

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	1
		ILLINOIS	CONTRACT NO. 97755	

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- 000001-08 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
- 420406 PAVEMENT CONNECTOR (HMA) FOR BRIDGE APPROACH SLAB
- 515001-04 NAME PLATE FOR BRIDGES
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- 630301-09 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
- 631032-09 TRAFFIC BARRIER TERMINAL, TYPE 6A
- 701201-05 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
- 701311-03 LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
- 701321-18 LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
- 701901-08 TRAFFIC CONTROL DEVICES
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- 720001-01 SIGN PANEL MOUNTING DETAILS
- 720006-04 SIGN PANEL ERECTION DETAILS
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- 782006-01 GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS

PROPOSED  
HIGHWAY PLANS

FAS ROUTE 1937  
SECTION 18-00084-04-BR (STPBR FUNDS)  
PROJECT ZPHZ(416)  
BRIDGE REPLACEMENT OF  
TROY-O'FALLON ROAD  
OVER MILL CREEK  
MADISON COUNTY



LOCATION OF SECTION INDICATED THUS: -

FUNCTIONAL CLASSIFICATION

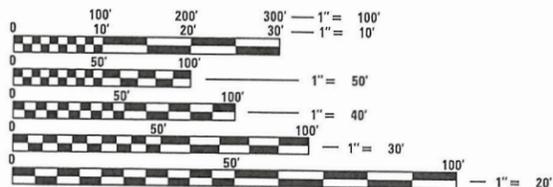
PRINCIPAL ARTERIAL

DESIGNPOSTED SPEED

POSTED SPEED: 55 MPH  
DESIGN SPEED: 60 MPH

TRAFFIC DATA

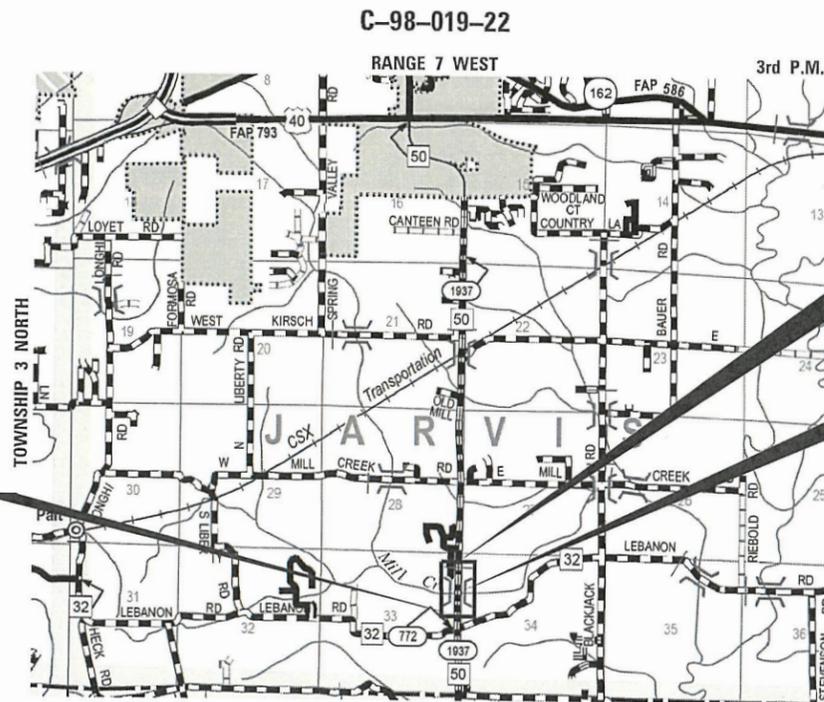
2020 ADT = 8,850  
DESIGN YEAR ADT (2040) = 8,590



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

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

IMPROVEMENTS END  
STA 199 + 54.70  
SECTION ENDS  
STA 196 + 66.71



GROSS LENGTH = 633.300 FT. = 0.120 MILE  
NET LENGTH = 165.040 FT. = 0.031 MILE

IMPROVEMENTS BEGIN  
STA 193 + 21.40  
SECTION BEGINS  
STA 195 + 01.67

BRIDGE REPLACEMENT  
EXIST SN 060-3022  
PROP SN 060-3373

EXISTING STRUCTURE 060-3022 IS A THREE-SPAN VOIDED DECK BEAM STRUCTURE. THE BACK-TO-BACK ABUTMENTS MEASURES 108'-2" AND THE OUT-TO-OUT MEASURES 41'-0". THE EXISTING STRUCTURE IS TO BE REMOVED AND REPLACED WITH A NEW STRUCTURE. PROPOSED STRUCTURE 060-3373 IS A SINGLE SPAN STEEL BEAM SUPERSTRUCTURE ON INTERGAL ABUTMENTS. THE BACK-TO-BACK ABUTMENTS MEASURES 83'-6 1/2" AND THE OUT-TO-OUT MEASURES 40'-0".



MARCH 19th 2021  
LANCE D. CHRISMAN  
ILLINOIS REG. PROFESSIONAL ENGINEER NO. 062-056127  
EXPIRATION DATE 11-30-2021  
SHEETS 1-17



MARCH 19th 2021  
JIA WANG  
ILLINOIS REG. PROFESSIONAL ENGINEER NO. 081-006586  
EXPIRATION DATE 11-30-2022  
SHEETS 18-39

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	3-23-2021 <i>Coleman</i> MADISON COUNTY ENGINEER
PASSED	March 25, 2021 <i>Jim A. Schuman</i> DISTRICT 8 ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	March 25, 2021 <i>Keith Rotondo</i> REGION 5 ENGINEER

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**GENERAL NOTES**

- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE TO BE GIVEN TO ALL UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY.
- THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE PROJECT LIMITS OF ADJUSTMENT, RELOCATION OR REMOVAL. ALL ARE MEMBERS OF J.U.L.I.E. UNLESS NOTED OTHERWISE.

AT&T- TELEPHONE  
PHONE: 618-346-6426

VILLAGE OF CASEYVILLE - WATER  
PHONE: 618-344-1234

- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.
  - THE REMOVAL OF THE BRIDGE APPROACH PAVEMENT IS INCLUDED IN THE COST OF PAVEMENT REMOVAL.
  - THE PROPOSED PAVEMENT MARKING SHALL MATCH THE LOCATIONS OF THE EXISTING PAVEMENT MARKING, AS DIRECTED BY THE ENGINEER.
  - THE EXISTING AND PROPOSED RIGHT-OF-WAY LINES AND PROPERTY LINES SHOWN ON THE PLAN SHEETS ARE GRAPHICAL REPRESENTATIONS AND SHALL NOT BE USED AS MEANS TO ESTABLISH OWNERSHIP. IN ALL MATTERS RELATING TO RIGHT-OF-WAY, THE PLOT OF HIGHWAYS SHALL BE THE CONTROLLING DOCUMENT.
  - FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES.
- |   |                    |
|---|--------------------|
| HOT-MIX ASPHALT (SURFACE & BINDER)      | 112 LBS/SQ YD/INCH |
| SEEDING FERTILIZER RATIO (NIT:PHOS:POT) | 90:90:90 LBS/ACRE  |
| BITUMINOUS MATERIAL (TACK COAT)         | 0.050 LBS/SQ FT    |
- THE CONTRACTOR SHALL CONFINE ALL OPERATIONS TO THE CONSTRUCTION LIMITS LINE SHOWN ON THE PLANS. ANY AREA DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
  - THE CONTRACTOR SHALL FERTILIZE, SEED AND MULCH ALL EARTH SURFACES DISTURBED BY CONSTRUCTION. FERTILIZER, SEEDING AND MULCH WITHIN THE CONSTRUCTION LIMITS WILL BE PAID FOR AS PROVIDED IN THE CONTRACT. FERTILIZER, SEEDING AND MULCH OUTSIDE THESE LIMITS WILL NOT BE MEASURED FOR PAYMENT.
  - ANY EXCAVATION REQUIRED FOR THE CONSTRUCTION OF AGGREGATE SHOULDERS, TYPE A SHALL NOT BE MEASURED SEPARATELY FOR PAYMENT BUT SHALL BE INCLUDED IN THE COST OF "AGGREGATE SHOULDERS, TYPE A, 6".
  - THE BRIDGE BAT ASSESSMENT EXPIRES 3/18/2023. A VALID ASSESSMENT IS REQUIRED PRIOR TO PERFORMING ANY WORK BELOW EXISTING BRIDGE DECK SURFACE.

**COMMITMENTS**

TREES THREE (3) INCHES OR GREATER IN DIAMETER AT BREAST HEIGHT SHALL NOT BE REMOVED FROM APRIL 1 THROUGH SEPTEMBER 30.

**MAINTENANCE OF TRAFFIC GENERAL NOTES**

- TRAFFIC CONTROL PLANS AS PRESENTED HERE CONSTITUTE A SUGGESTED SEQUENCE OF OPERATIONS AND ARE INTENDED TO SERVE AS A GUIDE FOR SAFE DIVERSION OF TRAFFIC DURING EXECUTION OF THIS CONTRACT. THE CONTRACTOR MAY RECOMMEND A NEW PLAN OR PROPOSE CHANGES TO ASPECTS OF THE PLAN BUT NOT AT THE EXPENSE OF PUBLIC SAFETY OR CONVENIENCE. ANY PROPOSED MODIFICATION OF THE PLANS SHALL BE SUBMITTED IN ADVANCE FOR THE WRITTEN APPROVAL OF THE ENGINEER.
- ALL TRAFFIC CONTROL SIGNS AND DEVICES SHALL CONFORM TO THE TRAFFIC CONTROL PLANS AND THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND SHALL BE IN PLACE BEFORE CONSTRUCTION BEGINS.
- ALL SIGN SUPPORTS AND CHANNELIZING DEVICES SHALL BE CERTIFIED BY THE CONTRACTOR OR MANUFACTURER AS MEETING THE APPLICABLE NCHRP REPORT 350, TEST LEVEL 3.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER AT LEAST 72 HOURS IN ADVANCE OF BEGINNING WORK TO ALLOW FOR COORDINATION BETWEEN THE TRAFFIC CONTROL PLAN AND THE VARIOUS ITEMS OF WORK REQUIRED.
- THE EXACT NUMBER, LOCATION AND SPACING OF ALL TRAFFIC CONTROL SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. LOCATION OF SIGNS AND BARRICADES SHOWN ON THE PLANS IS APPROXIMATE. BARRICADES SHALL BE INSTALLED AS REQUIRED TO ACHIEVE A PROPER CLOSURE OR AS OTHERWISE DIRECTED ON THE PLANS OR BY THE ENGINEER. SIGNS SHALL BE INSTALLED RELATIVE TO CLOSURES OR HAZARDS AS DIRECTED ON THE PLANS, HIGHWAY STANDARDS, AND BY THE ENGINEER.
- WHEN SPECIFIC IDOT TRAFFIC CONTROL STANDARDS ARE CITED, ALL APPURTENANCES INCLUDED ON THAT STANDARD, SUCH AS ARROW BOARDS, BARRICADES, VERTICAL PANELS, ETC. SHALL BE INSTALLED IN THE LOCATIONS AND TO THE SPECIFICATIONS DESCRIBED.
- PAINT PAVEMENT MARKINGS MAY BE USED FOR TEMPORARY PAVEMENT MARKING ONLY ON SURFACES TO BE REMOVED DURING THE COURSE OF CONSTRUCTION. TEMPORARY PAVEMENT MARKINGS TO BE PLACED ON FINAL ROADWAY SURFACES SHALL BE PAVEMENT MARKING TAPE, TYPE III.
- THE CONTRACTOR SHALL REMOVE ALL TEMPORARY PAVEMENT MARKING WHICH CONFLICTS WITH THE NEXT STAGE OR FINAL STRIPING. REMOVAL OF TEMPORARY PAVEMENT MARKING SHALL BE PAID FOR AS TEMPORARY PAVEMENT MARKING REMOVAL.
- PLACE CHANNELIZING DEVICES AND/OR TEMPORARY TRAFFIC BARRIER AT THE SAME LEVEL AS THE TRAVELING LANE OR SHOULDER PROFILE.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL A MINIMUM OF SIXTEEN (16) WEIGHTED SAND BAGS ON EACH TYPE III BARRICADE USED. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CONTRACT ITEMS OF WORK.
- ALL TRAFFIC CONTROL DEVICES (BARRELS, BARRICADES, PANELS, SIGNS, ETC.) SHALL BE IN NEW OR LIKE NEW CONDITION. WHEN DEVICES BECOME WORN, DIRTY, FADED, OR OTHERWISE DEEMED BY THE ENGINEER AS NO LONGER IN LIKE NEW CONDITION, THE DEVICES SHALL BE CLEANED, REFURBISHED, OR REPLACED. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CONTRACT ITEMS OF WORK.
- WHEN RELOCATE TEMPORARY CONCRETE BARRIER IS SPECIFIED, THE WALL SHALL BE REMOVED, STORAGE AND TRANSPORTATION TO AND FROM STORAGE, WHEN THE WALL IS NOT NEEDED FOR A TIME AS SHOWN ON THE STAGING PLANS, RELOCATED AND REINSTATED AT THE NEW LOCATION. THE REINSTALLATION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR A NEW INSTALLATION. THIS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR RELOCATE TEMPORARY CONCRETE BARRIER.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO FIELD ENTRANCES AND RESIDENTIAL ENTRANCES AT ALL TIMES. SHOULD THE CONTRACTOR NEED TO TEMPORARILY CLOSE ONE OF THE ENTRANCES, THEY SHALL NOTIFY THE ENGINEER NO LATER THAN 48 HOURS IN ADVANCE OF THE CLOSURE.
- ANY ADDITIONAL MAINTENANCE OF TRAFFIC SIGNS SPECIFIED IN THE PLANS WILL NOT MEASURED SEPARATELY FOR PAYMENT, BUT SHALL BE INCLUDED IN THE COST OF THE ASSOCIATED TRAFFIC CONTROL PAY ITEM.

**STAGING NOTES**

- STAGE 1**
- FOR STAGE 1, INSTALL TEMPORARY CONCRETE BARRIER (TCB) AND SHEET PILE AS NECESSARY. ONE WAY TRAFFIC CONTROLLED BY TEMPORARY BRIDGE SIGNALS PER IDOT STANDARD 701321 AND THESE PLANS. REMOVE WEST HALF OF BRIDGE AND CONSTRUCT PROPOSED WEST HALF OF THE BRIDGE AND PAVEMENT CONNECTOR. UPON COMPLETION OF THE WEST HALF OF THE BRIDGE, PAVEMENT CONNECTOR AND HMA SURFACE, THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED AGGREGATE SHOULDER AND INSTALL THE PROPOSED GUARDRAIL FOR THE WEST HALF.

- STAGE 2**
- ONCE STAGE 1 IS COMPLETE, FOR STAGE 2, RELOCATE TEMPORARY CONCRETE BARRIER AND SHIFT TRAFFIC TO WEST TROY O'FALLON ROAD (SOUTHBOUND) LANE. ONE WAY TRAFFIC AGAIN CONTROLLED BY TEMPORARY TRAFFIC SIGNALS PER IDOT STANDARD 701321 AND THESE PLANS. REMOVE EAST HALF OF THE BRIDGE AND CONSTRUCT EAST HALF OF THE BRIDGE AND PAVEMENT CONNECTOR. UPON COMPLETION OF THE EAST HALF OF THE BRIDGE, PAVEMENT CONNECTOR AND HMA SURFACE, THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED AGGREGATE SHOULDER AND INSTALL THE PROPOSED GUARDRAIL FOR THE EAST HALF.
  - ONCE STAGE 2 IS COMPLETE, REMOVE TCB AND TEMPORARY SIGNALS AT EACH LOCATION AND INSTALL TEMP PAVEMENT MARKING IN EXISTING TWO LANE CONFIGURATION.

- STAGE 3**
- PERMANENT STRIPING TO BE PLACED UNDER IDOT STANDARD 701311 AND THESE PLANS.
  - CLEANUP AND MISCELLANEOUS WORK TO COMPLETE PROJECT. TRAFFIC CONTROLLED BY IDOT STANDARDS AND THESE PLANS AS NECESSARY.

**HOT-MIX ASPHALT MIXTURE REQUIREMENTS**

LOCATION(S):	ROADWAY	ROADWAY
MIXTURE USE(S):	SURFACE	BINDER
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4.0% @ N70	4.0% @ N70
MIXTURE COMPOSITION	IL 9.5	IL 19.0
FRICTION AGGREGATE:	D	
MIXTURE WEIGHT:	QC/QA	QC/QA

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47 South Third Street Suite 270 Genese, Illinois 60134 630.333.8107 phone www.kaskaskiaeng.com	USER NAME = ndp	DESIGNED -	REVISED -
PROFESSIONAL ENGINEER Illinois Professional Design Firm Professional Engineering Group	PLOT SCALE = 2,0000 ' / in.	DRAWN - KKH	REVISED -
34326413 31-388536	PLOT DATE = 3/23/2021	CHECKED - LDC	REVISED -
		DATE - 3/19/2021	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK  
GENERAL NOTES**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	2
CONTRACT NO. 97755			ILLINOIS FED. AID PROJECT	

# SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
20400800	FURNISHED EXCAVATION	CU YD	100
25000305	SEEDING, CLASS 3A	ACRE	0.2
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	11
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	11
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	11
25100630	EROSION CONTROL BLANKET	SQ YD	562
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	12
28000400	PERIMETER EROSION BARRIER	FOOT	465
28100109	STONE RIPRAP, CLASS A5	SQ YD	284
28200200	FILTER FABRIC	SQ YD	284
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	331
40604062	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N70	TON	61
42000070	PAVEMENT CONNECTOR (HMA) FOR BRIDGE APPROACH SLAB	SQ YD	105
44000100	PAVEMENT REMOVAL	SQ YD	253

▲ SPECIALTY ITEM  
 \*\* SPECIAL PROVISION

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	SCALE: SHEET 1 OF 5 SHEETS STA. TO STA.										

# SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
48100500	AGGREGATE SHOULDERS, TYPE A 6"	SQ YD	224
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	184
50300225	CONCRETE STRUCTURES	CU YD	75.0
50300255	CONCRETE SUPERSTRUCTURE	CU YD	122.0
50300300	PROTECTIVE COAT	SQ YD	30
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	111.2
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1
50500505	STUD SHEAR CONNECTORS	EACH	1,422
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	77,640
50800515	BAR SPLICERS	EACH	589
Δ 50901050	STEEL RAILING, TYPE SM	FOOT	164
51201600	FURNISHING STEEL PILES HP12X53	FOOT	375
51202305	DRIVING PILES	FOOT	375

Δ SPECIALTY ITEM  
 \*\* SPECIAL PROVISION

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 Engineering Group, LLC  
 617 South Third Street  
 Suite 100  
 Geneva, Illinois 60134  
 630.261.1000  
 www.kaskaskiaeng.com

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	DATE - 3/19/2021	REVISIONS -

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DRAWN - KKH	REVISIONS -
CHECKED - LDC	DATE - 3/19/2021
DATE - 3/19/2021	REVISIONS -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK**  
**SUMMARY OF QUANTITIES**

SCALE: SHEET 2 OF 5 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	4
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

# SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
51203600	TEST PILE STEEL HP12X53	EACH	2
51204650	PILE SHOES	EACH	10
51500100	NAME PLATES	EACH	1
52100520	ANCHOR BOLTS, 1"	EACH	24
52200010	TEMPORARY SHEET PILING	SQ FT	306
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	363
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	150
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	84
Δ 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	87.5
Δ 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	373
** 67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	10
67100100	MOBILIZATION	L SUM	1

Δ SPECIALTY ITEM  
 \*\* SPECIAL PROVISION

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PLOT DATE = 3/23/2021		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK  
SUMMARY OF QUANTITIES**

SCALE: SHEET 3 OF 5 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	5
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

# SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1
** 70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70106700	TEMPORARY RUMBLE STRIPS	EACH	6
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	2,548
70300280	TEMPORARY PAVEMENT MARKING - LINE 24"	FOOT	34
70400100	TEMPORARY CONCRETE BARRIER	FOOT	300
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	300
70600251	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	4
Δ 72400500	RELOCATE SIGN PANEL ASSEMBLY - TYPE A	EACH	1
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
Δ 73000100	WOOD SIGN SUPPORT	FOOT	15
** Δ 78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	1,844
Δ 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	10

Δ SPECIALTY ITEM  
 \*\* SPECIAL PROVISION

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 CHECKED - LDC  
 DATE - 3/19/2021

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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK  
 SUMMARY OF QUANTITIES**

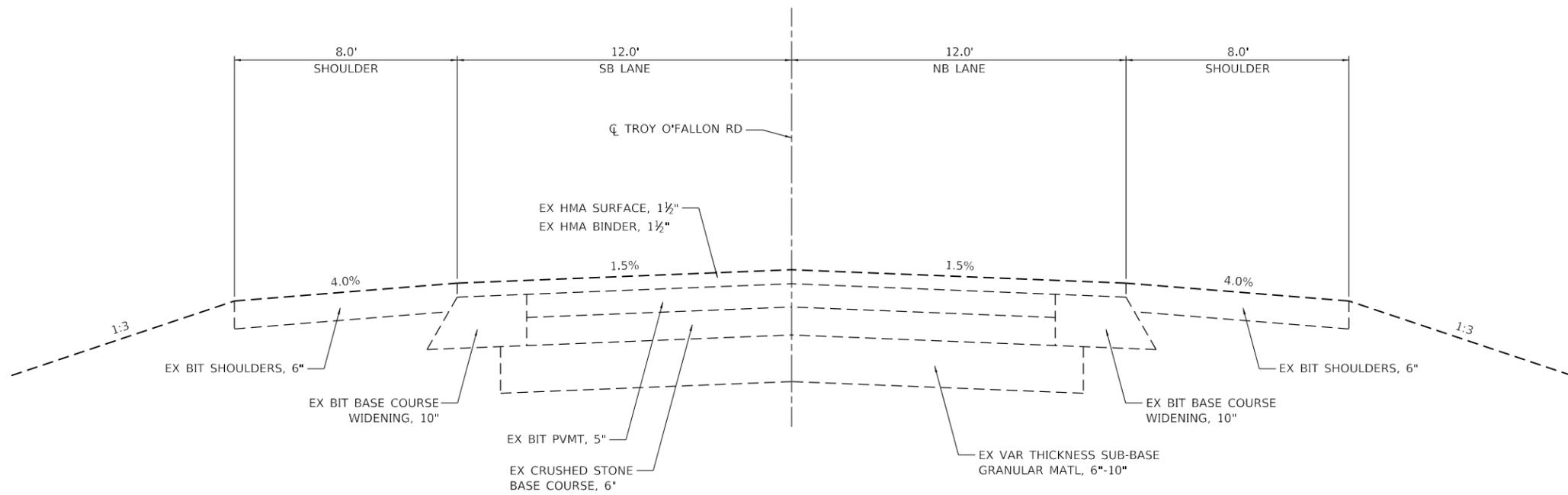
SCALE: SHEET 4 OF 5 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	6
			CONTRACT NO. 97755	
ILLINOIS FED. AID PROJECT				









**EXISTING TYPICAL SECTION**

STA 195+01.67 TO 196+66.71

BRIDGE OMISSION  
STA 195+43.42 TO 196+24.96

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3436713  
31-388536

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PLOT DATE = 3/23/2021	CHECKED - LDC	REVISED -
	DATE - 3/19/2021	REVISED -

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DATE - 3/19/2021	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

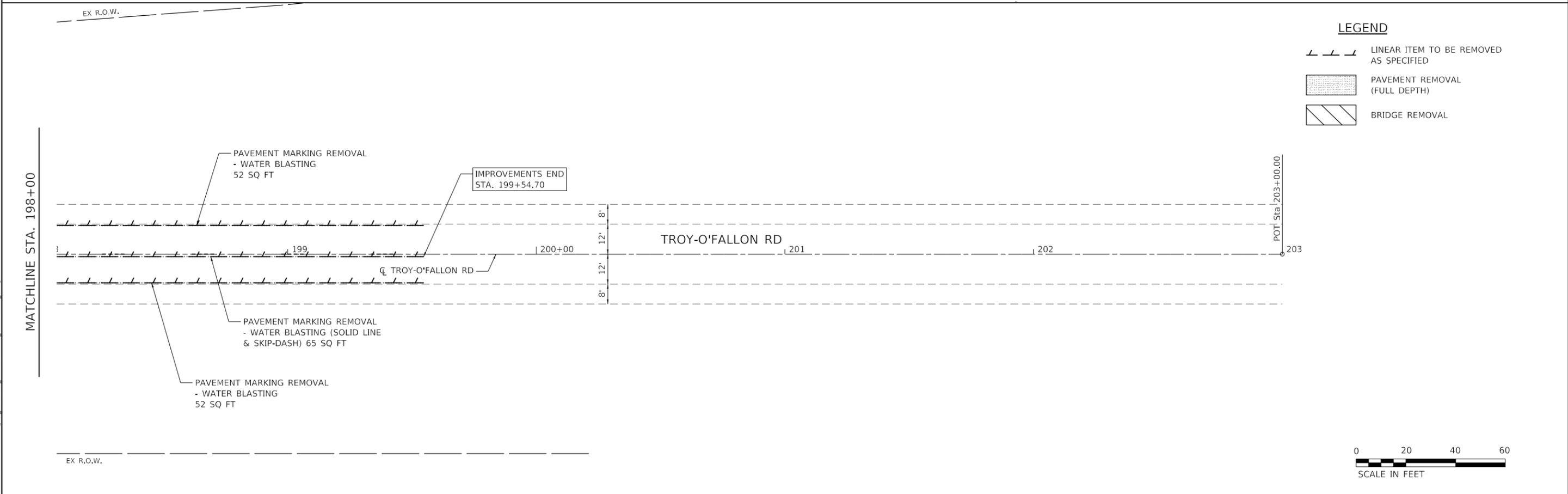
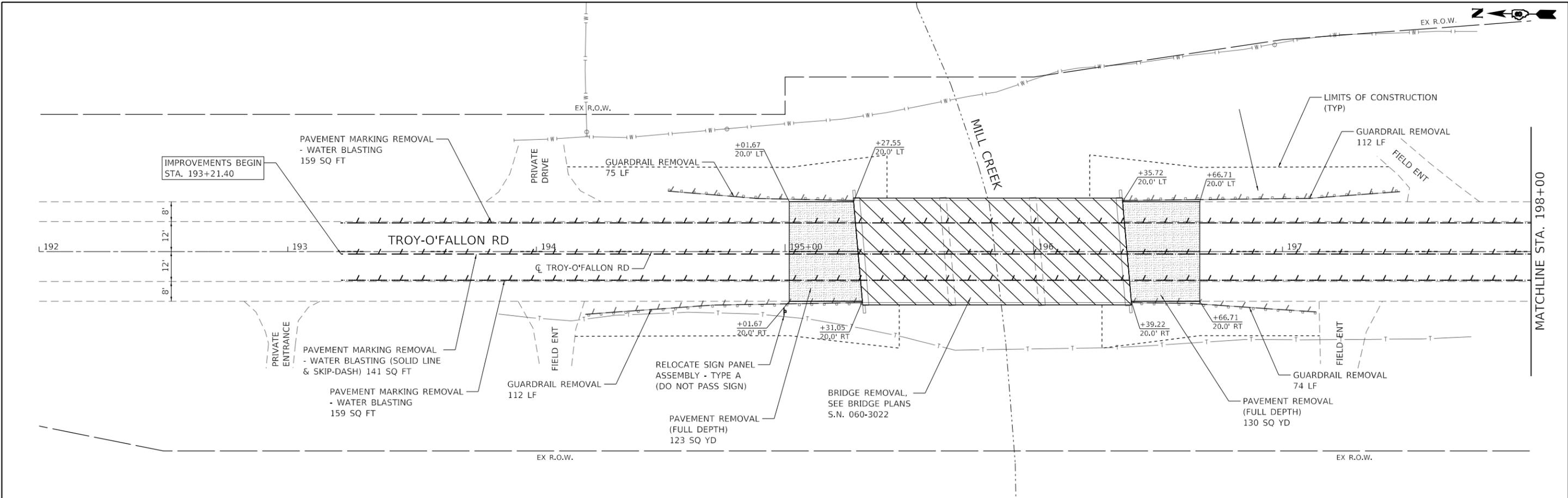
**TROY-O'FALLON ROAD OVER MILL CREEK  
TYPICAL SECTIONS**

SCALE: SHEET 1 OF 2 SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	10
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				







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**Kaskaskia**  
Engineering Group, LLC  
477 South Third Street  
Suite 270  
Geneseo, Illinois 60134  
630.333.8187 phone  
www.kaskaskiaeng.com  
Professional Engineering Group

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PLOT SCALE = 40.0000 ' / in.	DRAWN - NDP	REVISD -
PLOT DATE = 3/23/2021	CHECKED - LDC	REVISD -
	DATE - 3/19/2021	REVISD -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

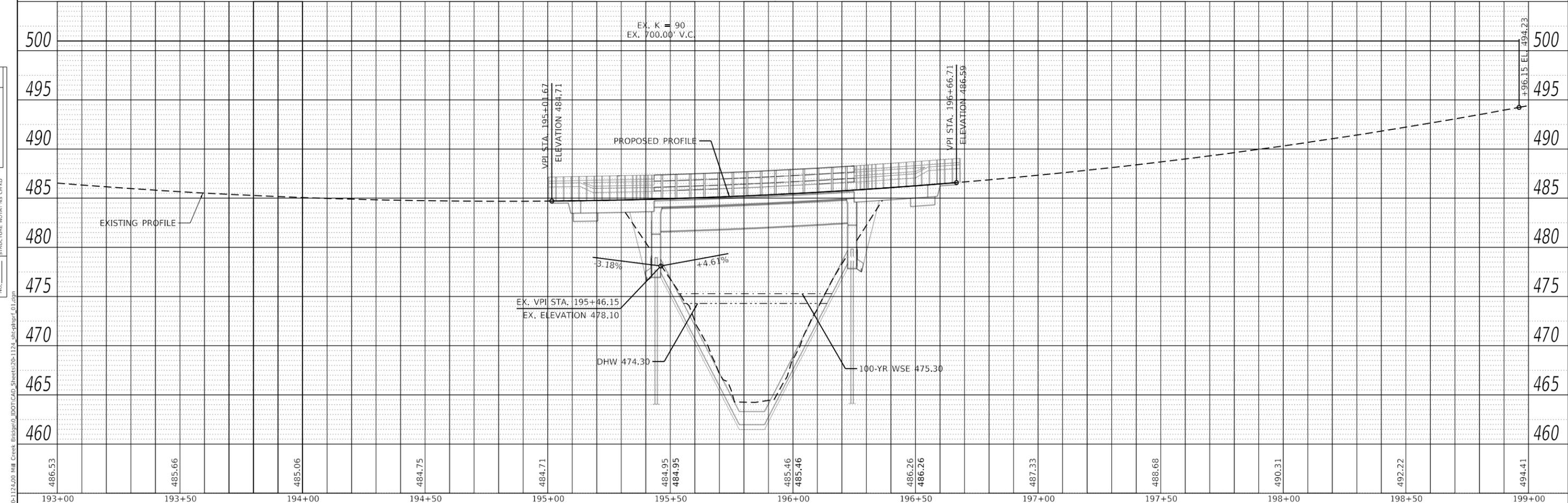
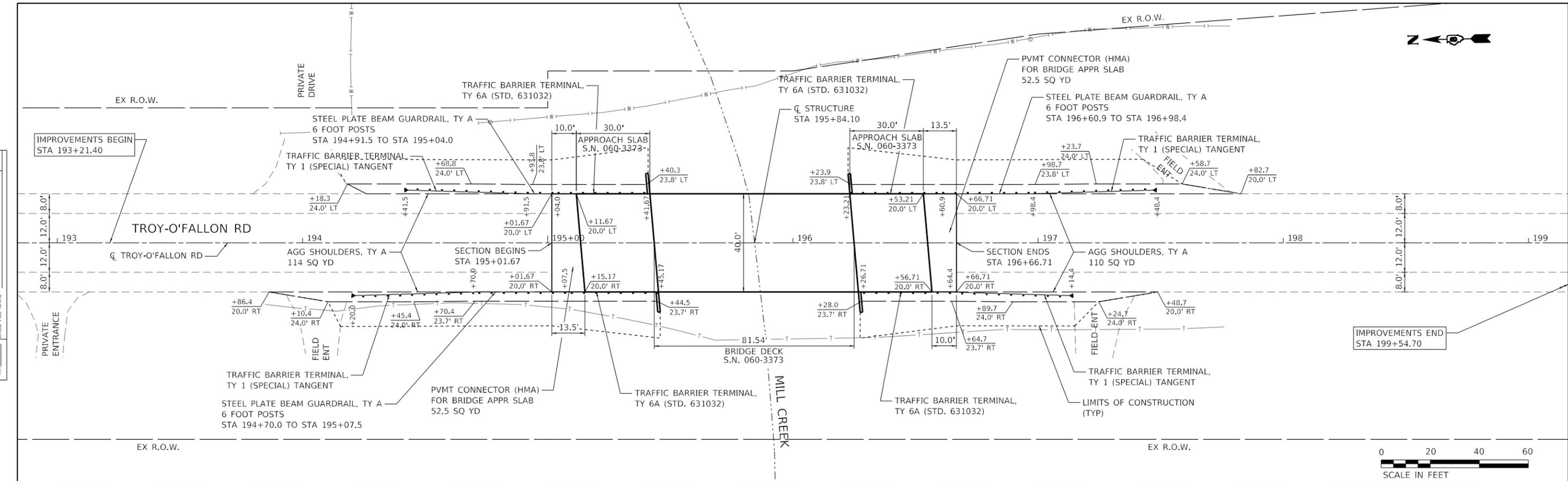
**TROY-O'FALLON ROAD OVER MILL CREEK  
REMOVAL PLAN**

SCALE: 1" = 20'    SHEET 1 OF 1 SHEETS    STA. 192+00 TO STA. 203+00

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1937	18-00084-04-BR	MADISON	39	13
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

