NOT TO SCALE

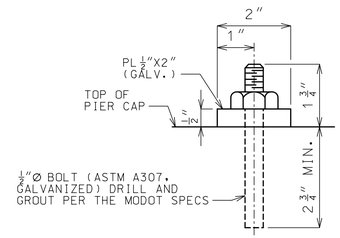
✳ SHIM PLATES SHALL BE PLACED BETWEEN SPECIFIED LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.



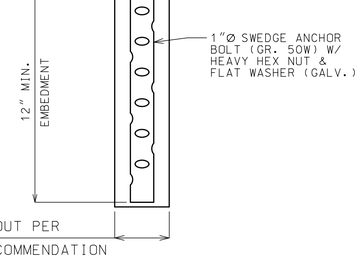
SIDE RESTRAINER PLAN VIEW



SECTION A-A

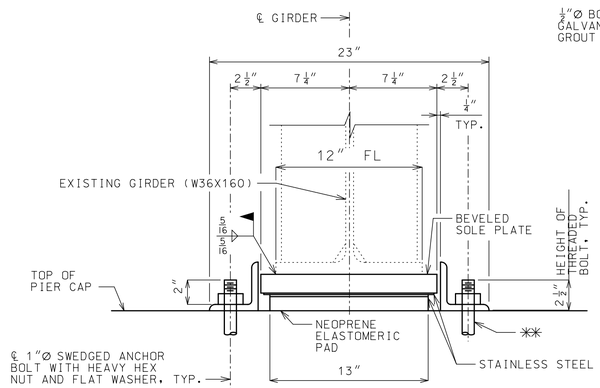


SECTION THRU STOPPER PLATE



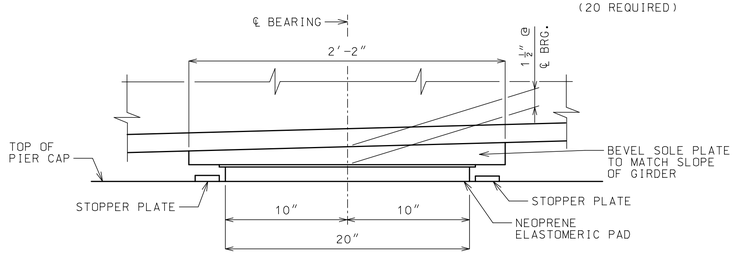
SWEDGE ANCHOR BOLT DETAIL

(20 REQUIRED)



END VIEW

STOPPER PLATE NOT SHOWN



SIDE VIEW

SIDE RESTRAINER AND ANCHOR BOLTS NOT SHOWN

NOTES:

ANCHOR BOLTS FOR PTFE BEARINGS SHALL BE 1"Ø ASTM A709 GRADE 50W STEEL SWEDGED BOLTS AND SHALL EXTEND 12" MIN. INTO THE CONCRETE.

ALL ANCHOR BOLTS SHALL HAVE ASTM A194-2, 2H OR ASTM A563-C, C3, D, DH, DH3 HEAVY HEXAGON NUTS. ACTUAL MANUFACTURER'S CERTIFIED MILL TEST REPORTS (CHEMICAL AND MECHANICAL) SHALL BE PROVIDED. SWEDGING SHALL BE 1" LESS THAN EXTENSION INTO THE CONCRETE.

ALL STRUCTURAL STEEL FOR THE ANCHOR BOLTS AND HEAVY HEXAGON NUTS SHALL BE COATED WITH A MINIMUM OF TWO COATS OF INORGANIC ZINC PRIMER (5 MILS MINIMUM).

THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD WELDED TO THE GIRDERS.

STRUCTURAL STEEL FOR THE SOLE PLATE AND SIDE RESTRAINER ANGLES SHALL BE ASTM A709 GRADE 50W. THE STAINLESS STEEL PLATE SHALL BE PROTECTED FROM ANY COATING.

NEOPRENE ELASTOMERIC PADS FOR THE PTFE SLIDING BEARINGS SHALL BE 70 DUROMETER.

TO PREVENT SLIDING, THE NEOPRENE PAD SHALL BE BONDED TO THE BEARING SEAT WITH AN EPOXY ADHESIVE AS APPROVED BY THE BEARING MANUFACTURER FOR BONDING NEOPRENE TO CONCRETE. THE TOP AND BOTTOM PLATES SHALL BE PROPERLY ALIGNED BEFORE GLUING PADS.

PROVIDE A 1/2" STOPPER PLATE TO PREVENT LOSS OF SUPPORT DUE TO CREEPING OF PTFE BEARINGS FROM UNDER GIRDER.

THE BOTTOM FACE OF THE 1/8" STAINLESS STEEL PLATE THAT IS WELDED TO THE SOLE PLATE SHALL BE LUBRICATED WITH A LUBRICANT THAT IS APPROVED BY THE BEARING MANUFACTURER.

CENTER THE NEOPRENE ELASTOMERIC PAD ON ℄ BEARING PIER. LOCATE THE SOLE PLATE CENTERED BENEATH THE BEARING STIFFENERS. THE HORIZONTAL OFFSET BETWEEN THESE TWO LOCATIONS SHOULD BE APPROXIMATELY 1/4" PER 10°F DIFFERENCE FROM 60°F. IF THE TEMPERATURE IS SIGNIFICANTLY DIFFERENT FROM 60°F, NOTIFY THE ENGINEER PRIOR TO PLACING THE BEARING DEVICE OR SOLE PLATE.

✳✳ DRILL AND GROUT THE 1"Ø SWEDGED ANCHOR BOLT INTO THE PIER CAP. USE A PACHOMETER TO LOCATE AND AVOID THE EXISTING REINFORCING STEEL IN THE BENT CAP.

TIGHTEN THE NUT TO ACHIEVE A BOLT TENSION OF 10 KIPS BASED ON THE CALIBRATED WRENCH METHOD IN SECTION 712.7.5 OF THE MODOT STANDARD SPECIFICATIONS.

BEARING DEVICE DETAILS BENT NO. 2

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

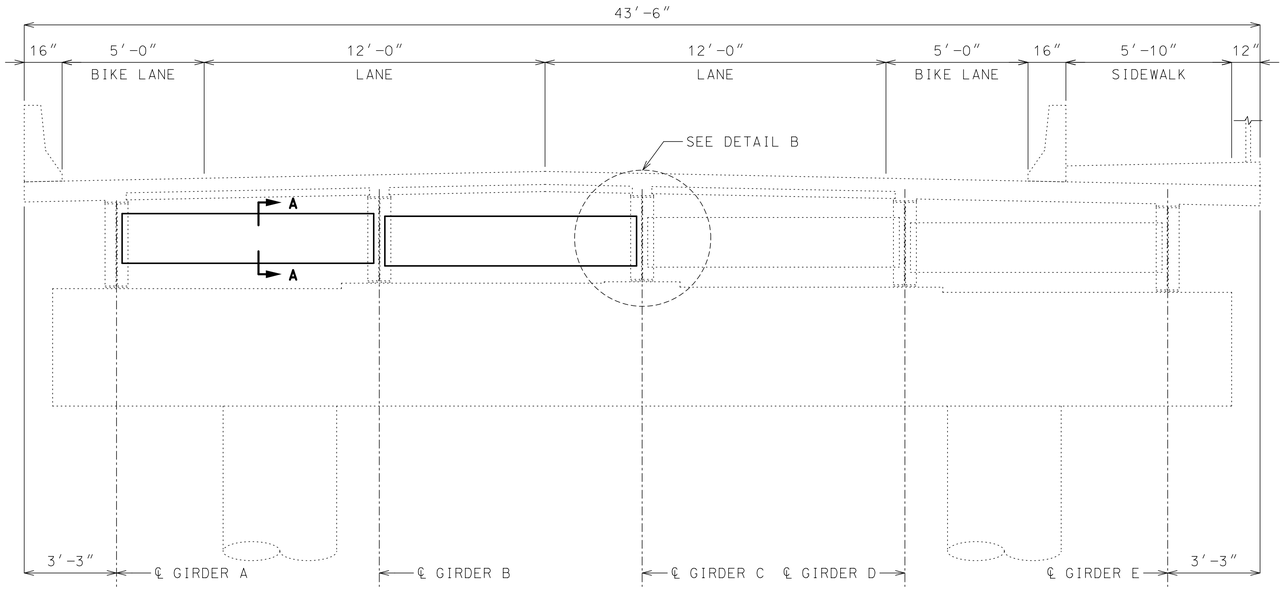
DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 7
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

DESCRIPTION / DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.



SECTION AT BENT 2

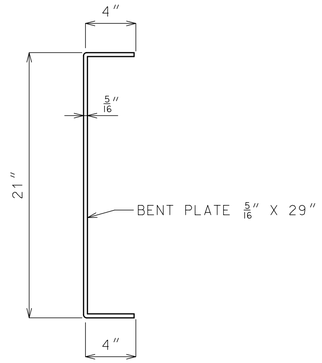
(LOOKING UPSTATION)

NOTES:

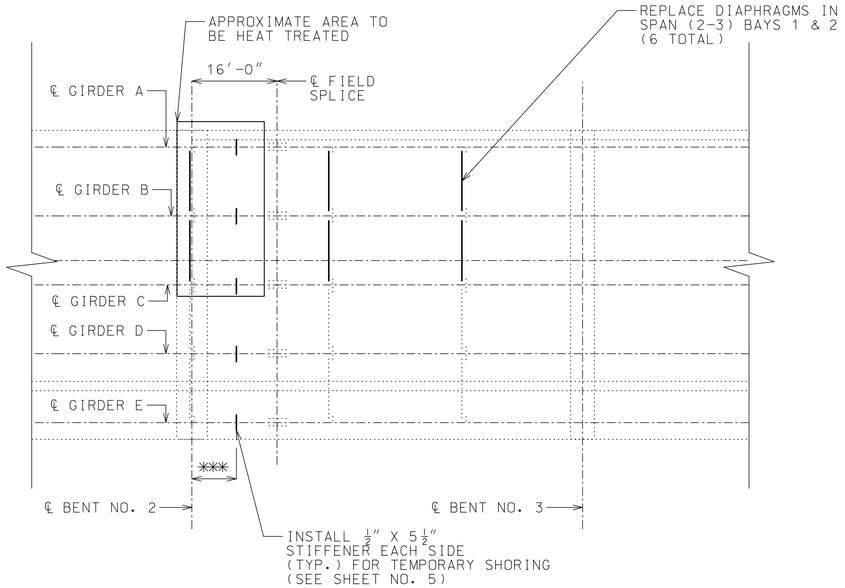
ALL STEEL FOR DIAPHRAGMS SHALL CONFORM TO ASTM GRADE 50W REQUIREMENTS.

ALL BOLTS SHALL BE 3/4″Ø HIGH STRENGTH BOLTS ASTM A325 (TYPE 3). DO NOT REAM DURING FIELD ERECTION. ACCURATELY ALIGN ALL CONNECTIONS BY DRIVING 13/16″Ø DRIFT PINS IN ALL CORNERS AND IN 1/4 OF THE REMAINING HOLES IN EACH PLATE.

THE REPLACEMENT BENT PLATE DIAPHRAGMS AND INTERMEDIATE STIFFENERS SHALL BE PAID BY THE BID ITEM "FABRICATED STRUCTURAL LOW ALLOY STEEL (MISC.) A709 GRADE 50W".

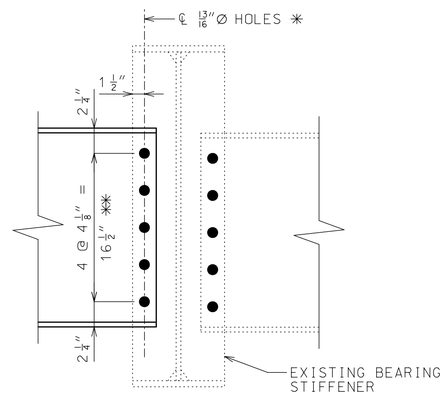


SECTION A-A



*** LOCATION TO BE DETERMINED IN FIELD BY CONTRACTOR BASED ON JACKING LOCATION.

PART PLAN



DETAIL B

* FIELD DRILL AND CONNECT TO THE EXISTING STIFFENERS.

** BOLT HOLE SPACING IN EXISTING BEARING STIFFENER.

BENT PLATE DIAPHRAGMS SHALL BE REMOVED AND REPLACED ONE AT A TIME.

MISCELLANEOUS STEEL DETAILS

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 8
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

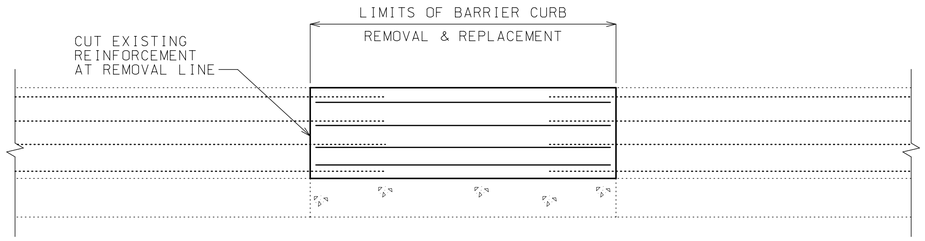
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222 • FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

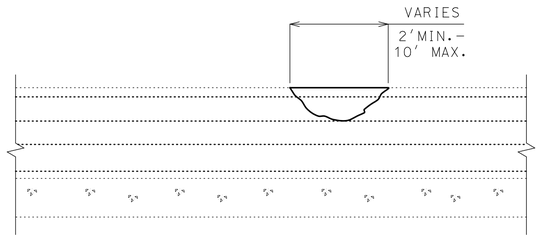
DRAWN BY: JSB
CHECKED BY: JMR

REV.

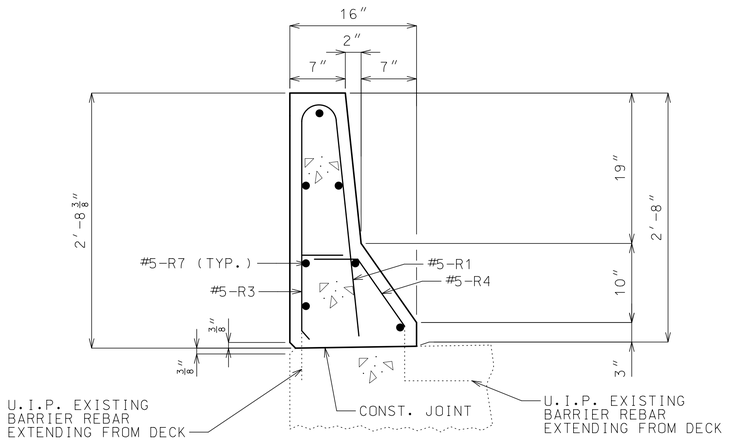


BARRIER REPLACEMENT

NOTE: BARRIER CURB REPLACEMENTS TO BE PERFORMED AT MIN. 10'0" SECTIONS



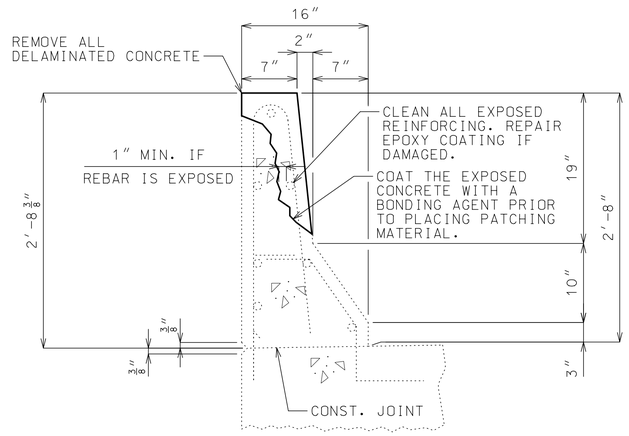
BARRIER REPAIR



TYPICAL REPLACEMENT SECTION

MINIMUM LAP LENGTH OF 2'-11" FOR #5 HORIZONTAL SAFETY BARRIER CURB BARS.

THE CROSS-SECTIONAL AREA ABOVE THE SLAB FOR THE CURB IS 2.28 SQ. FT.



TYPICAL REPAIR SECTION

USE EXISTING REBAR.

NOTES:

TOP OF SAFETY BARRIER CURB SHALL BE BUILT PARALLEL TO GRADE WITH BARRIER CURB JOINTS NORMAL TO GRADE.

ALL EXPOSED EDGES OF SAFETY BARRIER CURB SHALL HAVE EITHER A 1/2-INCH RADIUS OR A 3/8-INCH BEVEL, UNLESS OTHERWISE NOTED.

ALL EXPOSED EDGES OF REPAIRED SAFETY BARRIER CURB SHALL MATCH EXISTING BARRIER CURB.

PAYMENT FOR ALL CONCRETE, COMPLETE IN PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR "SAFETY BARRIER CURB" PER LINEAR FOOT.

CONCRETE IN THE SAFETY BARRIER CURB REPLACEMENT SHALL BE CLASS B-1.

THE MATERIAL USED FOR THE SAFETY BARRIER CURB REPAIR SHALL BE MCIB "SPECIAL AGGREGATE CONCRETE SA-2" OR AN APPROVED SHOTCRETE.

MEASUREMENT OF SAFETY BARRIER CURB REPAIR AND SAFETY BARRIER CURB REPLACEMENT IS TO THE NEAREST LINEAR FOOT.

REMOVE DAMAGED CONCRETE BEFORE PERFORMING PATCHWORK.

ALL EXISTING REINFORCEMENT IN THE SAFETY BARRIER CURB FROM THE SLAB SHALL BE CLEANED AND REUSED IN PLACE. ADD ADDITIONAL REINFORCEMENT AS REQUIRED.

BARRIER CURB REPAIRS

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE
BEARDSLEY
STATE
MO
DISTRICT
KC
SHEET NO.
9
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

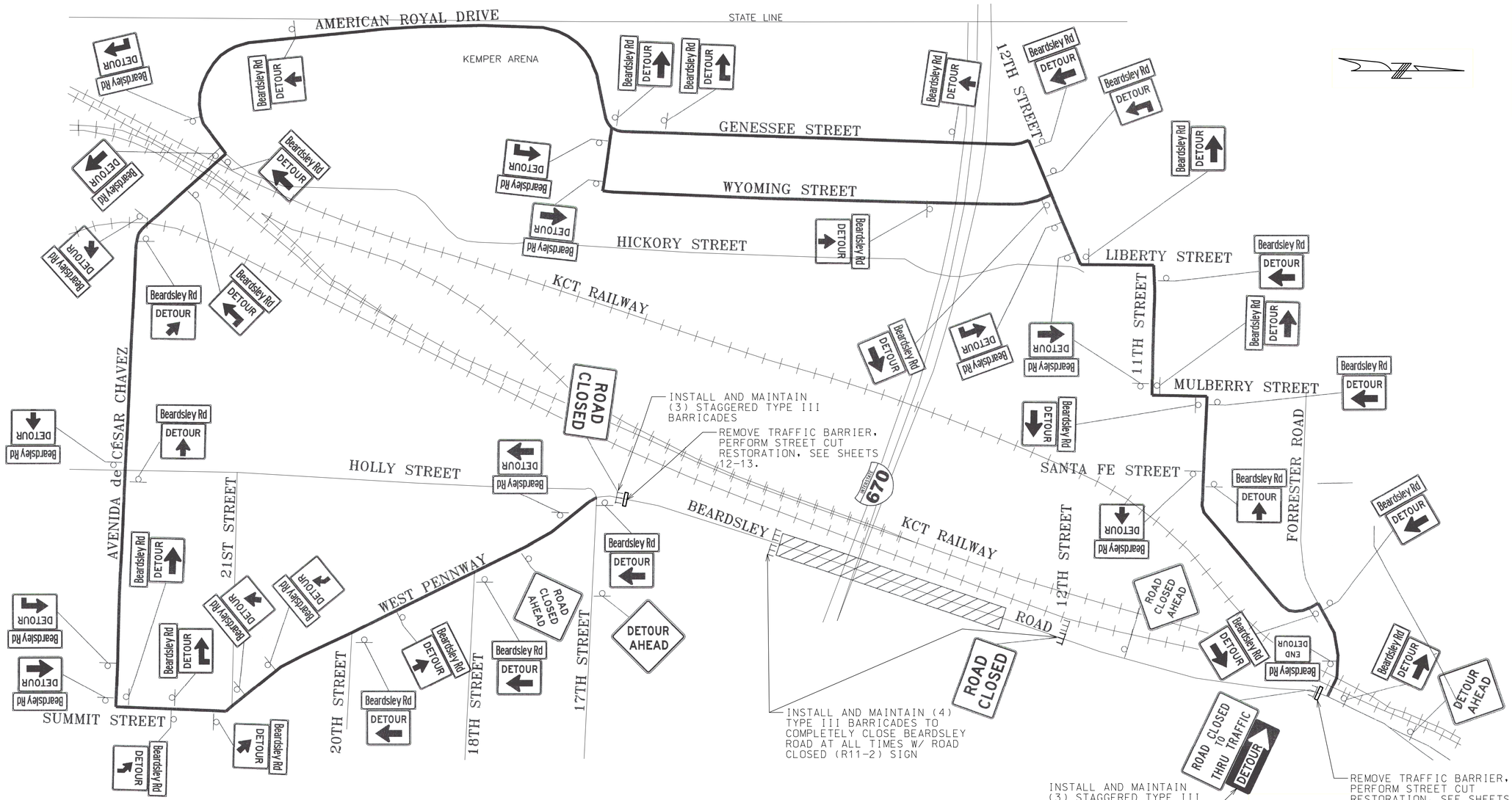
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY:
JSB
CHECKED BY:
JMR

REV.



NOTES:

1. ALL SIGNS, BARRICADES, CHANNELIZERS, MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, AS WELL AS SPECIFICATIONS OF THE MISSOURI DEPARTMENT OF TRANSPORTATION (MoDOT). FOR DEVICE DETAILS AND DIMENSIONS, SEE MODOT STANDARD PLANS SECTION 616.10.

2. THE LOCATIONS OF THE DETOUR SIGNS ON THIS PLAN ARE SHOWN IN AN APPROXIMATE MANNER ONLY. UNLESS OTHERWISE SHOWN, THE TYPICAL APPROXIMATE LOCATION FOR VARIOUS SIGNS SHALL BE AS FOLLOWS:
 - DIRECTIONAL ASSEMBLIES: AT THE NEAR RIGHT CORNER OF THE INTERSECTION
 - ADVANCE ROUTE TURN ASSEMBLIES: 150'-200' IN ADVANCE OF THE DIRECTIONAL ASSEMBLY
 - END DETOUR ASSEMBLIES: 100' IN ADVANCE OF OR BEYOND THE ADJACENT INTERSECTION
 - DETOUR/ROAD CLOSED AHEAD SIGNS: 150'-300' IN ADVANCE OF THE DOWNSTREAM WORK ZONE SIGN OR CLOSURE AREA

3. OTHER SIGNS SHALL BE PLACED AT THE APPROXIMATE LOCATION SHOWN ON THE PLAN AND SHALL BE FIELD ADJUSTED IF NECESSARY TO AVOID CONFLICTS WITH EXISTING SIGNS. THE DESIRED MINIMUM SPACING BETWEEN ADJACENT SIGNS IS 150 FEET. THE CONTRACTOR SHALL COORDINATE THE ACTUAL LOCATION FOR ALL PROPOSED TRAFFIC CONTROL DEVICES WITH THE INSPECTOR.

4. TYPE III BARRICADES SHOWN FOR THE ROADWAY CLOSURES SHALL BE USED TO COMPLETELY CLOSE ACCESS TO THE ROADWAY AT THESE POINTS. THE CONTRACTOR SHALL SECURE THE BARRICADES IN SUCH A MANNER THAT THESE DEVICES CANNOT BE EASILY MOVED BY THE PUBLIC.

5. CONTRACTOR SHALL COORDINATE WITH THE CITY TO REMOVE ALL EXISTING TRAFFIC CONTROL DEVICES BEFORE INSTALLING ALL DEVICES PER THIS PLAN. THE COST OF FURNISHING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THIS WORK SHALL BE INCLUDED IN THE BID ITEM "TRAFFIC CONTROL". THE COST OF FURNISHING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO REMOVE THE EXISTING TRAFFIC BARRIERS SHALL BE INCLUDED IN THE BID ITEM "TRAFFIC BARRIER REMOVAL". THE COST OF FURNISHING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO REPAIR THE STREET CUTS SHALL BE INCLUDED IN THE BID ITEM "STREET CUT RESTORATION".

6. SEE SHEET NO. 11 FOR DETOUR SIGNS AND DETAILS.

LEGEND

- TRAFFIC CONTROL SIGN
- AREA OF ROAD CLOSURE
- TYPE III MOVABLE BARRICADE

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

DATE 2/28/19
DATE PREPARED 02/22/19
ROUTE BEARDSLEY | STATE MO
DISTRICT KC | SHEET NO. 10
COUNTY JACKSON
KCMO PROJECT NO. 89005585
BRIDGE NO. S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR

REV.

SIGN LEGEND

W20-2
36" x 36"

W20-3
36" x 36"

R11-4
60" x 30"

R11-2
48" x 30"

M4-10L
48" x 18"

M4-10R
48" x 18"

M4-9L
30" x 24"

M4-9R
30" x 24"

M4-9LA
30" x 24"

M4-9RA
30" x 24"

M4-9LD
30" x 24"

M4-9RD
30" x 24"

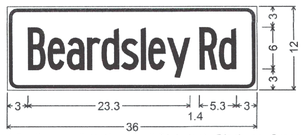
M4-9LDA
30" x 24"

M4-9RDA
30" x 24"

M4-9S
30" x 24"

M4-8A
24" x 18"

SP-01
36" x 12"
SEE DETAIL AT RIGHT



1.5" Radius, 0.5" Border, 0.3" Indent, Black on Orange;
[Beardsley Rd] B 23% spacing;
Table of distances between letter and object lefts.

3.0	B 2.8	e 2.8	a 2.9	r 2.1	d 2.8	s 2.8	l 1.1	e 2.7	y 4.7	R 2.8	d 2.5	3.0

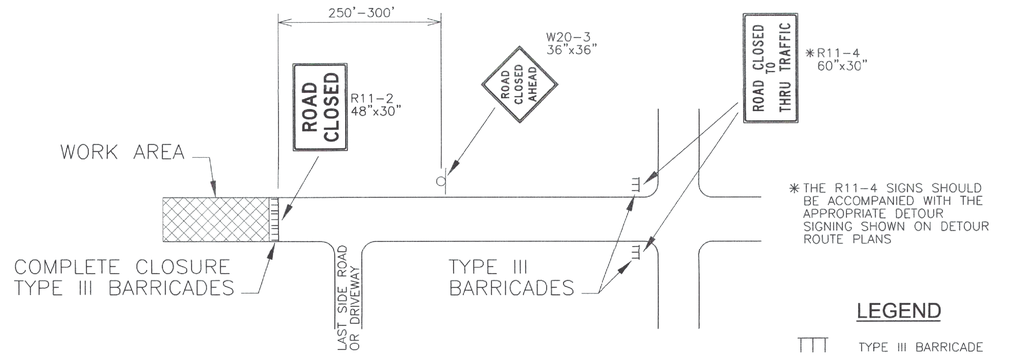
TRAFFIC CONTROL SUMMARY OF QUANTITIES

SIGN TYPE	SIZE (SF)	UNIT	TOTAL NEEDED
M4-8A (24"x18") END DETOUR	3	EA.	1
M4-9R (30"x24") DETOUR (RIGHT ARROW)	5	EA.	10
M4-9L (30"x24") DETOUR (LEFT ARROW)	5	EA.	12
M4-9S (30"x24") DETOUR (STRAIGHT ARROW)	5	EA.	8
M4-9RA (30"x24") DETOUR (ADVANCE RIGHT ARROW)	5	EA.	3
M4-9LA (30"x24") DETOUR (ADVANCE LEFT ARROW)	5	EA.	5
M4-9LD (30"x24") DETOUR (SOFT LEFT ARROW)	5	EA.	2
M4-9RD (30"x24") DETOUR (SOFT RIGHT ARROW)	5	EA.	2
M4-9LDA (30"x24") DETOUR (SOFT LEFT ADVANCE ARROW)	5	EA.	1
M4-9RDA (30"x24") DETOUR (SOFT RIGHT ADVANCE ARROW)	5	EA.	1
M4-10R (48"x18") RIGHT ARROW WITH DETOUR	6	EA.	1
R11-2 (48"x30") ROAD CLOSED	10	EA.	2
R11-4 (60"x30") ROAD CLOSED TO THRU TRAFFIC	12.5	EA.	1
W20-2 (36"x36") DETOUR AHEAD	9	EA.	2
W20-3 (36"x36") ROAD CLOSED AHEAD	9	EA.	2
SPECIAL 1 (36"x12") BEARDSLEY RD	3	EA.	45
TYPE III MOVABLE BARRICADE		EA.	14

RECAPITULATION OF TRAFFIC CONTROL BID ITEMS

ITEM DESCRIPTION	TOTAL	UNIT
TRAFFIC CONTROL	1	L.S.

TYPICAL ROAD CLOSURE DETAILS



* THE R11-4 SIGNS SHOULD BE ACCOMPANIED WITH THE APPROPRIATE DETOUR SIGNING SHOWN ON DETOUR ROUTE PLANS

LEGEND

- TYPE III BARRICADE
- TRAFFIC CONTROL SIGN
- WORK AREA

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 11
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

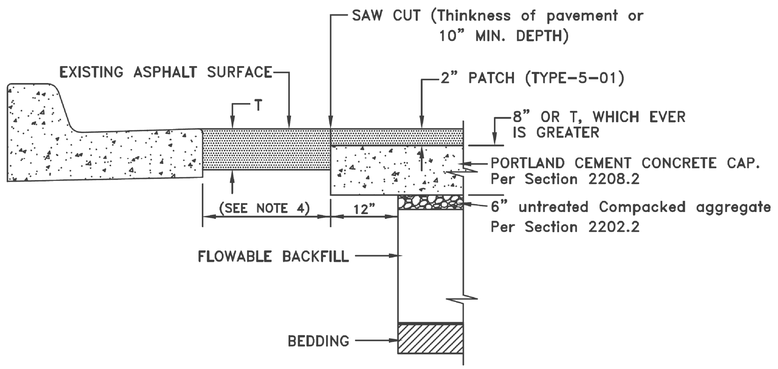
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsely_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\011_Traffic ControlPlan.dgn 3:50:34 PM 3/1/2019



DETAIL 1 – ASPHALT PAVEMENT SURFACE

TYPICAL SECTION

NO SCALE

GENERAL NOTES – All work shall conform to the latest APWA Standard Specifications and Design Criteria, Division II, and Kansas City, Missouri Supplements, Standards and Utility Cut regulations. Excavations shall be protected at all times. Once excavation is made, work shall continue on a workday basis until final restoration is complete. Cuts in roadways shall be plated or temporarily filled and capped with cold mix asphalt when work is not being performed. Trees shall be protected from damage both above and below ground. City Forester at 513–9550 must be contacted when digging within five (5) feet of a tree or when any damage to the tree or a root over three (3) inches occures.

1. EXCAVATIONS – The top dimension of the excavation shall be equal to or greater than the bottom dimension. (All sides of the excavation shall be vertical or lay back greater than vertical before beginning backfill.)

   BELL HOLE EXCAVATIONS – Excavation around underground facilities wider than surface opening will be allowed if the excavation is backfilled within 24 hours with flowable backfill as stated in 3 below. If unable to complete in the time frame, then the unsupported subgrade and pavement shall be removed to meet the provisions of section 1 above.

2. BEDDING – Utility bedding shall be granular bedding meeting 2602, compacted embankment meeting 2602, or flowable fill meeting 2602 unless approved by City. Bedding may extend no greater than 12" above utility. In the downtown loop granular bedding shall not be used.

3. BACKFILL – Backfill shall not be placed in water or mud. Clean graded rock or frozen material shall not be used as backfill. Backfill material and placement shall meet the requirements of 2602.3. Franchise utilities with an approved compaction testing program may perfrom their own compaction test. all other requirements of 2602.3.C must be met.

4. ROADWAY SURFACES – Surfacing shall be of same type of materials as the existing surface. The finished surface shall be flush with the surrounding surface and shall match the slope and contours of the surrounding pavement.

   A. Portland Cement Concrete – (Detail 4)
      If the street cut is in a concrete street, the patch shall extend to the nearest joint in all directions. The patch shall be saw cut and all load transfer devices, expansion joints and reinforcing steel placed prior to placing the new concrete. Concrete shall be placed to the current thickness of pavement or ten (10) inches, whichever is thicker. The concrete must match the color and pattern of the previous pavement.

   B. Asphalt – (DETAIL 1)
      Pavement shall be removed twelve (12) inches beyond the edge of the disturbed subgrade or pavement, whichever is greater. If the excavation is within three (3) feet of an existing joint or cut, @ lane line or roadway edge the surface shall be extended to that point. Tack coat shall be applied (Section 2204), surface placed and compacted (Section 2205.3) and joints sealed (Section 2206.2). If asphalt is not available at the time repairs are made, concrete may be brought to the surface as a temporary repair. Once asphalt is available, the top 2" of the concrete shall milled out and 2" of asphalt put back.

   C. Other Materials
      – Brick and other paver type materials shall be replaced with matching materials placed over eight (8) inch concrete base similar to DETAIL 1.
      – Oiled crushed rock roads shall have four (4) inches of Type 3 asphaltic concrete placed over a minimum of six (6) inches of untreated compacted aggregate base.
      – Earth or crushed rock roads shall have a minimum of twelve (12) inches of untreated compacted aggregate.
      – All others shall be replaced as directed by the City.

5. OTHER SURFACES (Backfill under all surfaces shall be as shown in details for pavement.)

   A. Sidewalks, Curbs and Driveways – Any section that is cut shall be removed to the nearest joint (Section 2209.3A and 2301.3A). Restoration shall match the existing surface material and joint pattern and shall comply with the appropriate standards.

   B. Grass Areas – Finish to grade with six (6) inch topsoil compacted to 90%. Seed or sod (Section 2400) area as appropriate.

   C. All Other Areas – Replace as directed by the City.

6. MISCELLANEOUS REGULATIONS

   A. Permits are required before working in right–of–way, which must be on site during work.
      1. Excavation Permits: Public Works 513–2670
         Park Dept. (513–7606)
      2. Traffic Control Permit: 513–2670

   B. Notifications required before actual excavation begins:
      1. 2 Working Day Minimum: MO. ONE CALL 1–800–344–7483.
      2. 24–Hour Minimum: Public Works 513–4701.

   C. Permit holder must have inspection of backfill or permit will be void. Contact utility cut inspection section @ 513–4701, fax 513–4717, to request inspection in advance.

   D. Repairs shall match existing street slope and grade.

   E. Any Pavement Markings removed by the repairs must be replaced with like materials.

MISSOURI ONE CALL SYSTEM
1-800-DIG-RITE or 811
(1-800-344-7483)
www.mo1call.com

KANSAS CITY MISSOURI

Director of Public Works Date

Entry No.

Kansas City, Missouri
Public Works Department
Engineering Division

STREET CUT RESTORATION

STANDARD DRAWING NUMBER
SR-1
(PG 1 of 3)

Drawn by J.A.N. Revised Mar. 2017

DATE 2/28/19
DATE PREPARED 02/22/19
ROUTE BEARDSLEY | STATE MO
DISTRICT KC | SHEET NO. 12
COUNTY JACKSON
KCMO PROJECT NO. 89005585
BRIDGE NO. S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

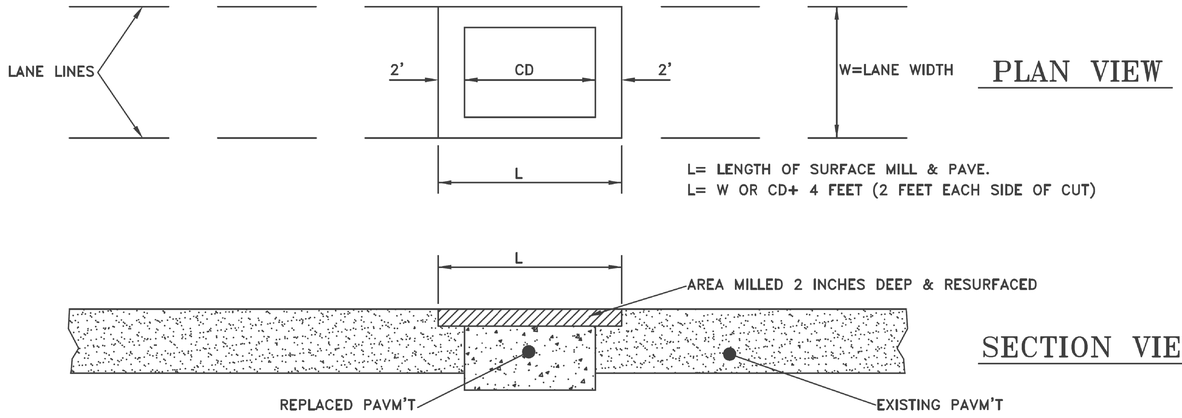
DRAWN BY: JSB
CHECKED BY: JMR

REV.

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsely_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\012_Pavement Patching Detail_1 of 3.dgn 3:50:57 PM 3/1/2019

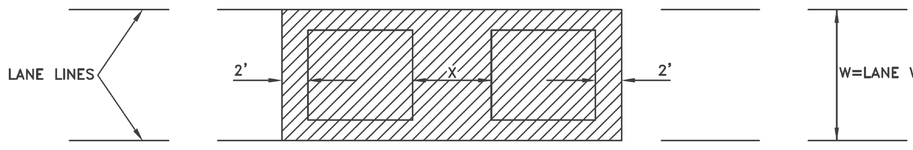


PLAN VIEW

SECTION VIEW

DETAIL 2

NO SCALE



PLAN VIEW

IF DISTANCE X IS LESS THAN W, THEN ENTIRE AREA SHADED WILL BE MILLED & RESURFACED.

DETAIL 3

NO SCALE

E. In asphalt streets, core hole excavations 18 inches in diameter or less may be repaired after proper backifilling, by reinstalling the original surface core. The core must be fully intact and installed with an approved epoxy grout. The finished patch must have all cut lines completely filled with the grout.

7. EXCAVATING IN STREET PAVEMENTS WITHIN TWO YEARS OF CONSTRUCTION OR RESURFACING.

The City will make available its proposed 2-year schedule of street construction and resurfacing to businesses that may require making street cuts. If a street cut is made, for a non-emergency purpose, within 2 years after a street is constructed or resurfaced, the following requirements will apply:

A. Asphalted Surfaced Streets

1. The width and length of the surfaced area shall be as follows:

WIDTH – extend to the full lane width of the affected lane.

LENGTH – extend to the width of the affected lane or the length of the cut plus four feet, whichever is greater.

The area described above shall be milled to a depth of 2 inches and a two-inch thick asphalt surface course shall be placed. This is shown in Detail 2. All lanes affected by the cut shall be milled and resurfaced as stated above.

B. For Concrete Streets

The entire slab shall be removed and replaced to the existing joints.

8. In asphalt streets, when multiple street cuts are separated by less than the width of the affected lane, the lane shall be resurfaced with a single, continuous and contiguous patch. This is shown in Detail 3.

9. EXCAVATING IN PAVED AREA ADJACENT TO A MANHOLE: If pavement is removed adjacent to a casting with a clear opening of 30 inches or less and it does not match the slope and grade of the surrounding pavement, the manhole ring must be replaced with an adjustable manhole ring. All adjustable manhole rings must be adjustable to meet the slope and grade of the pavement from 0 to 17%, and shall be able to be raised and lowered in 1/4 inch increments up to 2 3/4 inches.
The ring and lid shall be rated for H20 traffic. Any casting with a diameter larger than 30 inches must be approved by the Director of Public Works prior to being installed. These casting requirements do not apply to valve castings.

MISSOURI ONE CALL SYSTEM
1-800-DIG-RITE or 811
(1-800-344-7483)
www.mo1call.com

KANSAS CITY MISSOURI

Director of Public Works Date

Entry No.

Kansas City, Missouri
Public Works Department
Engineering Division

STREET CUT RESTORATION

STANDARD DRAWING NUMBER
SR-1
(PG 2 of 3)

Drawn by J.A.N. Revised Mar. 2017

2-28-19

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE BEARDSLEY | STATE MO
DISTRICT KC | SHEET NO. 13
COUNTY JACKSON
KCMO PROJECT NO. 89005585
BRIDGE NO. S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

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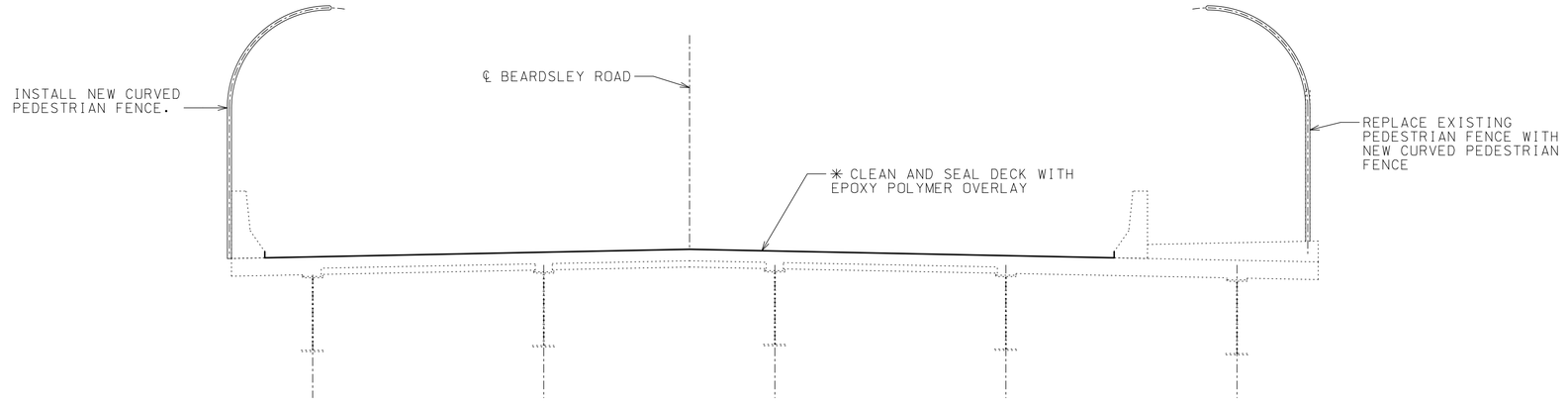
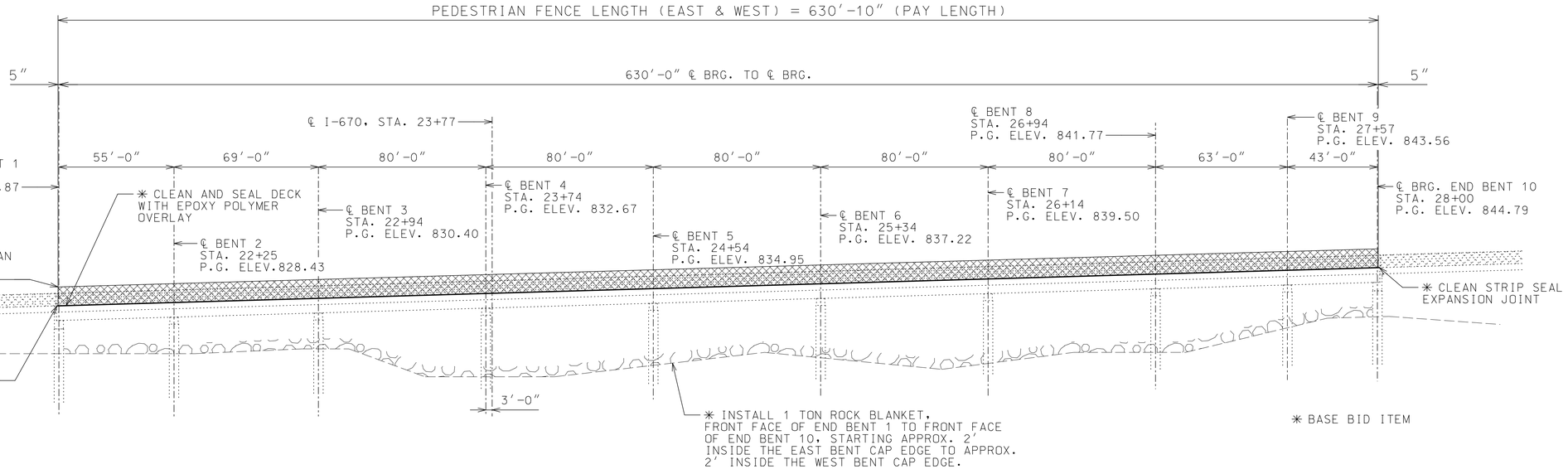


SECTION

✳ BASE BID ITEM



ELEVATION

✳ BASE BID ITEM

NOTES:

✳ THE EPOXY POLYMER CONCRETE OVERLAY SHALL BE A LOW VISCOSITY POLYMER, OBTAINED FROM "KWIK BOND POLYMERS" OR EQUIVALENT LISTED IN THE MODOT PRE-ACCEPTANCE LIST (PAL) FOR CONCRETE CRACK FILLER.

✳ THE COMPOSITION OF THE EPOXY POLYMER CONCRETE OVERLAY MUST MEET ALL REQUIREMENTS LISTED IN SECTION 1039.60.3 OF THE 2018 MISSOURI SPECIFICATIONS. APPLY OVERLAY IN ACCORDANCE WITH SEC 623.30 OF THE MODOT SPECIFICATIONS.

✳ THE ROCK BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE 1 TON GRADING IN SEC 2303 OF THE KCMO STANDARD SPECIFICATIONS.

✳ FOR PROCEDURE FOR CLEANING STRIP SEAL EXPANSION JOINTS, SEE TECHNICAL SPECIFICATIONS.

THE COST OF LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED FOR REMOVAL OF THE EXISTING PEDESTRIAN FENCE SHALL BE SUBSIDIARY TO THE BID ITEM "PEDESTRIAN FENCE (STRUCTURES)".

FOR PEDESTRIAN FENCE DETAILS, SEE SHEET NOS. 15-17.

FOR ALTERNATE 1 BID ITEMS, SEE SHEET NO. 3.

REPAIR PLAN – ALTERNATE 1

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

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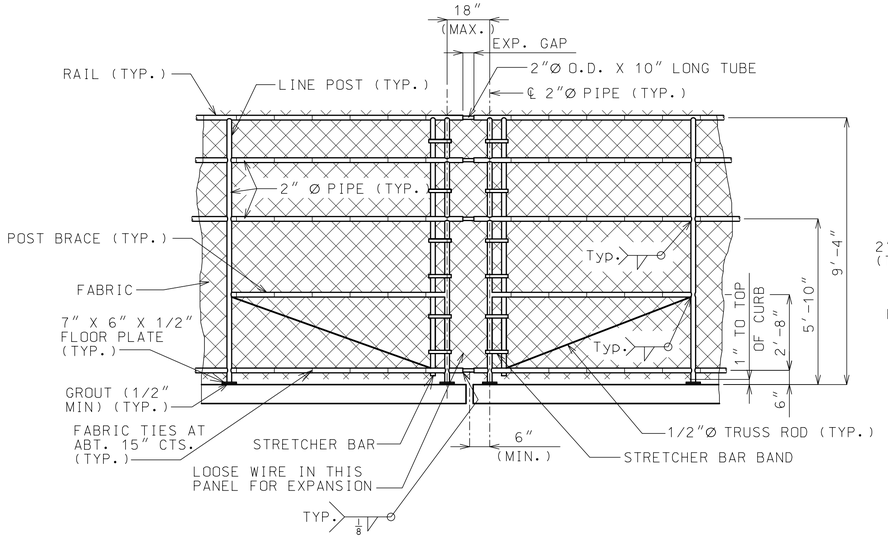
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE: BEARDSLEY
STATE: MO
DISTRICT: KC
SHEET NO.: 14
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

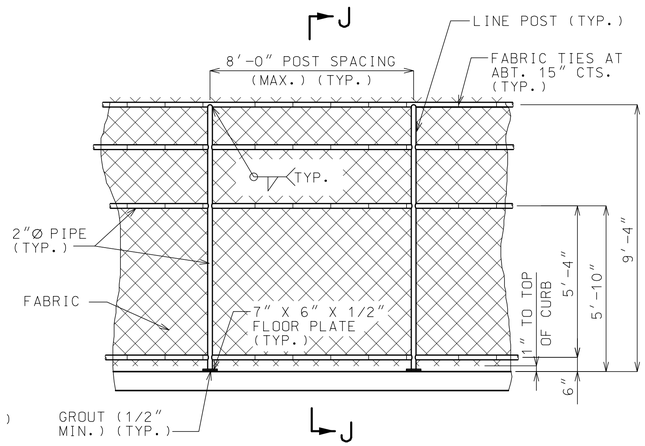
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

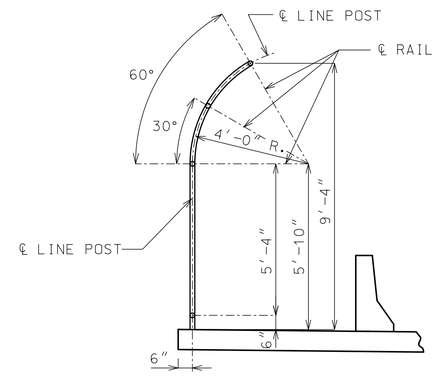
DRAWN BY: JSB
CHECKED BY: JMR
REV.



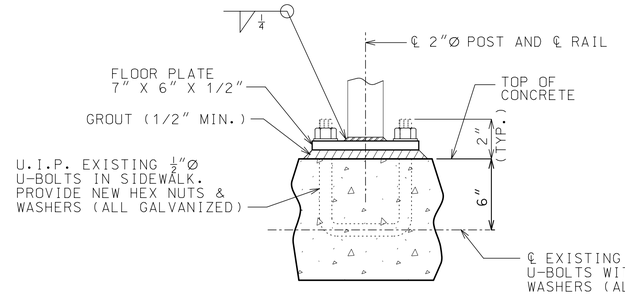
DETAIL OF PEDESTRIAN FENCE
SHOWING EXPANSION DEVICE GAP



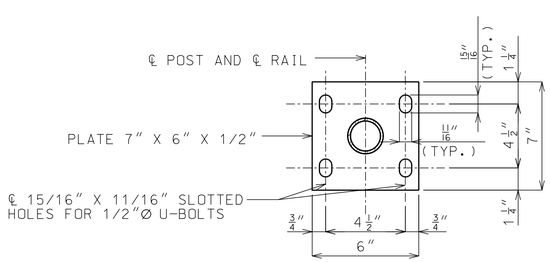
TYPICAL SECTION OF CURVED
TOP PEDESTRIAN CHAIN LINK FENCE



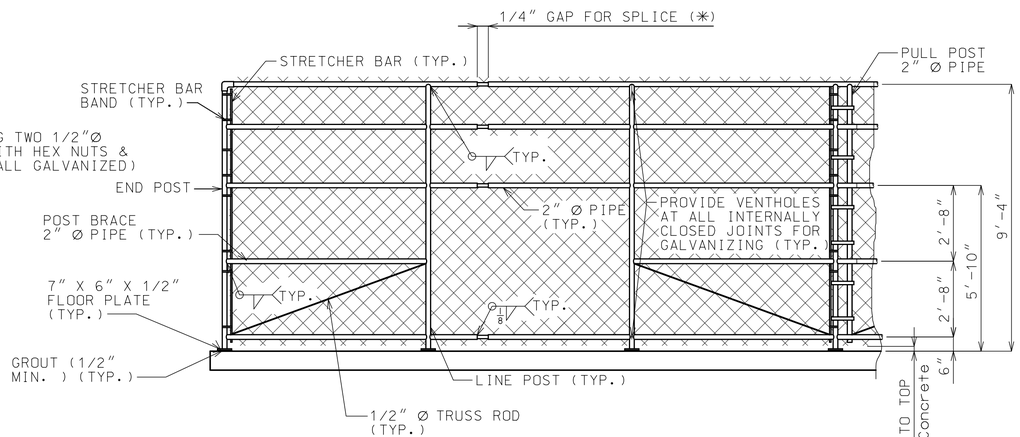
SECTION J-J



POST CONNECTION
(TYPICAL)



PLAN OF FLOOR PLATE



TYPICAL SECTION NEAR SPLICE GAP

* AT ABOUT 30'-0" CENTERS WITH AT LEAST ONE SPLICE GAP BETWEEN PULL OR END POSTS.

NOTES:

PEDESTRIAN GUARD FENCE (CHAIN LINK TYPE) SHALL BE IN ACCORDANCE WITH SEC 1043 EXCEPT ALL FABRIC SHALL HAVE THE TOP AND BOTTOM EDGES KNUCKLED.

ALL POSTS SHALL BE VERTICAL. GROUT OF 1/2" MINIMUM THICKNESS SHALL BE PLACED UNDER FLOOR PLATES TO PROVIDE FOR VERTICAL ALIGNMENT OF POSTS.

PAYMENT FOR REMOVAL OF EXISTING, FURNISHING, GALVANIZING AND ERECTING THE FENCE AND FRAME COMPLETE WITH WASHERS WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR PEDESTRIAN FENCE (STRUCTURES) PER LINEAR FOOT.

DIMENSIONS OF PEDESTRIAN FENCE ARE MEASURED HORIZONTALLY.

THE MAXIMUM SPACING ALLOWED BETWEEN PULL POSTS AND END POSTS IS 100 FT. POST BRACE AND 1/2"Ø TRUSS ROD ARE REQUIRED FOR PANELS ADJACENT TO PULL POSTS AND END POSTS ONLY.

CONNECT THE LOWER END OF THE 1/2"Ø TRUSS ROD TO THE BOTTOM OF THE PULL POSTS AND END POSTS TO WHICH THE STRETCHER BAR IS ATTACHED.

PEDESTRIAN FENCE WILL BE MEASURED TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE MEASURED ALONG CENTER-LINE FENCE FROM END OF FENCE TO END OF FENCE, SEE SHEET NO. 14.

CORE WIRE SIZE FOR WIRE FABRIC SHALL BE 6 GAGE MINIMUM.

CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS IN ACCORDANCE WITH SEC 1080 OF THE MODOT SPECIFICATIONS.

DETAILS OF PEDESTRIAN FENCE - WEST SIDE (ALT. 1)

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

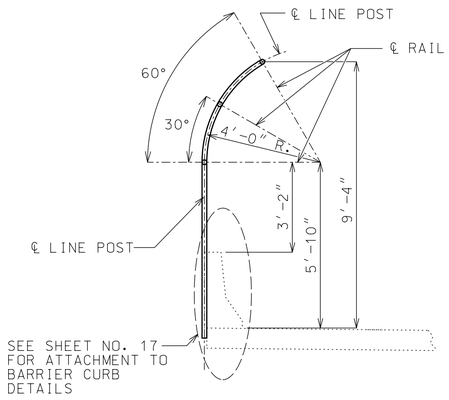
DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY
STATE: MO
DISTRICT: KC
SHEET NO.: 15
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

DESCRIPTION / DATE

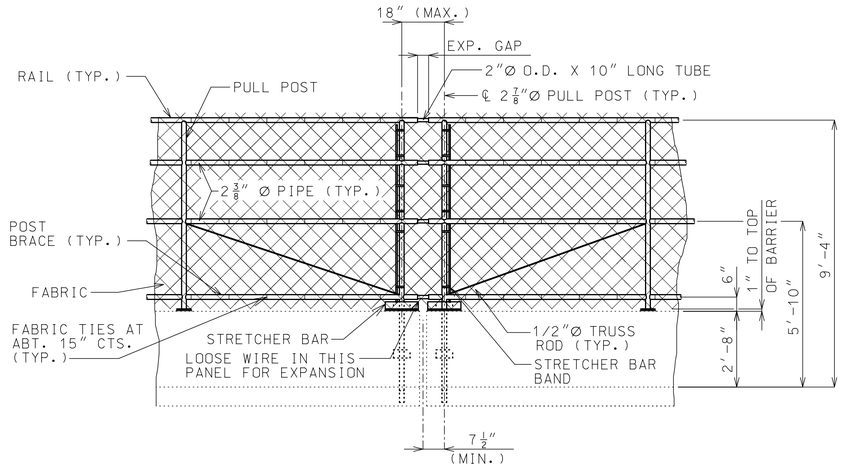
BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

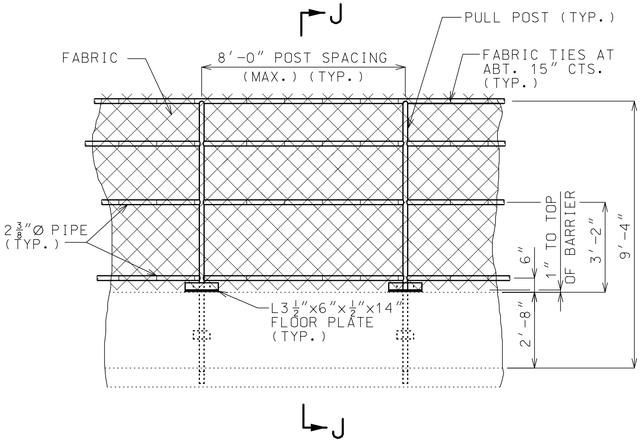
DRAWN BY: JSB
CHECKED BY: JMR
REV.



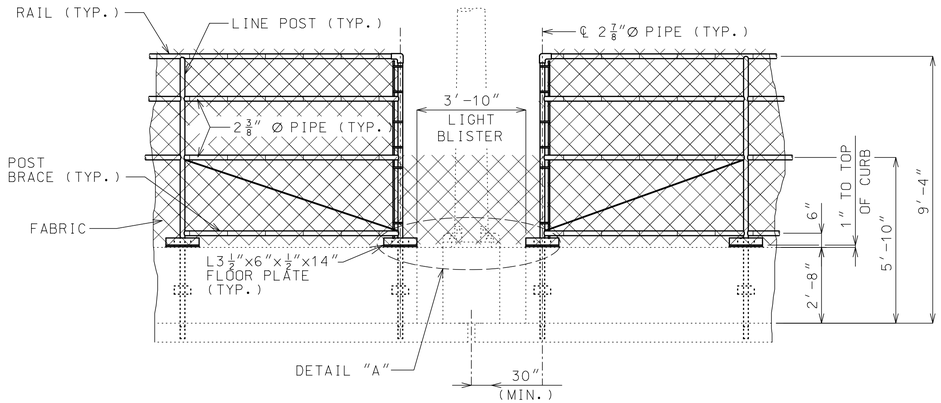
SECTION J-J



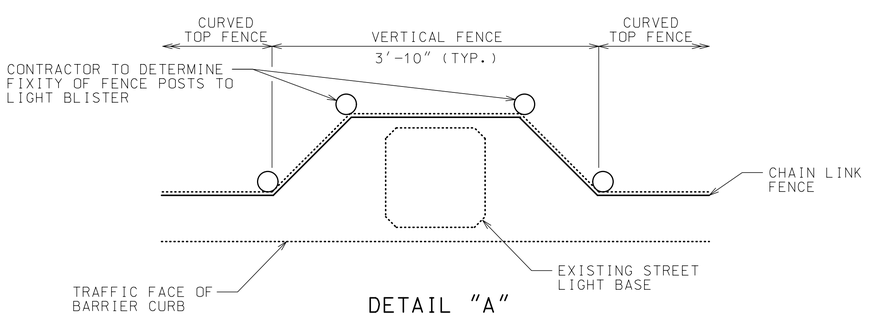
DETAIL OF PEDESTRIAN FENCE SHOWING EXPANSION DEVICE GAP



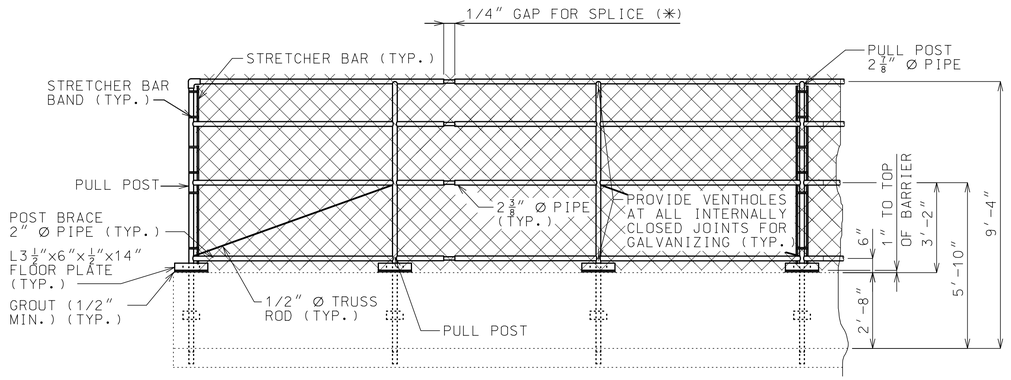
TYPICAL SECTION OF PEDESTRIAN CHAIN LINK FENCE



DETAIL OF PEDESTRIAN FENCE SHOWING LIGHT POLE GAP



DETAIL "A"



TYPICAL SECTION NEAR SPLICE GAP

✳ AT ABOUT 30′-0″ CENTERS WITH AT LEAST ONE SPLICE GAP BETWEEN PULL OR END POSTS.

NOTES:

PEDESTRIAN GUARD FENCE (CHAIN LINK TYPE) SHALL BE IN ACCORDANCE WITH SEC 1043 EXCEPT ALL FABRIC SHALL HAVE THE TOP AND BOTTOM EDGES KNUCKLED.

ALL POSTS SHALL BE VERTICAL. GROUT OF 1/2″ MINIMUM THICKNESS SHALL BE PLACED UNDER FLOOR PLATES TO PROVIDE FOR VERTICAL ALIGNMENT OF POSTS.

PAYMENT FOR FURNISHING, GALVANIZING AND ERECTING THE FENCE AND FRAME COMPLETE WITH RESIN ANCHOR SYSTEM WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR PEDESTRIAN FENCE (STRUCTURES) PER LINEAR FOOT.

DIMENSIONS OF PEDESTRIAN FENCE ARE MEASURED HORIZONTALLY.

THE MAXIMUM SPACING ALLOWED BETWEEN PULL POSTS AND END POSTS IS 100 FT. POST BRACE AND 1/2″Ø TRUSS ROD ARE REQUIRED FOR PANELS ADJACENT END POSTS ONLY.

CONNECT THE LOWER END OF THE 1/2″Ø TRUSS ROD TO THE BOTTOM OF THE END POSTS TO WHICH THE STRETCHER BAR IS ATTACHED.

PEDESTRIAN FENCE WILL BE MEASURED TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE MEASURED ALONG CENTER-LINE FENCE FROM END OF FENCE TO END OF FENCE, SEE SHEET NO. 14.

CORE WIRE SIZE FOR WIRE FABRIC SHALL BE 6 GAGE MINIMUM.

FOR ADDITIONAL DETAILS, SEE SHEET NO. 17.

DETAILS OF PEDESTRIAN FENCE – EAST SIDE (ALT. 1)

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

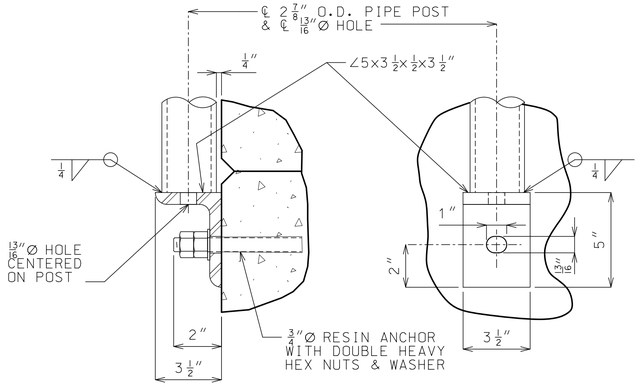
DATE 2/28/19
DATE PREPARED 02/22/19
ROUTE BEARDSLEY | STATE MO
DISTRICT KC | SHEET NO. 16
COUNTY JACKSON
KCMO PROJECT NO. 89005585
BRIDGE NO. S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

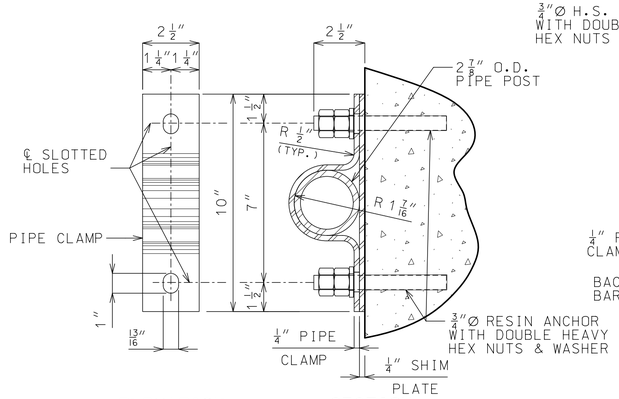
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.



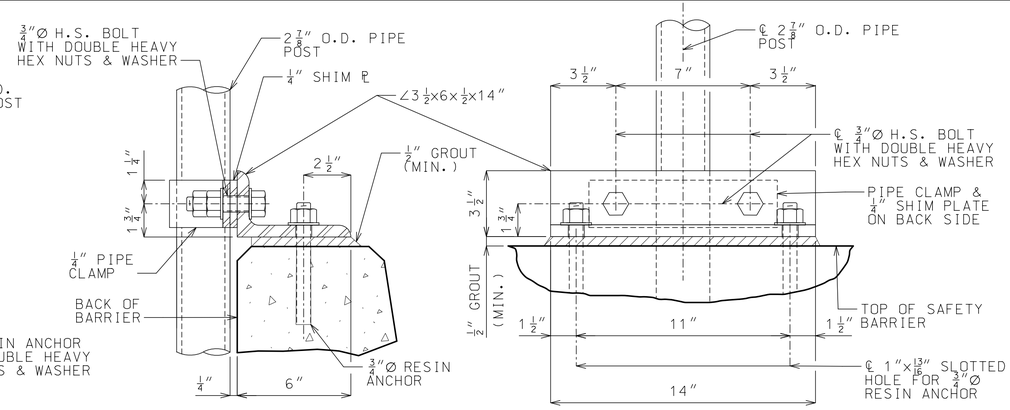
SECTION ELEVATION

DETAIL "C"
(LOWER POST CONNECTION ANGLE)



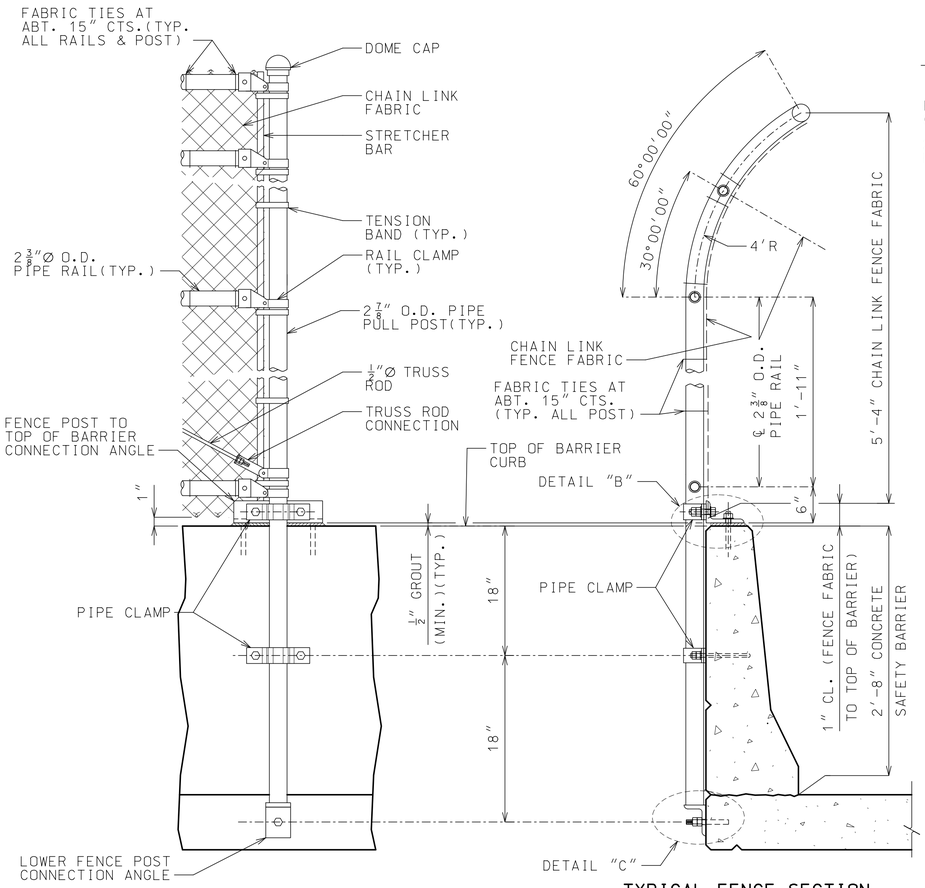
ELEVATION SECTION

TYPICAL PIPE CLAMP DETAIL



SECTION ELEVATION

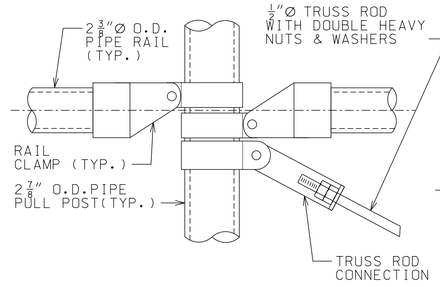
DETAIL "B"
(POST TO TOP OF BARRIER CONNECTION)



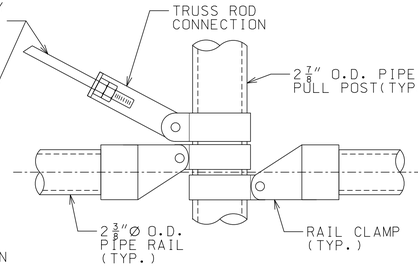
BACK OF BARRIER PART ELEVATION
SHOWING TYPICAL POST CONNECTION

TYPICAL FENCE SECTION
NEAR BARRIER CONNECTION

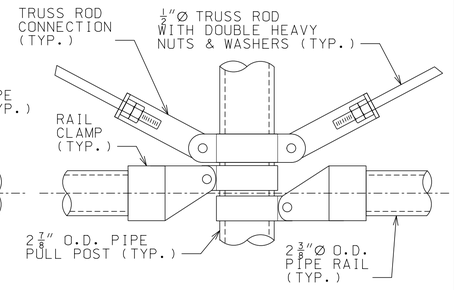
FENCE POST CONNECTION
TO BACK OF BARRIER



UPPER TRUSS ROD
CONNECTION DETAIL



LOWER TRUSS ROD
CONNECTION DETAIL



DUAL LOWER TRUSS ROD
CONNECTION DETAIL

NOTES:

PEDESTRIAN FENCE SHALL BE IN ACCORDANCE WITH 2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND 2014 INTERIM REVISIONS. 50 LB/FT AND 200 LB LOADING SHALL NOT BE APPLIED SIMULTANEOUSLY. RAIL CLAMPS AND TRUSS ROD CONNECTION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE TRUSS ROD AND TRUSS ROD CONNECTIONS SHALL HOVE A MINIMUM OF 2000 LB CAPACITY.