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	PLOTTED	BY
	ALIGNED	
	CHECKED	
	FILED	
	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATIONS	
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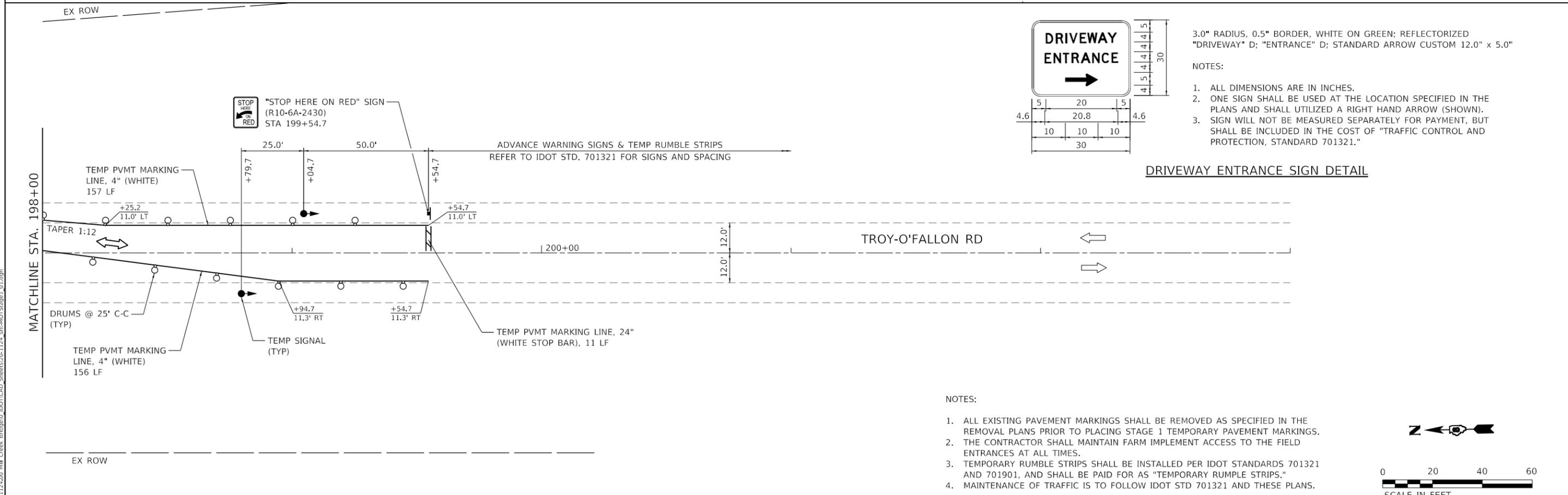
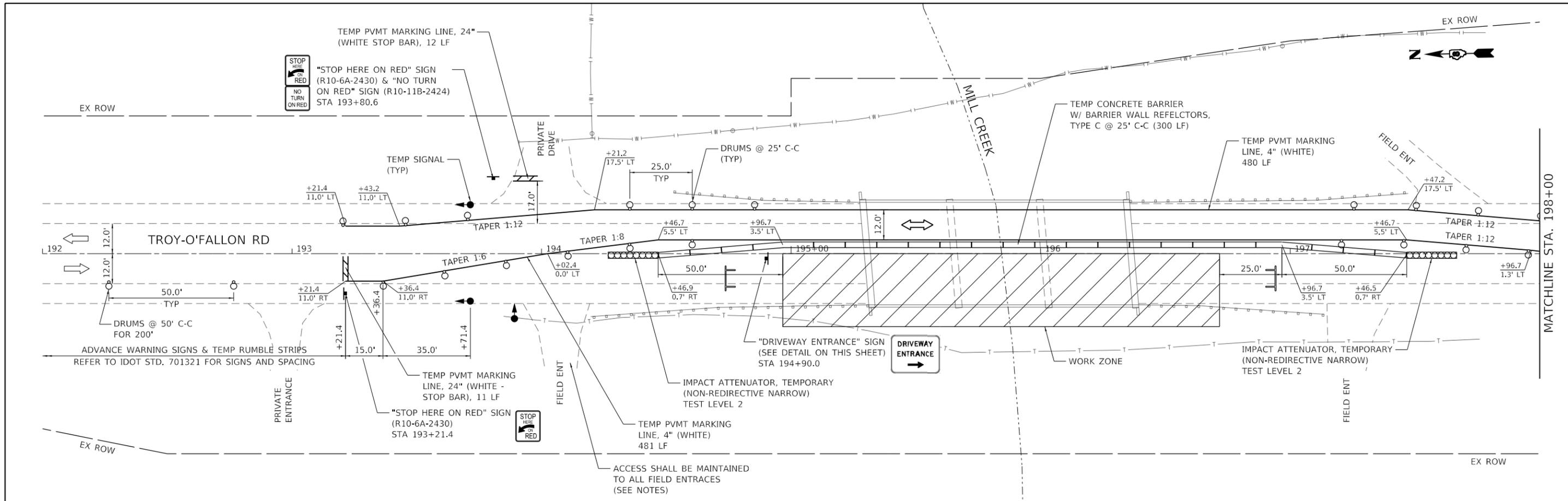
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PLOT DATE = 3/23/2021	DATE - 3/19/2021	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK  
 PLAN AND PROFILE**

SCALE: 1" = 20'    SHEET 1 OF 1 SHEETS    STA. 193+00 TO STA. 199+00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	14
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



- NOTES:
1. ALL EXISTING PAVEMENT MARKINGS SHALL BE REMOVED AS SPECIFIED IN THE REMOVAL PLANS PRIOR TO PLACING STAGE 1 TEMPORARY PAVEMENT MARKINGS.
  2. THE CONTRACTOR SHALL MAINTAIN FARM IMPLEMENT ACCESS TO THE FIELD ENTRANCES AT ALL TIMES.
  3. TEMPORARY RUMBLE STRIPS SHALL BE INSTALLED PER IDOT STANDARDS 701321 AND 701901, AND SHALL BE PAID FOR AS "TEMPORARY RUMBLE STRIPS."
  4. MAINTENANCE OF TRAFFIC IS TO FOLLOW IDOT STD 701321 AND THESE PLANS.



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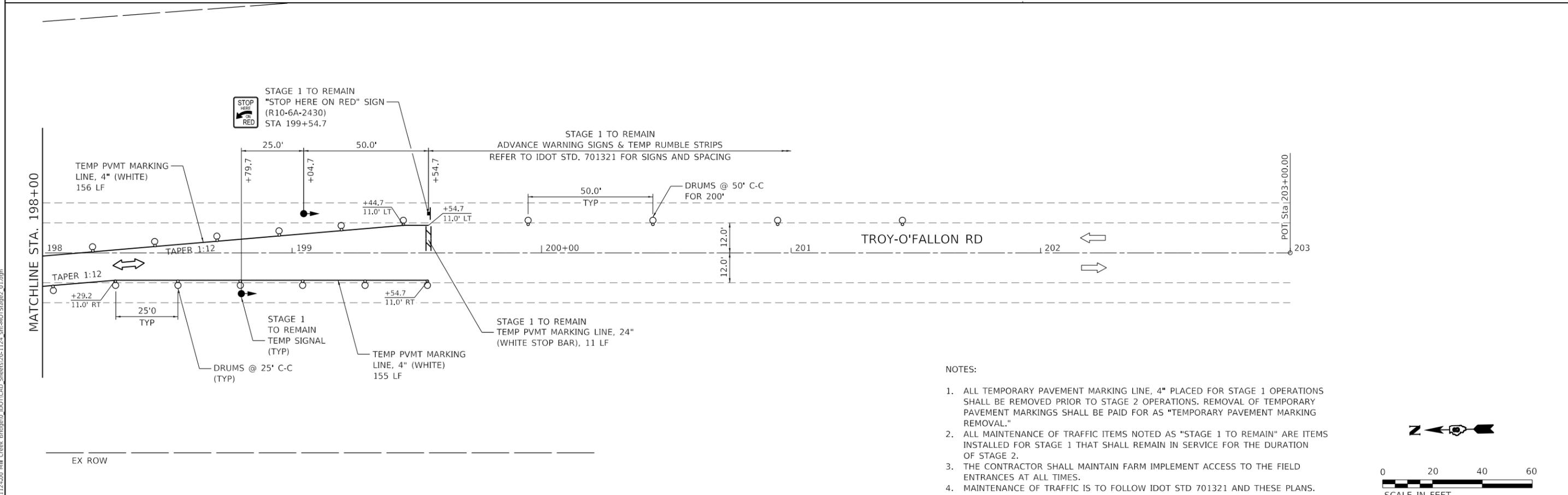
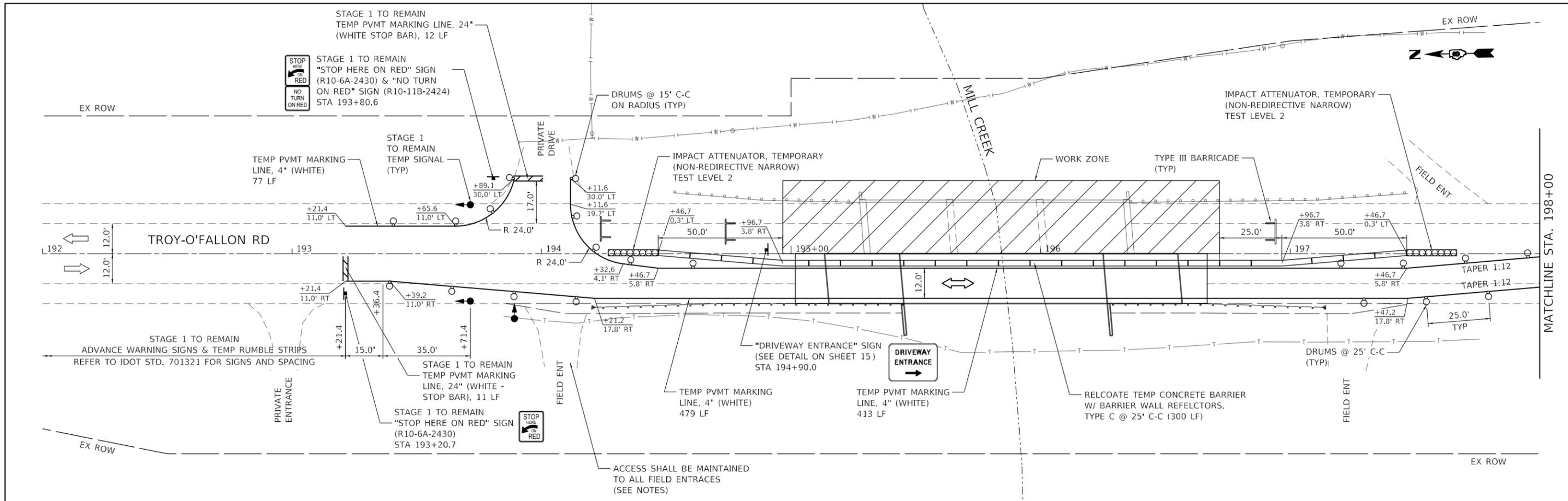
**Kaskaskia**  
 Engineering Group, LLC  
 477 South Third Street  
 Suite 270  
 Geneva, Illinois 60134  
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 www.kaskaskiaeng.com  
 ILLINOIS PROFESSIONAL ENGINEERING BOARD  
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 34-06713  
 38-388586

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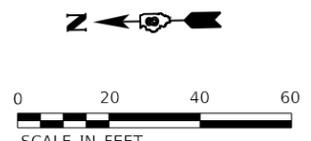
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

<b>TROY-O'FALLON ROAD OVER MILL CREEK</b> <b>MAINTENANCE OF TRAFFIC - STAGE 1</b>			
SCALE: 1" = 20'	SHEET 1	OF 2 SHEETS	STA. 192+00 TO STA. 200+00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	15
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



- NOTES:
1. ALL TEMPORARY PAVEMENT MARKING LINE, 4" PLACED FOR STAGE 1 OPERATIONS SHALL BE REMOVED PRIOR TO STAGE 2 OPERATIONS. REMOVAL OF TEMPORARY PAVEMENT MARKINGS SHALL BE PAID FOR AS "TEMPORARY PAVEMENT MARKING REMOVAL."
  2. ALL MAINTENANCE OF TRAFFIC ITEMS NOTED AS "STAGE 1 TO REMAIN" ARE ITEMS INSTALLED FOR STAGE 1 THAT SHALL REMAIN IN SERVICE FOR THE DURATION OF STAGE 2.
  3. THE CONTRACTOR SHALL MAINTAIN FARM IMPLEMENT ACCESS TO THE FIELD ENTRANCES AT ALL TIMES.
  4. MAINTENANCE OF TRAFFIC IS TO FOLLOW IDOT STD 701321 AND THESE PLANS.



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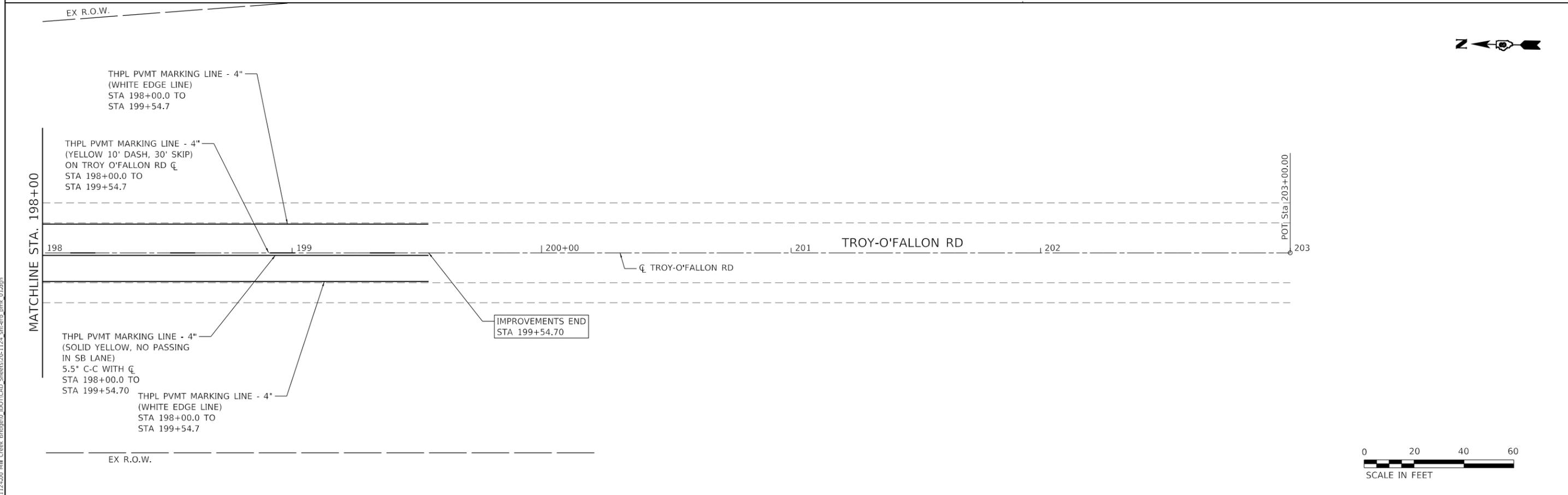
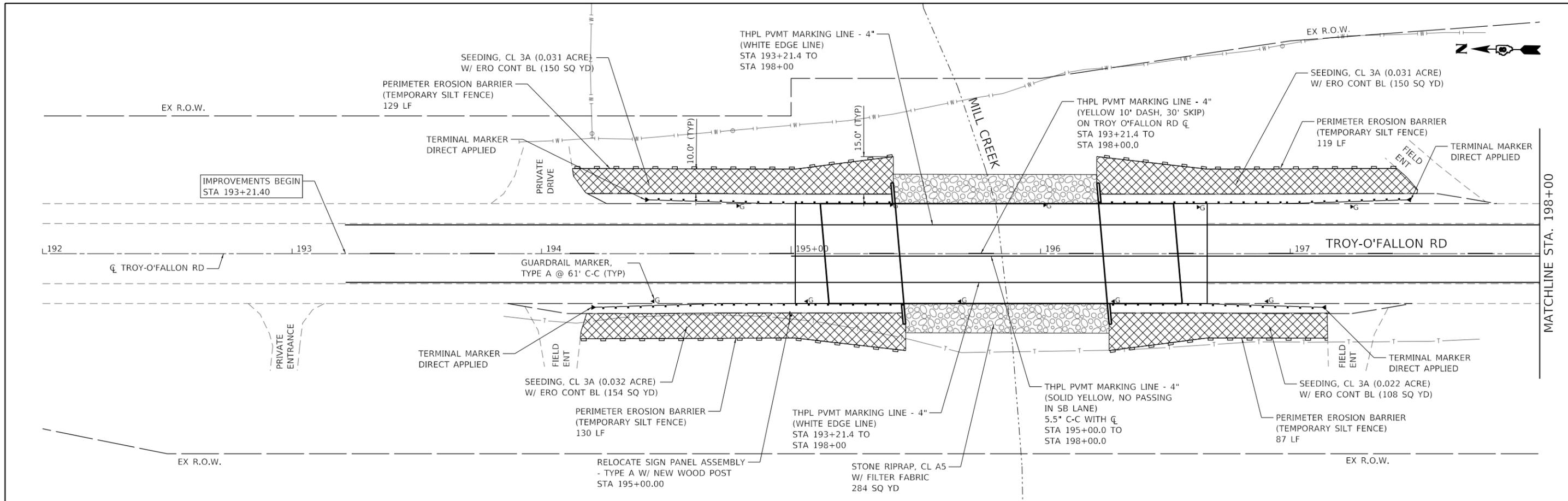
477 South Third Street Suite 270 Geneva, Illinois 60134 630.333.8187 phone www.kaskaskiaeng.com	USER NAME = ndp	DESIGNED - NDP	REVISED -
PROFESSIONAL REGISTERED ENGINEER Illinois Professional Design Firm 3436713 38-388536	PLOT SCALE = 40.0000' / in.	DRAWN - NDP	REVISED -
	PLOT DATE = 3/23/2021	CHECKED - LDC	REVISED -
		DATE - 3/19/2021	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK  
MAINTENANCE OF TRAFFIC - STAGE 2**

SCALE: 1" = 20'    SHEET 2 OF 2 SHEETS    STA. 192+00 TO STA. 200+00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	16
			CONTRACT NO. 97755	
		ILLINOIS FED. AID PROJECT		



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 SHEET: 17 of 17  
 DATE: 3/23/2021

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	DATE - 3/19/2021	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TROY-O'FALLON ROAD OVER MILL CREEK**  
**EROSION CONTROL AND PAVEMENT MARKING**

SCALE: 1" = 20'    SHEET 1 OF 1 SHEETS    STA. 192+00 TO STA. 203+00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	17
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



**Benchmarks -**

Existing Structure - Structure No. 060-3022, built in 1956 and reconstructed in 1994, is a three-span voided deck beam structure. The back-to-back of abutments measures 108'-2" and the out-to-out measures at 41'-0". Existing structure is to be removed.