PEDESTRIAN FENCE (CHAIN LINK TYPE) SHALL BE IN ACCORDANCE WITH SEC 1043 OF THE MODOT SPECIFICATIONS EXCEPT ALL FABRIC SHALL HAVE THE TOP AND BOTTOM EDGES KNUCKLED AND PIPE MEMBERS SHALL BE IN ACCORDANCE WITH ASTM F 1043, HIGH STRENGTH HEAVY INDUSTRIAL STEEL PIPE GROUP IC.

ALL POSTS SHALL BE VERTICAL. GROUT OF 1/2" MINIMUM THICKNESS SHALL BE PLACED UNDER CONNECTION ANGLES TO PROVIDE FOR VERTICAL ALIGNMENT OF POSTS.

DIMENSIONS OF PEDESTRIAN FENCE ARE MEASURED HORIZONTALLY.

THE MAXIMUM SPACING ALLOWED BETWEEN END POSTS IS 100 FT. POST BRACE AND 1/2"Ø TRUSS ROD ARE REQUIRED FOR PANELS ADJACENT TO END POSTS ONLY. CONNECT THE LOWER END OF THE 1/2"Ø TRUSS ROD TO THE BOTTOM OF THE END POSTS TO WHICH THE STRETCHER BAR IS ATTACHED.

EXPANSION JOINTS SHALL BE PLACED IN THE HORIZONTAL PIECES AT NOT MORE THAN 32 FEET CENTERS AND AT ALL JOINT FILLER LOCATIONS IN THE CURB WITH A MINIMUM GAP OF 1/4" @ 60 DEG. F.

PEDESTRIAN FENCE WILL BE MEASURED TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE MEASURED ALONG CENTER-LINE FENCE FROM END OF FENCE TO END OF FENCE, SEE SHEET NO. 14.

CORE WIRE SIZE FOR WIRE FABRIC SHALL BE 6 GAGE MINIMUM.

MISCELLANEOUS PLATES, ANGLES, BARS, SHAPES INCLUDING TRUSS ROD SHALL BE ASTM A709, GRADE 36.

CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS IN ACCORDANCE WITH SEC 1080 OF THE MODOT SPECIFICATIONS.

PAYMENT FOR FURNISHING, GALVANIZING AND ERECTING THE FENCE AND FRAME COMPLETE IN PLACE WITH RESIN ANCHOR SYSTEM WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR PEDESTRIAN FENCE (STRUCTURES) PER LINEAR FOOT.

THE CONTRACTOR SHALL USE ONE OF THE QUALIFIED RESIN ANCHOR SYSTEMS IN ACCORDANCE WITH SEC 1039 OF THE MODOT SPECIFICATIONS.

THE MINIMUM EMBEDMENT DEPTH IN CONCRETE WITH F'C = 4,000 PSI FOR THE RESIN ANCHOR SYSTEM SHALL BE THAT REQUIRED TO MEET THE MINIMUM ULTIMATE PULLOUT STRENGTH IN ACCORDANCE WITH SEC 1039 BUT SHALL NOT BE LESS THAN 5".

FOR ADDITIONAL DETAILS, SEE SHEET NO. 16.

DETAILS OF PEDESTRIAN FENCE - EAST SIDE (ALT. 1)

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsely_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\017_Ped Fence Details_East_2.dgn 11:45:10 AM 3/4/2019

STATE OF MISSOURI
JAMES BRASHEARS
2-28-19
PROFESSIONAL ENGINEER

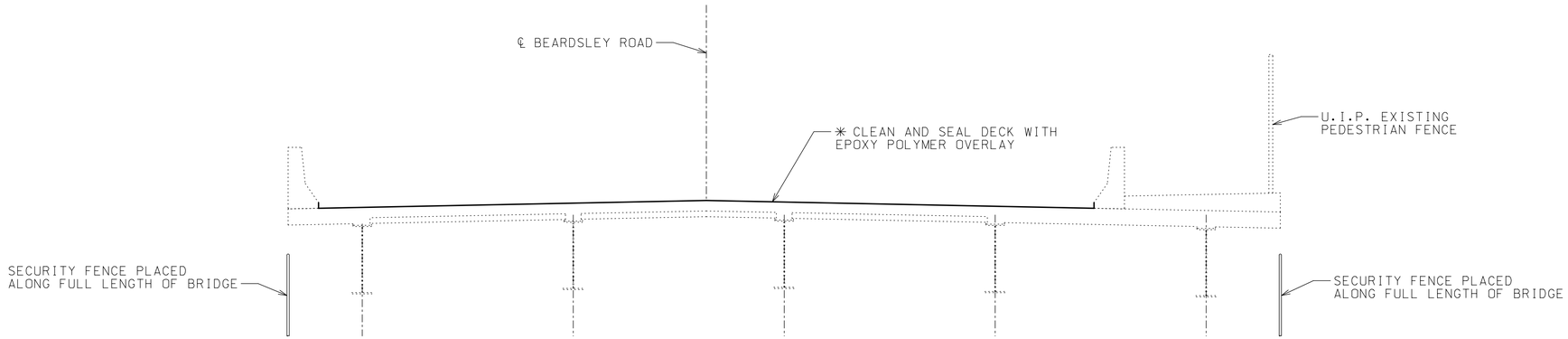
DATE	2/28/19
DATE PREPARED	02/22/19
ROUTE	STATE MO
DISTRICT KC	SHEET NO. 17
COUNTY	JACKSON
KCMO PROJECT NO.	89005585
BRIDGE NO.	S030B42

DESCRIPTION

DATE

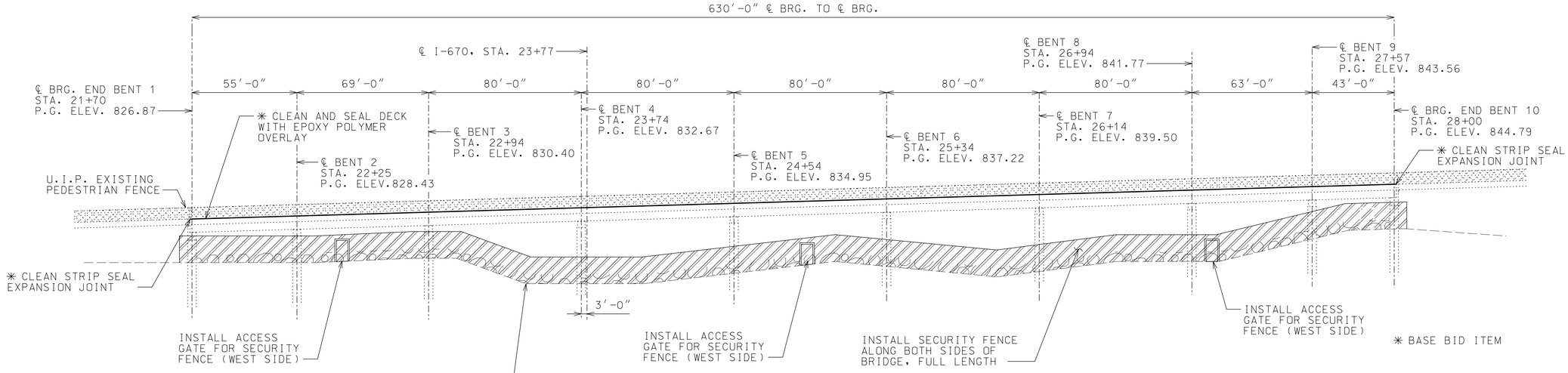
REV.

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024



SECTION

✳ BASE BID ITEM



ELEVATION

✳ BASE BID ITEM

NOTES:

✳ THE EPOXY POLYMER CONCRETE OVERLAY SHALL BE A LOW VISCOSITY POLYMER, OBTAINED FROM "KWIK BOND POLYMERS" OR EQUIVALENT LISTED IN THE MODOT PRE-ACCEPTANCE LIST (PAL) FOR CONCRETE CRACK FILLER.

✳ THE COMPOSITION OF THE EPOXY POLYMER CONCRETE OVERLAY MUST MEET ALL REQUIREMENTS LISTED IN SECTION 1039.60.3 OF THE MODOT SPECIFICATIONS. APPLY OVERLAY IN ACCORDANCE WITH SEC 623.30 OF THE MODOT SPECIFICATIONS.

✳ THE ROCK BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE 1 TON GRADING IN SEC 2303 OF THE KANSAS CITY STANDARD SPECIFICATIONS.

✳ FOR PROCEDURE FOR CLEANING STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS OF SECURITY FENCE IN ACCORDANCE WITH SEC 1080 OF THE MODOT SPECIFICATIONS.

FOR ALTERNATE 2 BID ITEMS, SEE SHEET NO. 3.

REPAIR PLAN - ALTERNATE 2

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsley_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\018_Alt 2_Security Fence Plan_Elev.dgn 3:51:52 PM 3/1/2019

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 18
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

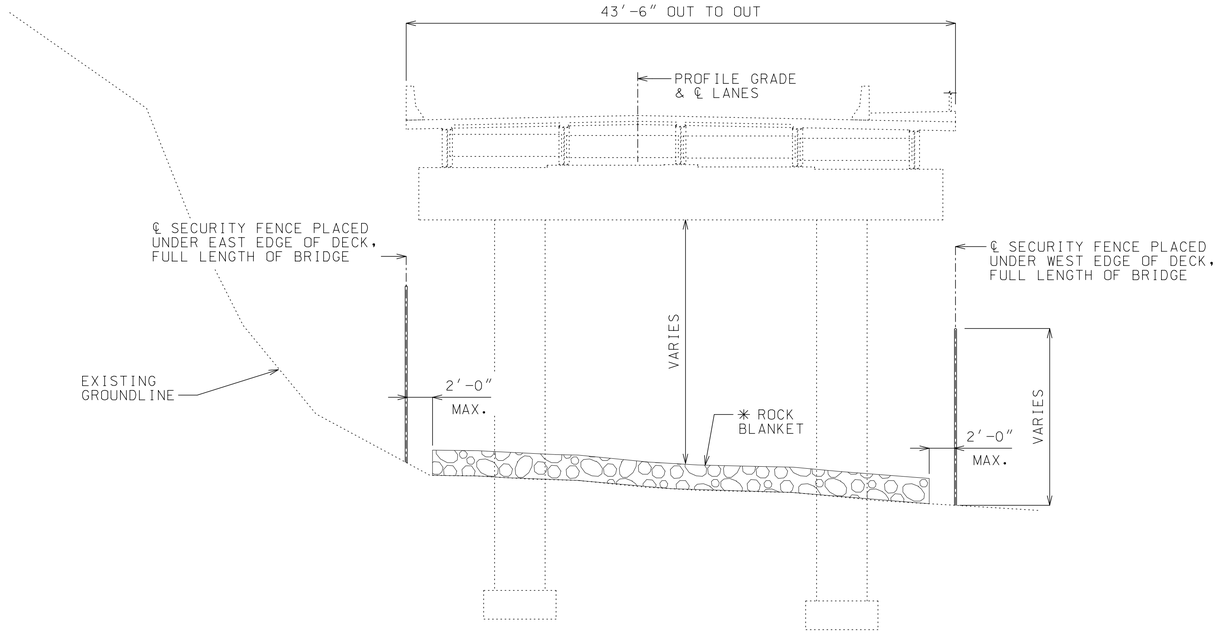
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

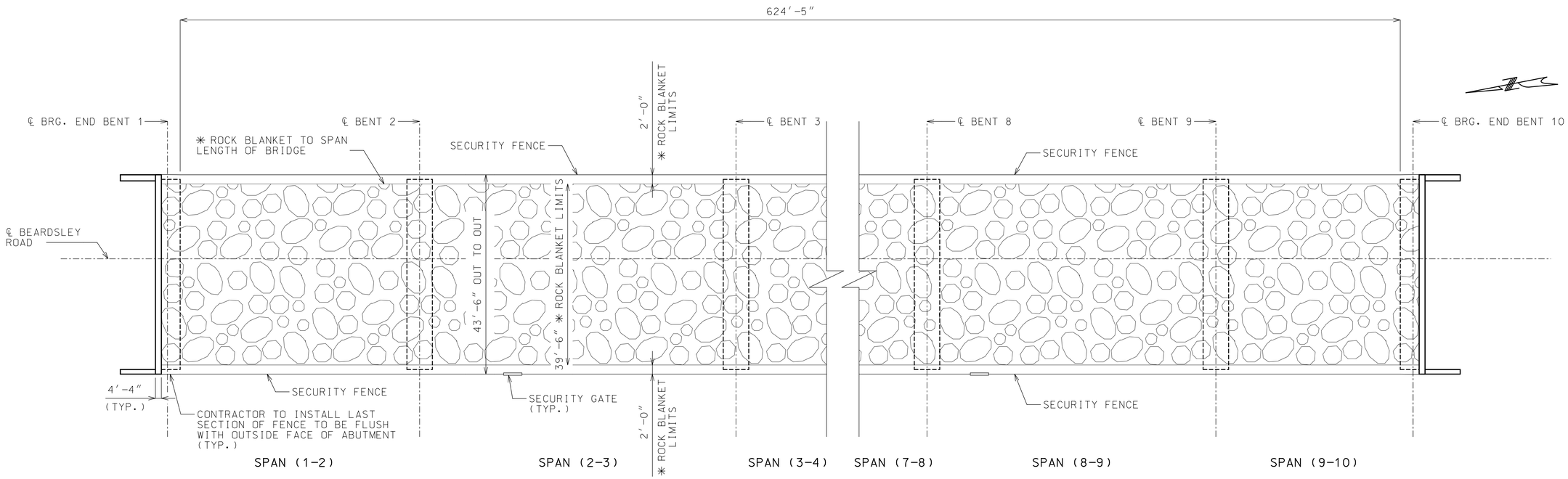
DRAWN BY: JSB
CHECKED BY: JMR

REV.



SECTION

NOTE:
SECURITY FENCE HEIGHT TO BE THE LESSER OF 14 FT OR TO THE BOTTOM OF DECK SLAB.



PLAN

ALTERNATE 2 DETAILS

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE
BEARDSLEY
STATE
MO
DISTRICT
KC
SHEET NO.
19
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

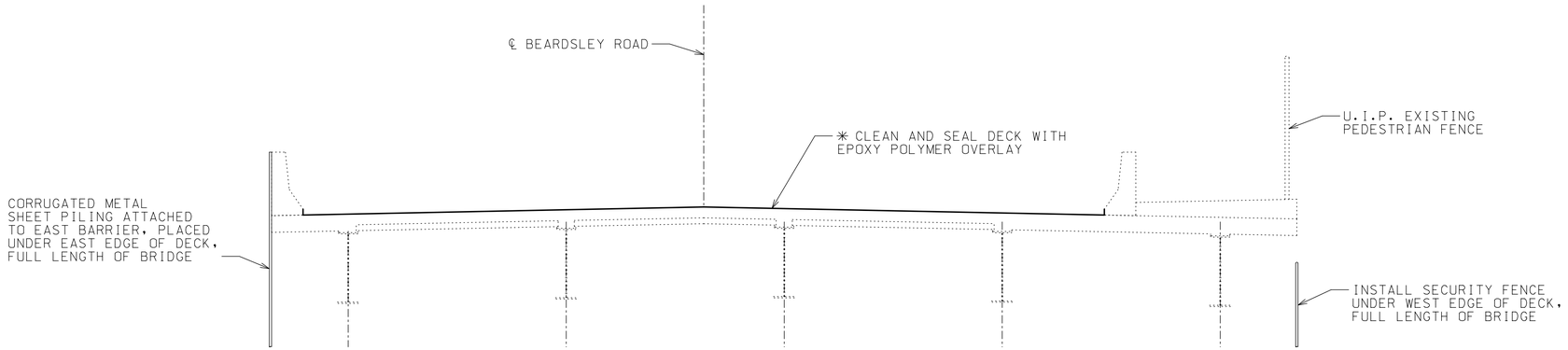
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

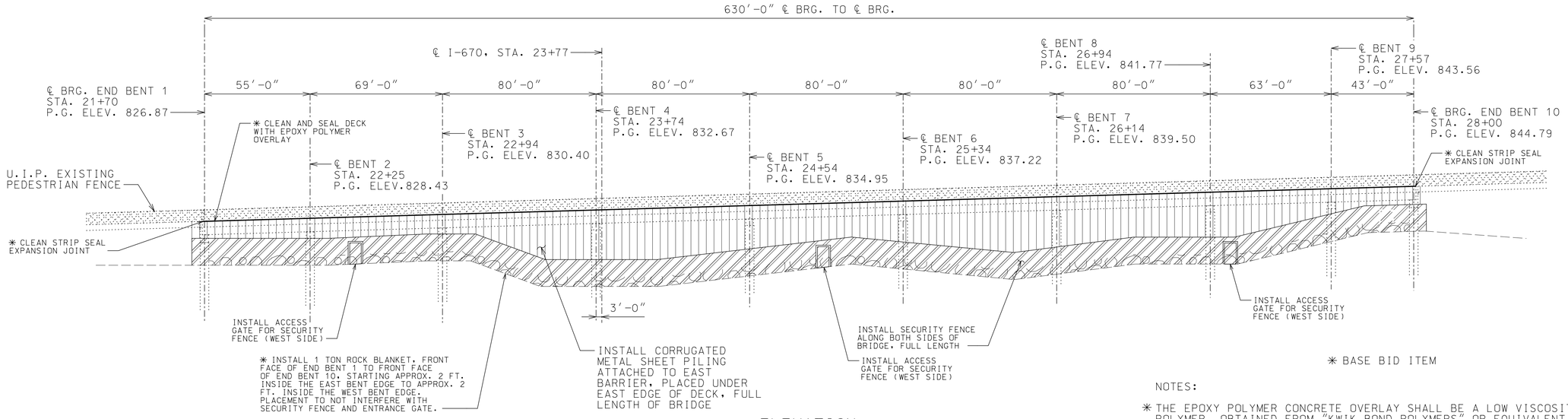
DRAWN BY:
JSB
CHECKED BY:
JMR
REV.

Y:\Bonner\130500S\00130592.00_Beardsely_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\019_Alt 2_RipRap Location Details.dgn 2:45:29 PM 3/4/2019



SECTION

✳ BASE BID ITEM



ELEVATION

✳ BASE BID ITEM

NOTES:

✳ THE EPOXY POLYMER CONCRETE OVERLAY SHALL BE A LOW VISCOSITY POLYMER, OBTAINED FROM "KWIK BOND POLYMERS" OR EQUIVALENT LISTED IN THE MODOT PRE-ACCEPTANCE LIST (PAL) FOR CONCRETE CRACK FILLER.

✳ THE COMPOSITION OF THE EPOXY POLYMER CONCRETE OVERLAY MUST MEET ALL REQUIREMENTS LISTED IN SECTION 1039.60.3 OF THE 2018 MISSOURI SPECIFICATIONS. APPLY OVERLAY IN ACCORDANCE WITH SEC 623.30 OF THE MODOT SPECIFICATIONS.

✳ THE ROCK BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE 1 TON GRADING IN SEC 2303 OF THE KANSAS CITY STANDARD SPECIFICATIONS.

✳ FOR PROCEDURE FOR CLEANING STRIP SEAL EXPANSION JOINTS, SEE TECHNICAL SPECIFICATIONS.

CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS OF SECURITY FENCE AND CORRUGATED METAL SHEET PILING IN ACCORDANCE WITH SEC 1080 OF THE MODOT SPECIFICATIONS.

FOR ALTERNATE 3 BID ITEMS, SEE SHEET NO. 3.

REPAIR PLAN – ALTERNATE 3

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

Y:\Bonner\130500S\00130592.00_Beardsley_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\020_Alt 3_Security Fence Plan_Elev.dgn 3:51:58 PM 3/1/2019

STATE OF MISSOURI
KRISTOPHER JAMES NUNNINK
NUMBER PE-2009020844
PROFESSIONAL ENGINEER
2-28-19

DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 20
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

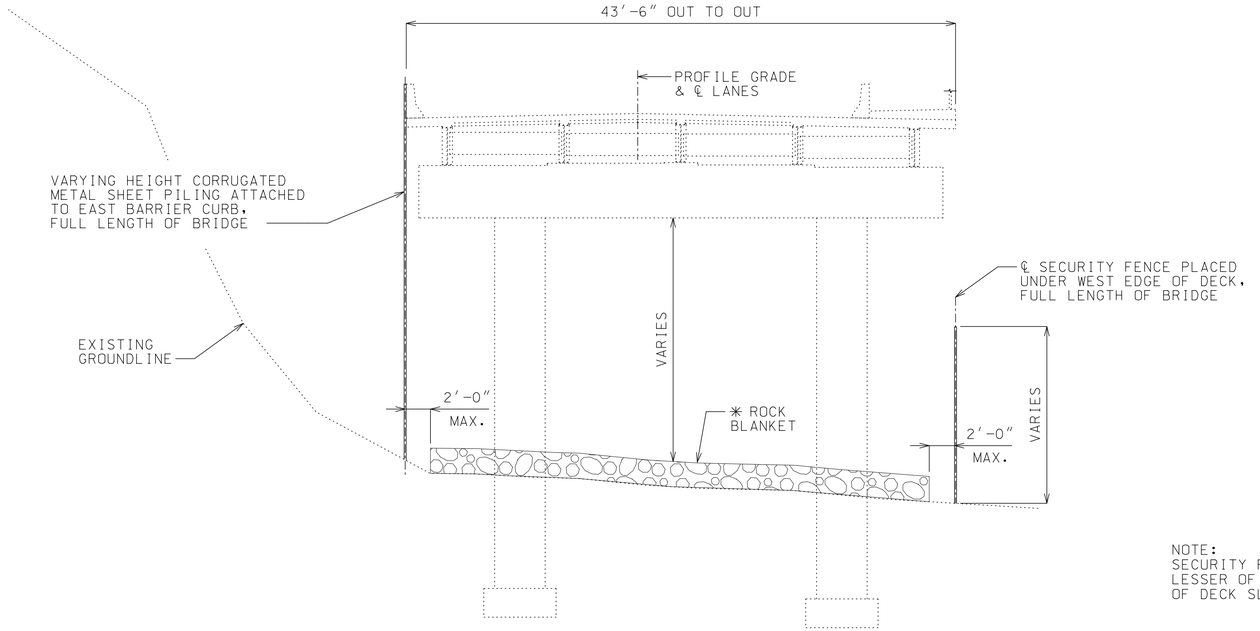
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

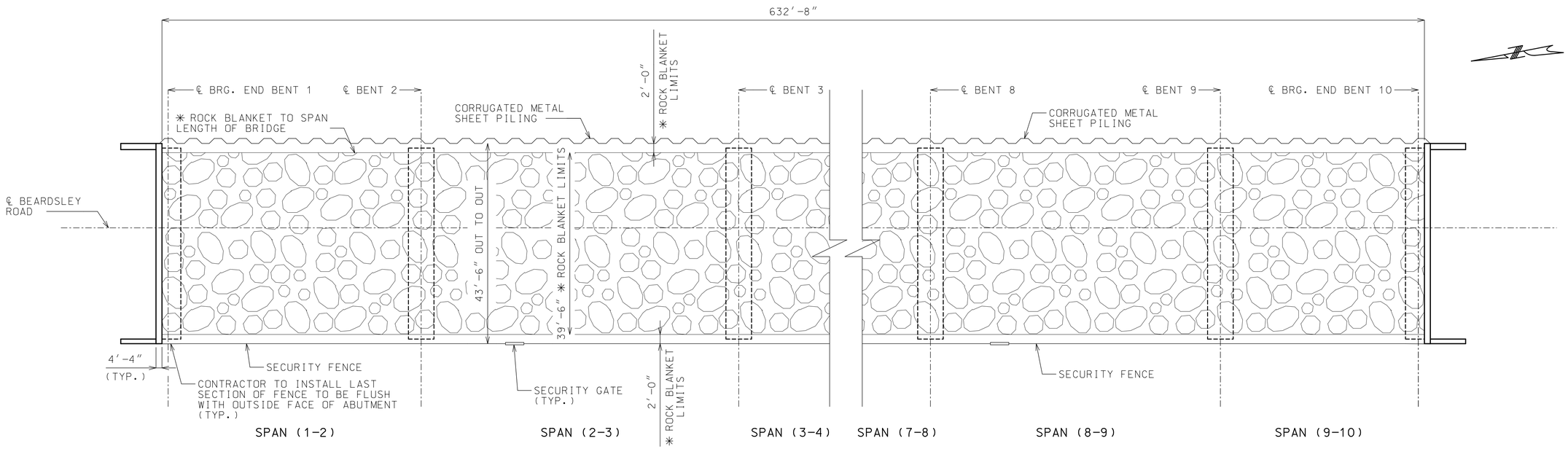
DRAWN BY: JSB
CHECKED BY: JMR

REV.



NOTE:
SECURITY FENCE HEIGHT TO BE THE LESSER OF 14 FT OR TO THE BOTTOM OF DECK SLAB.

SECTION



PLAN

ALTERNATE 3 DETAILS

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

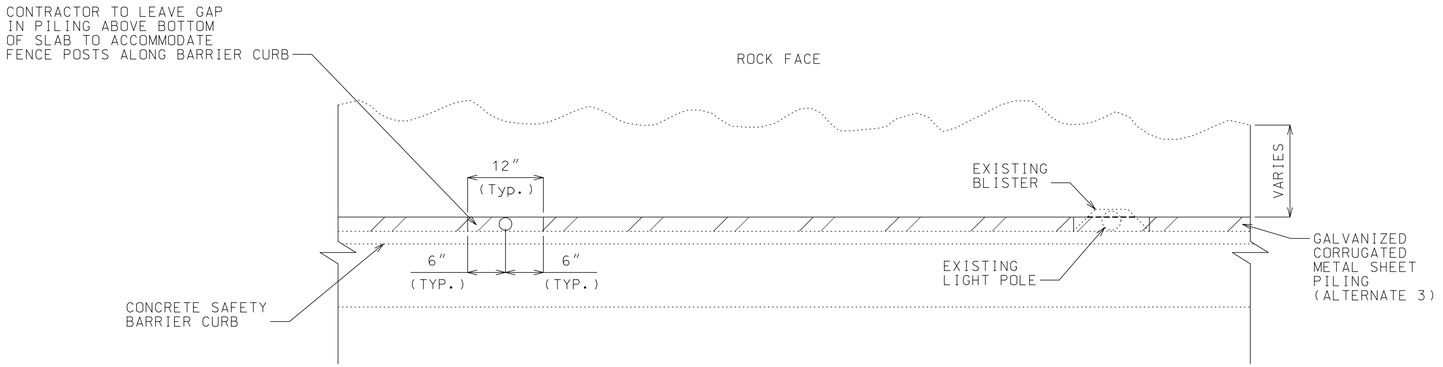
DATE
2/28/19
DATE PREPARED
02/22/19
ROUTE
BEARDSLEY
STATE
MO
DISTRICT
KC
SHEET NO.
21
COUNTY
JACKSON
KCMO PROJECT NO.
89005585
BRIDGE NO.
S030B42

DESCRIPTION | DATE

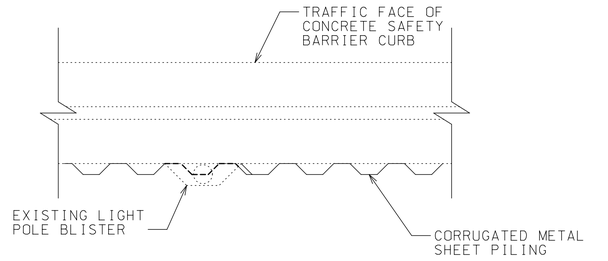
BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

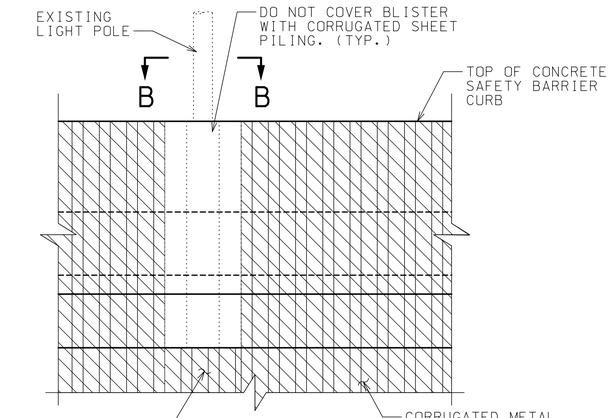
DRAWN BY:
JSB
CHECKED BY:
JMR
REV.



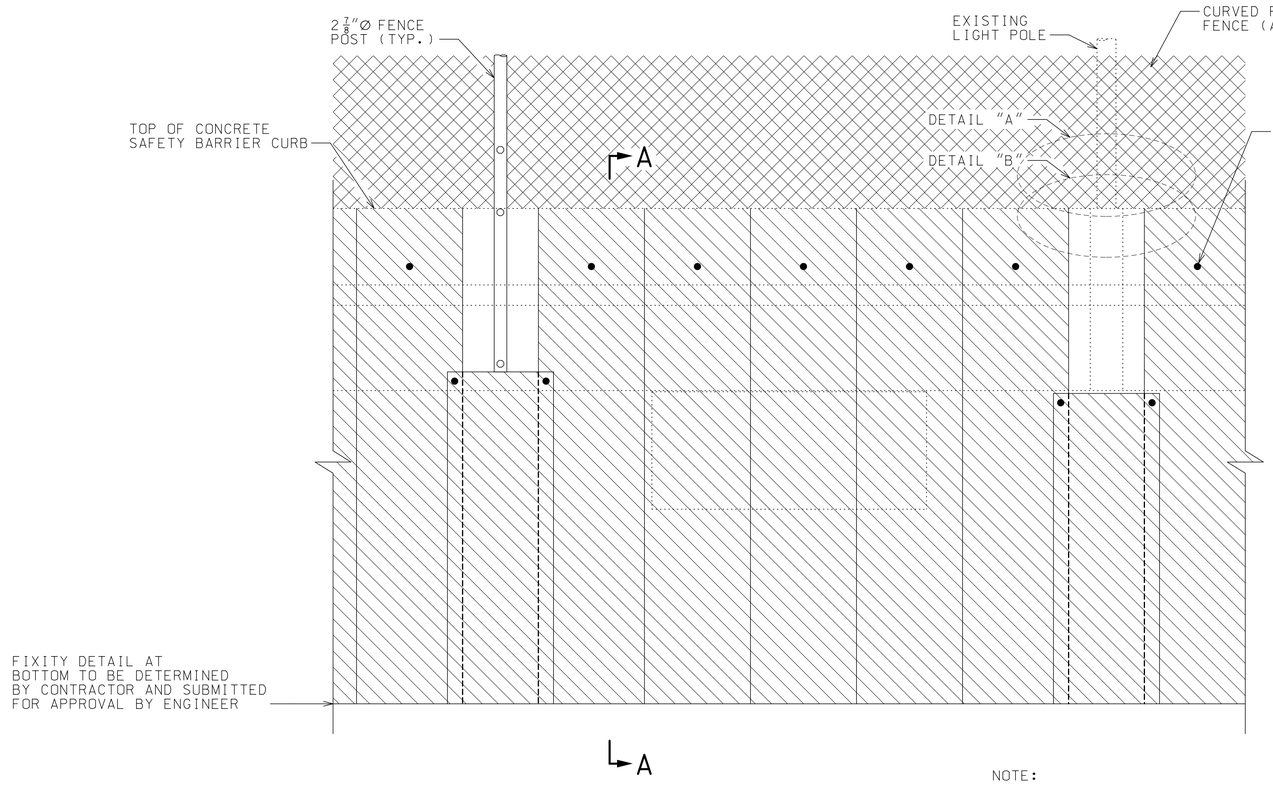
PLAN



SECTION B–B



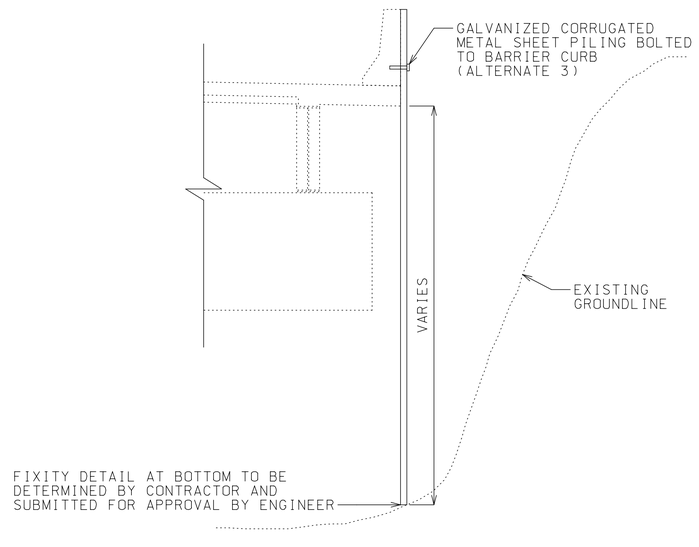
DETAIL "B"



ELEVATION

NOTE:

FOR DETAIL "A", SEE SHEET NO. 16.



SECTION A–A

NOTE:

ALL LABOR, MATERIALS, AND CONNECTIONS NECESSARY FOR CONSTRUCTION OF THE CORRUGATED METAL FENCE IN PLACE, SHALL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE "GALVANIZED CORRUGATED METAL SHEET PILING".

CORRUGATED METAL FENCE DETAILS

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
CHRISTOPHER B. HARKER
NUMBER PE-2007032758
PROFESSIONAL ENGINEER

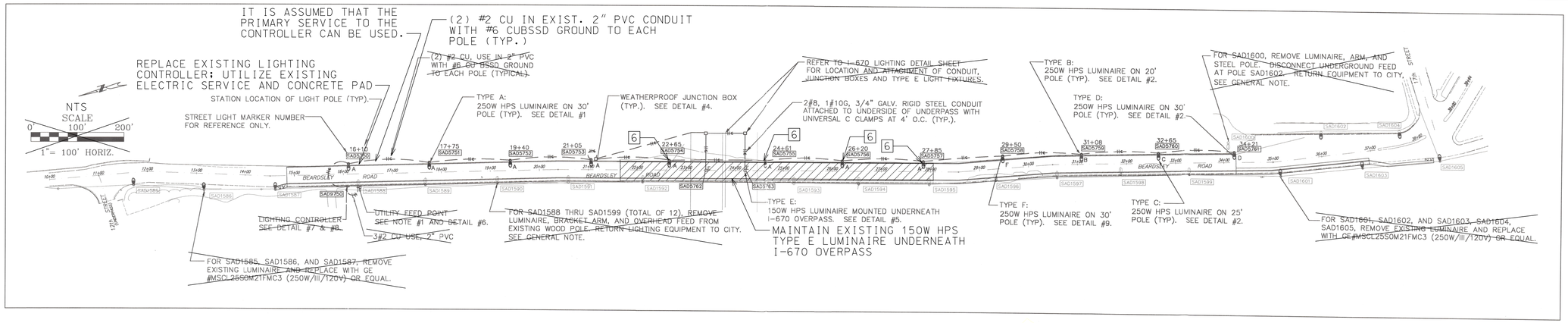
DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY
STATE: MO
DISTRICT: KC
SHEET NO.: 22
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

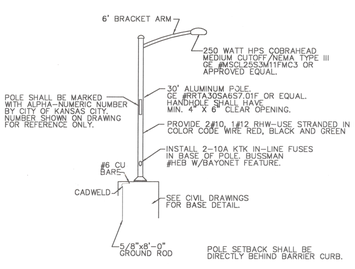
DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

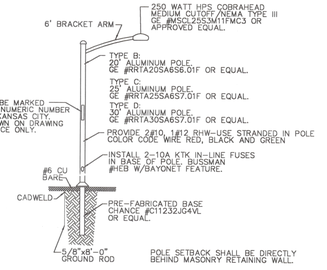
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.





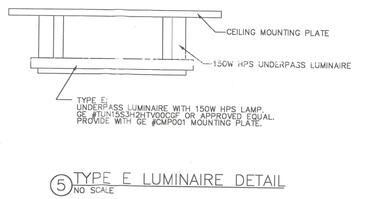
1 "TYPE A" LIGHT POLE DETAIL
NO SCALE



2 "TYPE B, C, D" LIGHT POLE DETAIL
NO SCALE

NOTES:

1. REMOVE AND RESET (12) LIGHT POLES.
2. PULL NEW (2) #2 CU WITH #6 CU BSSD FROM CONTROLLER TO EACH EXISTING LIGHT POLE LOCATION.
3. SEE SECTION 2800 IN TECHNICAL SPECIFICATIONS FOR BRIDGE CIRCUIT INSTALLATION DETAILS.
4. INSTALL PELCO CABLE RESTRAINTS AT EACH POLE LOCATION.
5. REPAIR OR REPLACE DAMAGED CONDUIT (2" PVC OR 3/4" GALV.) AS NEEDED TO PULL NEW WIRE AND RESTORE CONDUIT CONTINUITY.
6. REMOVE EXISTING LUMINAIRE AND REPLACE WITH CITY STD. LED LUMINAIRE AT THE (4) ON-BRIDGE LOCATIONS.
7. PROVIDE ANY ADDITIONAL REPAIR OR WORK NEEDED TO ENERGIZE THE (8) EXISTING TYPE A LUMINAIRES, (4) UPGRADED LED LUMINAIRES, AND (2) EXISTING TYPE E LUMINAIRES; SYSTEM SHOULD BE FUNCTIONAL EXCLUDING AND NEEDED BULB REPLACEMENT.



5 TYPE E LUMINAIRE DETAIL
NO SCALE

GENERAL NOTES:

ALL WORK SHALL COMPLY WITH KANSAS CITY MO DEPARTMENT OF PUBLIC WORKS STANDARD CONSTRUCTION AND MATERIALS SPECIFICATION, DIVISION II, SECTION 2800 AND DIVISION V, SECTION 5800.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NEC, THE AUTHORITY HAVING JURISDICTION, AND THE WRITTEN SPECIFICATION.

COORDINATE ALL WORK WITH KCP&L PRIOR TO START OF WORK.

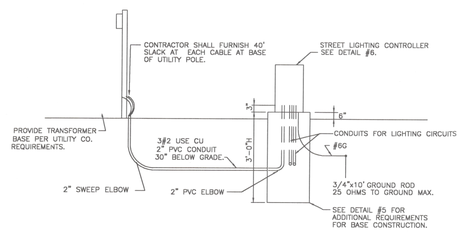
SYSTEM VOLTAGE SHALL BE 240V.

NOTIFY CITY INSPECTOR PRIOR TO START OF WORK AT 816-513-8703.

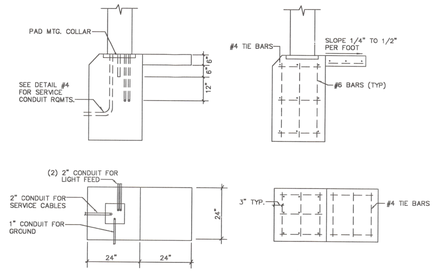
~~CONTRACTOR~~ SHALL OBTAIN PERMIT ~~FROM MODOT PRIOR TO START OF WORK. CONTACT CHRIS SKINNER AT 816-622-0332.~~

ALL CITY-OWNED EQUIPMENT REMOVED AS PART THIS WORK SHALL BE RETURNED TO THE CITY. CONTACT CITY AT 816-513-9500 TO COORDINATE DROP OFF DATE AND TIME.

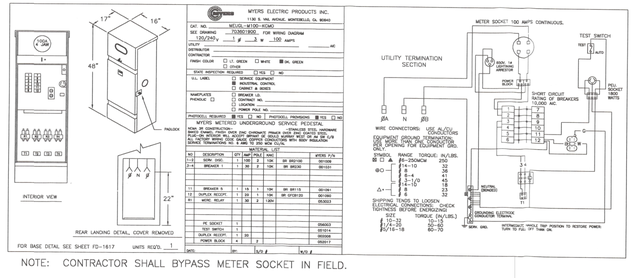
ROADWAY CLASSIFICATION: COLLECTOR INTERMEDIATE



6 SERVICE CONNECTION DETAIL
NO SCALE

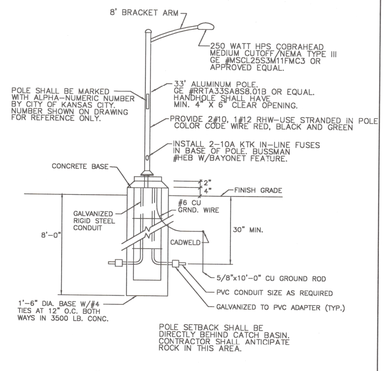


7 CONTROLLER BASE DETAIL
NO SCALE



NOTE: CONTRACTOR SHALL BYPASS METER SOCKET IN FIELD.

8 STREET LIGHTING CONTROLLER DETAIL
NO SCALE



9 "TYPE F" LIGHT POLE DETAIL
NO SCALE

REVISED	REVISION #	DESCRIPTION
7-21-05	1	RELOCATED POLE AT 29+50
4-18-05	1	REVISED TO 22" X 34" FORMAT

☐ NOT FOR CONSTRUCTION USE

☒ APPROVED PLANS FOR CONSTRUCTION USE

APPROVED
BY: Dickie Fowler
DATE: 7/26/05
PUBLIC WORKS DEPARTMENT
KANSAS CITY, MISSOURI

NOTES:

1 CONTRACTOR TO FIELD VERIFY FEED LOCATION PRIOR TO INSTALLATION OF CONTROLLER WHEN NECESSARY. CONTRACTOR SHALL NOTIFY ENGINEER OF DESCREPANCIES WITH LOCATIONS SHOWN. ALL ADJUSTMENTS NECESSARY TO PROVIDE FEED POINT CONNECTION SHALL BE AT THE CONTRACTORS EXPENSE.

STREET LIGHTING PLAN
BEARDSLEY ROAD
12TH STREET TO 17TH STREET

Illuminating ideas
6820 Ward Pkwy., KCMO 64113 Ph:(816)444-1333 Fax:(816)444-8823

Date: 06/07/04
Sheet 2 of 2

04044-0C

DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 23
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

DESCRIPTION | DATE

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

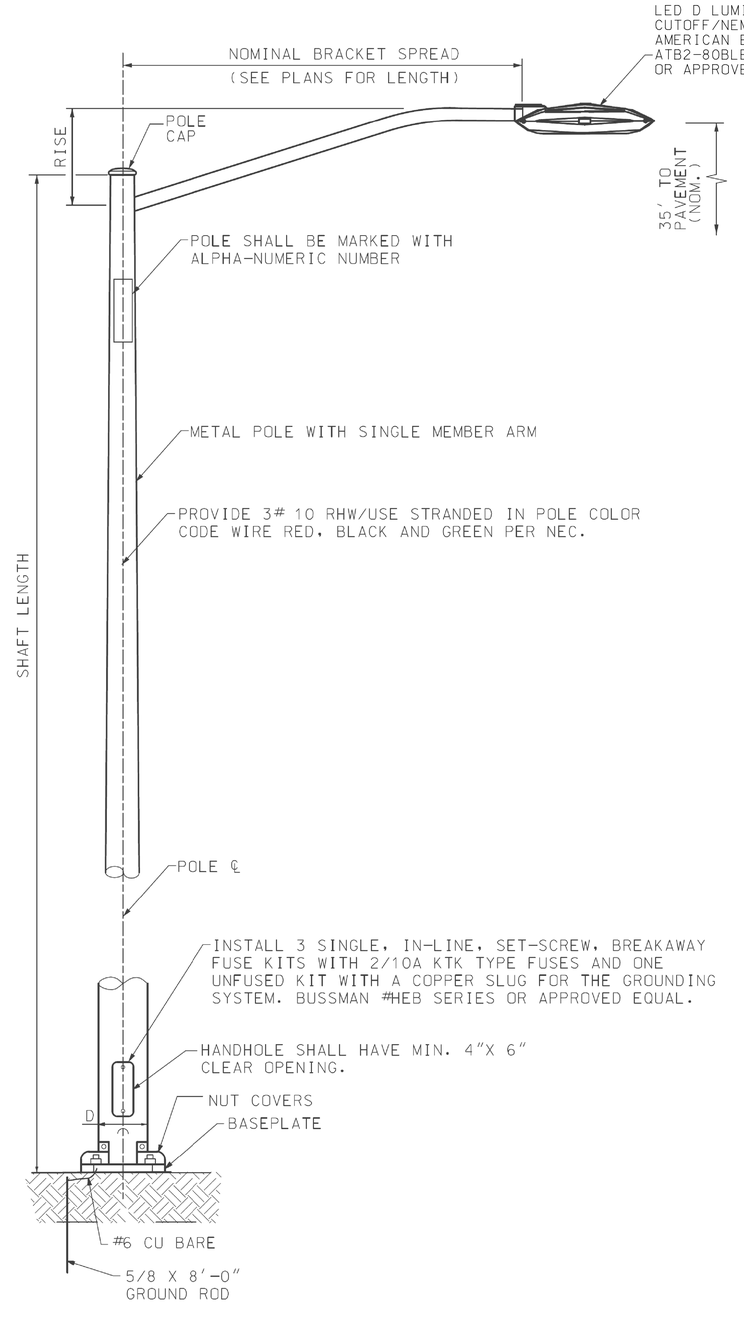
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

DRAWN BY: JSB
CHECKED BY: JMR
REV.

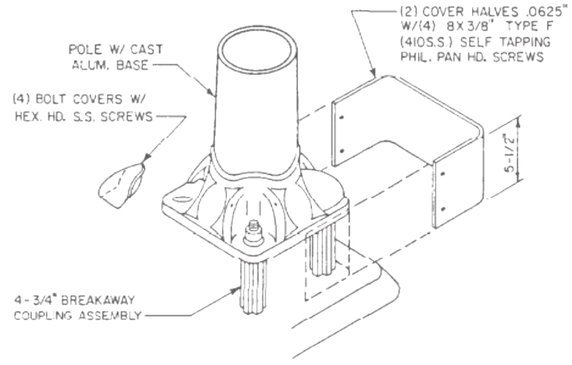
Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

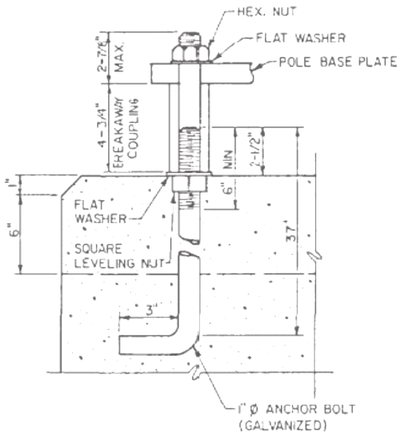
Y:\Bonner\130500S\00130592.00_Beardsley_Rd_Bridge\Eng_Docs\Work_files\Jbrashears\023_Lighting Repair Detail.dgn 3:52:12 PM 3/1/2019



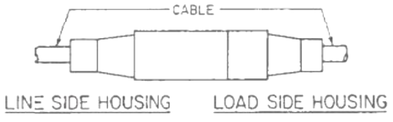
SINGLE ARM POLE
N.T.S.



LIGHT POLE BASE

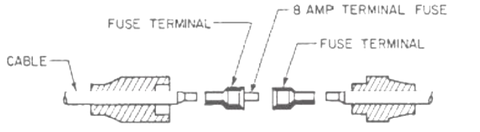


ANCHOR BOLT

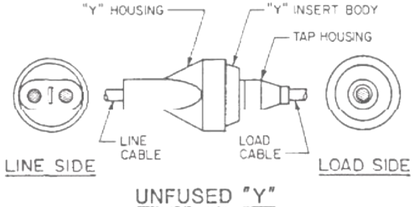


UNFUSED STRAIGHT

BREAKAWAY DETAILS



FUSED STRAIGHT



UNFUSED "Y"

ELECTRICAL CONNECTOR KITS

pelco — PELCO PRODUCTS, INC. — www.pelcoinc.com, EDMOND, OK 73013, 405-340-3434, FAX: 405-340-3435

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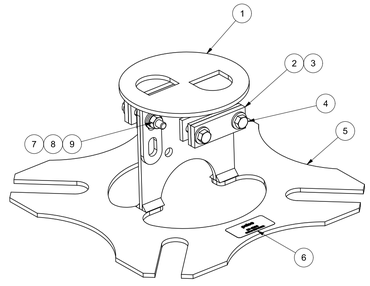
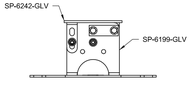
ASSEMBLY SHEET

REF:

TITLE: Cable Retainer Assy, w/ Conductor Guide, for 6" Foundation Anchor, Galv

PART NO.: SP-6200-GLV





SP-6242-GLV STRADDLES SP-6199-GLV

NOTE: INCLUDE Z-2057 INSTALLATION INSTRUCTIONS

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SP-6242-GLV	Weldment, Conductor Guide, for 6" Cable Retainer Assy, Steel, Galv	1
2	SP-6199-3-GLV	Bar, Cable Retainer Assembly, Steel	2
3	SP-6199-4	Pad, Cable Retainer, 3/16" Thick, 90 Duro, Red Urethane	4
4	FS-2016-SS	Bolt, Hex Hd Tap, 5/16"-18 x 2-1/4" , Type 304 Stainless	4
5	SP-6199-GLV	Weldment, Cable Retainer Assembly, for 6" Foundation Anchor, Steel, Galv	1
6	O-3140	Label, 1" x 2", Cable Retainer	1
7	FS-4101-SS	Washer, Flat, 5/16" x 3/4" OD, Type 304 Stainless	8
8	FS-4201-SS	Lock Washer, Split, 5/16", Type 304 Stainless	4
9	FS-1001-SS	Nut, Hex 5/16"-18, Type 304 Stainless	4

DRAWN: Kenneth.George DATE: 2/17/2009 | CHK'D: R WOODS DATE: 2/17/2009 | REV: J-06/22/10 GMB | REV'D: KAK DATE: 6/23/2010 | SHEET 1 OF 1

DATE: 2/28/19
DATE PREPARED: 02/22/19
ROUTE: BEARDSLEY | STATE: MO
DISTRICT: KC | SHEET NO.: 24
COUNTY: JACKSON
KCMO PROJECT NO.: 89005585
BRIDGE NO.: S030B42

DATE	DESCRIPTION

BEARDSLEY ROAD
BRIDGE REPAIRS
2018 FIRE DAMAGE
& LANDSLIDE
KANSAS CITY, MISSOURI

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

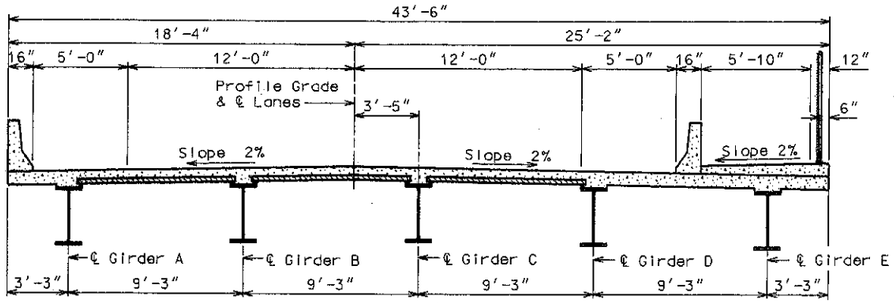
DRAWN BY: JSB
CHECKED BY: JMR

REV.

Detailed FEB 2019
Checked FEB 2019

Note: This drawing is not to scale. Follow dimensions.

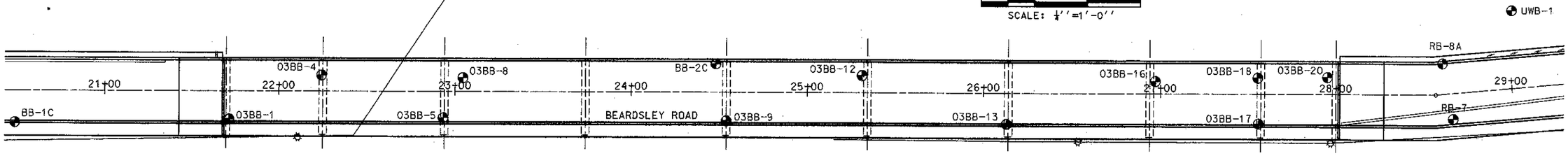
STATE	PROJ. NO.	SHEET NO.
MD.	–	



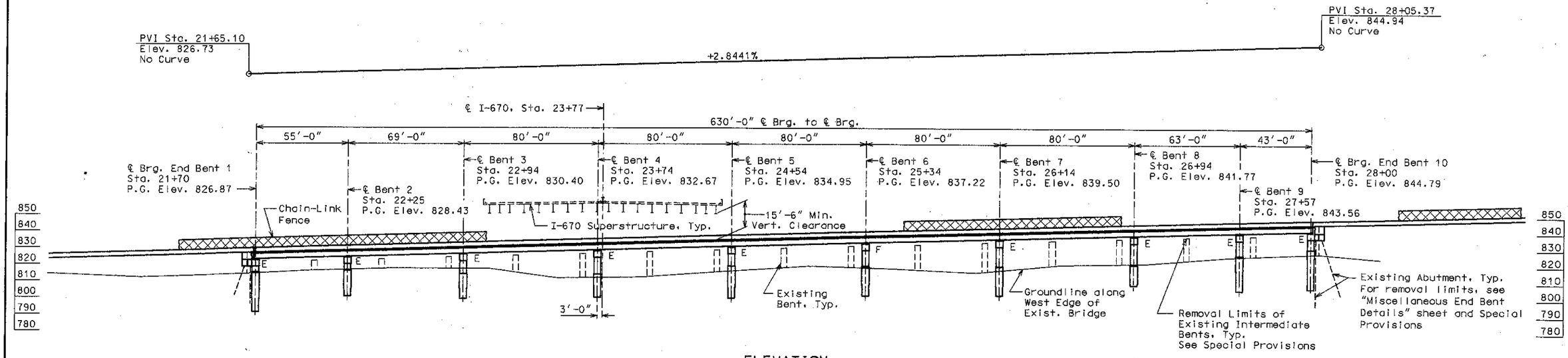
TYPICAL ROADWAY SECTION

4 2 0 4 8

SCALE: 1/4"=1'-0"



PLAN



ELEVATION

BORING LOCATIONS					
NUMBER	STATION	OFFSET	NUMBER	STATION	OFFSET
RB-7	28+65.62	14.10' RT.	03BB-8	23+04.52	7.64' LT.
RB-8A	28+61.98	17.07' LT.	03BB-9	24+53.94	15.90' RT.
BB-1C	20+48.18	17.78' RT.	03BB-12	25+30.98	9.58' LT.
BB-2C	24+47.89	15.71' LT.	03BB-13	26+12.97	17.15' RT.
UWB-1	29+03.27	43.99' LT.	03BB-16	26+97.10	6.96' LT.
03BB-1	21+71.73	15.63' RT.	03BB-17	27+55.70	16.46' RT.
03BB-4	22+24.20	8.87' LT.	03BB-18	27+55.31	9.02' LT.
03BB-5	22+93.40	14.60' RT.	03BB-20	27+95.11	9.44' LT.

Notes:
For Bench Mark and Control Point information, see "Plan and Profile" sheets.
For utility information, see "Plan of Existing Utilities" sheet.

SCALE
0 30 60 90

DETAILED BK
CHECKED LLS

11:31:58 AM/20/2005 s:\beardsley rd\bridge*gpe.dgn

STATE OF MARYLAND
DOUGLAS M. WALTEMATH
NUMBER 21610
REGISTERED PROFESSIONAL ENGINEER
5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND
BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

BRIDGE PLAN AND ELEVATION

S030B42

HARRINGTON & CORTELYOU, INC.
Consulting Engineers

SHEET 54 OF 103

STATE	PROJ. NO.	SHEET NO.
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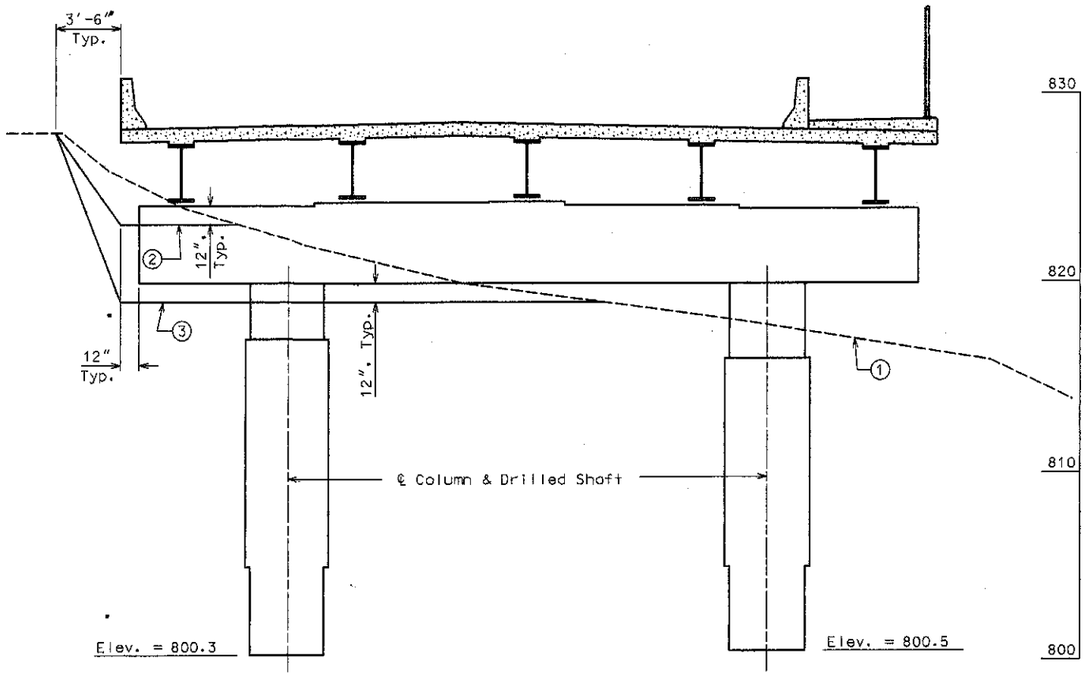
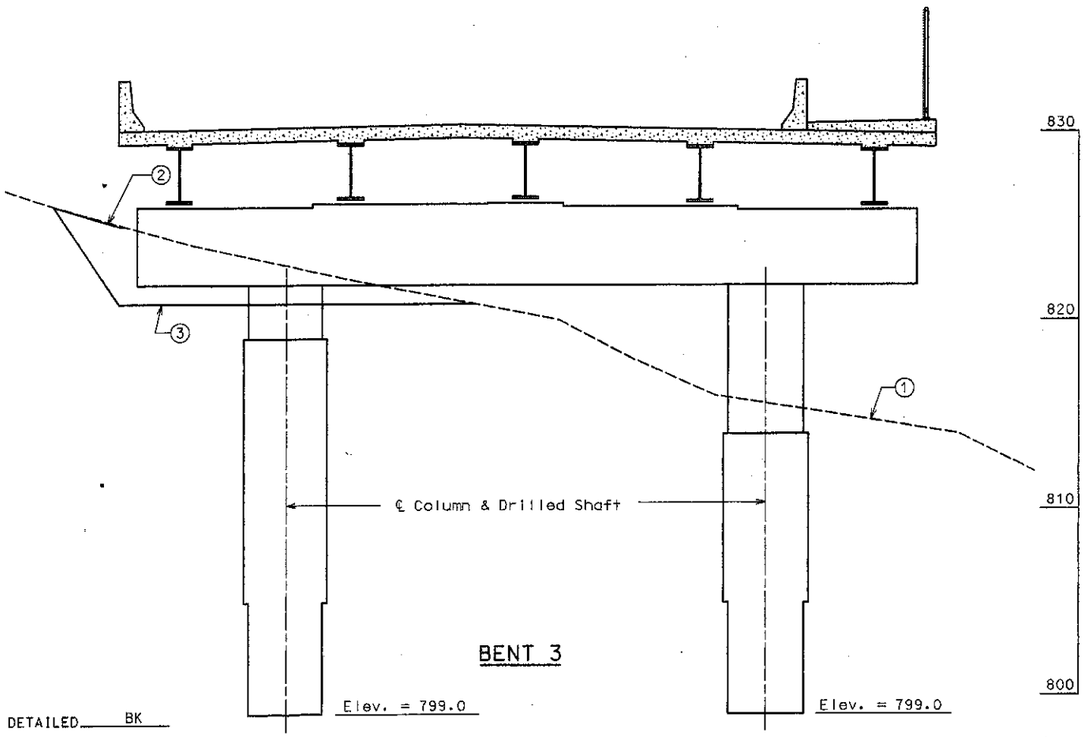
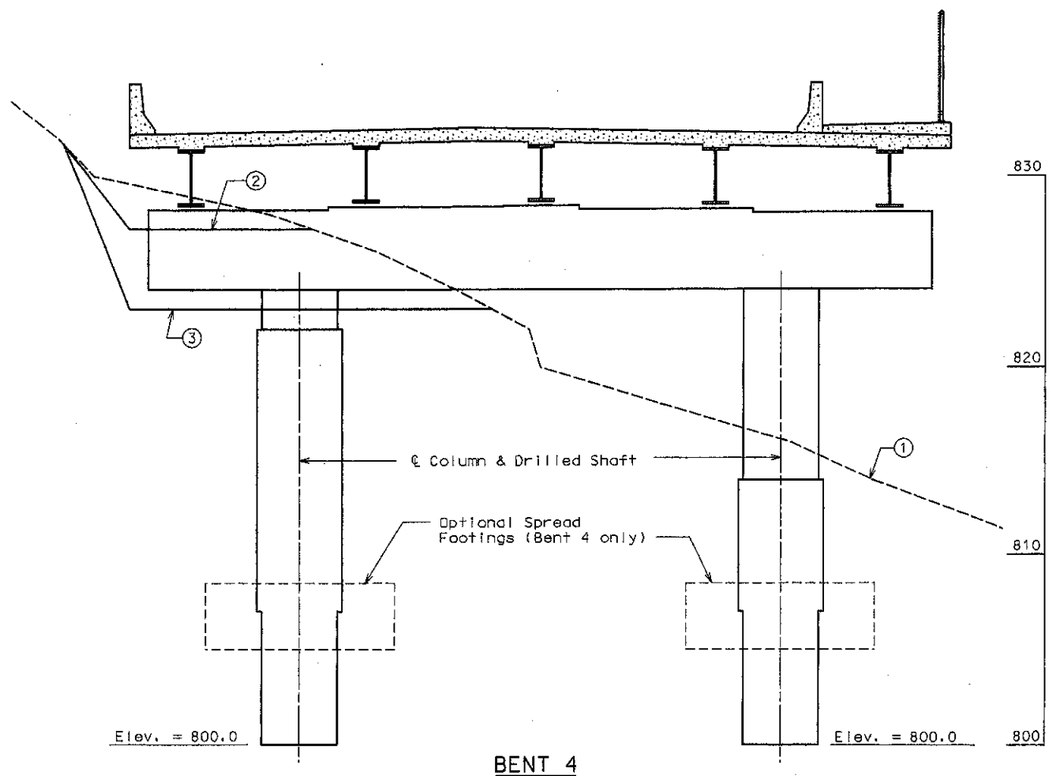


BENT 2



BENT 3



BENT 4

① Existing ground/rock line.
② Excavation line for girders.
③ Excavation line for bent caps.

Note:
See "Rock Excavation Bents 8 & 9" sheet for typical cross section through excavation at bent caps.

DETAILED BK
CHECKED LLS

DOUGLAS M. WALTEMATH NUMBER E-18270 REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI
5-18-05

4 2 0 4 8
SCALE: 1/4"=1'-0"

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND
BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

ROCK EXCAVATION
BENTS 2, 3 & 4

S030B42

HARRINGTON & CORTELYOU, INC.
Consulting Engineers

SHEET 65 OF 103

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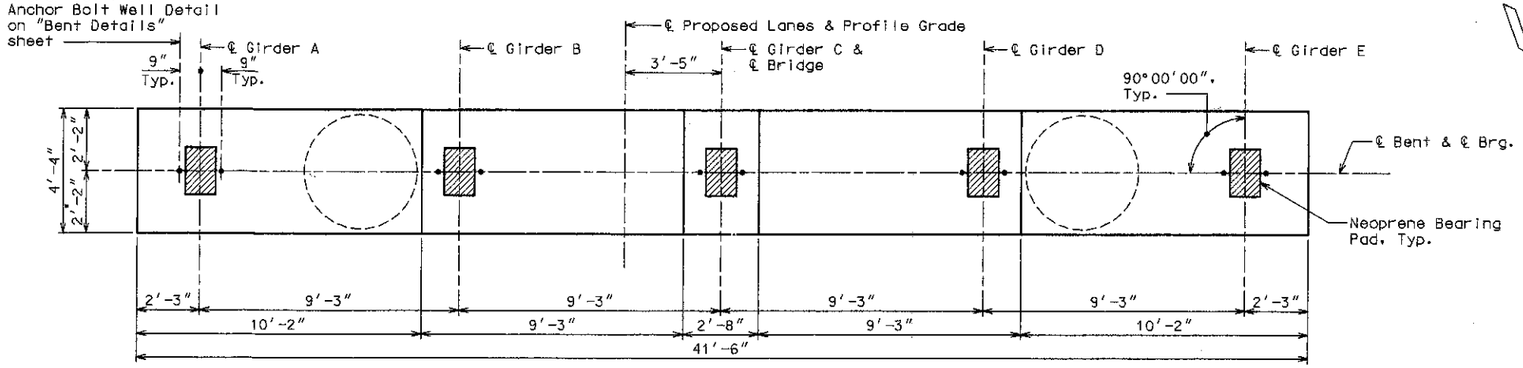
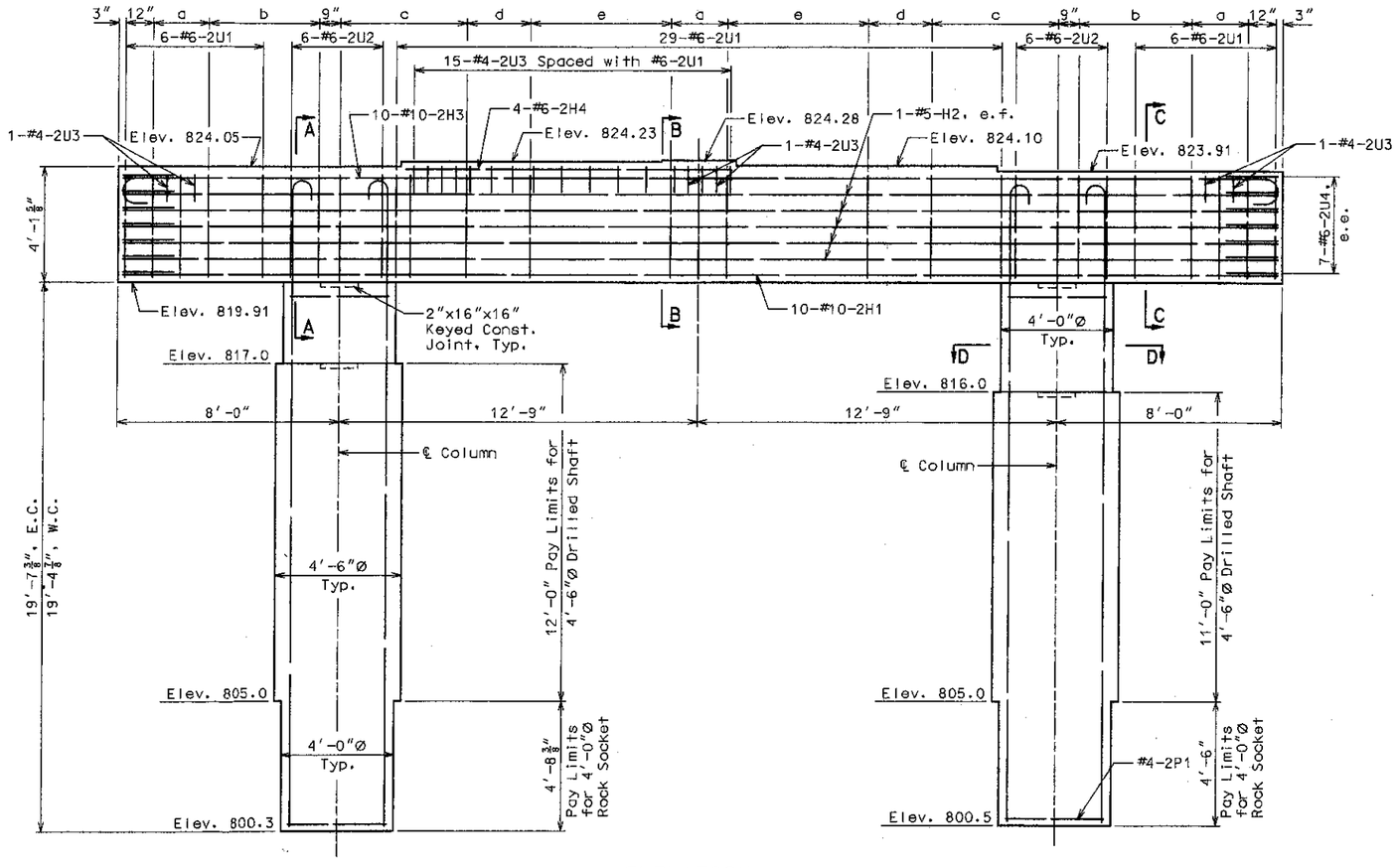
STATE	PROJ. NO.	SHEET NO.
NO.	–	

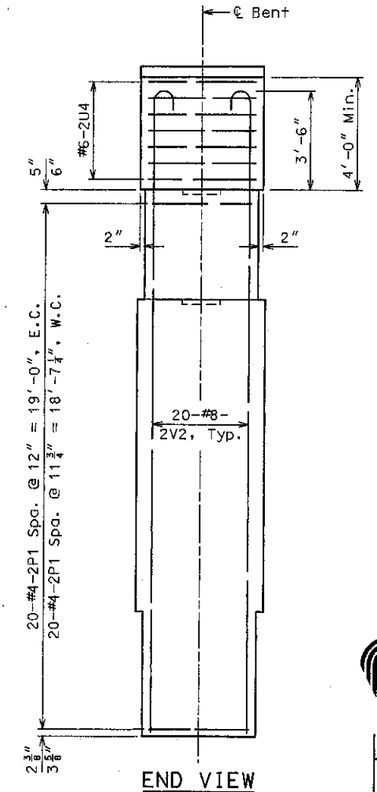


CAP PLAN

a = 4 Spa. @ 6" = 2'-0"
b = 4 Spa. @ 12" = 4'-0"
c = 9 Spa. @ 6" = 4'-6"
d = 3 Spa. @ 9" = 2'-3"
e = 5 Spa. @ 12" = 5'-0"



ELEVATION



END VIEW

SUBSTRUCTURE QUANTITY TABLE FOR BENT 2

ITEM		QUANTITY
Drilled Shafts (4'-6" diameter)	Lin. Ft.	23.0
Rock Sockets (4'-0" diameter)	Lin. Ft.	9.2
Class B Concrete (Substr.)	Cu. Yds.	31.0
Reinforcing Steel (Bridges) **	Lbs.	8,880

These quantities are included in the Estimated Quantities table on the "Bridge Quantities" sheet.
** Includes reinforcing steel in Drilled Shafts and Rock Sockets.