Traffic Control - The new structure will be constructed in stages on existing alignment. One-way traffic will be maintained on existing structure during construction.

No salvage.

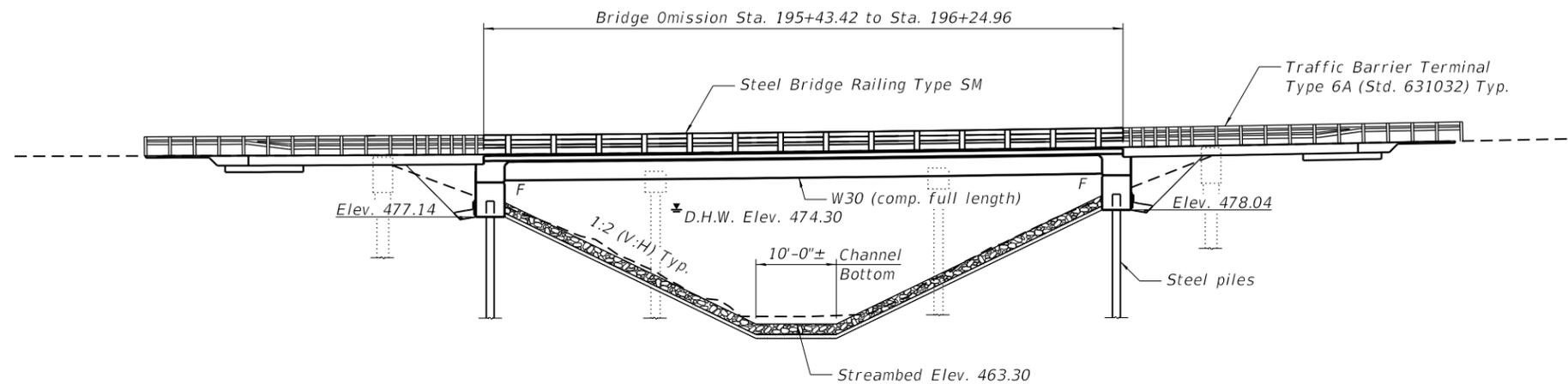
I certify that to be the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."



Signed: *Jia Wang*  
 Dated: March 19th, 2021  
 Illinois Structural Engineer  
 No. 081-006586  
 License Expires: 11-30-2022

**INDEX OF SHEETS**

- 1 General Plan & Elevation
- 2 General Notes & Total Bill of Material
- 3 Stage Construction Details
- 4 Temporary Concrete Barrier for Stage Construction
- 5 Top of Slab Elevations - I
- 6 Top of Slab Elevations - II
- 7 Top of North Approach Slab Elevations
- 8 Top of South Approach Slab Elevations
- 9 Deck Plan & Cross Section
- 10 Diaphragm Details
- 11 North/South Approach Slab Plan
- 12 Approach Slab Details
- 13 Steel Railing, Type SM with Hot-mix Asphalt Wearing Surface
- 14 Steel Railing, Type SM
- 15 Structural Steel
- 16 Structural Steel Details
- 17 Bearing Details
- 18 North Abutment
- 19 South Abutment
- 20 HP Pile Details
- 21 Bar Splicer Assembly Details
- 22 Soil Boring Logs



**ELEVATION**

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c = 3,500$  psi  
 $f'_c = 4,000$  psi (Superstructure concrete)  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 50,000$  psi (M270 Grade 50)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.173g  
 Design Spectral Acceleration at 0.2 sec. (SDS) = 0.440g  
 Soil Site Class = C

**LOADING HL-93**

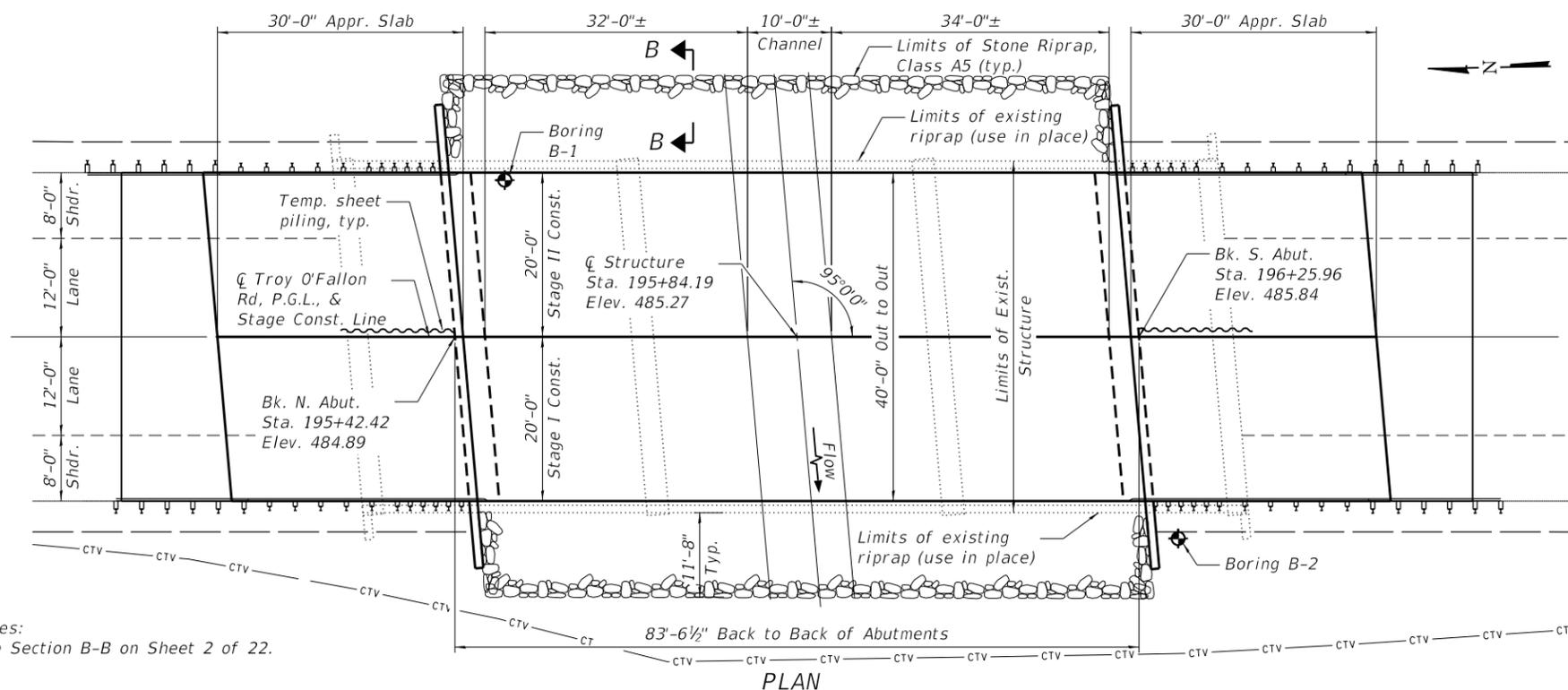
Allow 50#/sq. ft. for future wearing surface.

**DESIGN SPECIFICATIONS**

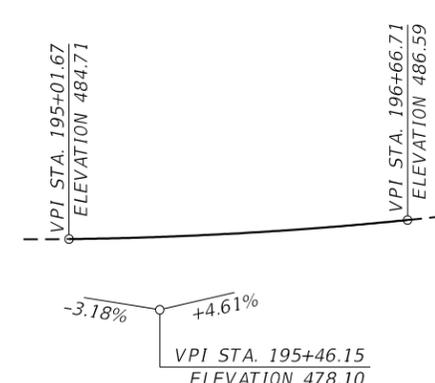
2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

**BRIDGE RATING (HL-93)**

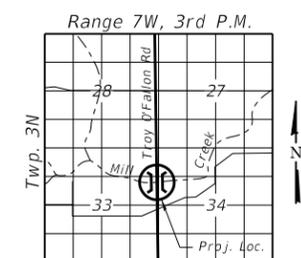
Inventory = XXX (XXX)  
 Operating = XXX (XXX)



**PLAN**



**PROFILE GRADE**  
 (Along  $\bar{C}$  Troy O'Fallon Rd)



**LOCATION SKETCH**

**GENERAL PLAN & ELEVATION**  
**F.A.U. ROUTE 9393/FAS 1937 (TROY O'FALLON RD)**  
**OVER MILL CREEK**  
**MADISON COUNTY**  
**STATION 195+84.19**  
**STRUCTURE NO. 060-3373**

**LEGEND**  
 Soil boring

Notes:  
 See Section B-B on Sheet 2 of 22.

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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

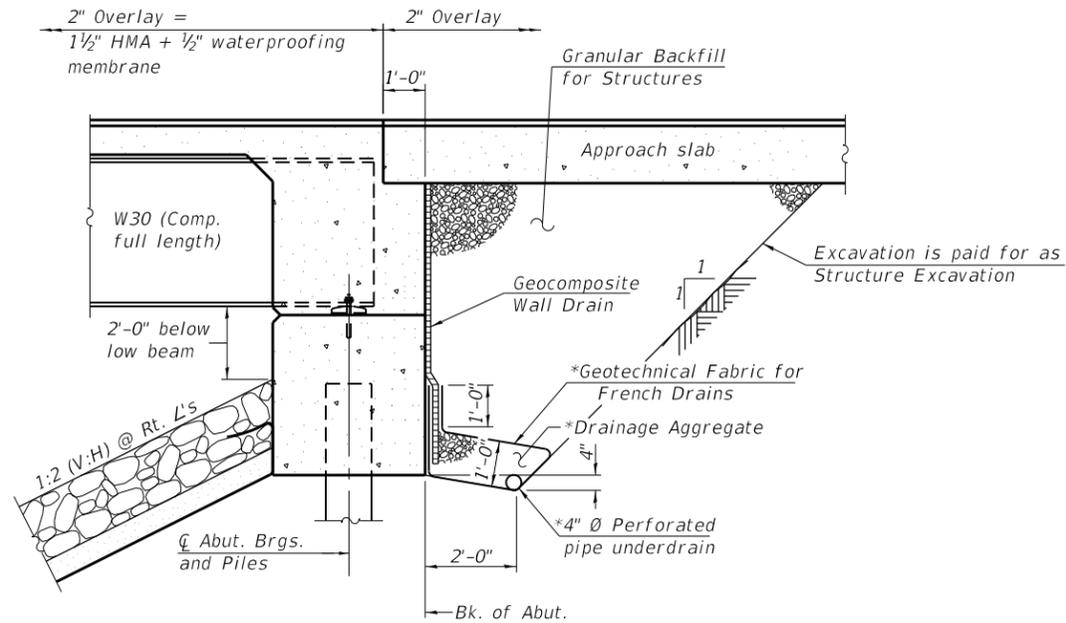
**GENERAL PLAN & ELEVATION**  
**STRUCTURE NO. 060-3373**

SHEET 1 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	18
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Stone RipRap, Class A5	Sq. Yd.		284	284
Filter Fabric	Sq. Yd.		284	284
Hot-mix Asphalt Surface Course, IL-9.5FG, Mix "D", N70	Ton	61		61
Removal of Existing Structure	Each	1		1
Structure Excavation	Cu. Yd.		184	184
Concrete Structures	Cu. Yd.		75	75
Concrete Superstructure	Cu. Yd.	122.0		122.0
Protective Coat	Sq. Yd.	30		30
Concrete Superstructure (Approach Slab)	Cu. Yd.	111.2		111.2
Furnishing & Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	1,422		1,422
Reinforcement Bars, Epoxy Coated	Pound	69,100	8,540	77,640
Bar Splicers	Each	569	20	589
Steel Railing, Type SM	Foot	164		164
Furnishing Steel HP 12 x 53	Foot		375	375
Driving Piles	Foot		375	375
Test Pile Steel HP 12 x 53	Each		2	2
Pile Shoes	Each		10	10
Name Plates	Each	1		1
Anchor Bolts, 1"	Each	24		24
Temporary Sheet Piling	Sq. Ft.		306	306
Waterproofing Membrane System	Sq. Yd.	363		363
Granular Backfill for Structures	Cu. Yd.		150	150
Geocomposite Wall Drain	Sq. Yd.		84	84
Pipe Underdrains for Structures, 4"	Foot		121	121



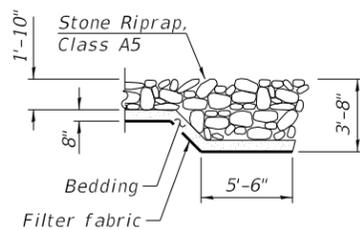
**SECTION THRU INTEGRAL ABUTMENT**  
(Horiz. dim. @ Rt. L's)

\*Included in the cost of Pipe Underdrains for Structures.  
(See Special Provisions)

**Note:**

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

The concrete headwalls shall be located within the riprap slope protection system between the wingwall and the creek. An elbow or other fitting will be required at each outlet.



**SECTION B-B**

MILL CREEK  
BUILT 202 BY  
MADISON COUNTY  
SEC. 18-000184-04-BR  
FAU 9393/FAS 1937 STA. 195+84.19  
STRUCTURE NO. 060-3373  
LOADING HL-93

**NAME PLATE**  
See Std. 515001

**GENERAL NOTES**

- Fasteners shall be ASTM F3125 Grade A325 Type 1, mechanically galvanized bolts in painted or metallized areas and ASTM F3125 Grade A325 Type 3 weathering steel bolts in unpainted areas. Bolts 3/4 in. Ø, holes 15/16 in. Ø, unless otherwise noted.
- The Inorganic Zinc Rich Primer/Acrylic/Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces and exterior and bottom flange of the fascia beams shall be gray, Munsell No. 5B 7/1.
- Calculated weight of Structural Steel = 95,050 (M270 Grade 50)  
8,210 (M270 Grade 36)
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch (0.01 ft). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
- All (embedded and separate) bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
- Backfill shall be placed behind the abutment after the superstructure has been poured and falsework removed. See Article 502.10 of the Standard Specifications.
- The existing bridge plans are available from Madison County Highway Department.

**WATERWAY INFORMATION**

Drainage Area = 7.0 sq. mi.		Low Grade Elev. 484.69 @ Sta. 194+81.90							
Flood	Freq. Yr.	Q C.F.S.	Opening Ft <sup>2</sup>		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	1570	218	225	471.7	0.4	0.2	472.1	471.9
Design	50	2570	347	355	474.3	0.6	0.2	474.9	474.5
Base	100	3030	398	410	475.3	0.6	0.2	475.9	475.5
Scour Design Check	200	3507	436	462	476.2	0.7	0.2	476.9	476.4
Max. Calc.	500	4170	508	539	477.4	0.7	0.3	478.1	477.7

**DESIGN SCOUR ELEVATION TABLE**

Event / Limit	Design Scour Elevations (ft.)		
	North Abut.	South Abut.	Item 113
Q100	477.14	478.04	8
Q200	477.14	478.04	
Design	477.14	478.04	
Check	477.14	478.04	

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11777 W. 117th St.  
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618-997-1177  
www.kaskaskiaeng.com

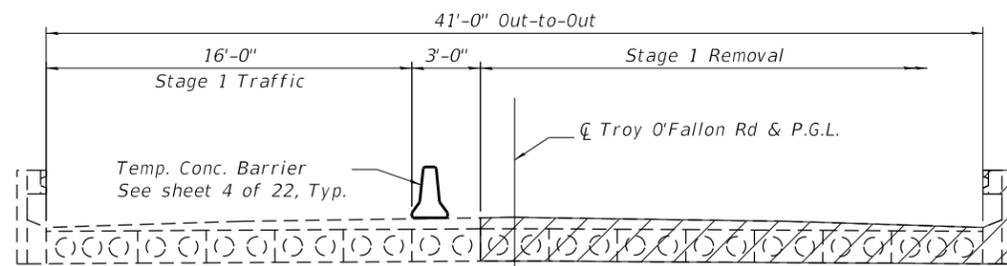
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

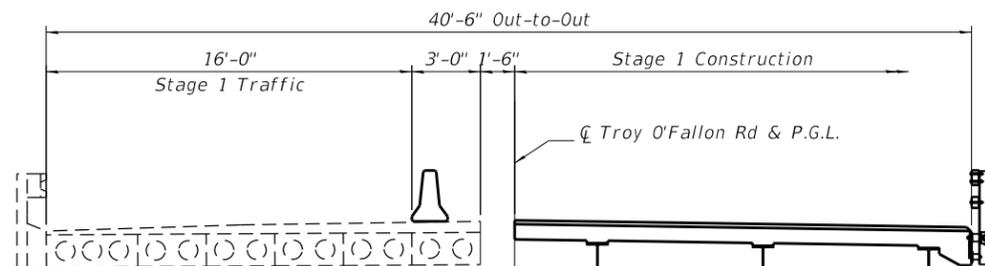
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**STRUCTURE NO. 060-3373**

SHEET 2 OF 22 SHEETS

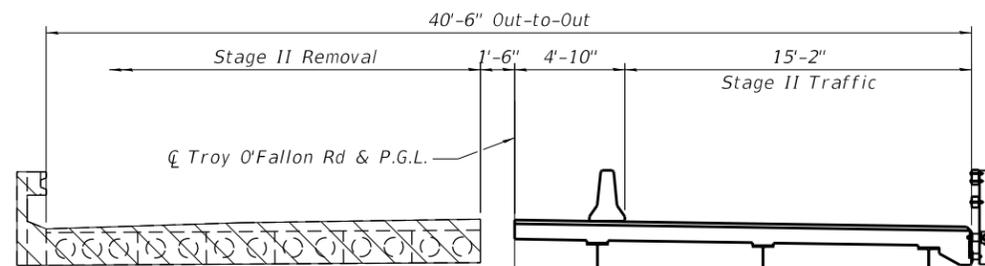
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CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