Notes:
e.f. denotes each face.
e.e. denotes each end.
E.C. denotes East Column.
W.C. denotes West Column.
For Neoprene Bearing Pads, see "Bearing Details - Expansion" sheet.
For Section A-A, B-B, C-C and D-D, see "Bent Details" sheet.
For design bearing values, see Foundation Data table on "Bridge Quantities" sheet.

STATE OF MINNESOTA
DOUGLAS M. WALTEMATH
NUMBER 6-18070
REGISTERED PROFESSIONAL ENGINEER
5-18-05

2 1 0 2 4 6
SCALE: ⅜"=1'-0"

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

BENT 2 PLAN & ELEVATION

DETAILED BK
CHECKED LLS

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 68 OF 103

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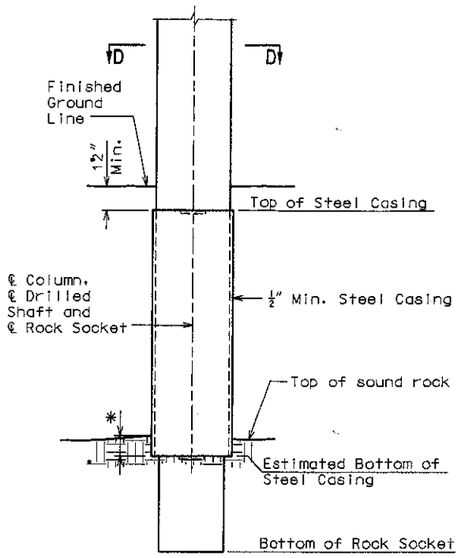
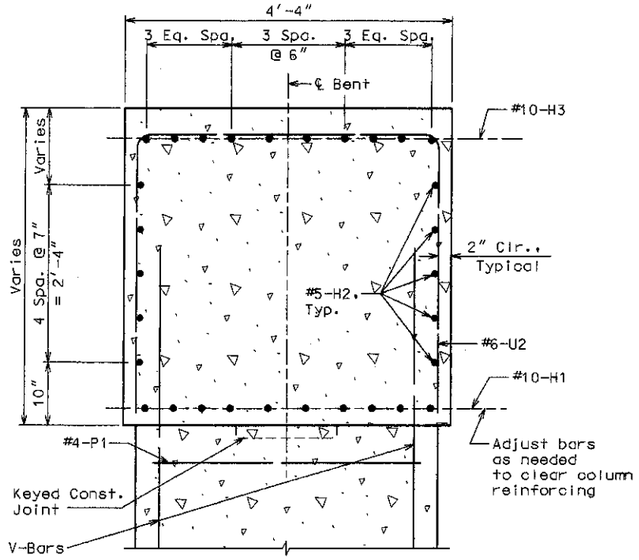
STATE	PROJ. NO.	SHEET NO.
MD.	—	

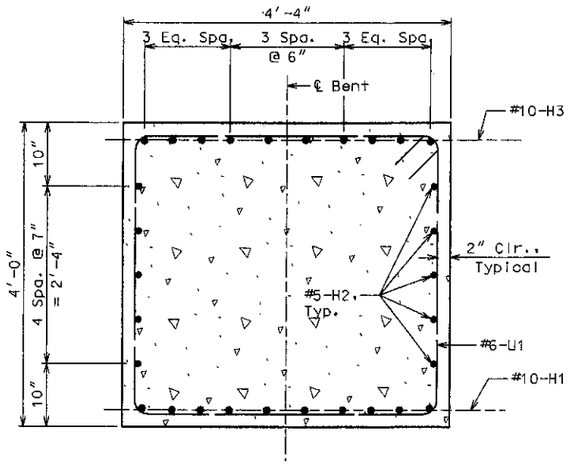


DRILLED SHAFT DETAIL
NOT TO SCALE

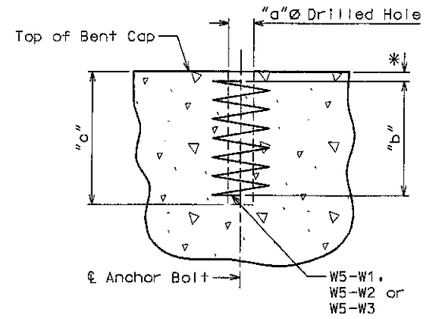
* Seat steel shells 12" min. into sound rock, see Special Provisions.



SECTION A-A

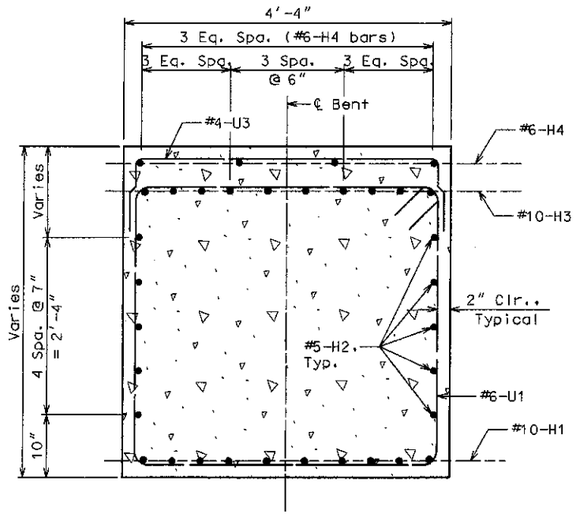


SECTION C-C

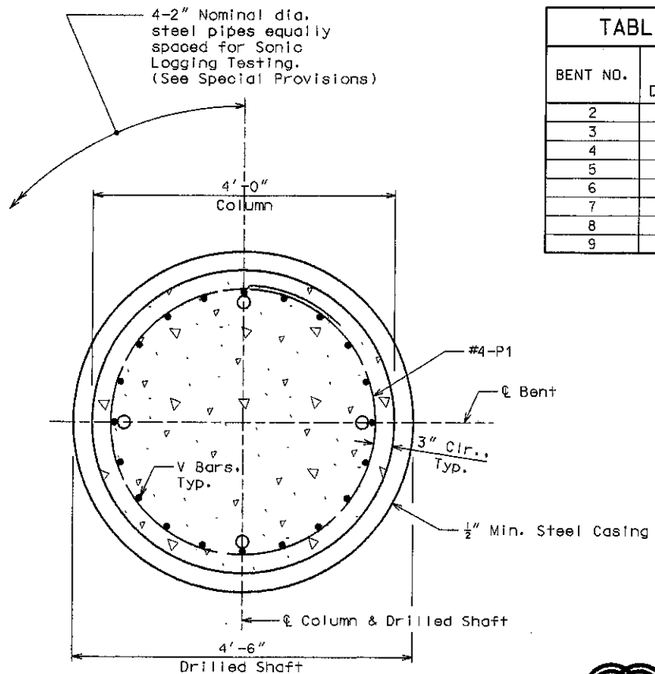


ANCHOR BOLT WELL DETAIL
NOT TO SCALE

* Clear top of reinforcement (tie top of spiral to longitudinal reinforcement).



SECTION B-B



SECTION D-D

TABLE OF ANCHOR BOLT WELLS				
BENT NO.	"a" HOLE DIAMETER	"b" SPIRAL DEPTH	"c" HOLE DEPTH	W5-W
2	2"	15"	18"	W5-W1
3	2"	15"	18"	W5-W1
4	2½"	18"	21"	W5-W2
5	2½"	18"	21"	W5-W2
6	3"	25"	28"	W5-W3
7	2½"	18"	21"	W5-W2
8	2½"	18"	21"	W5-W2
9	2"	15"	18"	W5-W1

1 2 0 1 2
SCALE: 1''=1'-0''

DETAILED BK
CHECKED LLS

10:27:01 AM/20/2005 s:\beardsley rd\bridge\bent-dtls.dgn

STATE OF MARYLAND
DOUGLAS M. WALTSMITH
NUMBER 21270
REGISTERED PROFESSIONAL ENGINEER
5-18-05

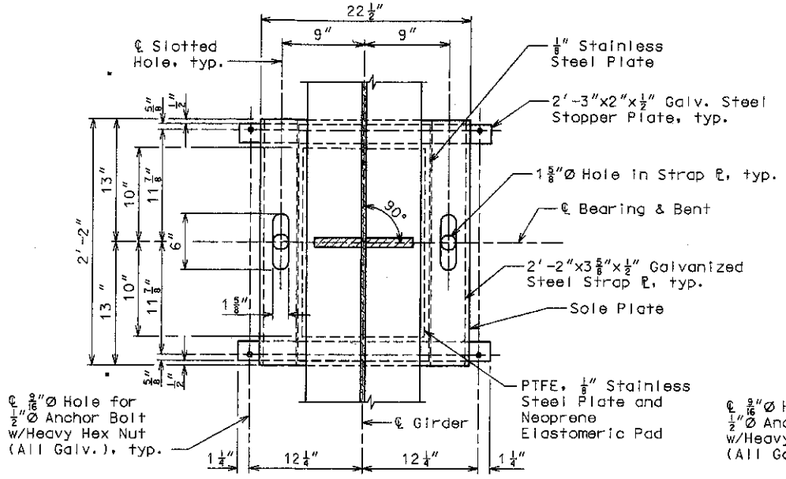
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

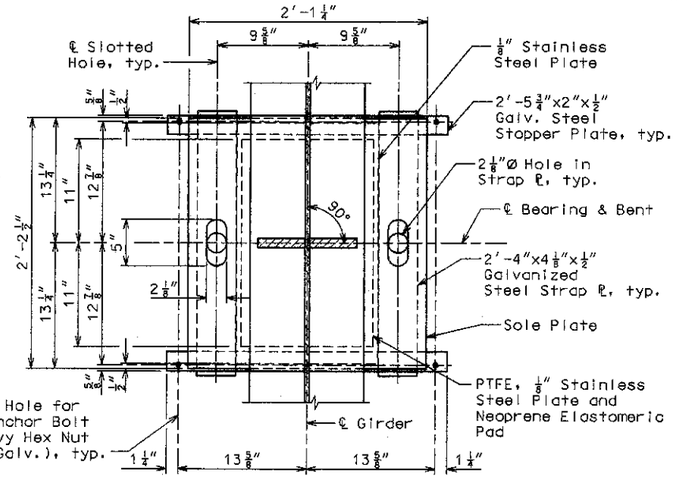
BENT DETAILS

S030B42

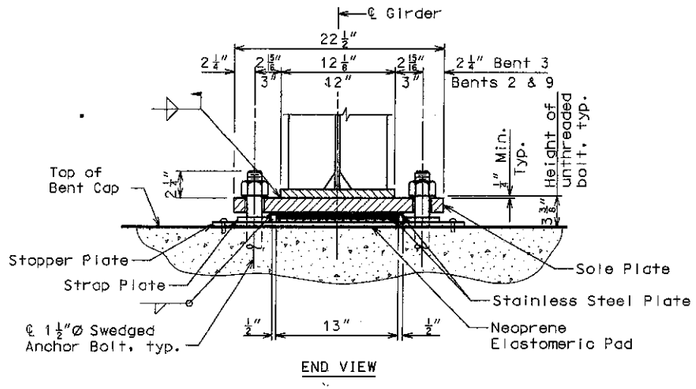
HARRINGTON & CORTELYOU, INC.
Consulting Engineers



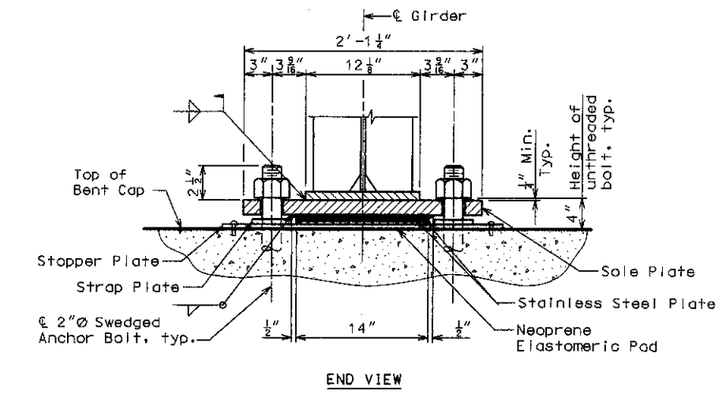
PLAN VIEW



PLAN VIEW



END VIEW



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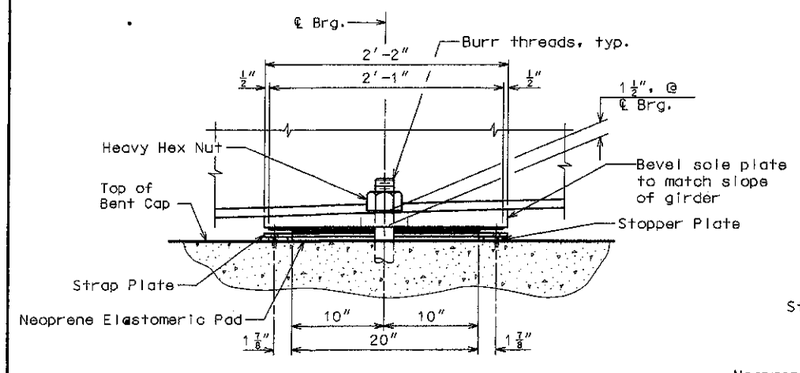
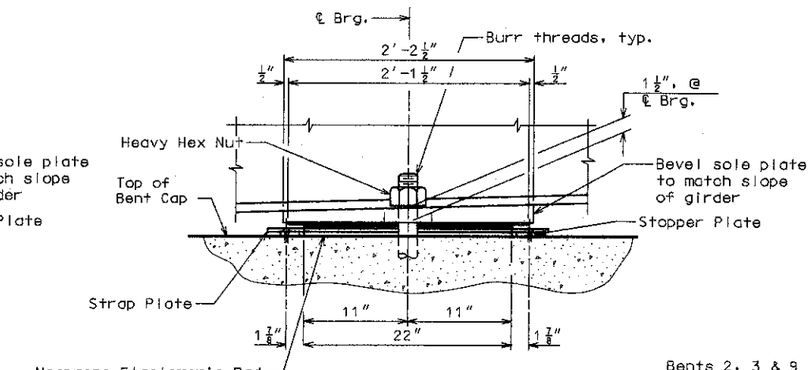


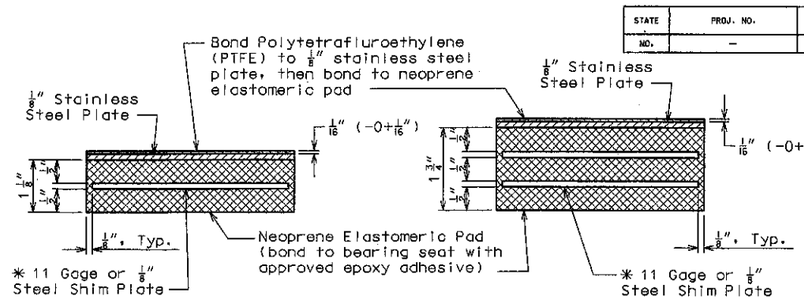
SIDE VIEW

PTFE SLIDING BEARING
(Bents 2, 3 & 9)



SIDE VIEW

PTFE SLIDING BEARING
(Bents 4, 5, 7 & 8)



NEOPRENE ELASTOMERIC PAD
70 Durometer
NOT TO SCALE

* Shim plates shall be placed between specified layers of elastomer and molded together to form an integral unit.

Notes:

Anchor bolts for PTFE bearings shall be 1½"Ø or 2"Ø ASTM A709 Grade 50W steel swedged bolts and shall extend 15" or 18", respectively, into the concrete.

All anchor bolts shall have ASTM A194-2, 2H or ASTM A563-C, C3, D, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical & mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

All structural steel for the anchor bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

The sole plate shall be furnished with the bearing and field welded to the girders.

Structural steel for the sole plate shall be ASTM A709 Grade 50W. The stainless steel plate shall be protected from any coating.

Neoprene elastomeric pads for the PTFE sliding bearings shall be 70 Durometer.

To prevent sliding, the neoprene pad shall be bonded to the bearing seat with an epoxy adhesive as approved by the bearing manufacturer for bonding neoprene to concrete. The top and bottom plates shall be properly aligned before gluing pads.

Provide a ½" stopper plate to prevent loss of support due to creeping of PTFE bearings from under girder at expansion bearings.

The bottom face of the ⅛" stainless steel plate that is welded to the sole plate shall be lubricated with a lubricant that is approved by the bearing manufacturer.

Payment for the sole plate, anchor bolts, and heavy hexagon nuts shall be included in the cost of the bearing assembly. See Special Provisions.

Payment for all galvanized material shall be included in the cost of the PTFE Bearings per each.

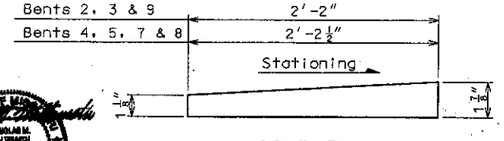
The accepted quantity of elastomeric bearing assemblies, complete-in-place, will be paid for at the contract unit price for Type N PTFE Bearings, each.

The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60°F the slotted holes should be centered on the anchor bolts. The movement per 10° F temperature change is:

End Bent 1 = 5/16"
Bent 2 = ¼"
Bent 3 = 3/16"
Bent 4 = ⅛"
Bent 5 = 1/16"
Bent 7 = 1/16"
Bent 8 = ⅛"
Bent 9 = 3/16"
End Bent 10 = 3/16"

For "Swedged Anchor Bolt Details", see "Bearing Details - Fixed" sheet.

For the Section Thru Stopper Plate and Strap & Stopper Plate Connection details, see "Bearing Details - End Bents" sheet.



SOLE PLATE
NOT TO SCALE

STATE	PROJ. NO.	SHEET NO.
ND.	-	

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

BEARING DETAILS - EXPANSION

DETAILED BK
CHECKED LLS

0 1 2
SCALE: 1½"=1'-0"

DOUGLAS M. WALTMUNDSON NUMBER E-18870 REGISTERED PROFESSIONAL ENGINEER
5-18-05

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 79 OF 103

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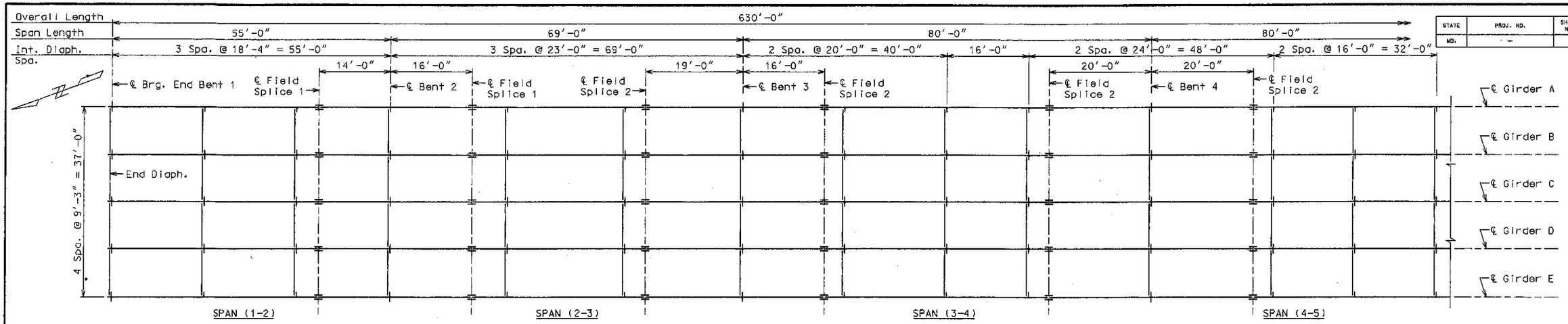

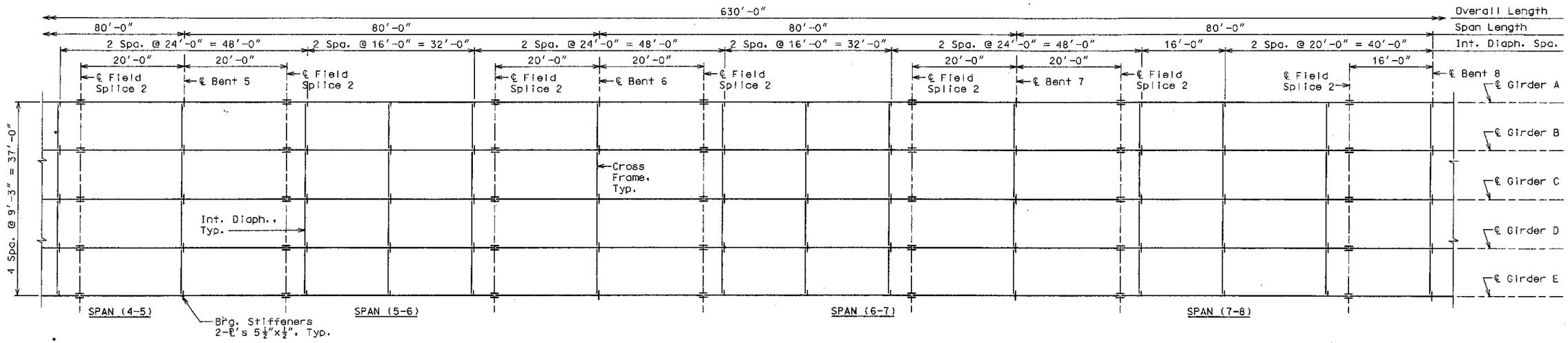

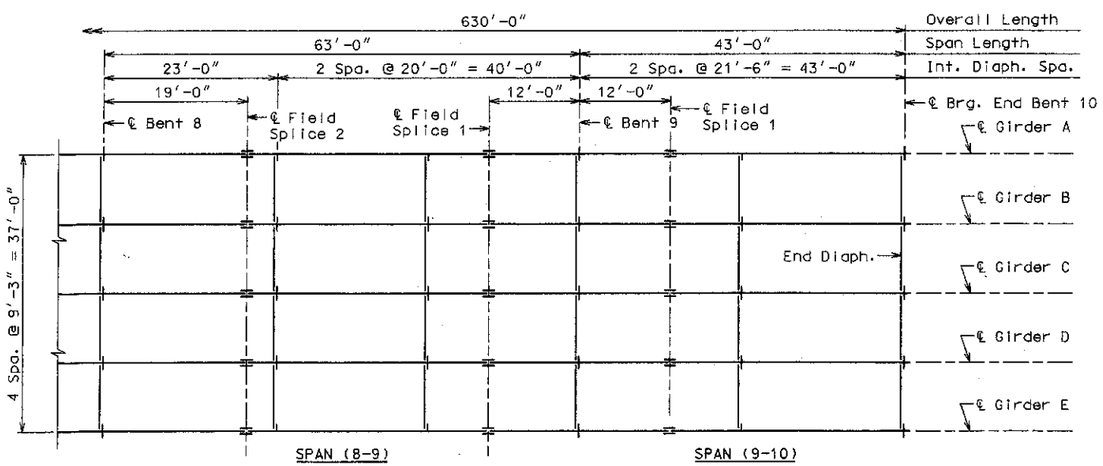

FRAMING PLAN

Notes:
Longitudinal dimensions are horizontal from ℄ bearing to ℄ bearing.
Intermediate diaphragm connection plate and diaphragm spacings may vary by a maximum of 3" for diaphragm to connect the intermediate diaphragm connection plate. All intermediate diaphragm connection plates shall be ½"x5½".
For details of end diaphragms, cross frames and intermediate diaphragms, see "Diaphragm and Field Splice Details" sheet.

SCALE
0 10 20 30

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

FRAMING PLAN

DETAILED BK
CHECKED LLS

DOUGLAS M. WALTEMATH NUMBER E-18270 REGISTERED PROFESSIONAL ENGINEER STATE OF MISSOURI
5-18-05

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 81 OF 103

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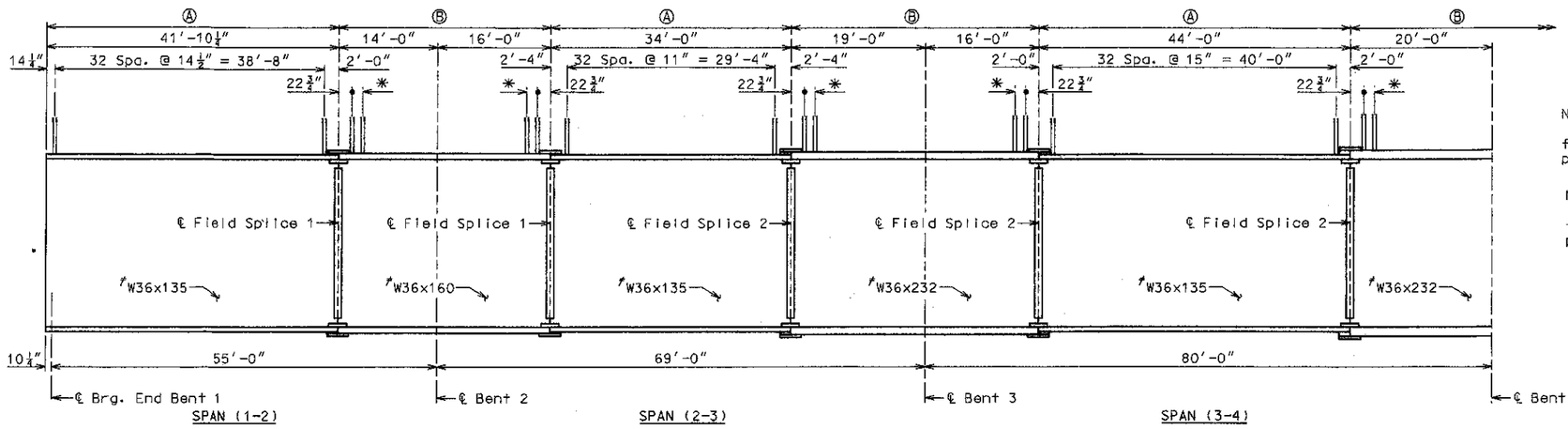

Ⓐ Compression Flange, see Note A

Ⓑ Tension Flange, see Note B

* = 3 units @ 6" = 18"

Note A:
Bolt connection plates to bottom flange of girders. Weld connection plates to top flange of girders.

Note B:
Bolt connection plates to top flange of girders. Weld connection plates to bottom flange of girders.

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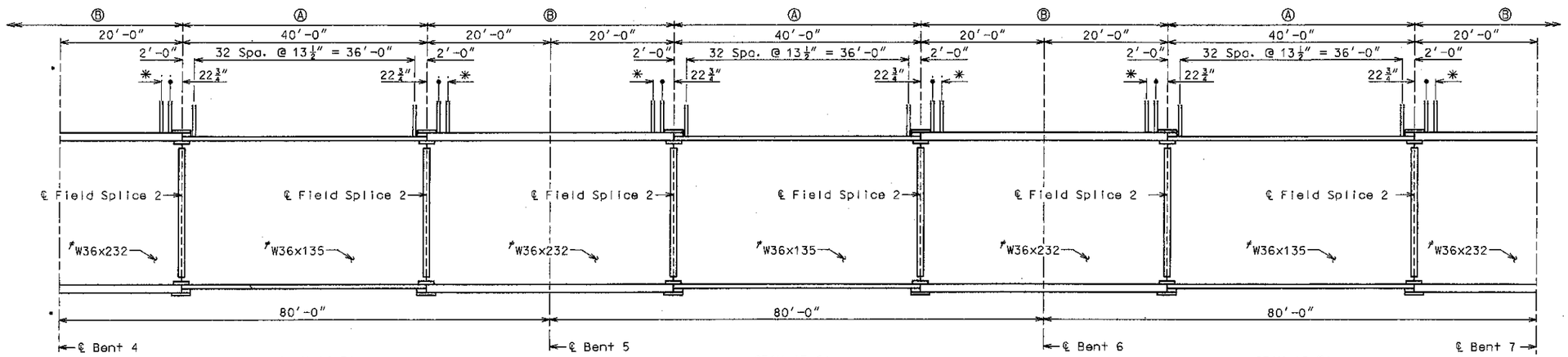

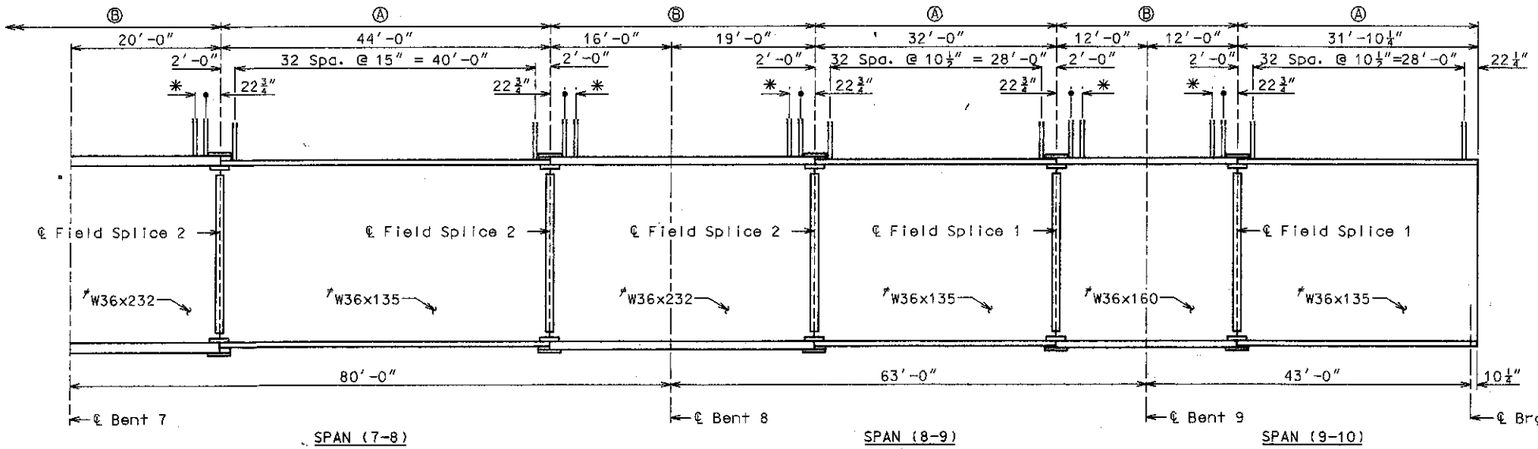

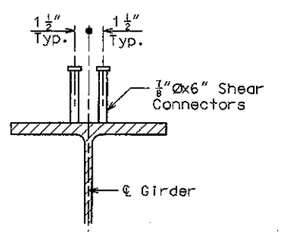

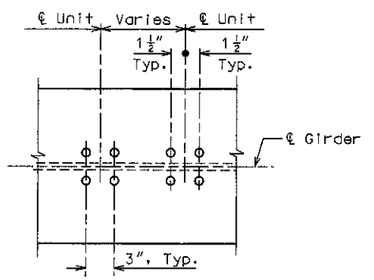

SHEAR CONNECTOR DETAILS

Weight of one (1) shear connector = 1.15 lbs.

Notes:
Fabricated Structural Steel shall be ASTM A709 Grade 50W, except as noted.

* Notch toughness is required for all wide flange beams.

Weight of 7935 lbs. of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) ASTM A709 Grade 50W.

Shear connectors shall meet the requirements of Section 1037 of the Missouri Standard Specifications.

Longitudinal dimensions are horizontal from ℄ bearing to ℄ bearing.

At the contractor's option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

For location of slab drain attachment holes, see "Slab Drain Details" sheet.

If staged construction is utilized, bolts on intermediate diaphragms and cross frames that connect girders under different construction stage slab pours shall be installed snug tight, then tightened after both adjacent slab pours are completed.

0 1 2
SCALE: 1½"=1'-0"

DETAILED TLW
CHECKED LLS

GIRDER ELEVATION

SCALE
0 10 20 30

STATE OF MISSOURI
DOUGLAS M. WALTEMATH
NUMBER E-18270
REGISTERED PROFESSIONAL ENGINEER
5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

GIRDER ELEVATION

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Consulting Engineers

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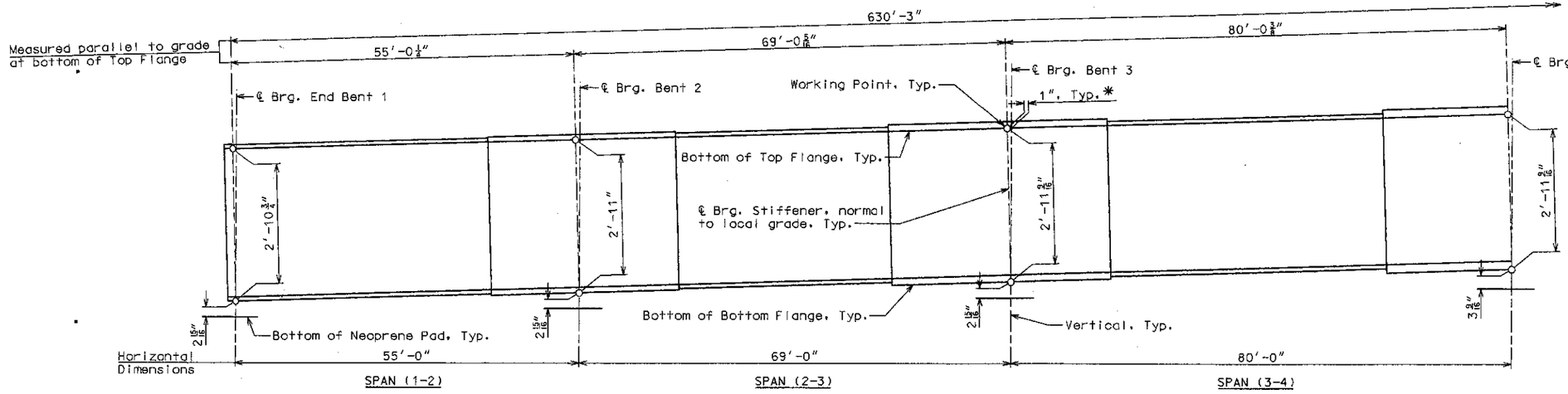
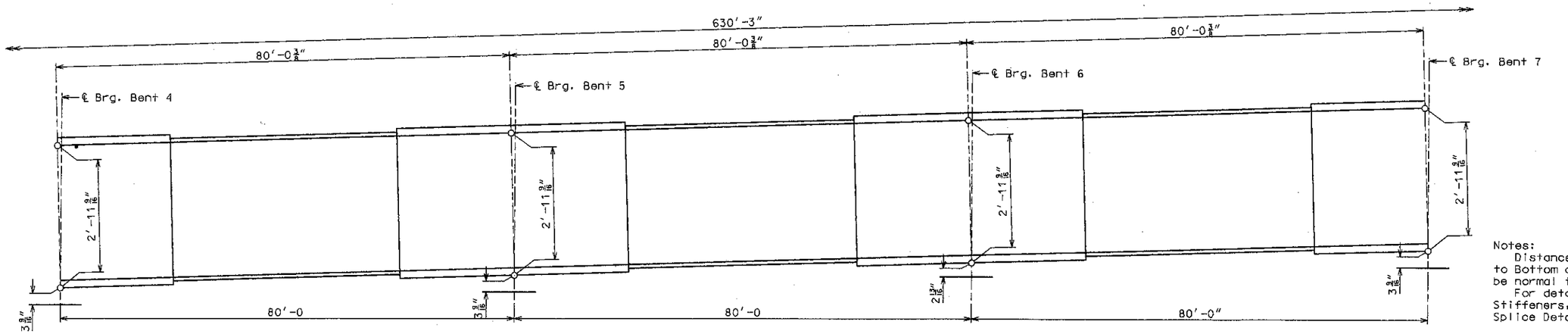
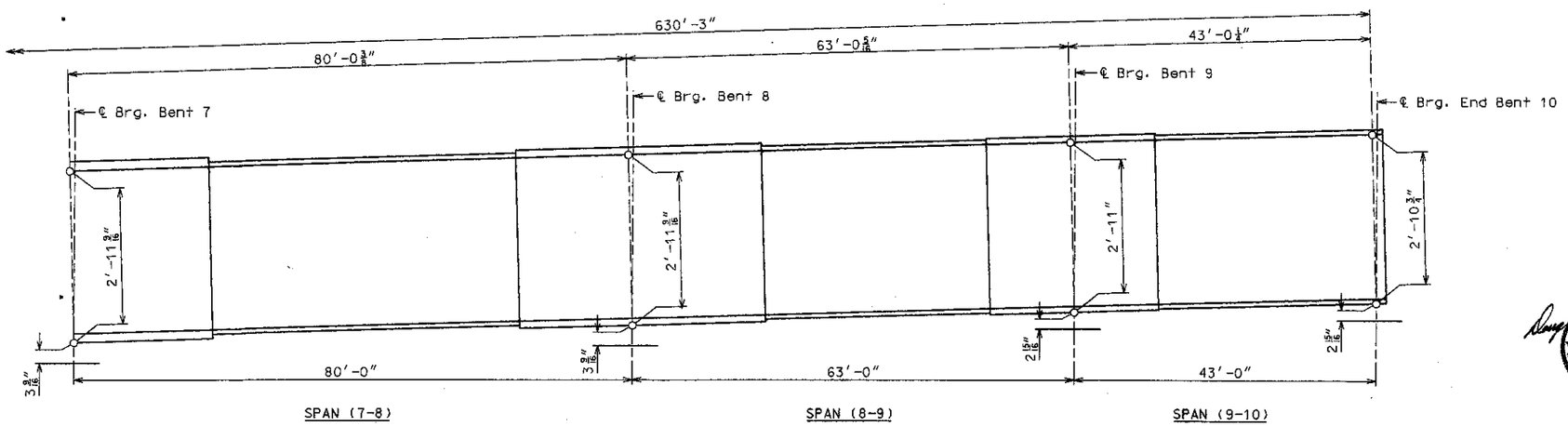


* Indicates distance parallel to grade along Top of Web from Working Point to Vertical Line.



Notes:
Distance from Working Point to Bottom of Flange will always be normal to the Girder.
For details of Bearing Stiffeners, see "Diaphragm & Field Splice Details" sheet.



BOTTOM OF BOTTOM FLANGE ELEVATION

LOCATION	GIRDER A	GIRDER B	GIRDER C	GIRDER D	GIRDER E
End Bent 1	822.75	822.94	822.98	822.80	822.61
Bent 2	824.29	824.48	824.53	824.34	824.16
Bent 3	826.21	826.39	826.44	826.26	826.07
Bent 4	828.48	828.67	828.72	828.53	828.35
Bent 5	830.76	830.94	830.99	830.81	830.62
Bent 6	833.04	833.22	833.27	833.08	832.90
Bent 7	835.31	835.50	835.54	835.36	835.17
Bent 8	837.59	837.77	837.82	837.63	837.45
Bent 9	839.42	839.61	839.66	839.47	839.29
End Bent 10	840.67	840.85	840.90	840.72	840.53

DETAILED TLW
CHECKED LLS

GIRDER LAYOUT

SCALE
0 10 20 30

DOUGLAS M. WALTEMATH NUMBER 5-18270 REGISTERED PROFESSIONAL ENGINEER
5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

GIRDER LAYOUT

S030B42

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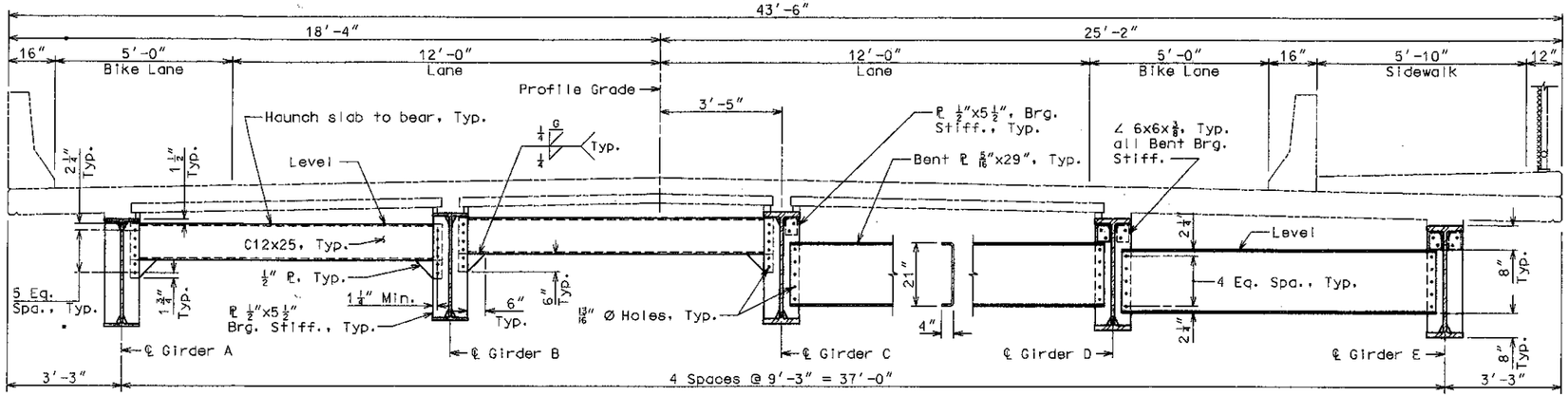
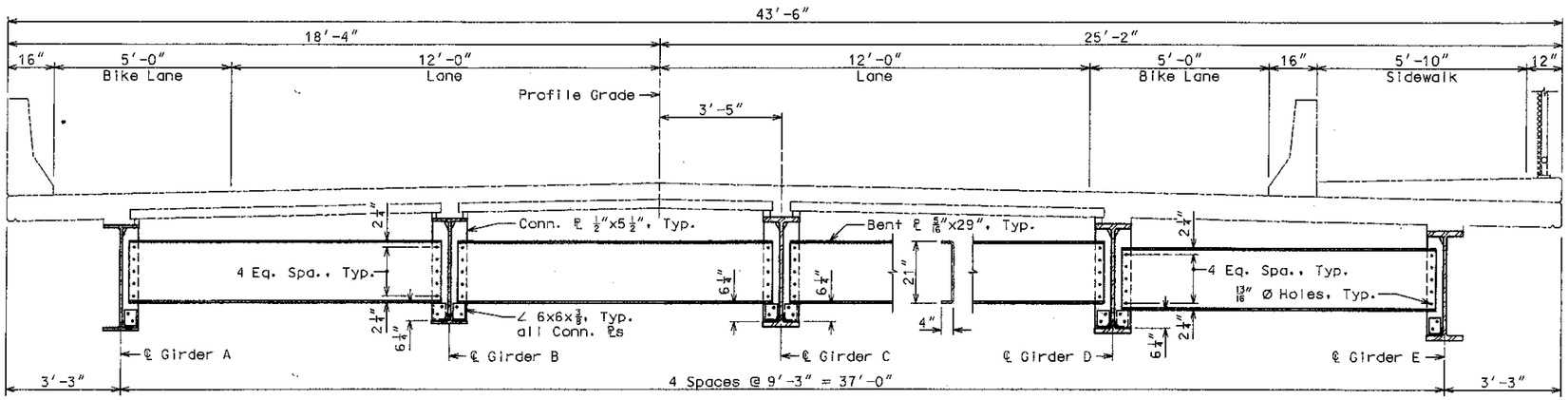
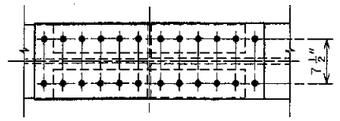


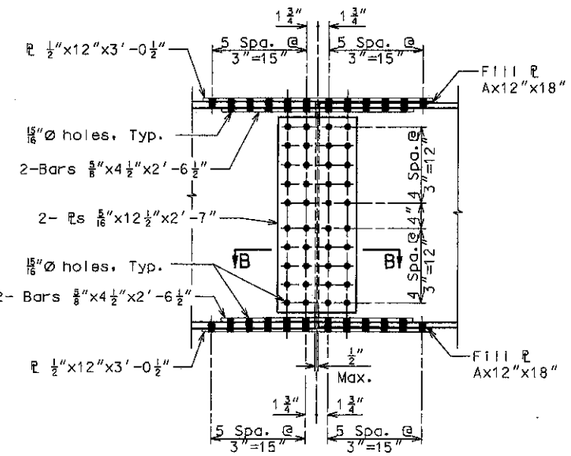
HALF SECTION AT END DIAPHRAGMS

HALF SECTION AT CROSS FRAMES
Top Flange in Tension



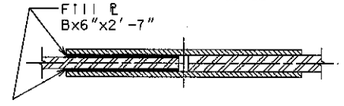


TOP & BOTTOM FLANGE SPLICE



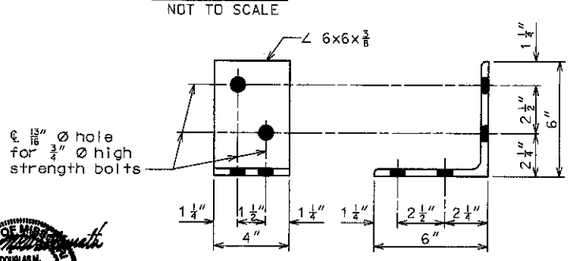
ELEVATION

1 0 1 2
SCALE: 1''=1'-0''



SECTION B-B
NOT TO SCALE

FIELD SPLICE	A	B
1	¼"	----
2	¾"	10 Ga.

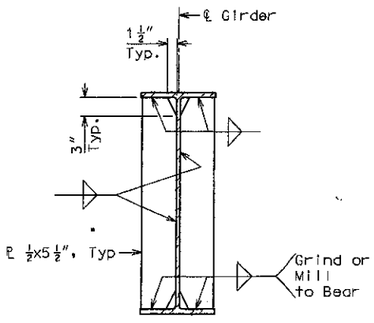


FLANGE CONNECTION ANGLE DETAIL

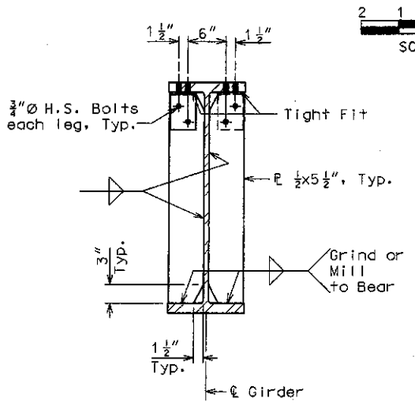
0 1
SCALE: 3''=1'-0''

INTERMEDIATE DIAPHRAGMS
Bottom Flange in Tension

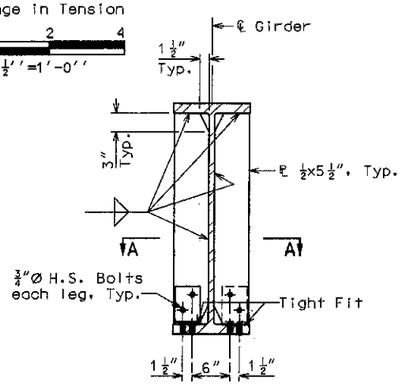
2 1 0 2 4
SCALE: ½''=1'-0''



END BENT
BRG. STIFF.

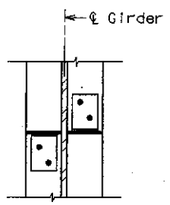


BENT
BRG. STIFF.



INT. DIAPH.
CONN. PLATE

1 0 1 2
SCALE: 1''=1'-0''



SECTION A-A

Notes:
At the Contractors option, holes in the diaphragm plate of non slab bearing diaphragms may be made ¾" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard sizes.
The two ¾"Ø high strength bolts that connect the 6x6x⅜" angle to the tension flange shall be placed so the nut is on the inside of flange toward the web.
Use 7/8"Ø high strength bolts with 15/16"Ø holes.
Use ¾"Ø high strength bolts with 13/16"Ø holes.

DETAILED TLW
CHECKED LLS

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

DIAPHRAGM & FIELD SPLICE DETAILS

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 84 OF 103

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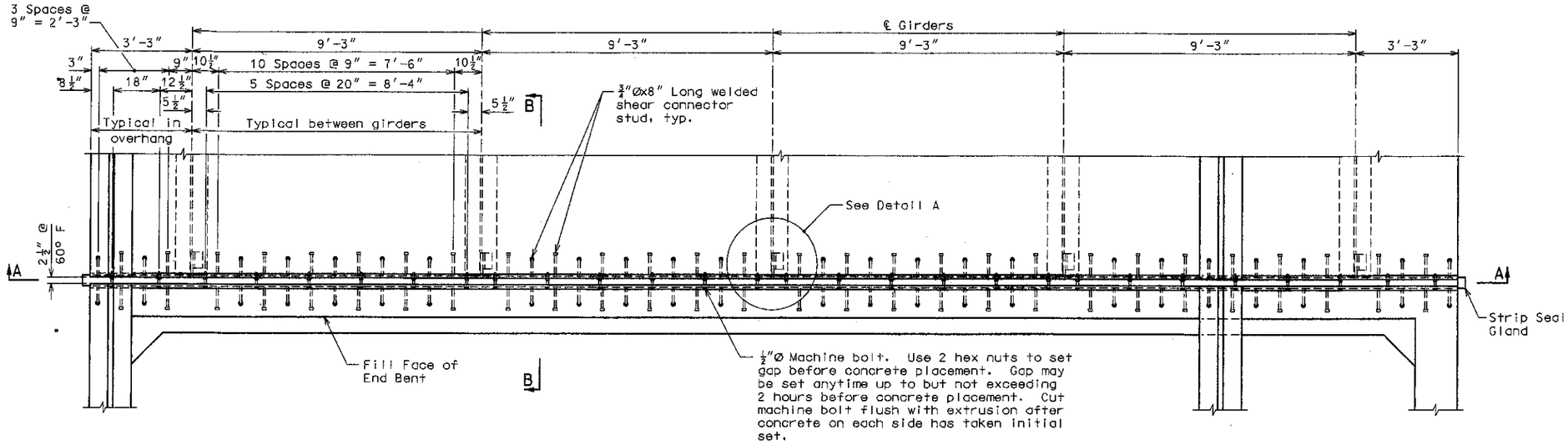
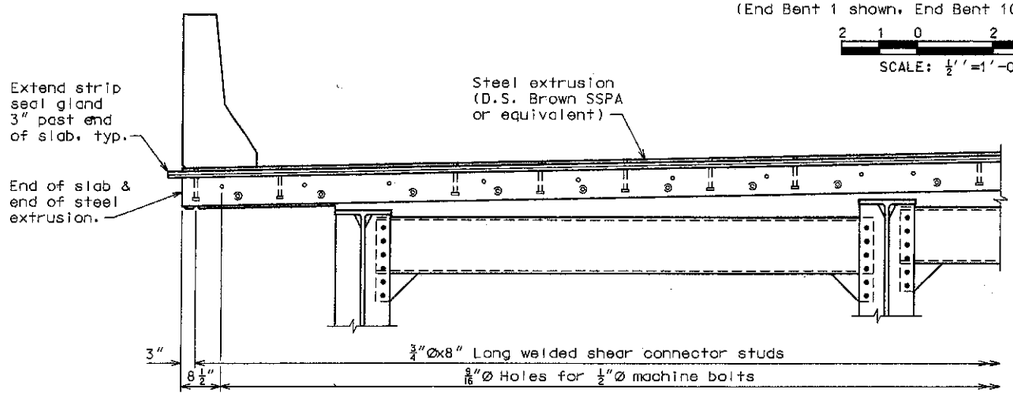


PLAN

(End Bent 1 shown, End Bent 10 opposite hand.)

2 1 0 2 4
SCALE: ½''=1'-0''

Note:
Expansion Device on sidewalk not shown for clarity. For details see "Sidewalk Details" sheet.

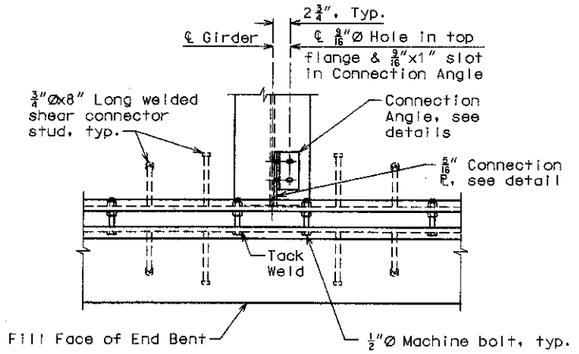


PART SECTION A-A

1 0 1 2 3
SCALE: ¾''=1'-0''

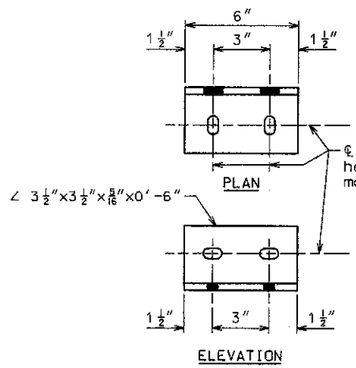
SECTION B-B

1 0 1 2 3
SCALE: ¾''=1'-0''



DETAIL A

1 0 1 2
SCALE: 1"=1'-0''



CONNECTION ANGLE

CONNECTION PLATE

4 2 0 4 8
SCALE: ½''=1'-0''

Notes:

The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

The contractor must verify all dimensions prior to fabrication.

All welds shall conform to Section 712 of the Missouri Standard Specifications.

Splices of steel extrusion shall develop full strength.

All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Neoprene Strip Seal shall meet ASTM D-2628.

Anchors for the extrusions or armor shall be approved welded studs (C1010 thru C1020).

Payment for furnishing, coating or galvanizing and placing steel extrusions, miscellaneous structural steel, and neoprene strip seals shall be made under the contract unit price for Strip Seal Expansion Device.

Structural steel for the expansion device shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum). Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The gap at the End Bents shall be increased ¾" for each 10°F fall in temperature and decreased ⅝" for each 10°F rise in temperature from the installation temperature.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1"± from vertical leg of extrusion at Expansion Device.

Concrete shall be forced under and around strip seal extrusions and studs. Proper consolidation of the concrete shall be achieved by localized internal vibration.

DETAILED JKG
CHECKED LLS

STATE OF MISSOURI
DOUGLAS M. WALTEMATH
NUMBER E-18270
REGISTERED PROFESSIONAL ENGINEER
5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

STRIP SEAL EXPANSION JOINT

S030B42

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SHEET 86 OF 103

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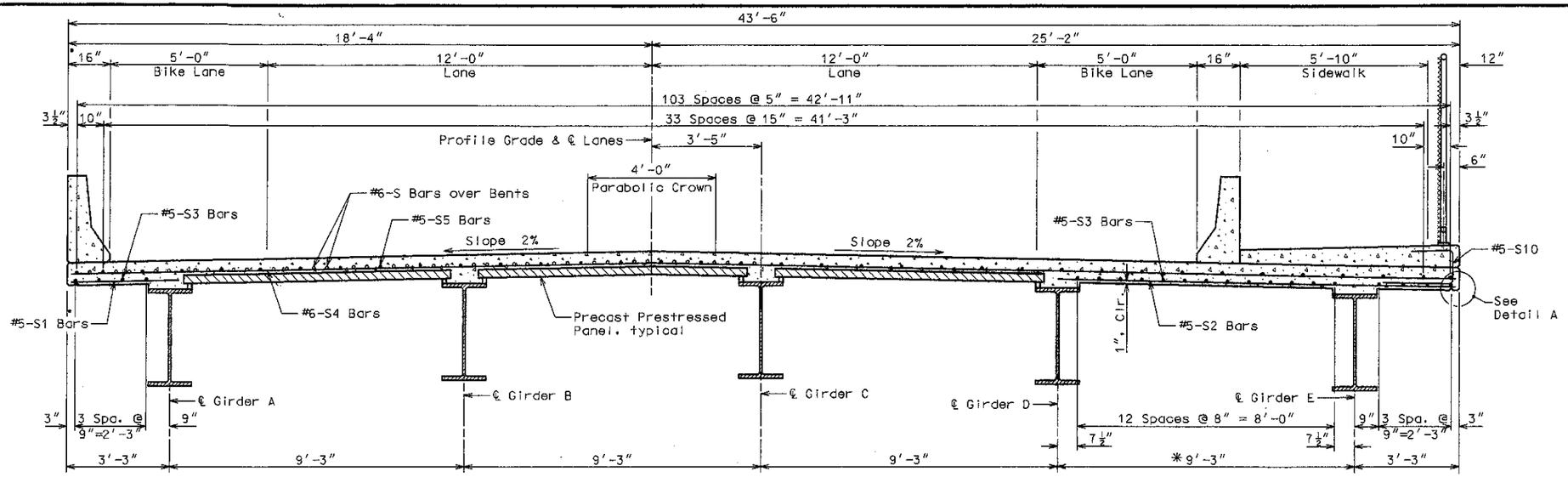


HALF SECTION NEAR BENTS

HALF SECTION NEAR CENTER OF SPAN

TYPICAL ROADWAY SECTION

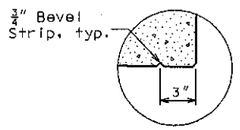
For slab reinforcing, see "Slab Plan" sheet.

Sidewalk & Safety Barrier Curb reinforcing not shown for clarity.

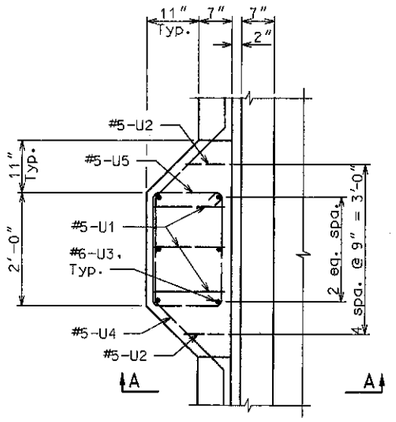
* Conventional slab forming required in this girder bay.

2 1 0 2 4

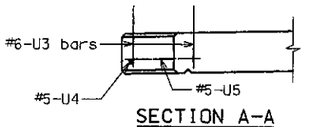
SCALE: ½''=1'-0''



DETAIL A



PLAN

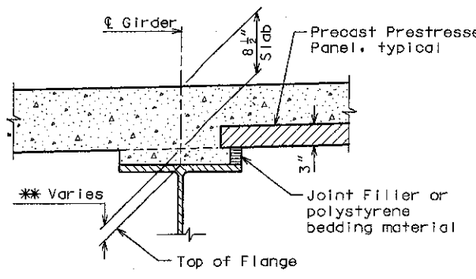


SECTION A-A

LIGHT BLISTER DETAILS

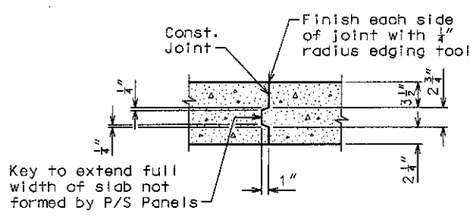
1 0 1 2 3

SCALE: ¾''=1'-0''

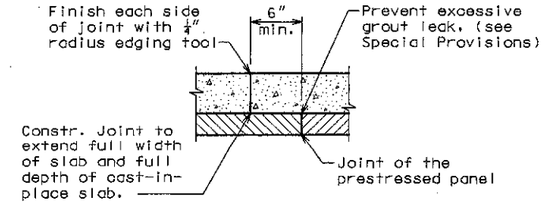


THEORETICAL SLAB HAUNCH

** See Theoretical Slab Haunching Diagrams on "Slab Haunching Diagram" sheet.

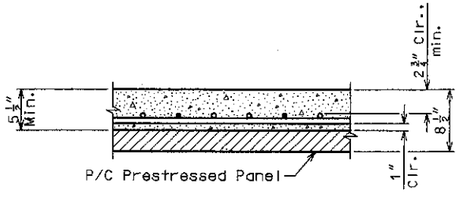


AT CONVENTIONAL FORMING

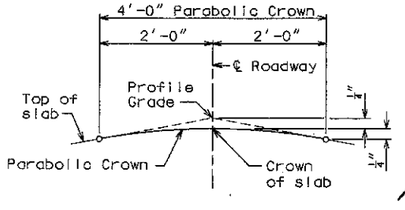


OVER PRESTRESSED PANEL

PERMISSIBLE CONSTRUCTION JOINT

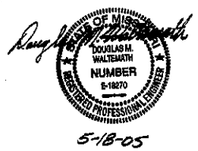


CLEARANCE DETAIL



PARABOLIC CROWN DETAIL

NOT TO SCALE



DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

SLAB SECTION & DETAILS

S030B42

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SHEET 87 OF 103

DETAILED BK

CHECKED LLS

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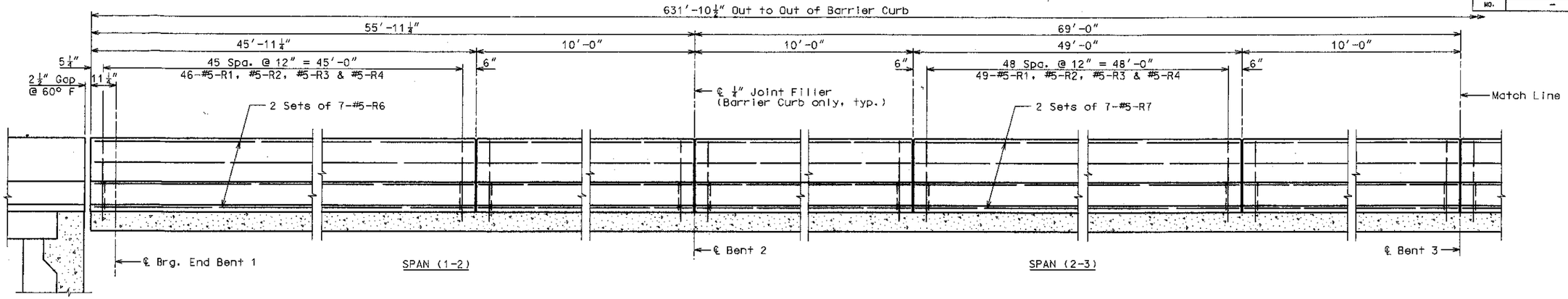
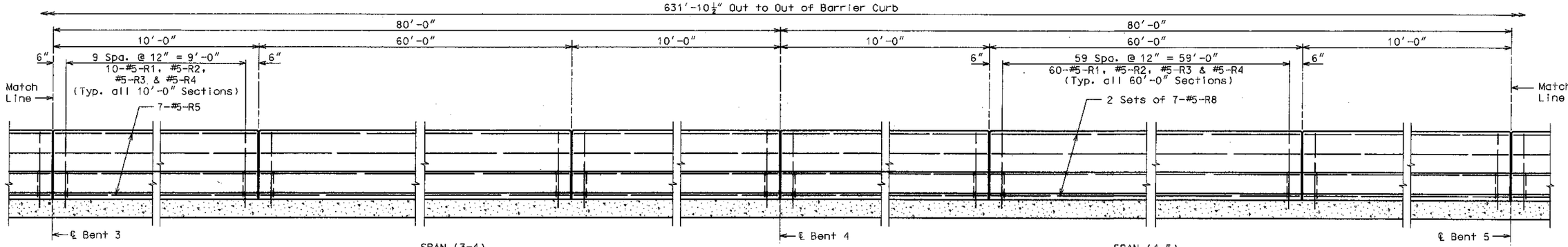


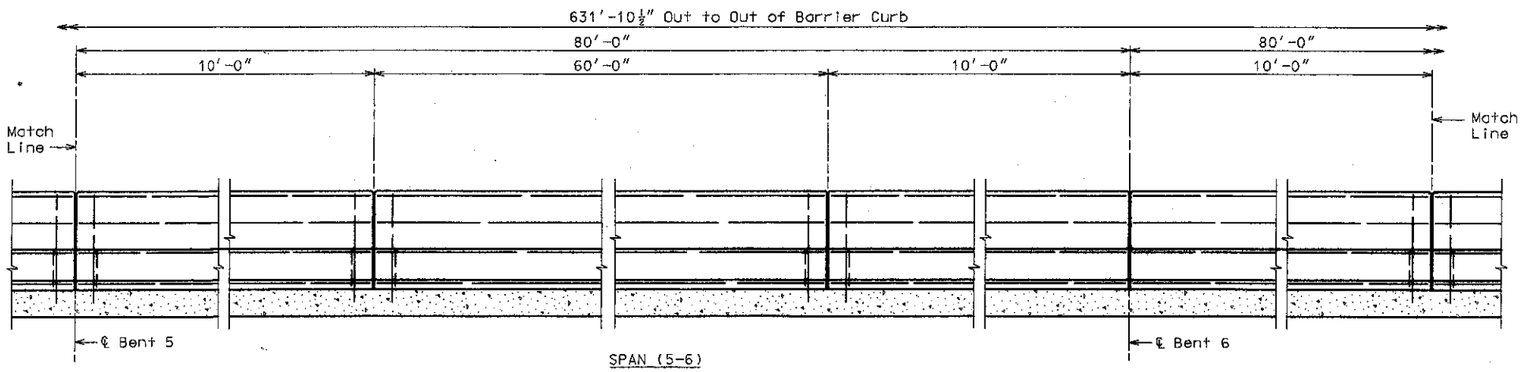
BARRIER CURB ELEVATION

(East side shown, West side similar)



BARRIER CURB ELEVATION

(East side shown, West side similar)



BARRIER CURB ELEVATION

(East side shown, West side similar)

Notes:

Top of safety barrier curb shall be built parallel to grade with safety barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a ½" radius or a ⅜" bevel, unless otherwise noted.

When the safety barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.

Concrete in the safety barrier curb shall be Special Aggregate Concrete.

Measurement of safety barrier curb is to the nearest linear foot, measured horizontally along the outside top of slab from front face of End Bent 1 backwall to front face of End Bent 10 backwall.

See "Miscellaneous Details" sheet for sidewalk drain details & locations.

Anchor bolts and nuts shall be AASHTO M314-90 Grade 55. Anchor bolts, nuts and washers shall be fully galvanized.

See "Slab Plan" sheet for Light Blister locations.

See "Safety Barrier Curb Elevation & Details" sheet for Light Blister and Safety Barrier Curb details.

DOUGLAS M. WALTEMATH NUMBER E-16270 REGISTERED PROFESSIONAL ENGINEER

5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

SAFETY BARRIER CURB ELEVATION

DETAILED BK
CHECKED LLS

2 1 0 2 4
SCALE: ½"=1'-0"

S030B42

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SHEET 94 OF 103

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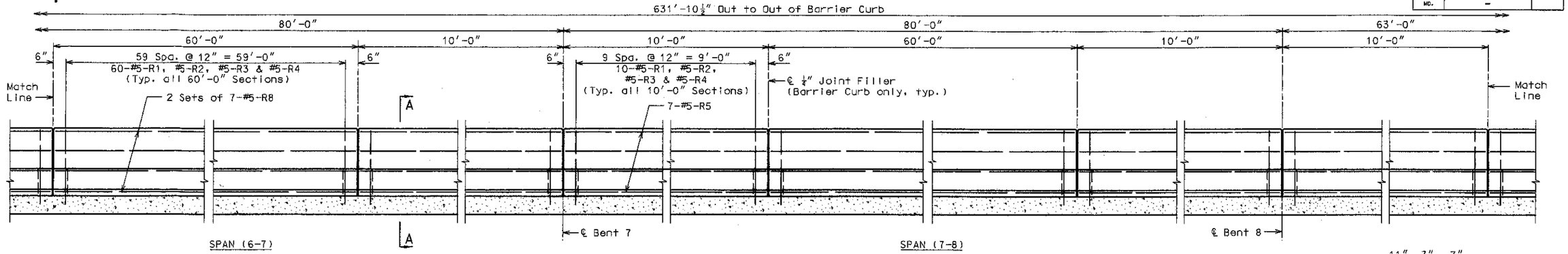
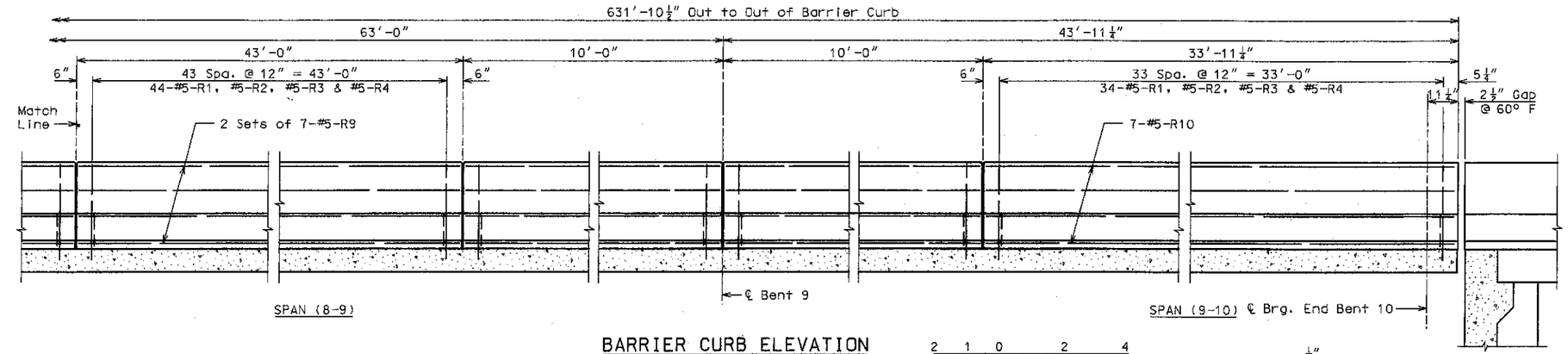


BARRIER CURB ELEVATION

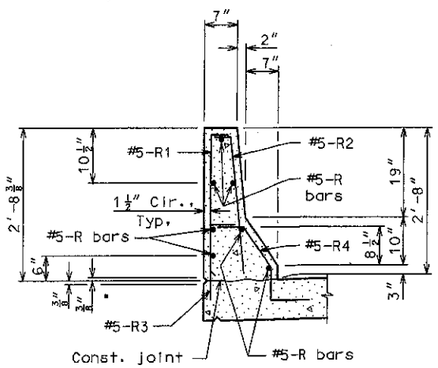
(East side shown, West side similar)



BARRIER CURB ELEVATION

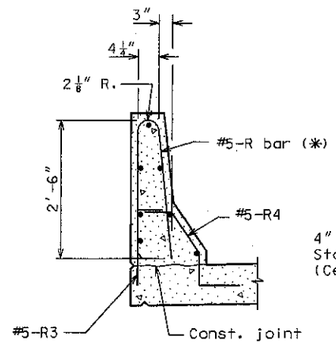
(East side shown, West side similar)

SCALE: ½"=1'-0"



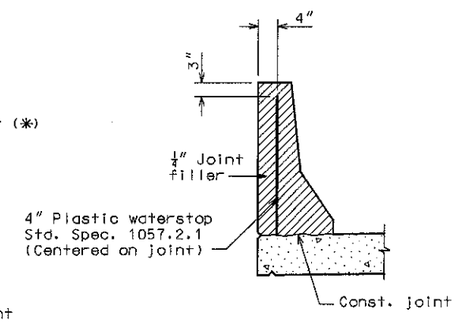
PART SECTION A-A

Notes:
Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.
The cross-sectional area above the slab = 2.28 sq. ft.