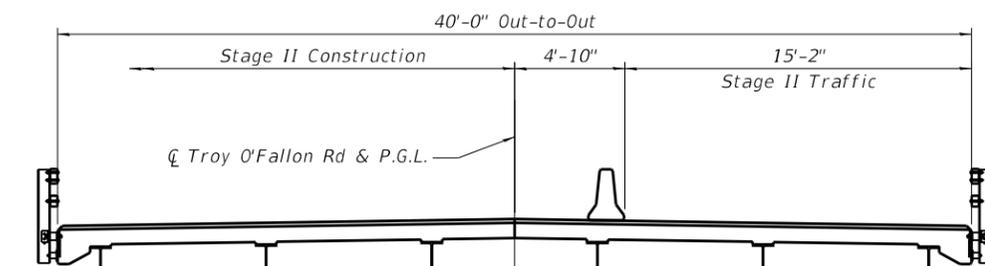
STAGE I REMOVAL



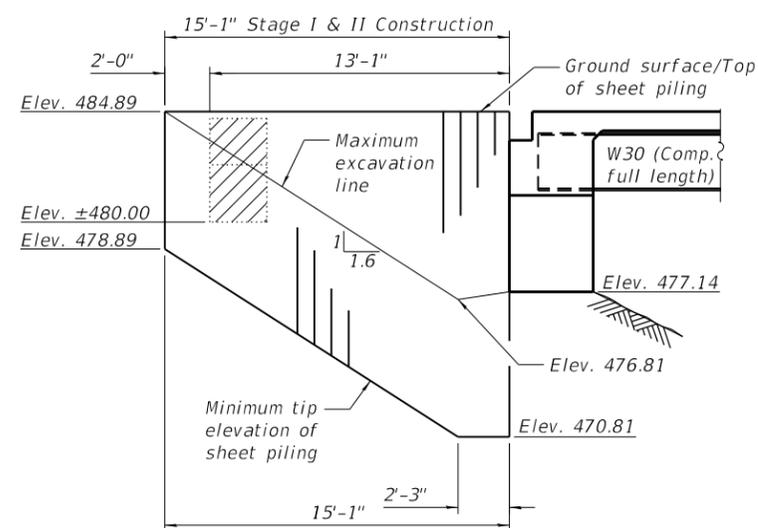
STAGE I CONSTRUCTION



STAGE II REMOVAL

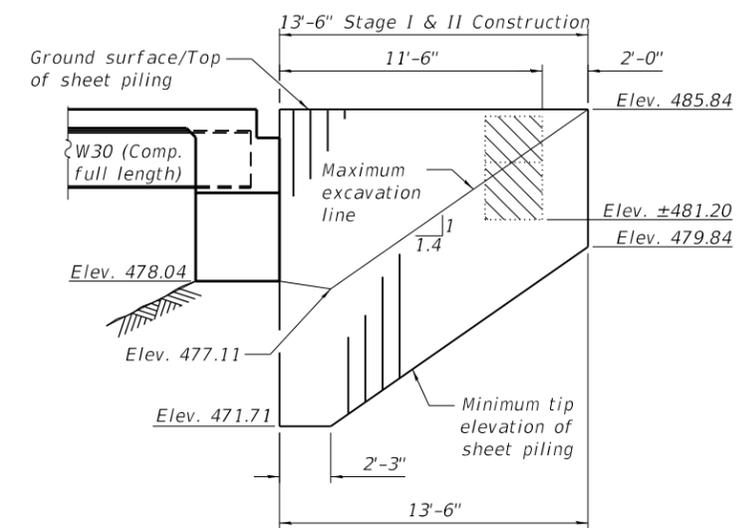


STAGE II CONSTRUCTION



TEMPORARY SHEET PILING AT NORTH ABUT.

Minimum section modulus = 4.1 in<sup>3</sup>/ft.



TEMPORARY SHEET PILING AT SOUTH ABUT.

Minimum section modulus = 4.1 in<sup>3</sup>/ft.

Notes:  
 All staged construction cross sections are looking South.  
 For quantities of Temporary Concrete Barrier, see Roadway Plans.  
 If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations prepared and sealed by an Illinois Licensed Structural Engineer will be required for review and acceptance by the Engineer.  
 Hatched area indicates Removal of Existing Structures.

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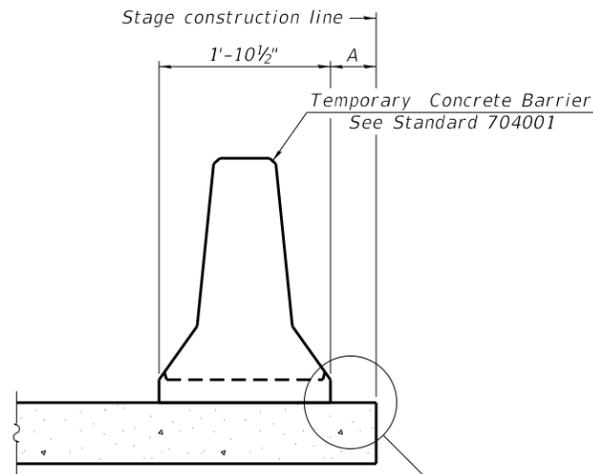
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 309.253.2877 fax  
 www.kaskaskiaeng.com  
 Illinois Professional Engineering Group  
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 01-000011  
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

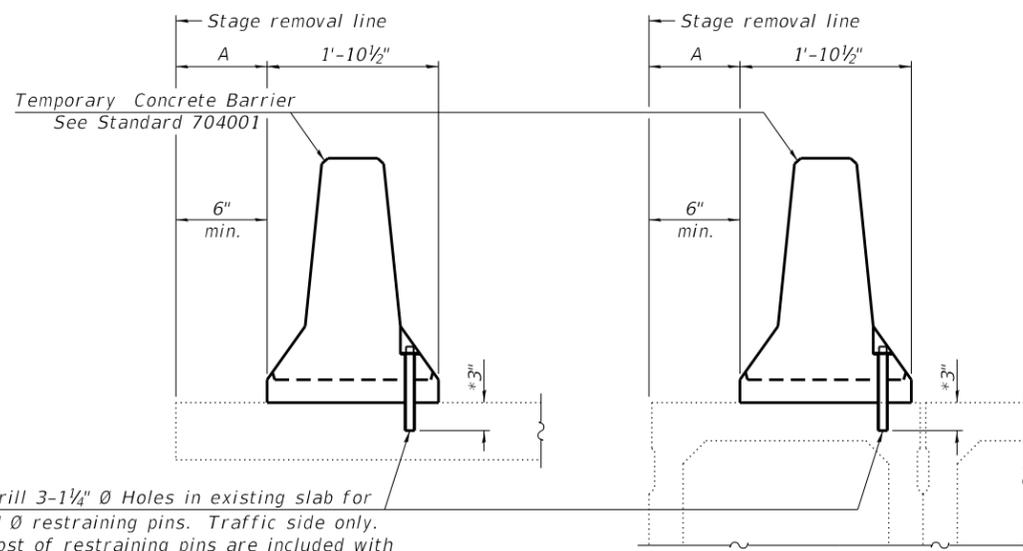
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 SHEET 3 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	20
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM

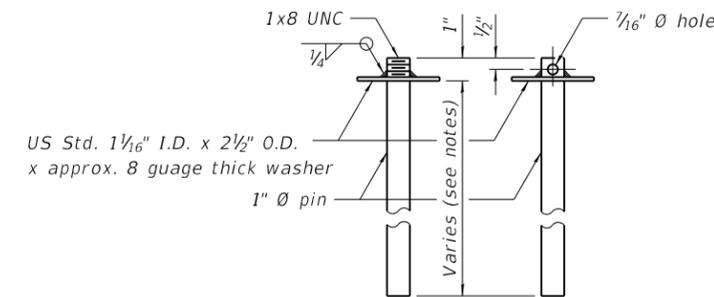


Drill 3-1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

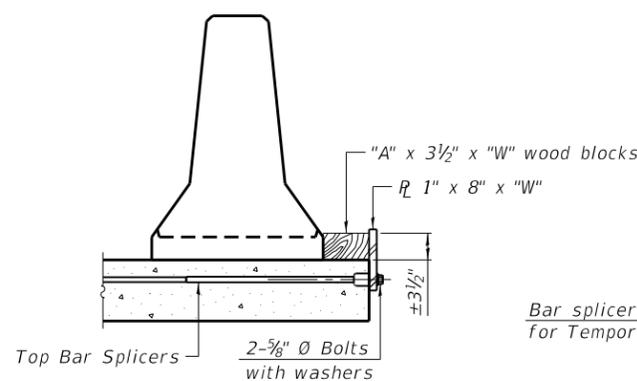
\* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

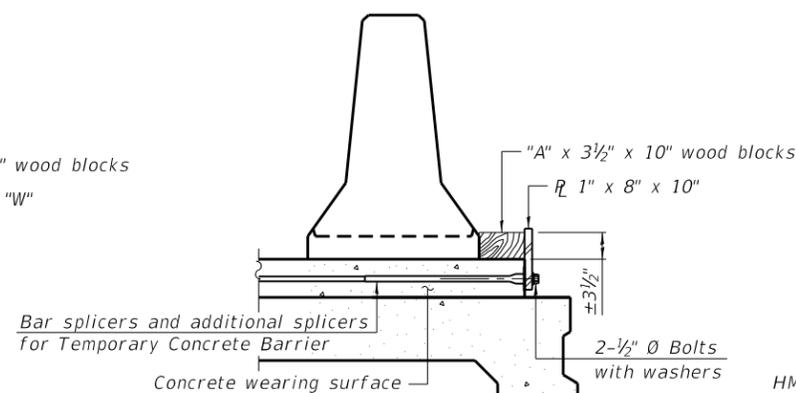


RESTRAINING PIN

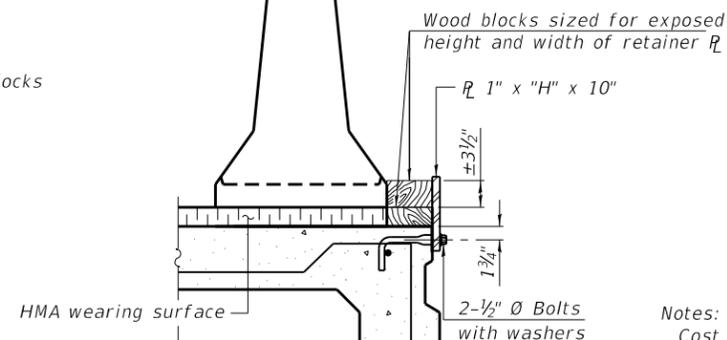
SECTIONS THRU SLAB OR DECK BEAM



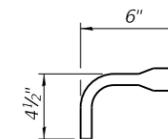
DETAIL I



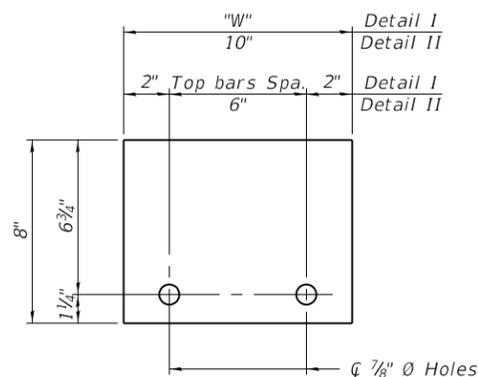
DETAIL II



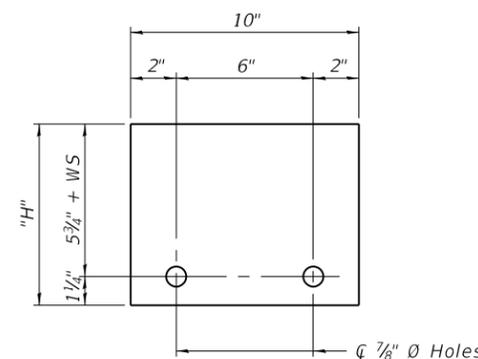
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER R 1" x 8" x "W"  
(Detail I and II)



STEEL RETAINER R 1" x "H" x 10"  
(Detail III)

Notes:  
 Cost of retainer assembly is included with Temporary Concrete Barrier.  
 A retainer assembly shall be located at the approximate  $\bar{C}$  of each temporary concrete barrier.  
 The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.  
 When the 'A' dimension is less than 1 1/2', the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6' to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.  
 Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.  
 Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

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R-27 8-11-2017



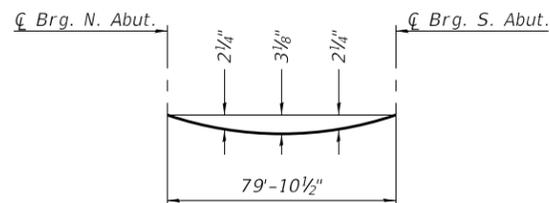
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION  
 STRUCTURE NO. 060-3373

SHEET 4 OF 22 SHEETS

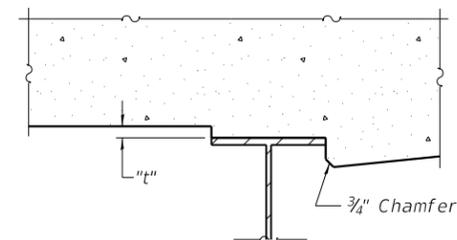
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CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



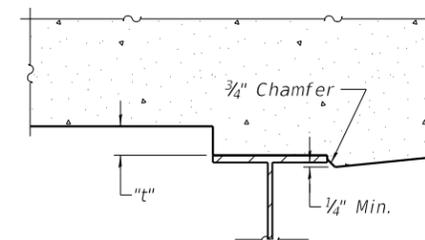
**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete and 2" overlay only)

Note:  
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheet 6 of 22.



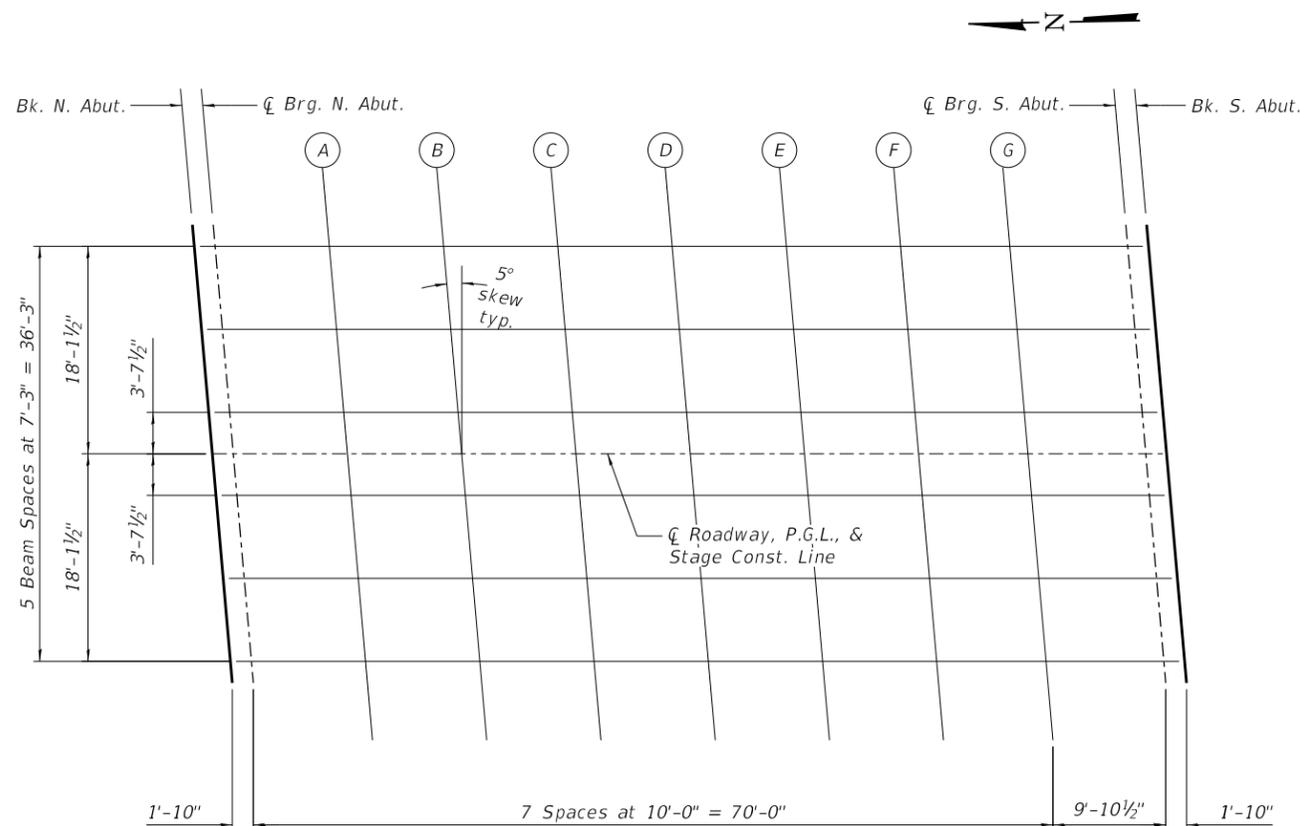
At Minimum Fillet



At Maximum Fillet

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown in the Plan view below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" as shown on Sheet 6 of 22, minus slab thickness, equals the fillet heights "t" above the top flange of beams.