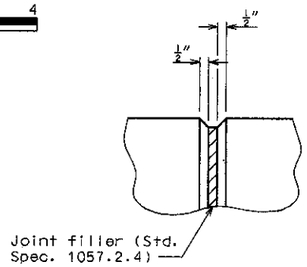
R-BAR PERMISSIBLE ALTERNATE SHAPE

* The R1 and R2 bar combination may be furnished as one bar, as shown, at the contractor's option.
(All dimensions are out to out.)



DETAILS OF PLASTIC WATERSTOP

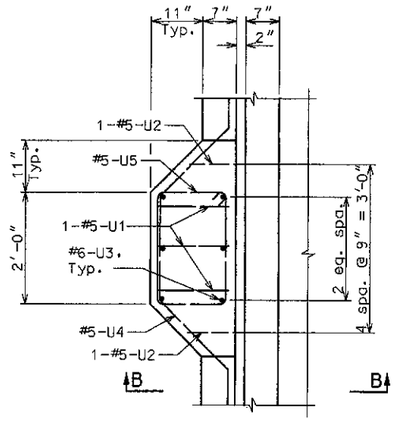
Notes:
Plastic waterstop shall be placed in all safety barrier curb filled joints on the east side of the bridge.
Cost of plastic waterstop complete in place shall be included in the contract unit price for Safety Barrier Curb.



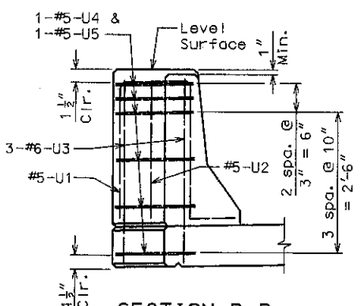
FILLED JOINT DETAIL

NOT TO SCALE

SCALE: ¾"=1'-0"



PLAN



SECTION B-B

Note:
For Light Pole bolt locations and details, see "Light Standard Supports" sheet.

Notes:
See "Miscellaneous Details" sheet for sidewalk drain locations.
For other notes and details, see "Safety Barrier Curb Elevation" sheet.
Light Blisters shall be located at the following stations:
Sta. 22+65 Left
Sta. 24+61 Left
Sta. 26+20 Left
Sta. 27+85 Left

DETAILED BK

CHECKED LLS

5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

SAFETY BARRIER CURB ELEVATION AND DETAILS

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 95 OF 103

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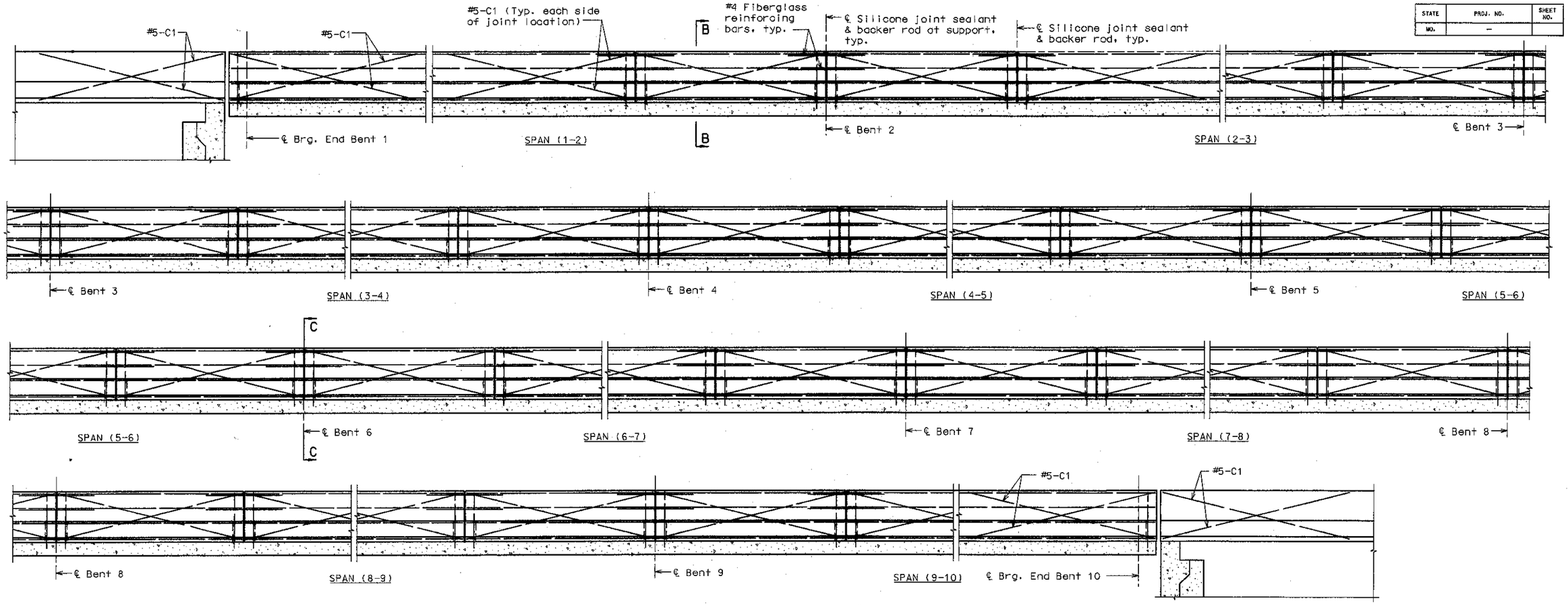
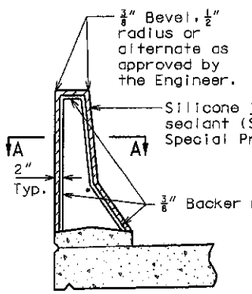


OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

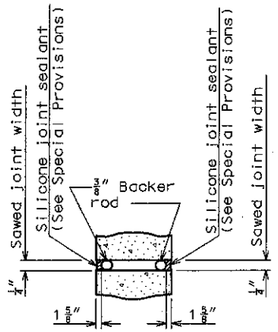
(East side shown, West side similar)

2 1 0 2 4 6

SCALE: $\frac{3}{8}$''=1'-0''

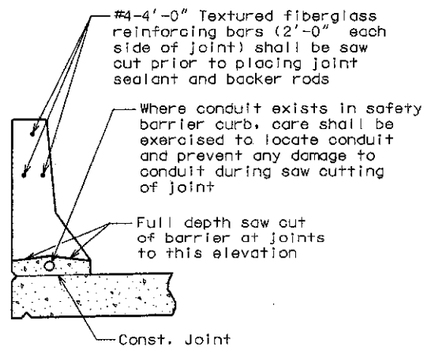


SECTION THRU JOINT



SECTION A-A

Note: Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.



PART SECTION C-C

1 0 1 2 3

SCALE: $\frac{3}{4}$''=1'-0''

Notes:

Top of safety barrier curb shall be built parallel to grade with safety barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a ½" radius or a ⅜" bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete-in-place, shall be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Special Aggregate Concrete.

Measurement of safety barrier curb is to the nearest linear foot, measured horizontally along the outside top of slab from front face of end bent backwall to front face of end bent backwall.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane Forming Compound in accordance with Sec. 1055 of the Missouri Standard Specifications for Highway Construction. Scale prevention treatment will not be permitted.

Joint sealant and backer rods shall be used on all slip-form bridge safety barrier curbs instead of joint filler.

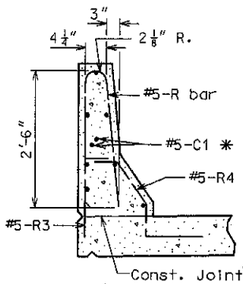
Plastic waterstop shall not be used with slip-form option.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

For Light Blister details and locations, see "Safety Barrier Curb Elevation and Details" sheet.

For sidewalk drain details and locations, see "Miscellaneous Details" sheet.



PART SECTION B-B

* Each side of joint location.

DOUGLAS M. WALTEMATH NUMBER E-18270 REGISTERED PROFESSIONAL ENGINEER

5-18-05

DETAILED BK

CHECKED LLS

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

OPTIONAL SLIP-FORM SAFETY BARRIER CURB

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 97 OF 103

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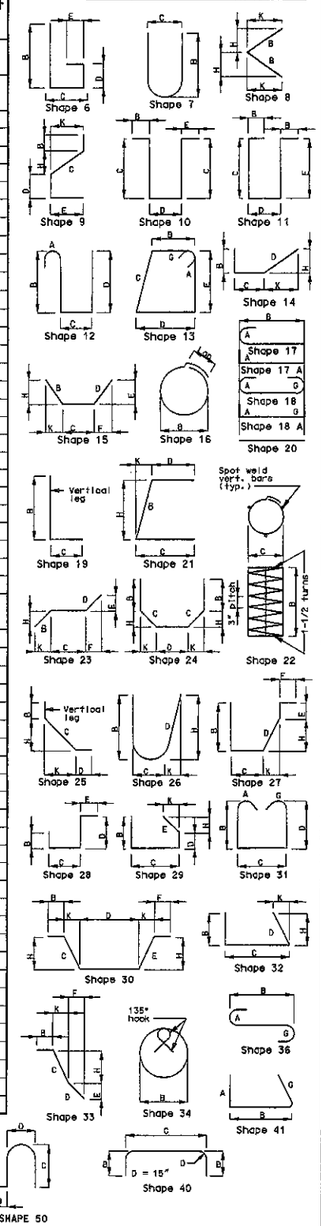
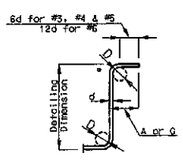
BILL OF REINFORCING STEEL

No. Req'd.	Mark No. Size	Mark No. Mark	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	Nominal Length FT.	Nominal Length IN.	Actual Length FT.	Actual Length IN.	Weight LBS.
END BENT 1																												
56	4	1D1	Soil Retention Blck		20		X			4	3													4	3	4	3	159
20	6	1F1	Fillet	E	15		X			0	14	4	6	0	14	0	9.875	0	9.875	0	9.875	0	9.875	6	10	6	9	205
10	9	1H1	Brg. Beam	E	20		X			43	2													43	2	43	2	1,468
20	5	1H2	Brg. Beam	E	20		X			22	7													22	7	22	7	471
10	9	1H3	Brg. Beam	E	18		X			43	2													45	8	45	8	1,553
4	6	1H4	Brg. Beam	E	20		X			11	6													11	6	11	6	69
12	4	1H5	Backwall	E	20		X			22	5													22	5	22	5	180
2	6	1H6	Backwall	E	20		X			43	2													43	2	43	2	130
1	4	1H7	Paving Notch	E	20		X			37	6													37	6	37	6	25
40	6	1H8	Wing	E	20		X			6	8													6	8	6	8	401
8	4	1H9	Soil Retention Blck		20		X			40	6													40	6	40	5	216
52	4	1P1	Column		16		X			3	6													10	11	10	11	379
43	5	1U1	Brg. Beam	E	13	S	X			4	0	3	5.5	4	0	3	5.5							15	10	15	6	695
12	5	1U2	Brg. Beam	E	10	S	X					3	5.5	4	0									10	11	10	9	135
21	4	1U3	Brg. Beam	E	10	S	X					0	10	4	0									5	8	5	6	77
14	6	1U4	Brg. Beam	E	10	S	X					0	22	4	0									7	8	7	5	156
39	4	1U5	Paving Notch	E	10	S	X					0	14	0	6									2	10	2	8	69
28	4	1U6	Soil Retention Blck		10	S	X					2	6	0	14									6	2	6	0	112
20	10	1V1	Column		17		X			31	8													33	1	33	1	2,847
88	5	1V2	Backwall	E	20		X			5	6													5	6	5	6	505
20	10	1V3	Column		17		X			34	8													36	1	36	1	3,105
48	6	1V4	Wing	E	20		X	V	4	6	7													6	7	6	7	
			Incr.=0.182"							6	9													6	9	6	9	481
10	W5	1W1	Brg. Beam	E	22		X			0	15	0	9.125											23	0	23	0	38
BENT 2																												
10	10	2H1	Cap		20		X			41	3													41	3	41	3	1,775
10	5	2H2	Cap		20		X			41	3													41	3	41	3	430
10	10	2H3	Cap		18		X			41	3													44	1	44	1	1,897
4	6	2H4	Cap		20		X			11	8													11	8	11	8	70
40	4	2P1	Column		16		X			3	6													10	11	10	11	291
41	6	2U1	Cap		13	S	X			4	0	3	8	4	0	3	8							16	8	16	2	996
12	6	2U2	Cap		10	S	X					3	8	4	0									11	4	11	1	200
21	4	2U3	Cap		10	S	X					0	10	4	0									5	8	5	6	77
14	6	2U4	Cap		10	S	X					0	22	4	0									7	8	7	5	156
40	8	2V2	Column		17		X			26	8													27	7	27	7	2,946
10	W5	2W1	Cap		22		X			0	15	0	9.125											23	0	23	0	38

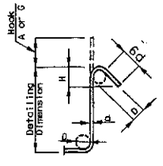
BILL OF REINFORCING STEEL

No. Req'd.	Mark No. Size	Mark No. Mark	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	Nominal Length FT.	Nominal Length IN.	Actual Length FT.	Actual Length IN.	Weight LBS.
BENT 3																												
10	10	3H1	Cap		20		X			41	3													41	3	41	3	1,775
10	5	3H2	Cap		20		X			41	3													41	3	41	3	430
10	10	3H3	Cap		18		X			41	3													44	1	44	1	1,897
4	6	3H4	Cap		20		X			11	8													11	8	11	8	70
46	4	3P1	Column		16		X			3	6													10	11	10	11	335
41	6	3U1	Cap		13	S	X			4	0	3	8	4	0	3	8							16	8	16	2	996
12	6	3U2	Cap		10	S	X					3	8	4	0									11	4	11	1	200
21	4	3U3	Cap		10	S	X					0	10	4	0									5	8	5	6	77
14	6	3U4	Cap		10	S	X					0	22	4	0									7	8	7	5	156
40	8	3V3	Column		17		X			30	2													31	1	31	1	3,320
10	W5	3W1	Cap		22		X			0	15	0	9.125											23	0	23	0	38
BENT 4																												
10	10	4H1	Cap		20		X			41	3													41	3	41	3	1,775
10	5	4H2	Cap		20		X			41	3													41	3	41	3	430
10	10	4H3	Cap		18		X			41	3													44	1	44	1	1,897
4	6	4H4	Cap		20		X			11	8													11	8	11	8	70
50	4	4P1	Column		16		X			3	6													10	11	10	11	365
41	6	4U1	Cap		13	S	X			4	0	3	8	4	0	3	8							16	8	16	2	996
12	6	4U2	Cap		10	S	X					3	8	4	0									11	4	11	1	200
21	4	4U3	Cap		10	S	X					0	10	4	0									5	8	5	6	77
14	6	4U4	Cap		10	S	X					0	22	4	0									7	8	7	5	156
40	8	4V4	Column		17		X			31	4													32	3	32	3	3,444
10	W5	4W2	Cap		22		X			0	18	0	9.125											26	1	26	1	43





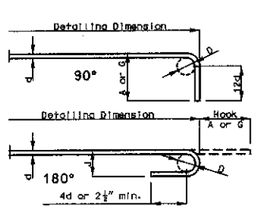
90° Stirrup



135° Stirrup

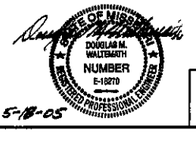
STIRRUP HOOK DIMENSIONS			
Grades 40 - 50 - 60 KSI			
Bar Size	D	90° Hook A or G	135° Hook A or G	135° Hook Approx. H
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	12"	8"	4½"

Note: Unless otherwise noted, diameter "D" is the same for all bends and hooks on a bar.



END HOOK DIMENSIONS				
		All Grades		
Bar Size	D	180° Hooks		90° Hook
		A or G	J	A or G
#3	2½"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11½"	19"
#10	10¾"	17"	13½"	22"
#11	12"	19"	14½"	2'-0"
#14	18½"	2'-3"	21½"	2'-7"

Notes:
All standard hooks and bends other than 180 degrees to be bent with the same procedure as for 90 degree standard hooks.
Hooks and bends shall be in accordance with the procedures as shown on this sheet.
E = epoxy coated reinforcement
S = stirrup
X = bar is included in substructure quantities
V = bar dimensions vary in equal increments between dimensions shown on this line and the following line
No. Ea. = number of bars of each length
Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricators use (nearest inch).
Actual lengths are measured along centerline bar to the nearest inch.
Payweights are based on actual lengths.
Reinforcing steel (Grade 60) FY = 60 ksi



5-18-05

STATE	PROJ. NO.	SHEET NO.
MO.	-	

DETAILED BK
CHECKED JCT

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION 12TH STREET TO 17TH STREET

BRIDGE BILL OF REINFORCING

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 99 OF 103

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BILL OF REINFORCING STEEL

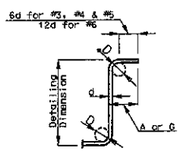
No. Req'd.	Mark No. Size	Mark No. Mark	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	Nominal Length FT.	Nominal Length IN.	Actual Length FT.	Actual Length IN.	Weight LBS.
SLAB																												
631	5	S1	Bottom Transverse	E	20					3	3													3	3	3	3	2,139
1375	5	S2	Bottom Transverse	E	20					12	8													12	8	12	8	18,166
357	5	S3	Bottom Longitudinal	E	20					39	8													39	8	39	8	14,770
1515	6	S4	Top Transverse	E	20					43	2													43	2	43	2	98,227
612	5	S5	Top Longitudinal	E	20					39	8													39	8	39	8	25,320
68	6	S6	Top Longitudinal	E	20					42	6													42	6	42	6	4,341
136	6	S7	Top Longitudinal	E	20					47	6													47	6	47	6	9,703
272	6	S8	Top Longitudinal	E	20					52	0													52	0	52	0	21,244
68	6	S9	Top Longitudinal	E	20					36	0													36	0	36	0	3,677
433	5	S10	Slab/Sidewalk Trans	E	10	S						0	18	0	13									4	1	3	10	1,731
SIDEWALK																												
433	5	S11	Transverse	E	20					6	6													6	6	6	6	2,936
96	5	S12	Longitudinal	E	20					9	8													9	8	9	8	968
12	5	S13	Longitudinal	E	20					23	10													23	10	23	10	298
12	5	S14	Longitudinal	E	20					25	4													25	4	25	4	317
60	5	S15	Longitudinal	E	20					30	10													30	10	30	10	1,930
12	5	S16	Longitudinal	E	20					22	4													22	4	22	4	280
6	5	S17	Longitudinal	E	20					33	7													33	7	33	7	210

BILL OF REINFORCING STEEL

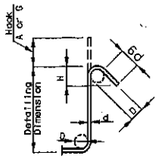
No. Req'd.	Mark No. Size	Mark No. Mark	Location	Epoxy (E)	Shape No.	Stirrup (S)	Substr. (X)	Varies (V)	No. Each	Dimensions B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	Nominal Length FT.	Nominal Length IN.	Actual Length FT.	Actual Length IN.	Weight LBS.
SAFETY BARRIER CURB																												
200	5	C1	Slip Form Only	E	20					10	0													10	0	10	0	2,086
1266	5	R1	Vertical	E	19	S				2	6	0	3.5											2	10	2	8	3,521
1266	5	R2	Vertical	E	15	S				2	6.125	0	3.5							2	6	0	3.125	2	10	2	9	3,631
1266	5	R3	Vertical	E	19	S				0	17	0	6											0	23	0	21	2,311
1266	5	R4	Vertical	E	27	S						0	6	0	11.25	0	7	0	12	0	9.25	0	6.5	3	0	2	9	3,631
224	5	R5	Horizontal	E	20					9	10													9	10	9	10	2,297
28	5	R6	Horizontal	E	20					24	5													24	5	24	5	713
28	5	R7	Horizontal	E	20					25	11													25	11	25	11	757
140	5	R8	Horizontal	E	20					31	5													31	5	31	5	4,587
28	5	R9	Horizontal	E	20					22	11													22	11	22	11	669
14	5	R10	Horizontal	E	20					33	9													33	9	33	9	493
12	5	U1	Light Blister	E	28	S				2	5.5	0	14	2	5.5	0	6							6	7	6	3	78
8	5	U2	Light Blister	E	28	S				2	5.5	0	7.25	2	5.5	0	6							6	1	5	9	48
24	6	U3	Light Blister	E	20					3	0													3	0	3	0	108
24	5	U4	Light Blister	E	30	S				0	18	0	20.5	0	22.5	0	20.5	0	18	0	14.5	0	14.5	8	4	8	3	207
24	5	U5	Light Blister	E	13	S				0	22.5	0	14.5	0	22.5	0	14.5							7	1	6	9	169

STATE	PROJ. NO.	SHEET NO.
MD.	-	

Shape 6 · Shape 7 · Shape 8 · Shape 9 · Shape 10 · Shape 11 · Shape 12 · Shape 13 · Shape 14 · Shape 15 · Shape 16 · Shape 17 · Shape 17 A · Shape 18 · Shape 18 A · Shape 20 · Shape 19 · Shape 21 · Shape 22 · Shape 23 · Shape 24 · Shape 25 · Shape 26 · Shape 27 · Shape 28 · Shape 29 · Shape 31 · Shape 30 · Shape 32 · Shape 33 · Shape 34 · Shape 36 · Shape 41 · Shape 40 · SHAPE 50



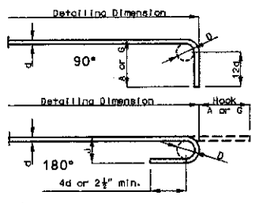
90° Stirrup



135° Stirrup

STIRRUP HOOK DIMENSIONS				
Grades 40 - 50 - 60 KSI				
Bar Size	D	90° Hook A or G	135° Hook A or G	135° Hook Approx. H
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3½"
#6	4½"	12"	8"	4½"

Note: Unless otherwise noted, diameter "D" is the same for all bends and hooks on a bar.



END HOOK DIMENSIONS				
		All Grades		
Bar Size	D	180° Hooks A or G	180° Hooks J	90° Hook A or G
#3	2½"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11¾"	19"
#10	10½"	17"	13¼"	22"
#11	12"	19"	14¾"	2'-0"
#14	18¼"	2'-3"	21¾"	2'-7"

Notes:
All standard hooks and bends other than 180 degrees to be bent with the same procedure as for 90 degree standard hooks.
Hooks and bends shall be in accordance with the procedures as shown on this sheet.
E = epoxy coated reinforcement
S = stirrup
X = bar is included in substructure quantities
V = bar dimensions vary in equal increments between dimensions shown on this line and the following line
No. Ea. = number of bars of each length
Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricators use (nearest inch).
Actual lengths are measured along centerline bar to the nearest inch.
Payweights are based on actual lengths.
Reinforcing steel (Grade 60) FY = 60 ksi

DETAILED BK
CHECKED JCT

DOUGLAS M. WOLFENDEN NUMBER 6-18270 PROFESSIONAL ENGINEER
5-18-05

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BEARDSLEY ROAD AND BRIDGE RECONSTRUCTION
12TH STREET TO 17TH STREET

BRIDGE BILL OF REINFORCING

S030B42

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 102 OF 103

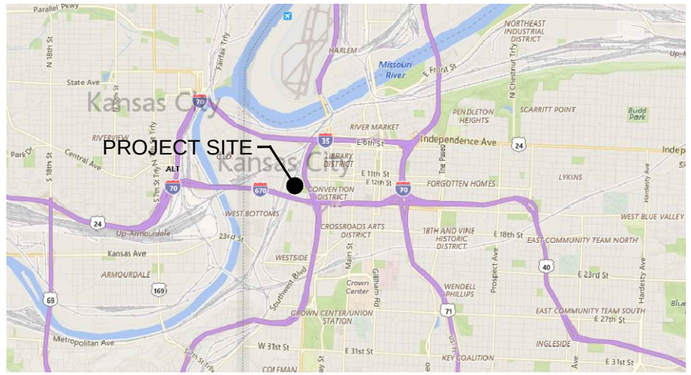
8:05:48 AM 4/20/2005 s:\beardsley road\bridge\bill-of-reinf4.dgn

CITY OF KANSAS CITY, MISSOURI

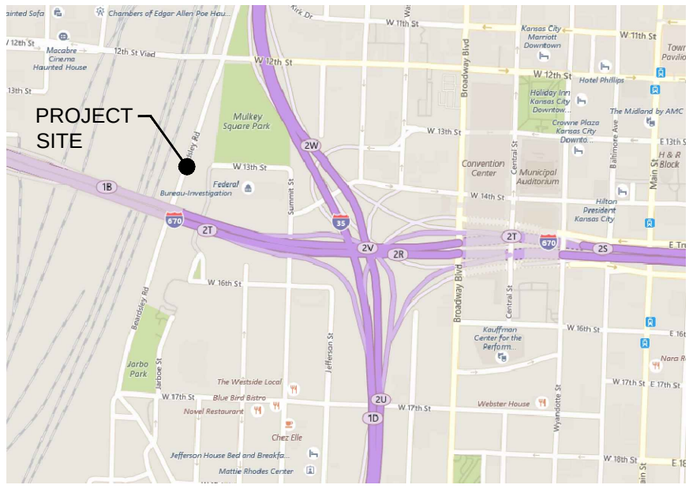
BEARDSLEY ROAD SLOPE REPAIRS

PROJECT NO. 89008538

Emergency Utility		
UTILITY COMPANY / AGENCY	**Contact in Case of Emergency:**	**Email Address**
AT&T	816-275-2721	cp0772@att.com
CenturyLink (Level 3/Quest)	913-645-5032	Jerry.Woodall@level3.com
CenturyLink	800-283-4237	brian.cornish@centurylink.com
Charter (Time Warner Cable)	866-967-7611	steven.baxter@charter.com
Comcast	866-641-1625	derek_haber@cable.comcast.com
Consolidated	800-283-4237	OSP_kc@consolidated.com
Consolidated	913-322-9953	tim.laforce@consolidated.com
Google Fiber NOC	866-954-1571 877-454-6959	kc-google-uc@google.com
KC Fiber / Link City	816-564-9994	bbrown@kcfiber.com
KCMO Parks & Recreation	311	David.Panek@kcmo.org
KCMO PW - KCMO Fiber System	311	Chris.lockey@kcmo.org
KCMO PW Street Resurfacing	816-513-9871	Corey.goodloe@kcmo.org
KCMO PW Traffic Engineering	816-513-9871	wei.sun@kcmo.org
KCMO PW Street Lighting	816-513-9871	Mahmoud.hadjian@kcmo.org
KCMO PW Neighborhoods	816-513-9871	kerry.kanatzar@kcmo.org
KCMO Water Services, Overflow Control Program	311 or 513-0209 after hours	sstuempfig@burnsmcd.com
KCMO Water Services, Sanitary Sewers	311 or 513-0209 after hours	Karine.papikian@kcmo.org
KCMO Water Services, Storm Water	311 or 513-0209 after hours	Robert.davis@kcmo.org
KCMO Water Services, Water	311 or 513-0209 after hours	Kirk.Rome@kcmo.org; Daniel.Sullivan@kcmo.org
KCP&L	816-701-7800	andrew.alexander@kcpl.com
Magellan Midstream	800-720-2417	Tonya.Cape@magellanlp.com
North K.C. School Distr.	816-413-5075	eric.sipes@nkcschools.org
Southern Star Central	913-422-6321	gary.tolle@sscgp.com
Spire Energy (MGE)	314-776-9517	jose.arellano@spireenergy.com
Sprint	913-488-8489	jason.cantrell@sprint.com
Unite Private Network	866-963-4237	sean.brown@upnfiber.com
Veolia Energy (Trigen)	816-889-4977	richard.behrens2@veolia.com
Verizon Communications Inc.	800-624-9675	lester.rutherford@verizon.com
Zayo	816-591-0282	dwight.davis@zayo.com

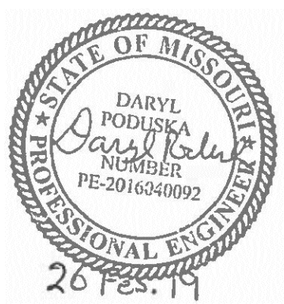


VICINITY MAP



LOCATION MAP

INDEX OF SHEETS:



AECOM
2380 McGee Street, Suite 200
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIRS	Project Number 89008538	Date FEB. 2019
COVER SHEET	Checked by ALP	Drawing No. 1

February 26, 2019 2:53.23 pm (mik)
J:\Beardsley Road Rock Bolting\CAD\Plan Sheets\Cover Sheet.dwg

N

0 100 200

SCALE IN FEET

SCALE: 1"=200'

STATE OF MISSOURI
DARYL PODUSKA
NUMBER PE-2016040092
PROFESSIONAL ENGINEER
26 Feb. 19

SOURCE: USGS 7.5' QUADRANGLE, KANSAS CITY MO-KS, 1996.

AECOM
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Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI
BEARDSLEY ROAD SLOPE REPAIRS

U.S.G.S. MAP PLAN VIEW

Project Number	Date
89008538	FEB. 2019
Checked by	Drawing No.
ALP	2

February 26, 2019 3:26.21 pm (mik)
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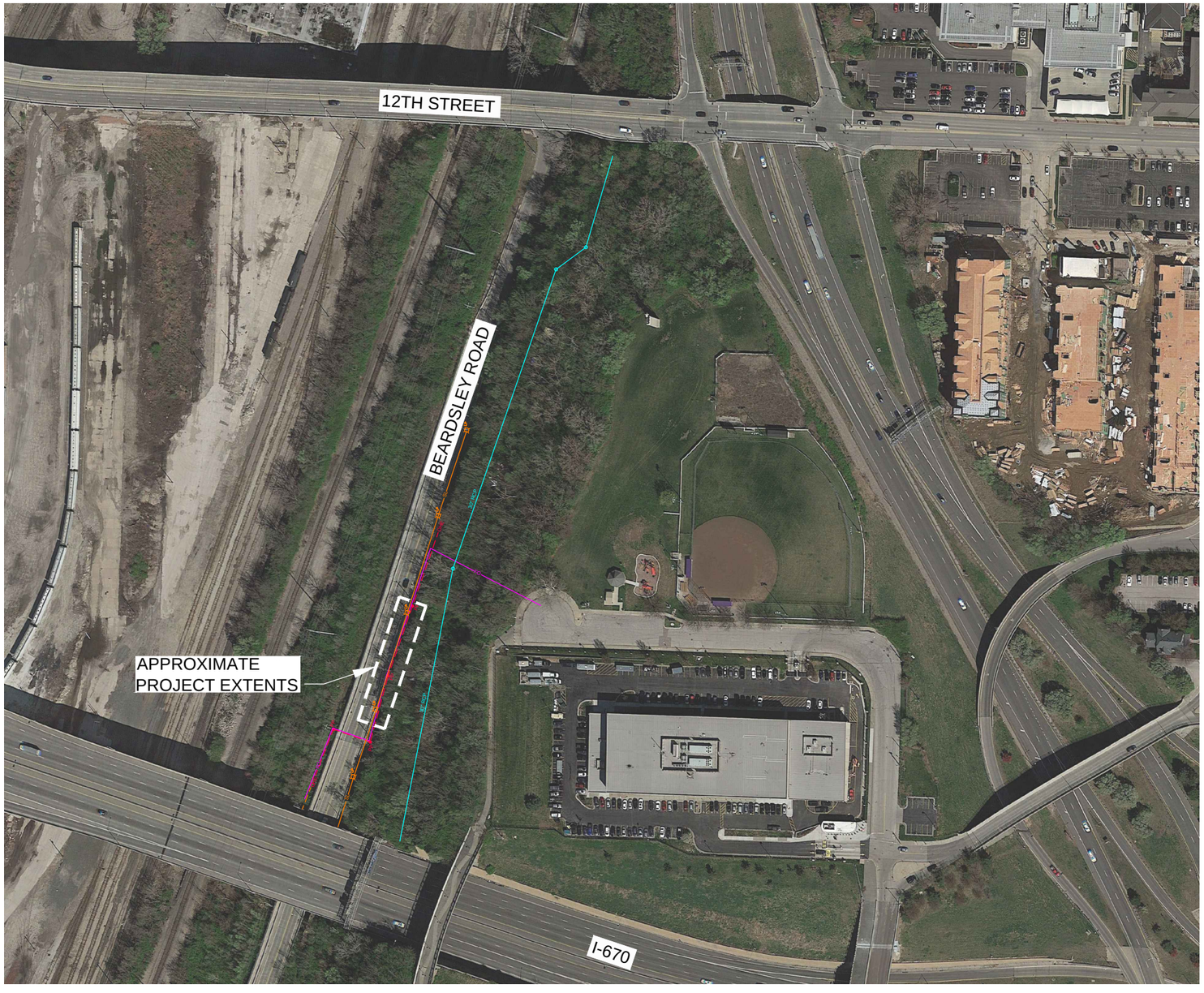

SOURCE: GOOGLE EARTH PRO IMAGE DATED MARCH 2016.

NOTES:

1. ALL UTILITY LOCATIONS SHOWN HERE ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION AND ARE NOT GUARANTEED AS TO ACCURACY. CONTRACTOR SHALL CONTACT UTILITIES TO VERIFY EXACT LOCATIONS. OTHER UTILITIES BESIDES THOSE SHOWN HERE MAY BE PRESENT; CONTRACTOR SHALL CONTACT MISSOURI ONE-CALL A MINIMUM OF 72 HOURS PRIOR TO BEGINNING WORK.

2. KCP&L DISTRIBUTION LINE POWER POLES WILL NEED TO BE BRACED DURING CONSTRUCTION.

LEGEND:

- OHE — ELECTRIC (OVERHEAD)
- PP — POWER POLE
- SL — STREET LIGHT CONDUIT
- LP — LIGHT POLE
- 30" RCP — STORM SEWER
- FO — FIBER OPTIC (OVERHEAD)

STATE OF MISSOURI
DARYL PODUSKA
NUMBER PE-2016040092
PROFESSIONAL ENGINEER
26 Feb. 19

N

0 100 200
SCALE IN FEET
SCALE: 1"=200'

February 26, 2019 3:27.38 pm (mik)
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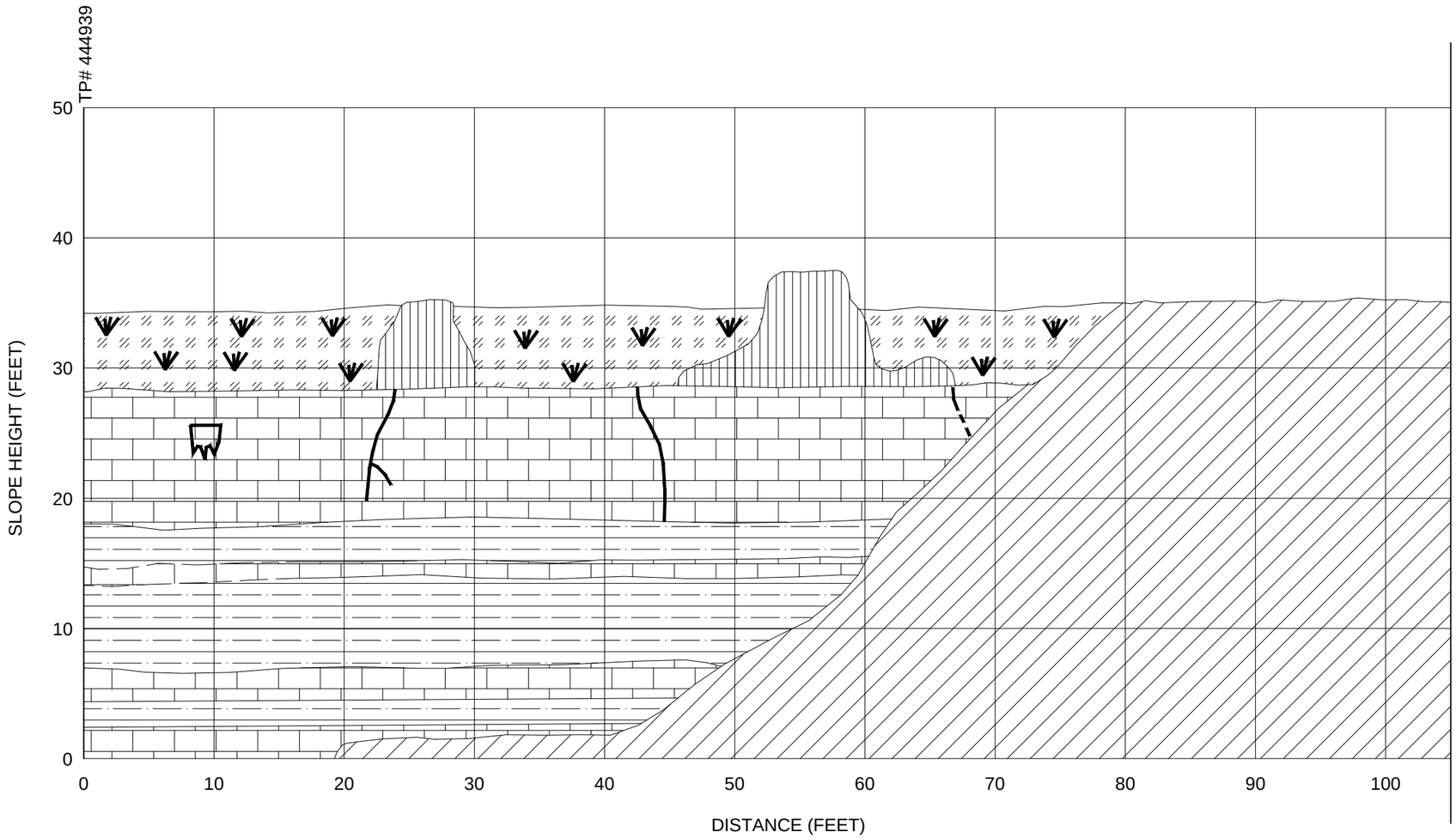
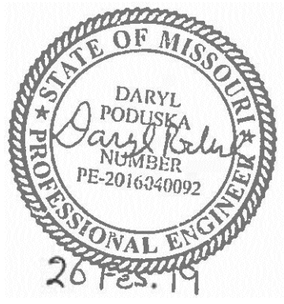
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIRS	Project Number 89008538	Date FEB. 2019
AERIAL IMAGE PLAN VIEW AND UTILITY LOCATIONS	Checked by ALP	Drawing No. 3





KEY:

- LIMESTONE
- SHALE
- SOIL WITH VEGETATION
- FALLEN ROCK COVERAGE
- RETAINING WALL
- CONTACT
- INFERRED CONTACT
- ICE
- JOINTS
- TELEPHONE POLE

NOTES:

- VERTICAL HEIGHTS ARE APPROXIMATE
- HORIZONTAL DISTANCES ARE APPROXIMATE
- ALL ROCK LAYERS ARE DEPICTED BY WHAT WAS VISIBLE AT TIME OF MAPPING
- OUTCROP MAPPED IN DECEMBER 2016

N

0 5 10
SCALE IN FEET
SCALE: 1"=10'

AECOM
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Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI
BEARDSLEY ROAD SLOPE REPAIR

GEOLOGIC MAP BEFORE LANDSLIDE CLEANUP
TP# 444939 (0 FEET TO 105 FEET)

Project Number	Date
89008538	FEB. 2019
Checked by	Drawing No.
ALP	4

February 26, 2019 3:17.51 pm (mik)
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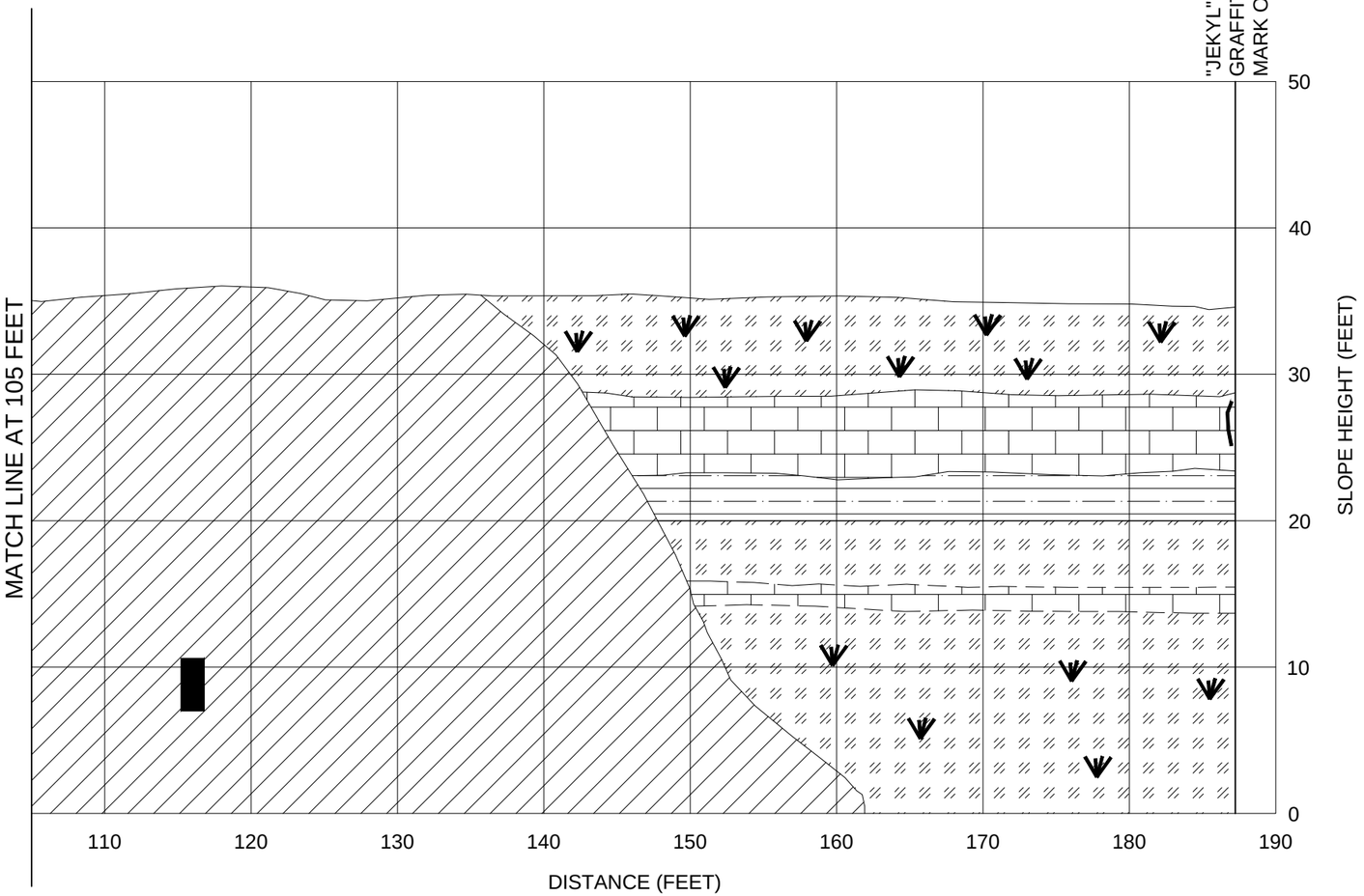

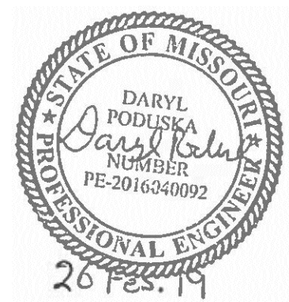

KEY:

- LIMESTONE
- SHALE
- SOIL WITH VEGETATION
- FALLEN ROCK COVERAGE
- RETAINING WALL
- CONTACT
- INFERRED CONTACT
- ICE
- JOINTS
- TELEPHONE POLE

NOTES:

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- HORIZONTAL DISTANCES ARE APPROXIMATE
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- OUTCROP MAPPED IN DECEMBER 2016

N

0 5 10
SCALE IN FEET
SCALE: 1"=10'

AECOM
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Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI
BEARDSLEY ROAD SLOPE REPAIRS

GEOLOGIC MAP BEFORE LANDSLIDE CLEANUP
TP# 444939 (105 FEET TO 190 FEET)

Project Number	Date
89008538	FEB. 2019
Checked by	Drawing No.
ALP	5

February 26, 2019 3:18.53 pm (mik)
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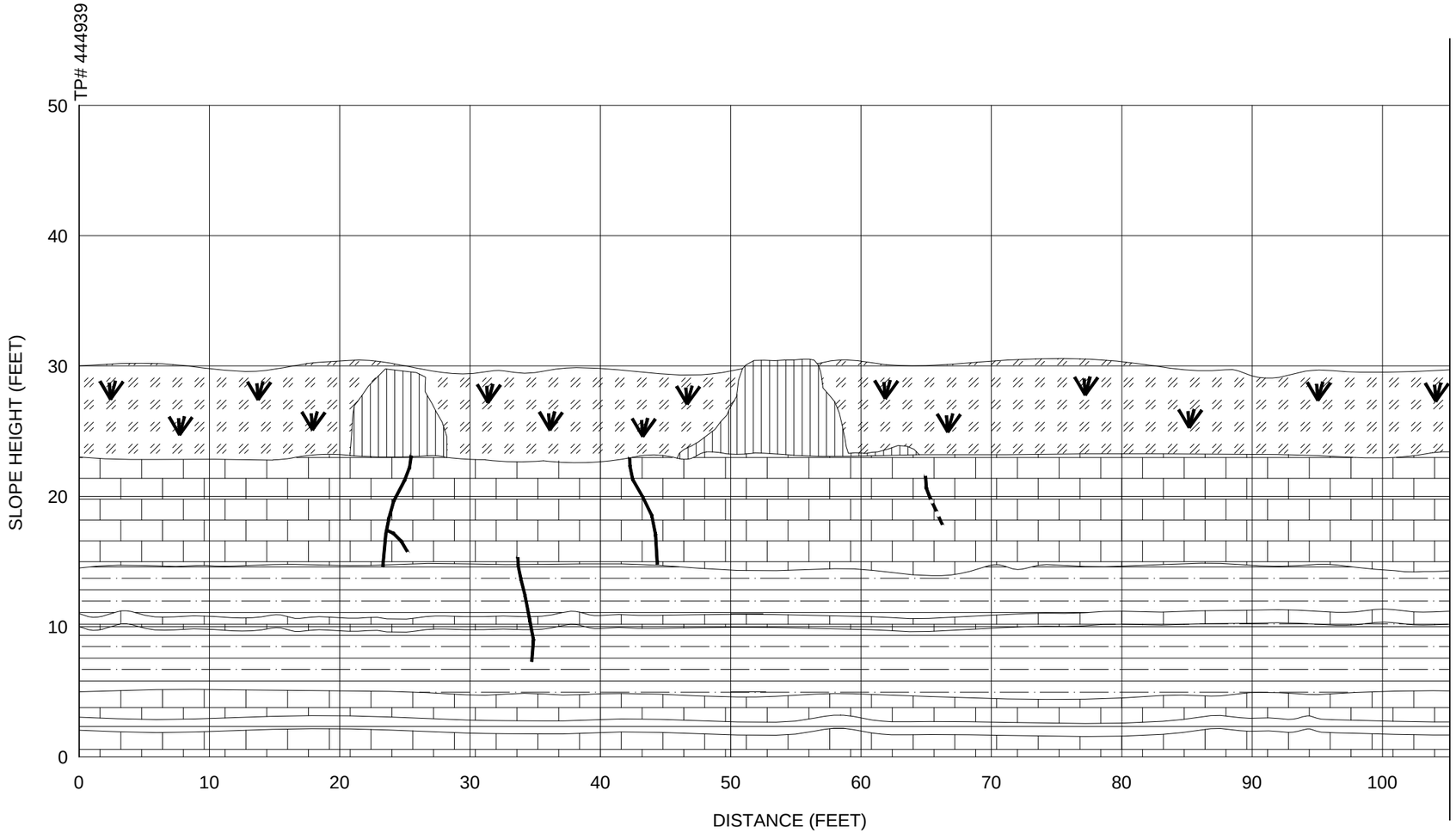

KEY:

- LIMESTONE
- SHALE
- SOIL WITH VEGETATION
- RETAINING WALL
- CONTACT
- INFERRED CONTACT
- JOINTS

NOTES:

- VERTICAL HEIGHTS ARE APPROXIMATE
- HORIZONTAL DISTANCES ARE APPROXIMATE
- ALL ROCK LAYERS ARE DEPICTED BY WHAT WAS VISIBLE AT TIME OF MAPPING
- OUTCROP MAPPED IN JULY 2017

N

0 5 10
SCALE IN FEET
SCALE: 1"=10'

STATE OF MISSOURI
DARYL PODUSKA
NUMBER PE-2016040092
PROFESSIONAL ENGINEER
26 Feb. 19

AECOM
2380 McGee Street, Suite 200
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIR	Project Number 89008538	Date FEB. 2019
GEOLOGIC MAP AFTER LANDSLIDE CLEANUP TP# 444939 (0 FEET TO 105 FEET)	Checked by ALP	Drawing No. 6

February 26, 2019 3:19.35 pm (mik)
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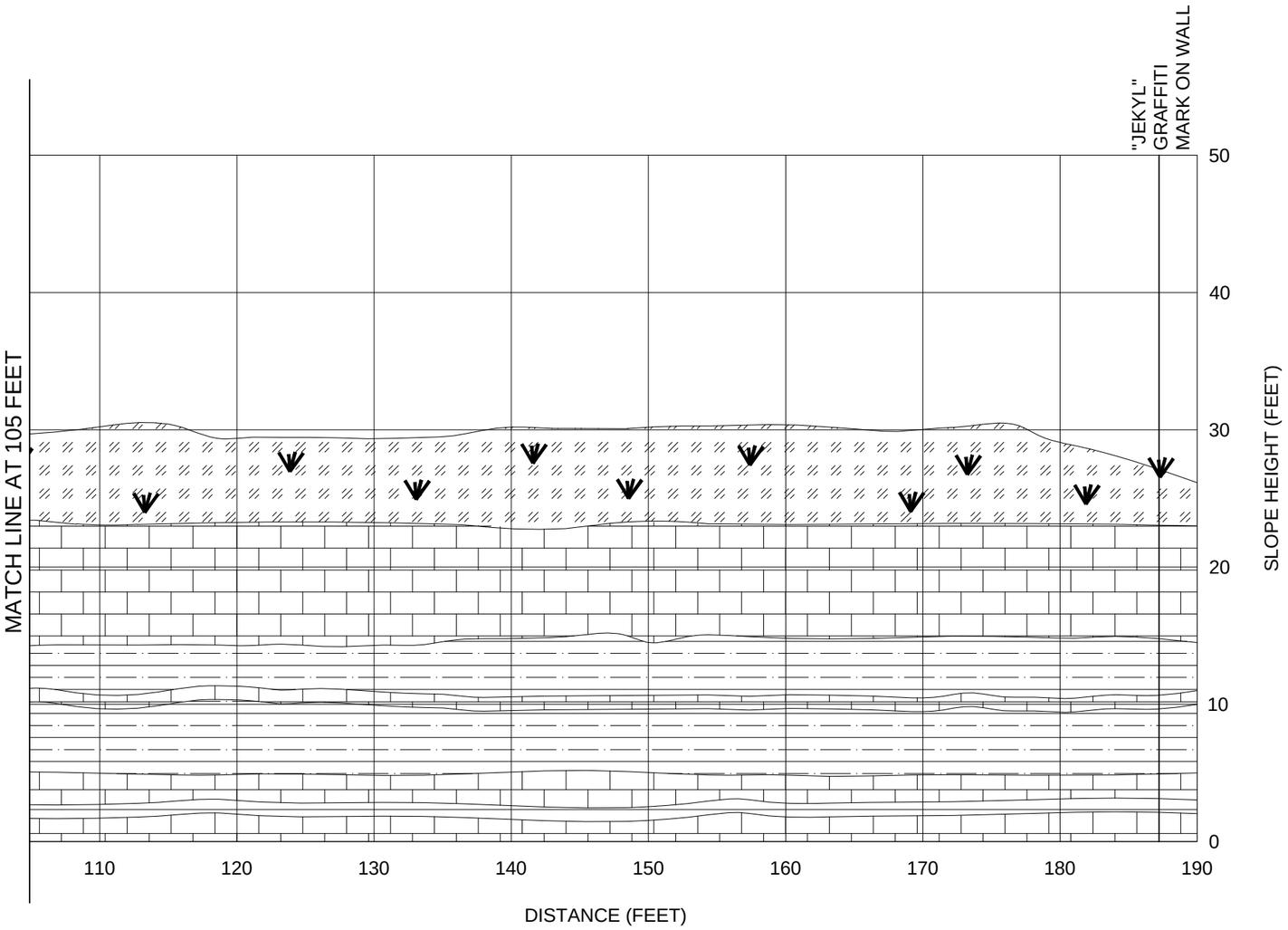

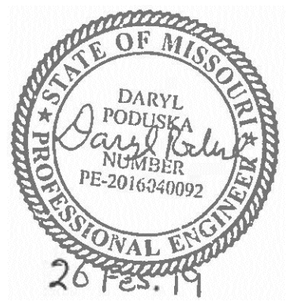

KEY:

- LIMESTONE
- SHALE
- SOIL WITH VEGETATION
- RETAINING WALL
- CONTACT
- INFERRED CONTACT
- JOINTS

NOTES:

- VERTICAL HEIGHTS ARE APPROXIMATE
- HORIZONTAL DISTANCES ARE APPROXIMATE
- ALL ROCK LAYERS ARE DEPICTED BY WHAT WAS VISIBLE AT TIME OF MAPPING
- OUTCROP MAPPED IN JULY 2017

N

0 5 10
SCALE IN FEET
SCALE: 1"=10'

AECOM
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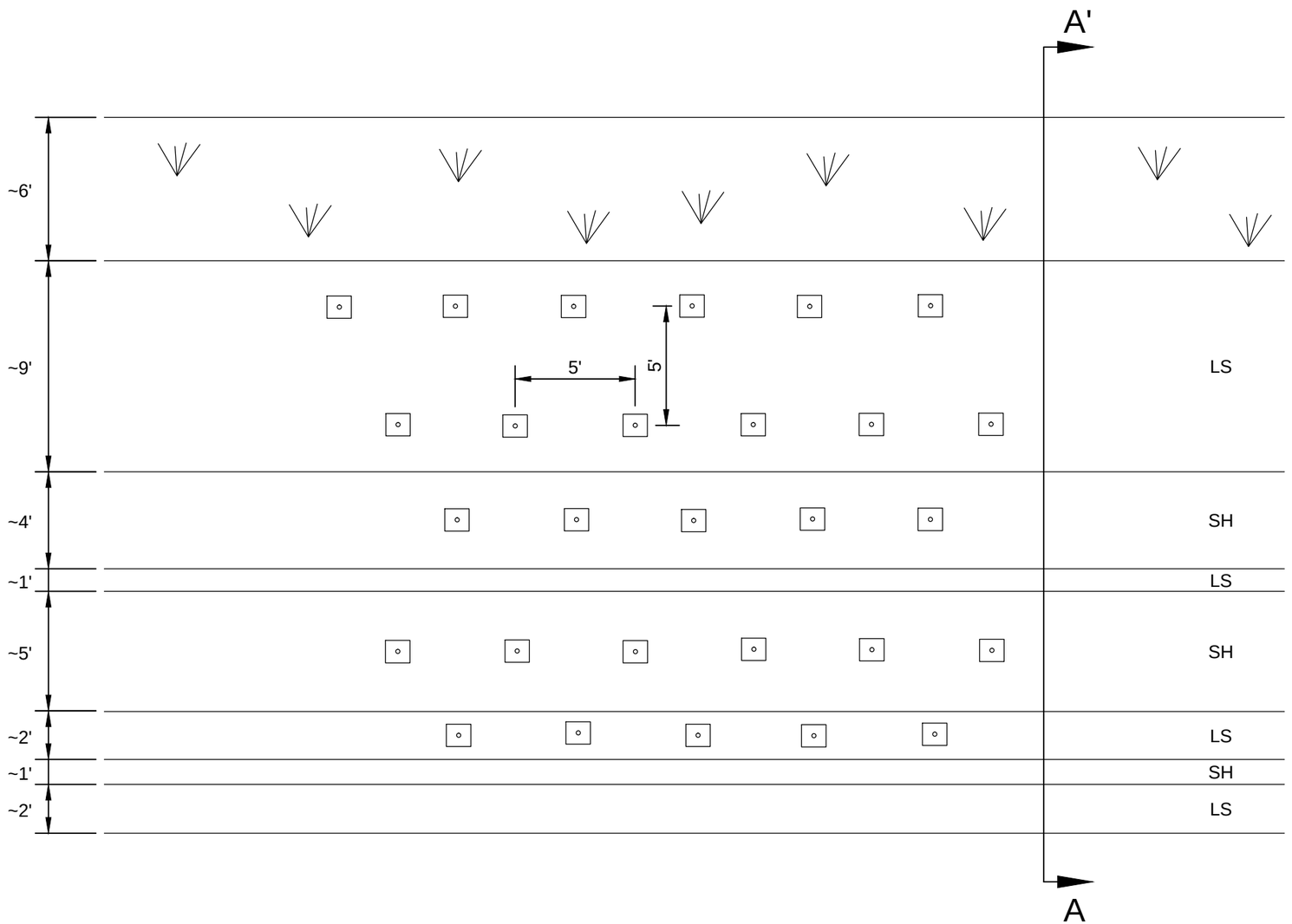
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI	Project Number	Date
BEARDSLEY ROAD SLOPE REPAIRS	89008538	FEB. 2019
GEOLOGIC MAP AFTER LANDSLIDE CLEANUP TP# 444939 (105 FEET TO 190 FEET)	Checked by ALP	Drawing No. 7



REPAIR PROFILE (APPROXIMATELY 25 FT OF 190 FT-WIDE LANDSLIDE IS SHOWN)

QUANTITIES (ESTIMATED):

~190 ROCK DOWELS

LEGEND:

ROCK DOWEL

NOTE:

1. ROCK DOWEL SPACING OF 5-FEET VERTICAL AND HORIZONTAL IS APPROXIMATE. ADJUSTMENTS TO THE SPACING MAY BE NEEDED DURING CONSTRUCTION TO ACCOUNT FOR SLOPE CONDITIONS, WITH PRIOR ENGINEER'S APPROVAL.

STATE OF MISSOURI
DARYL PODUSKA
NUMBER PE-2016040092
PROFESSIONAL ENGINEER
26 Feb. 19

NOT TO SCALE

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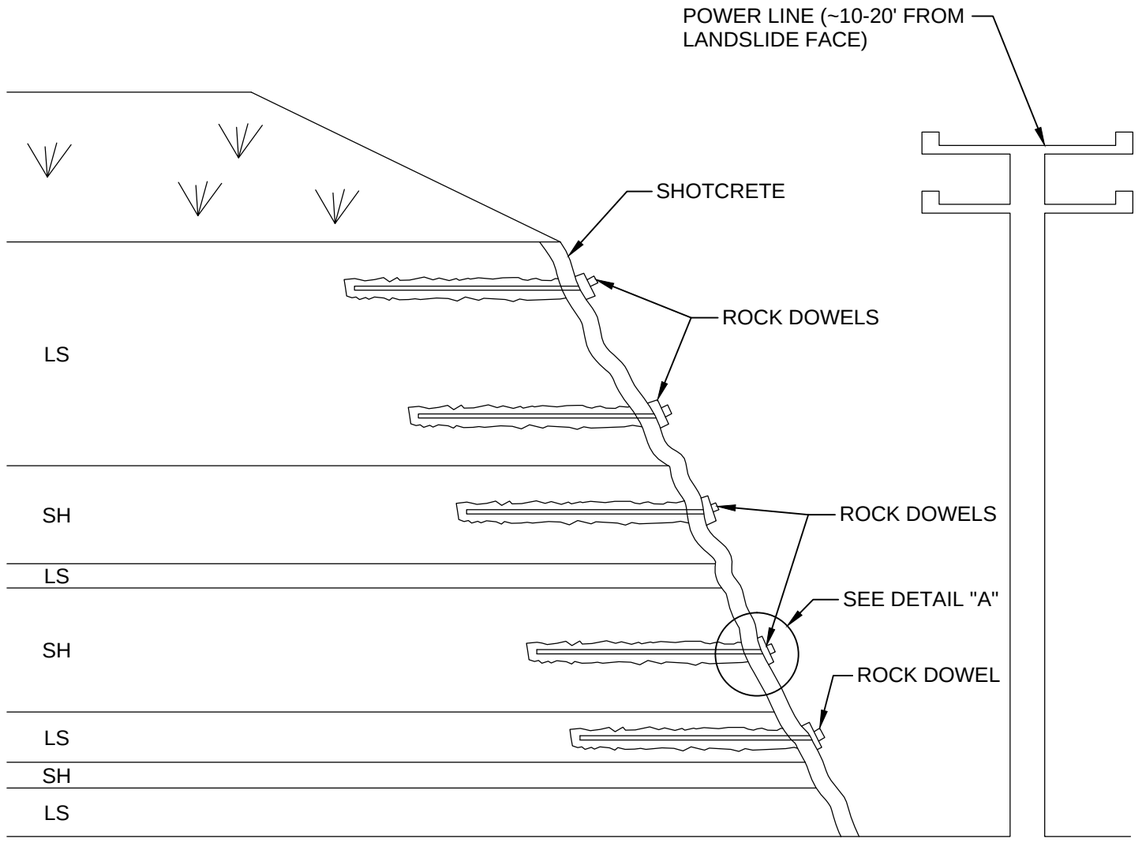
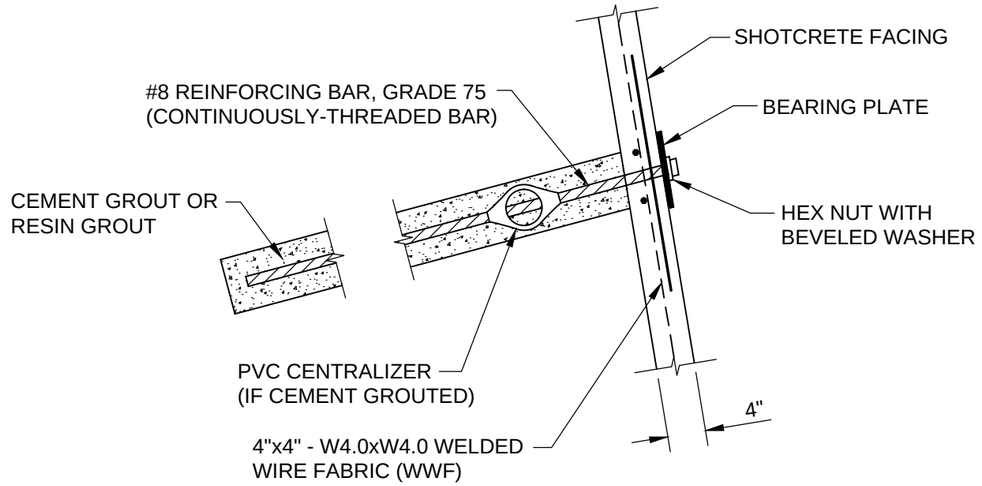
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIRS	Project Number 89008538	Date FEB. 2019
ALTERNATE 4 - SLOPE REPAIR DESIGN - ELEVATION VIEW	Checked by ALP	Drawing No. 8



NOTE: ROCK DOWEL LENGTHS ARE 10 FEET.

CROSS SECTION A-A'

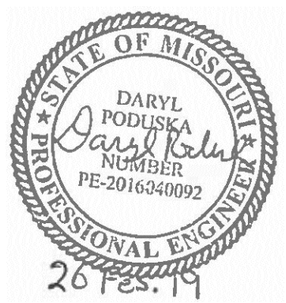


DETAIL "A"

NOTES:

1. DIAMETER OF ROCK DOWEL HOLE SHOULD BE IN ACCORDANCE WITH MATERIAL SUPPLIER REQUIREMENTS WHEN USING RESIN GROUT OR MINIMUM OF 4-INCHES WHEN CEMENT GROUTED.

2. ROCK DOWELS SHALL BE INSTALLED AT AN ANGLE OF 10° OR LESS BELOW HORIZONTAL.



NOT TO SCALE

AECOM 2380 McGee Street, Suite 200 Kansas City, Missouri 64108 Project No, 60522646	CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIRS	Project Number 89008538	Date FEB. 2019
	ALTERNATE 4 - SLOPE REPAIR DESIGN - CROSS SECTION A-A'	Checked by ALP	Drawing No. 9

February 26, 2019 3:22.15 pm (mik)
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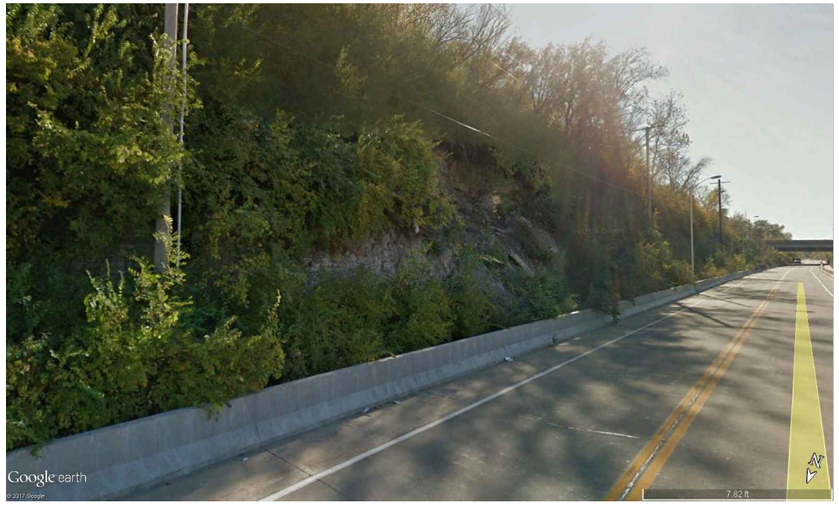
VIEW LOOKING NORTH (NOVEMBER 2016)

VIEW LOOKING EAST (JULY 2016)



VIEW LOOKING SOUTH (NOVEMBER 2016)

STATE OF MISSOURI
DARYL PODUSKA
NUMBER PE-2016040092
PROFESSIONAL ENGINEER
26 Feb. 19

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2380 McGee Street, Suite 200
Kansas City, Missouri 64108
Project No, 60522646

CITY OF KANSAS CITY, MISSOURI
BEARDSLEY ROAD SLOPE REPAIRS

SITE PHOTOGRAPHS BEFORE LANDSLIDE CLEANUP

Project Number	Date
89008538	FEB. 2019
Checked by: ALP	Drawing No.: 10

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

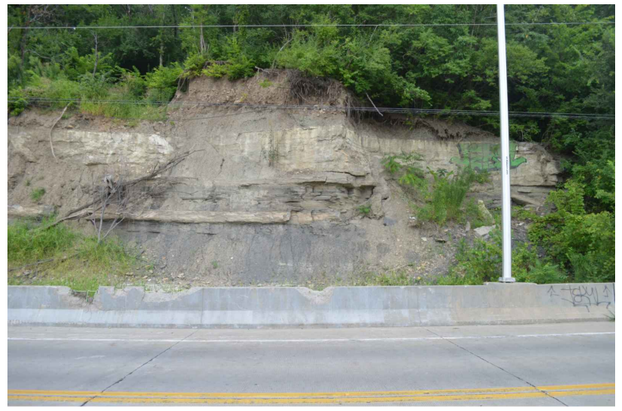
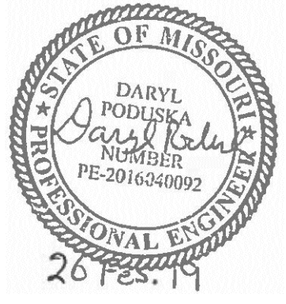


PHOTO 6

PHOTO 7



NOTE: PHOTOS 1-7 ARE ARRANGED FROM NORTH TO SOUTH LOOKING EAST.

AECOM 2380 McGee Street, Suite 200 Kansas City, Missouri 64108 Project No, 60522646	CITY OF KANSAS CITY, MISSOURI BEARDSLEY ROAD SLOPE REPAIRS	Project Number 89008538	Date FEB. 2019
	SITE PHOTOGRAPHS AFTER LANDSLIDE CLEANUP	Checked by ALP	Drawing No. 11

February 26, 2019 3:32.31 pm (mik)
J:\Beardsley Road Rock Bolting\CAD\Plan Sheets\Revised Site Photos.dwg