**FILLET HEIGHTS**



PLAN

MODEL: Default  
FILE NAME: P:\20-1124.00 Mill Creek Bridge\0\_IDOT\Structures\005\_Top of Slab Elevations.dgn

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618.993.1111  
20-000566

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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS - I**  
**STRUCTURE NO. 060-3373**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	22
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

<u>BEAM 1</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+40.84	-18.13'	484.61	484.61
CL BRG. N. ABUT.	195+42.66	-18.13'	484.62	484.62
A	195+52.66	-18.13'	484.70	484.80
B	195+62.66	-18.13'	484.78	484.97
C	195+72.66	-18.13'	484.88	485.12
D	195+82.66	-18.13'	484.98	485.24
E	195+92.66	-18.13'	485.09	485.34
F	196+02.66	-18.13'	485.22	485.41
G	196+12.66	-18.13'	485.37	485.47
CL BRG. S. ABUT.	196+22.54	-18.13'	485.52	485.52
BK. S. ABUT.	196+24.37	-18.13'	485.55	485.55

<u>BEAM 2</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+41.47	-10.88'	484.73	484.73
CL BRG. N. ABUT.	195+43.30	-10.88'	484.74	484.74
A	195+53.30	-10.88'	484.81	484.91
B	195+63.30	-10.88'	484.89	485.08
C	195+73.30	-10.88'	484.99	485.23
D	195+83.30	-10.88'	485.10	485.36
E	195+93.30	-10.88'	485.21	485.46
F	196+03.30	-10.88'	485.34	485.53
G	196+13.30	-10.88'	485.49	485.59
CL BRG. S. ABUT.	196+23.18	-10.88'	485.64	485.64
BK. S. ABUT.	196+25.00	-10.88'	485.67	485.67

<u>BEAM 3</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+42.11	-3.63'	484.84	484.84
CL BRG. N. ABUT.	195+43.93	-3.63'	484.85	484.85
A	195+53.93	-3.63'	484.92	485.03
B	195+63.93	-3.63'	485.01	485.20
C	195+73.93	-3.63'	485.11	485.35
D	195+83.93	-3.63'	485.22	485.48
E	195+93.93	-3.63'	485.33	485.57
F	196+03.93	-3.63'	485.46	485.65
G	196+13.93	-3.63'	485.60	485.70
CL BRG. S. ABUT.	196+23.81	-3.63'	485.76	485.76
BK. S. ABUT.	196+25.64	-3.63'	485.79	485.79

<u>☉ ROADWAY, P.G.L., &amp; STAGE CONSTRUCTION JOINT</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+42.42	0.00'	484.89	484.89
CL BRG. N. ABUT.	195+44.25	0.00'	484.90	484.90
A	195+54.25	0.00'	484.98	485.08
B	195+64.25	0.00'	485.07	485.25
C	195+74.25	0.00'	485.16	485.41
D	195+84.25	0.00'	485.27	485.54
E	195+94.25	0.00'	485.39	485.63
F	196+04.25	0.00'	485.52	485.71
G	196+14.25	0.00'	485.66	485.76
CL BRG. S. ABUT.	196+24.13	0.00'	485.81	485.81
BK. S. ABUT.	196+25.96	0.00'	485.84	485.84

<u>BEAM 4</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+42.74	3.63'	484.84	484.84
CL BRG. N. ABUT.	195+44.57	3.63'	484.86	484.86
A	195+54.57	3.63'	484.93	485.03
B	195+64.57	3.63'	485.02	485.20
C	195+74.57	3.63'	485.12	485.36
D	195+84.57	3.63'	485.22	485.48
E	195+94.57	3.63'	485.34	485.58
F	196+04.57	3.63'	485.47	485.66
G	196+14.57	3.63'	485.61	485.71
CL BRG. S. ABUT.	196+24.45	3.63'	485.77	485.77
BK. S. ABUT.	196+26.27	3.63'	485.80	485.80

<u>BEAM 5</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+43.38	10.88'	484.74	484.74
CL BRG. N. ABUT.	195+45.20	10.88'	484.75	484.75
A	195+55.20	10.88'	484.82	484.93
B	195+65.20	10.88'	484.91	485.10
C	195+75.20	10.88'	485.01	485.25
D	195+85.20	10.88'	485.12	485.38
E	195+95.20	10.88'	485.24	485.49
F	196+05.20	10.88'	485.37	485.56
G	196+15.20	10.88'	485.51	485.61
CL BRG. S. ABUT.	196+25.08	10.88'	485.67	485.67
BK. S. ABUT.	196+26.91	10.88'	485.70	485.70

<u>BEAM 6</u>				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
BK. N. ABUT.	195+44.01	18.13'	484.63	484.63
CL BRG. N. ABUT.	195+45.84	18.13'	484.65	484.65
A	195+55.84	18.13'	484.72	484.83
B	195+65.84	18.13'	484.81	484.99
C	195+75.84	18.13'	484.91	485.15
D	195+85.84	18.13'	485.02	485.28
E	195+95.84	18.13'	485.14	485.38
F	196+05.84	18.13'	485.27	485.46
G	196+15.84	18.13'	485.41	485.51
CL BRG. S. ABUT.	196+25.72	18.13'	485.57	485.57
BK. S. ABUT.	196+27.54	18.13'	485.60	485.60

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**Kaskaskia**  
Engineering Group, LLC  
Professional Engineering Group

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS - II  
STRUCTURE NO. 060-3373**

SHEET 6 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	23
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

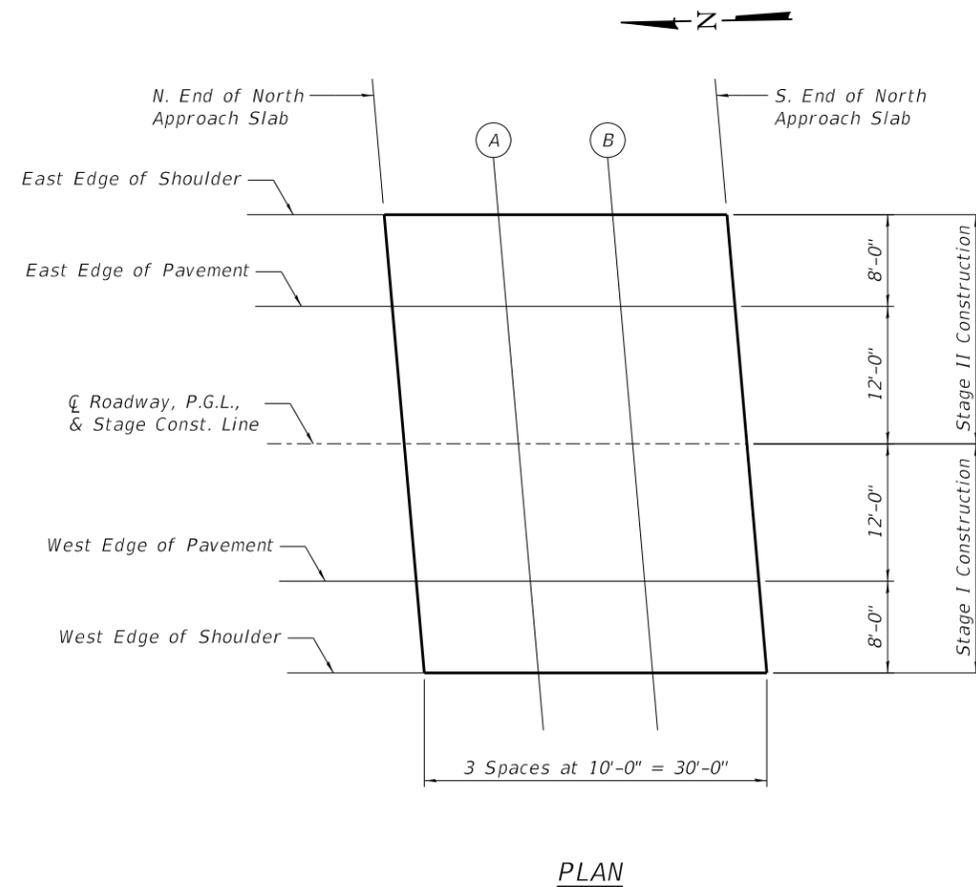
<u>EAST EDGE OF SHOULDER</u>			
Location	Station	Offset	Theoretical Grade Elevations
N. End of N. Appr. Slab.	195+11.67	-20.00'	484.44
A	195+21.67	-20.00'	484.48
B	195+31.67	-20.00'	484.53
S. End of N. Appr. Slab.	195+41.67	-20.00'	484.59

<u>☐ ROADWAY, P.G.L., &amp; STAGE CONST. LINE</u>			
Location	Station	Offset	Theoretical Grade Elevations
N. End of N. Appr. Slab.	195+13.42	0.00'	484.74
A	195+23.42	0.00'	484.78
B	195+33.42	0.00'	484.84
S. End of N. Appr. Slab.	195+43.42	0.00'	484.90

<u>EAST EDGE OF PAVEMENT</u>			
Location	Station	Offset	Theoretical Grade Elevations
N. End of N. Appr. Slab.	195+12.37	-12.00'	484.56
A	195+22.37	-12.00'	484.60
B	195+32.37	-12.00'	484.65
S. End of N. Appr. Slab.	195+42.37	-12.00'	484.71

<u>WEST EDGE OF PAVEMENT</u>			
Location	Station	Offset	Theoretical Grade Elevations
N. End of N. Appr. Slab.	195+14.47	12.00'	484.57
A	195+24.47	12.00'	484.61
B	195+34.47	12.00'	484.66
S. End of N. Appr. Slab.	195+44.47	12.00'	484.73

<u>WEST EDGE OF SHOULDER</u>			
Location	Station	Offset	Theoretical Grade Elevations
N. End of N. Appr. Slab.	195+15.17	20.00'	484.45
A	195+25.17	20.00'	484.49
B	195+35.17	20.00'	484.55
S. End of N. Appr. Slab.	195+45.17	20.00'	484.61



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 Professional Engineering Group  
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**TOP OF NORTH APPROACH SLAB ELEVATIONS  
 STRUCTURE NO. 060-3373**

SHEET 7 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	24
CONTRACT NO. 97755				
ILLINOIS			FED. AID PROJECT	

EAST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
N. End of S. Appr. Slab.	196+23.21	-20.00'	485.50
C	196+33.21	-20.00'	485.66
D	196+43.21	-20.00'	485.83
S. End of S. Appr. Slab.	196+53.21	-20.00'	486.02

☐ ROADWAY, P.G.L., & STAGE CONST. LINE

Location	Station	Offset	Theoretical Grade Elevations
N. End of S. Appr. Slab.	196+24.96	0.00'	485.83
C	196+34.96	0.00'	485.99
D	196+44.96	0.00'	486.17
S. End of S. Appr. Slab.	196+54.96	0.00'	486.35

EAST EDGE OF PAVEMENT

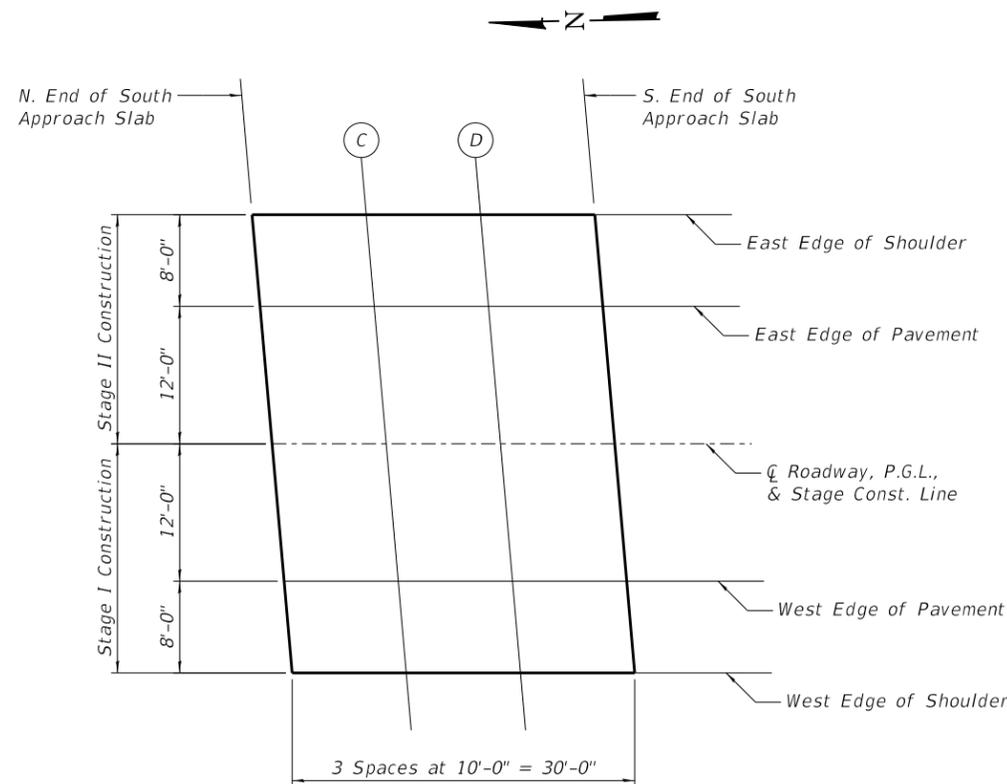
Location	Station	Offset	Theoretical Grade Elevations
N. End of S. Appr. Slab.	196+23.91	-12.00'	485.63
C	196+33.91	-12.00'	485.79
D	196+43.91	-12.00'	485.97
S. End of S. Appr. Slab.	196+53.91	-12.00'	486.15

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
N. End of S. Appr. Slab.	196+26.01	12.00'	485.66
C	196+36.01	12.00'	485.83
D	196+46.01	12.00'	486.01
S. End of S. Appr. Slab.	196+56.01	12.00'	486.19

WEST EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
N. End of S. Appr. Slab.	196+26.71	20.00'	485.55
C	196+36.71	20.00'	485.72
D	196+46.71	20.00'	485.90
S. End of S. Appr. Slab.	196+56.71	20.00'	486.09



PLAN

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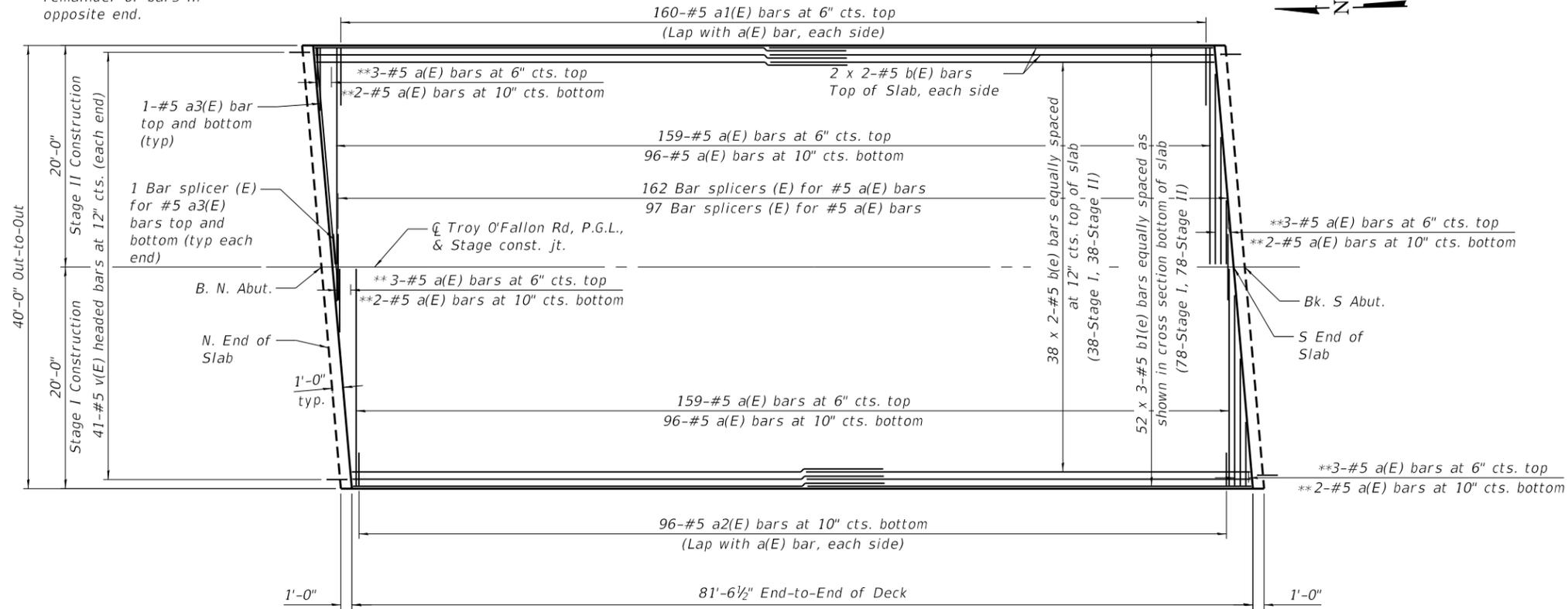
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**TOP OF SOUTH APPROACH SLAB ELEVATIONS**  
**STRUCTURE NO. 060-3373**

SHEET 8 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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ILLINOIS		FED. AID PROJECT		

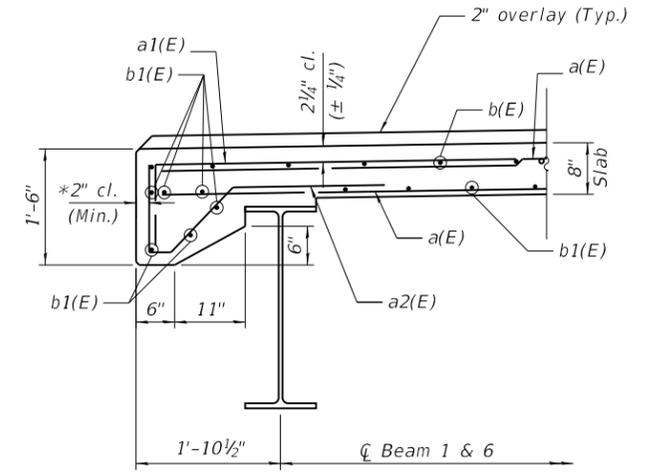
\*\* Order a(E) bars full length.  
Cut to fit skew and use  
remainder of bars in  
opposite end.



MIN. BAR LAP  
#5 Bars = 3'-6"

PLAN

\* Reinforcement bars in the deck shall be placed with a 2" minimum clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

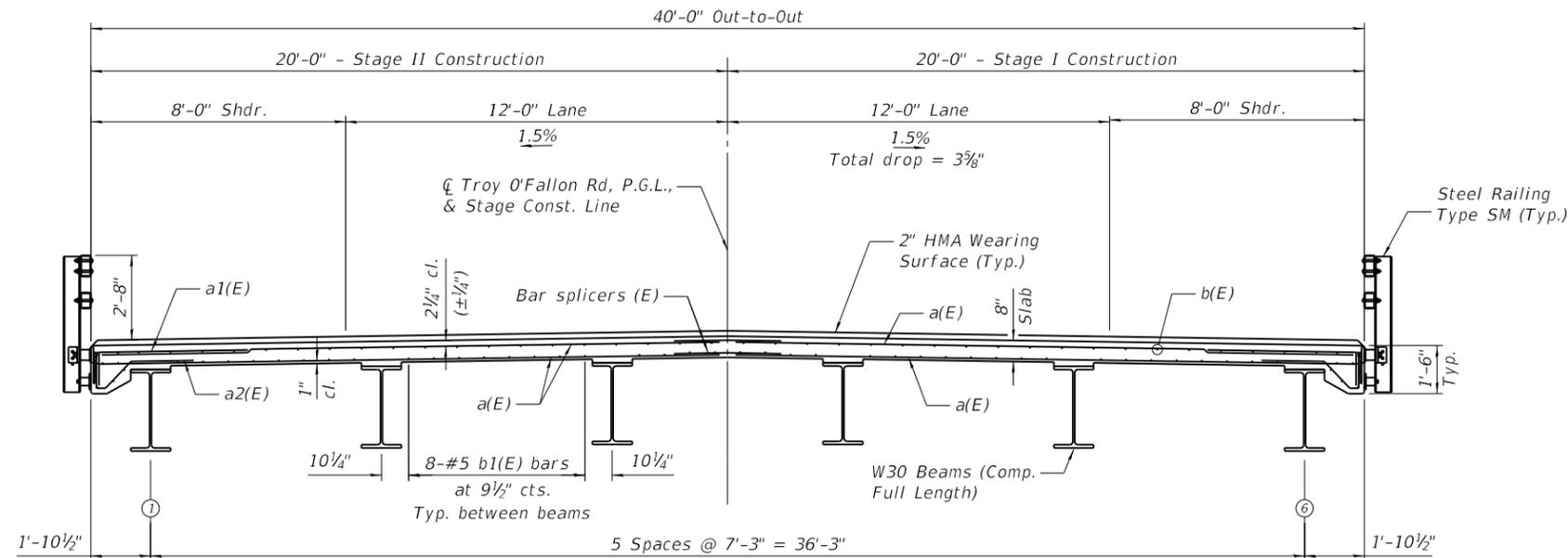


SECTION THRU EDGE OF SLAB  
(Railing not shown for clarity)

SUPERSTRUCTURE  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
a(E)	520	#5	19'-9"	—	
a1(E)	320	#5	7'-8"	—	
a2(E)	192	#5	6'-5"	—	
a3(E)	8	#5	19'-8"	—	
b(E)	84	#5	42'-4"	—	
b1(E)	156	#5	29'-5"	—	
m(E)	16	#6	19'-7"	—	
m1(E)	24	#6	7'-0"	—	
m2(E)	12	#6	1'-7"	—	
m3(E)	12	#6	3'-3"	—	
s(E)	80	#5	7'-7"	—	
s1(E)	80	#5	9'-10"	—	
v(E)	82	#5	3'-1"	—	
Reinforcement Bars, Epoxy Coated				Lbs.	25,750
Concrete Superstructure				Cu. Yd.	122.0
Waterproofing Membrane System				Sq. Yd.	363
Hot-mix Asphalt Surface Course, IL-9.5FG, Mix "D", N70				Ton	31

- Notes:  
1. Bars indicated thus 1 x 2-#8 etc. indicates 1 line of bars with 2 lengths per line.  
2. See Sheet 10 of 22 for Diaphragm Details.  
3. See Sheet 21 of 22 for bar splicer details.



CROSS SECTION  
(Looking South)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

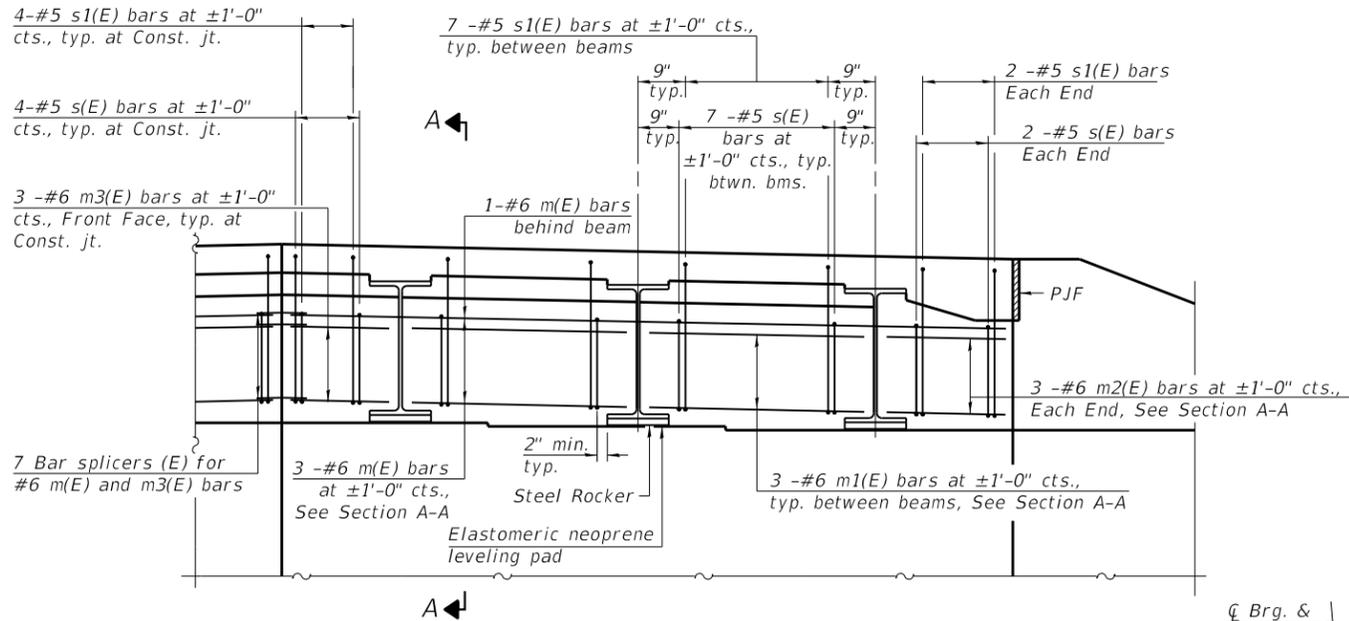
DECK PLAN & CROSS SECTION  
STRUCTURE NO. 060-3373

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	26
CONTRACT NO. 97755				

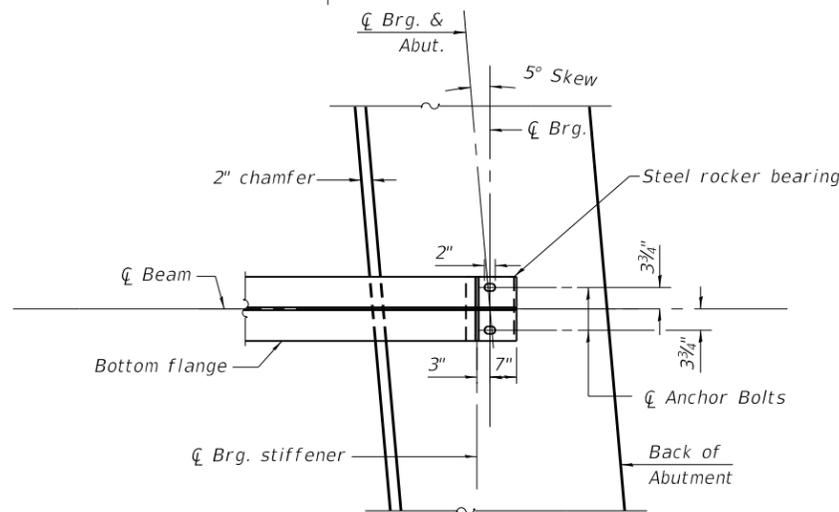
SHEET 9 OF 22 SHEETS

ILLINOIS FED. AID PROJECT

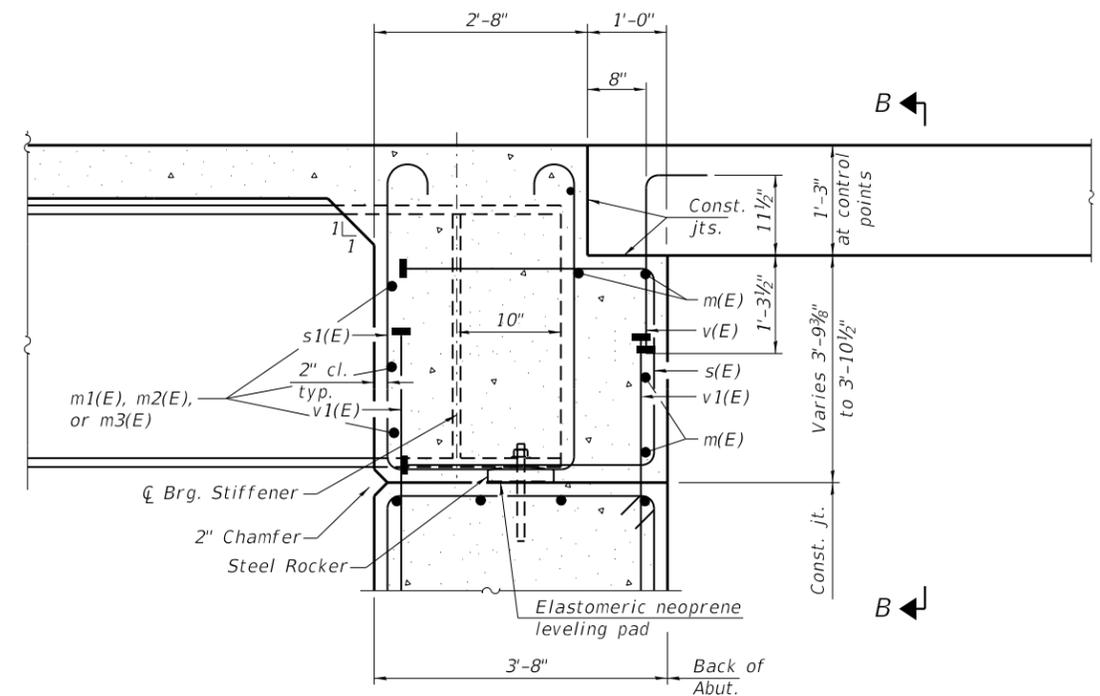
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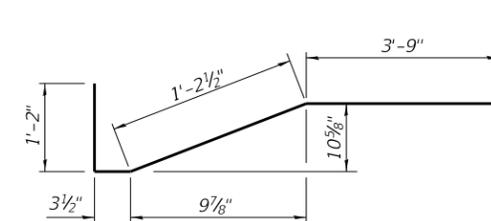
DIAPHRAGM AT ABUTMENT



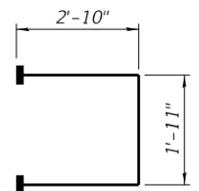
PLAN AT ABUTMENT  
(Showing bottom flange of beam)



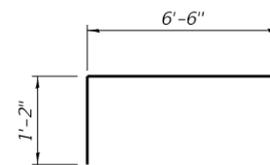
SECTION A-A



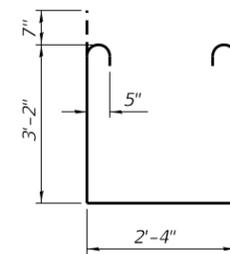
BAR a2(E)



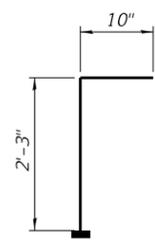
BAR s(E)  
(Headed)



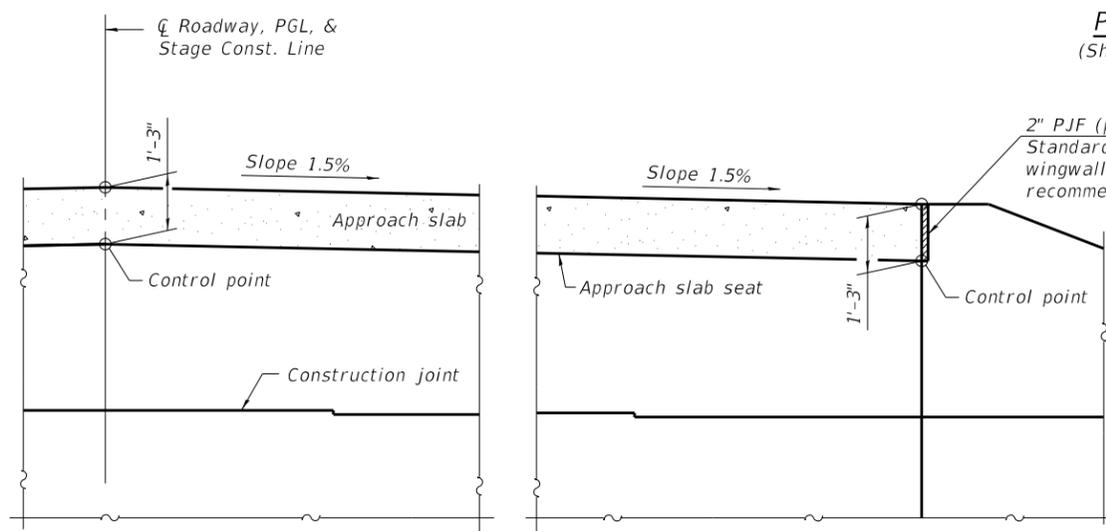
BAR a1(E)



BAR s1(E)



BAR v(E)  
(Headed)



SECTION B-B

Notes:

- Reinforcement bars in diaphragm are billed with superstructure on Sheet 9 of 22.
- Concrete in diaphragm is included with Concrete Superstructure on Sheet 9 of 22.
- The approach slab seat shall have a constant slope determined from the control points shown.
- For bearing details see Sheet 17 of 22.
- Beams shall be braced for stability during erection and remain braced until deck is poured and cured.
- HMA Wearing Surface not shown for clarity.

MODEL: Default  
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**Kaskaskia**  
Engineering Group, LLC  
Professional Engineering Firm  
1477792100  
26-086266

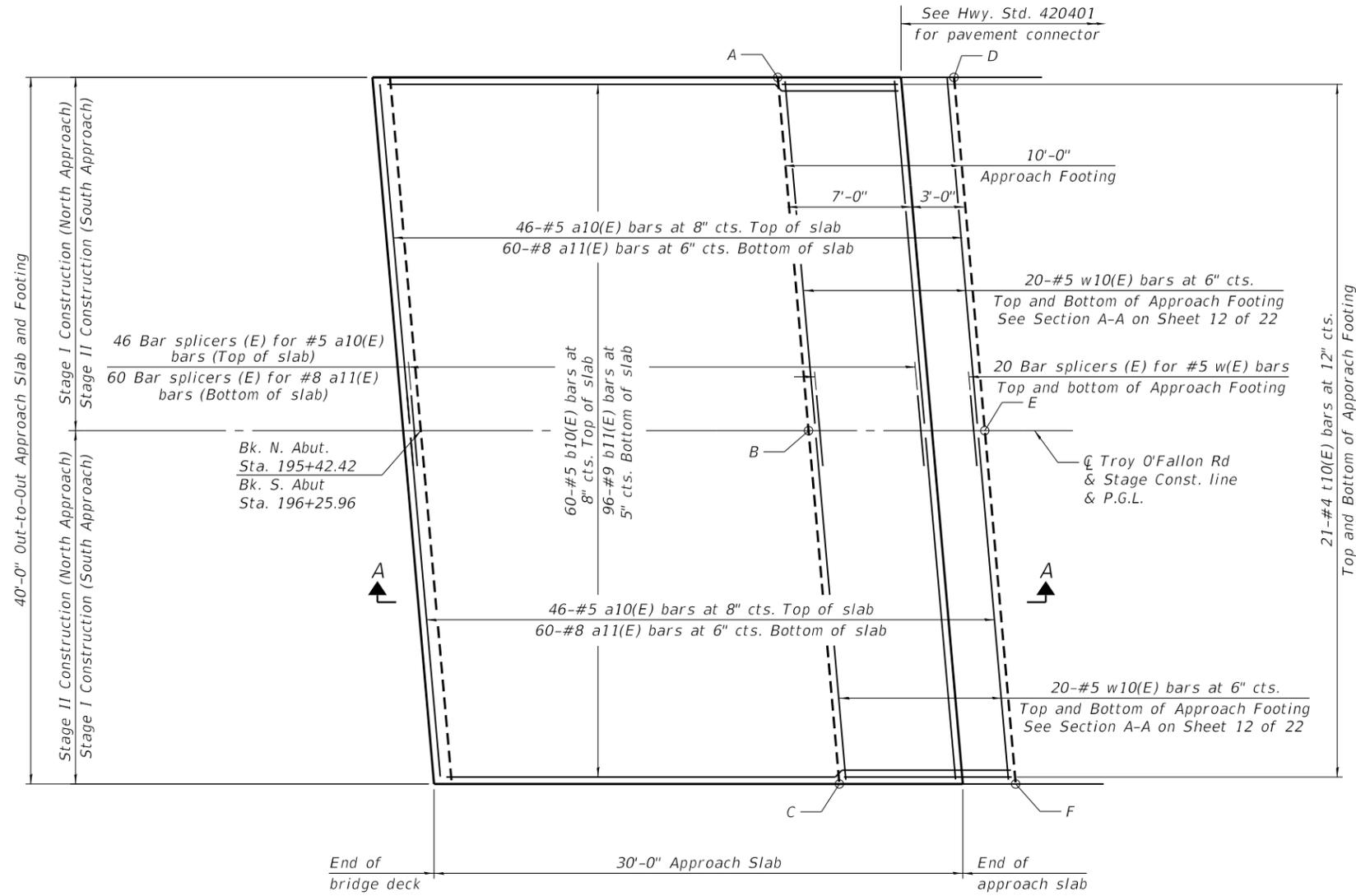
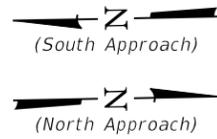
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

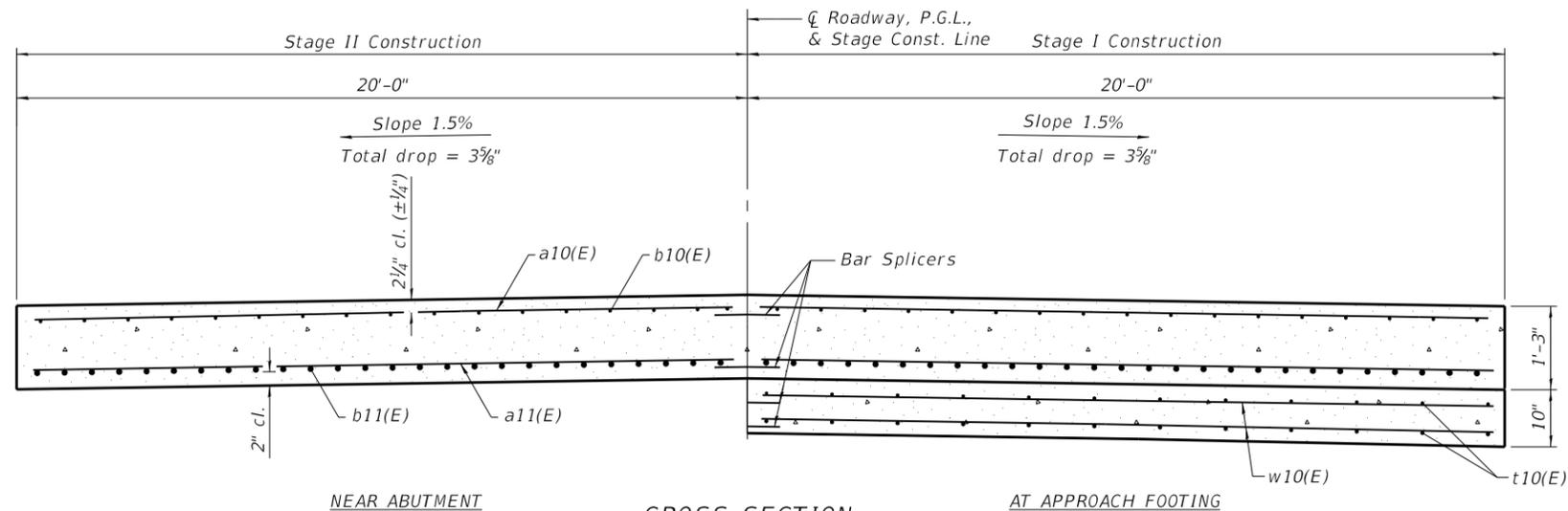
DIAPHRAGM DETAILS  
STRUCTURE NO. 060-3373

SHEET 10 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	27
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



PLAN



CROSS SECTION  
(N. Appr. Shown, S. Appr. Reverse)

TOP AND BOTTOM ELEVATIONS  
FOR APPROACH FOOTING

Point	North Approach		South Approach	
	Top	Bottom	Top	Bottom
A	483.23	482.40	484.70	483.87
B	483.52	482.69	484.97	484.14
C	483.21	482.38	484.64	483.81
D	483.19	482.36	484.90	484.06
E	483.48	482.65	485.16	484.33
F	483.18	482.35	484.83	483.99

Note:  
HMA Wearing Surface is not shown for clarity.

(Sheet 1 of 2)

MODEL: Default  
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200 E. Main St., Suite 200  
Moline, IL 61401  
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662.233.2877 fax  
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11/27/2016  
Professional Engineering Firm  
Professional Engineering Group  
20-086566

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		CHECKED -	JW	REVISED -	
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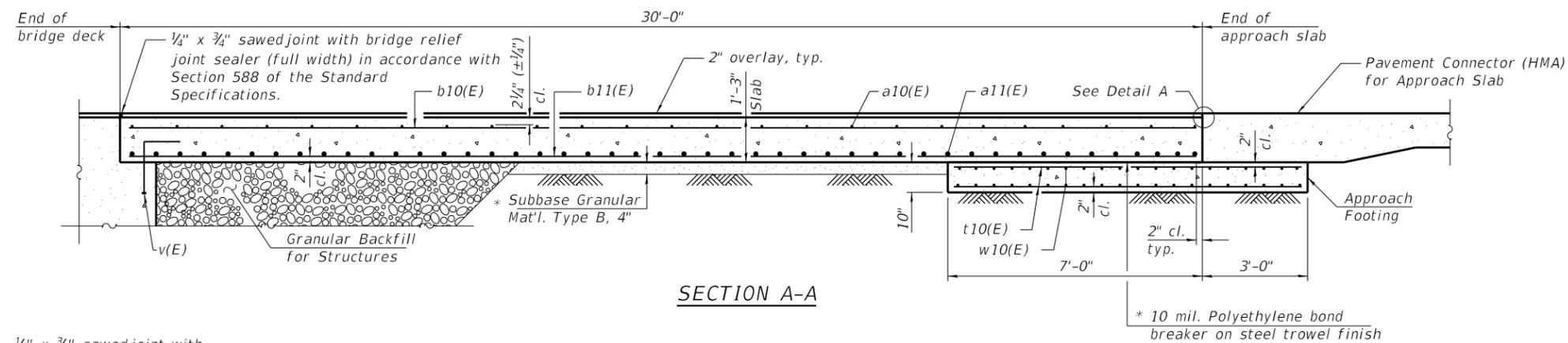
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

NORTH/SOUTH APPROACH SLAB PLAN  
STRUCTURE NO. 060-3373

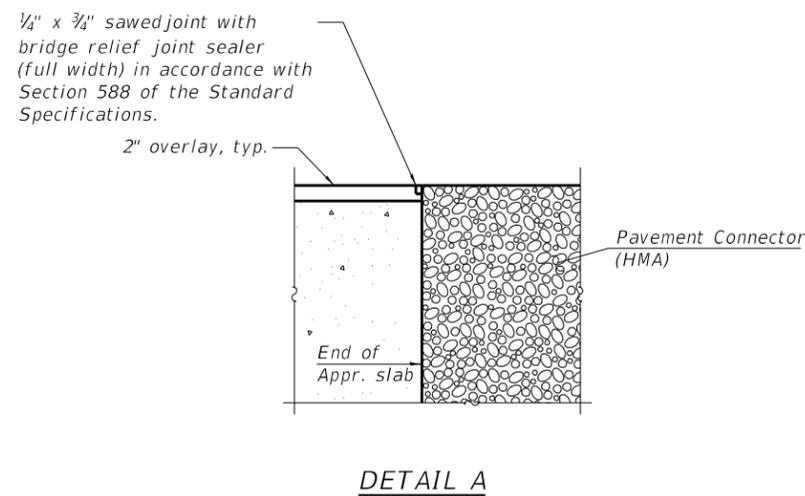
SHEET 11 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	28
CONTRACT NO. 97755				
ILLINOIS		FED. AID PROJECT		

Notes:  
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).  
 Approach footing concrete shall be paid for as Concrete Structures.  
 The approach footing maximum applied service bearing pressure (Q<sub>max</sub>) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 22.



\* Cost included with Concrete Superstructure (Approach Slab).



**TWO APPROACHES  
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a10(E)	184	#5	19'-9"	—
a11(E)	240	#8	19'-9"	—
b10(E)	120	#5	29'-8"	—
b11(E)	192	#9	29'-8"	—
t10(E)	84	#4	9'-8"	—
w10(E)	160	#5	19'-8"	—
Reinforcement Bars, Epoxy Coated			Pound	43,350
Concrete Structures			Cu. Yd.	24.7
Concrete Superstructure (Approach Slab)			Cu. Yd.	111.2
Hot-mix Asphalt Surface Course, IL-9.5FG, Mix "D", N70			Ton	30

(Sheet 2 of 2)

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**APPROACH SLAB DETAILS  
 STRUCTURE NO. 060-3373**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	29
CONTRACT NO. 97755				

SHEET 12 OF 22 SHEETS

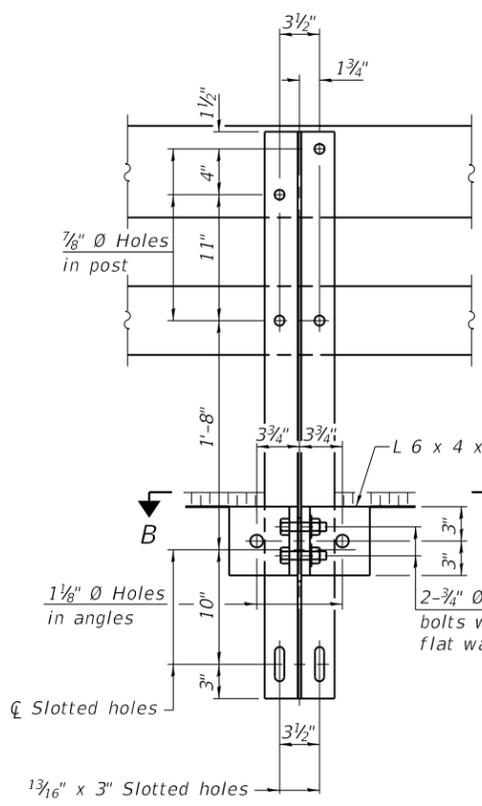
ILLINOIS FED. AID PROJECT

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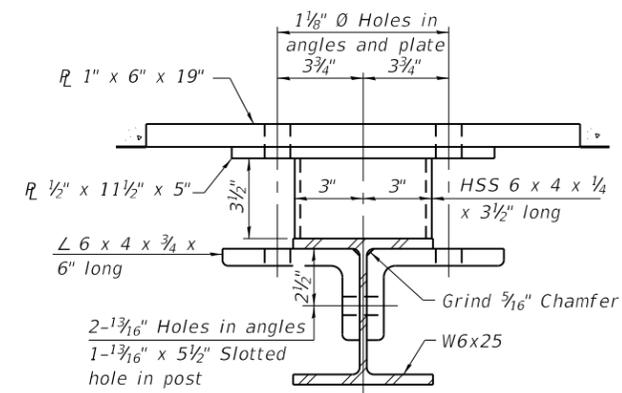
**Kaskaskia Engineering Group, LLC**  
 288 E. Main St., Suite 200  
 Moline, IL 61201  
 309.233.2877  
 309.233.2877 fax  
 www.kaskaskiaeng.com  
 11/27/2019  
 01/06/2021  
 30-086266

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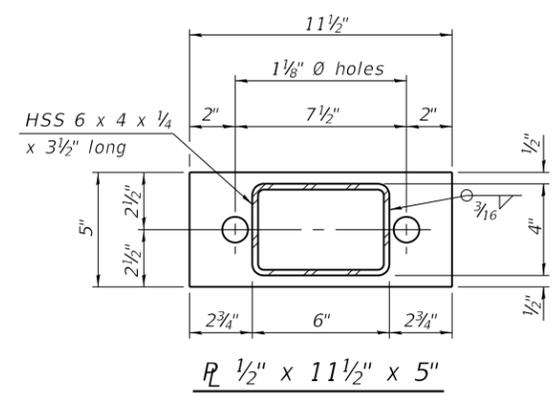
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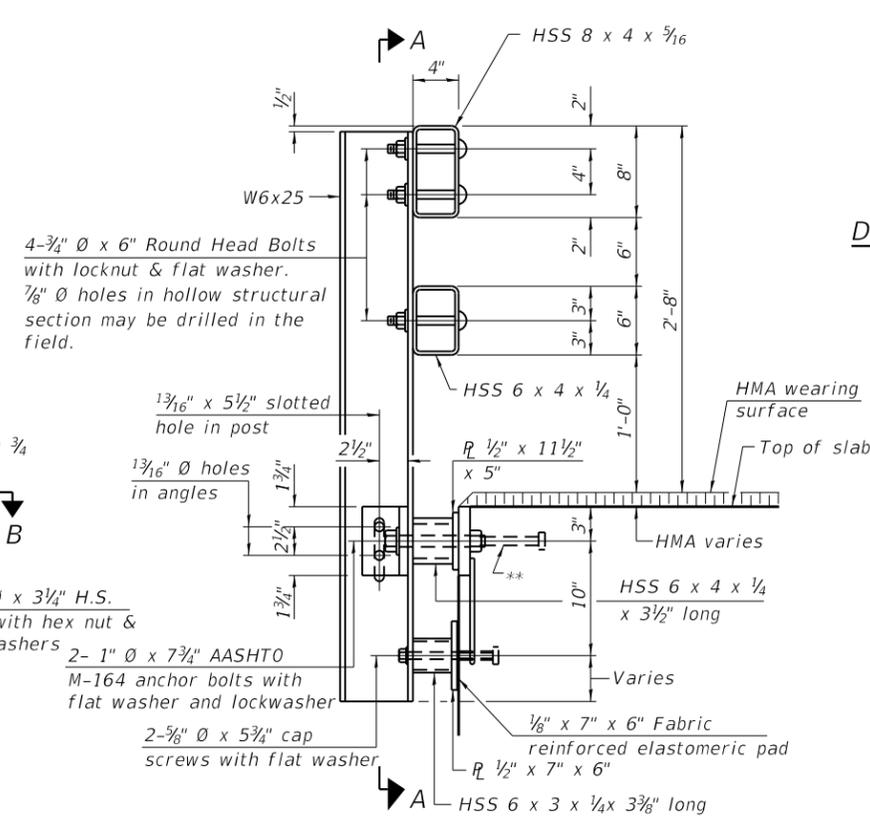
SECTION A-A



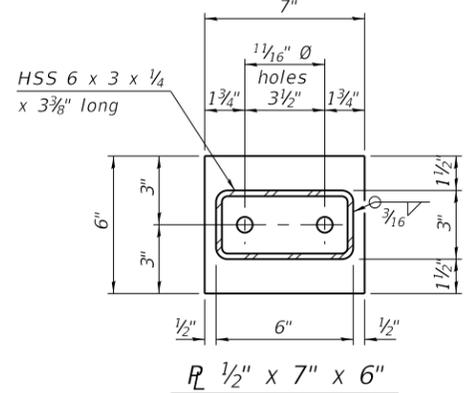
SECTION B-B



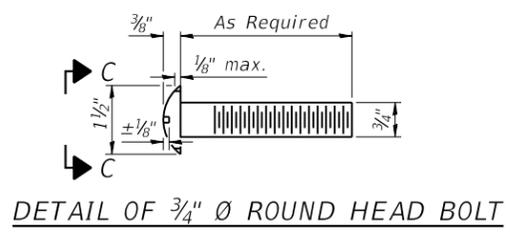
R 1 1/2" x 11 1/2" x 5"



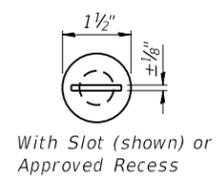
SECTION AT RAIL POST



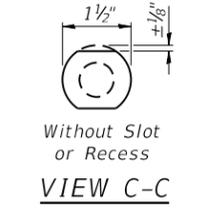
R 1 1/2" x 7" x 6"



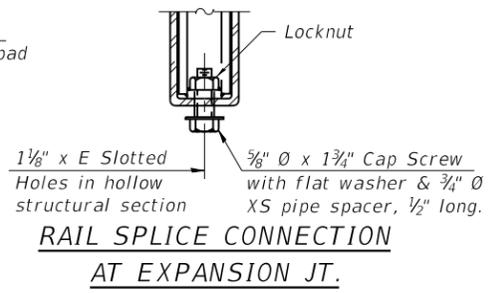
DETAIL OF 3/4" Ø ROUND HEAD BOLT



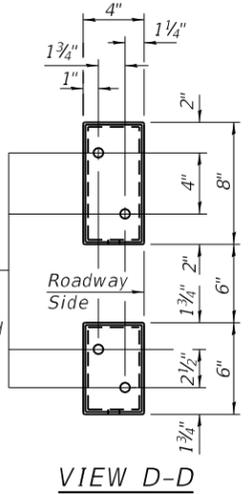
VIEW C-C



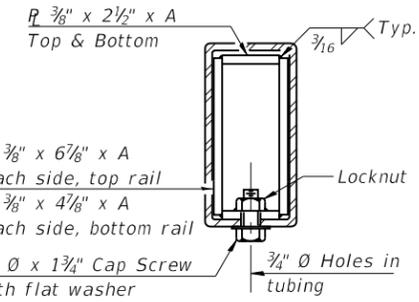
VIEW C-C



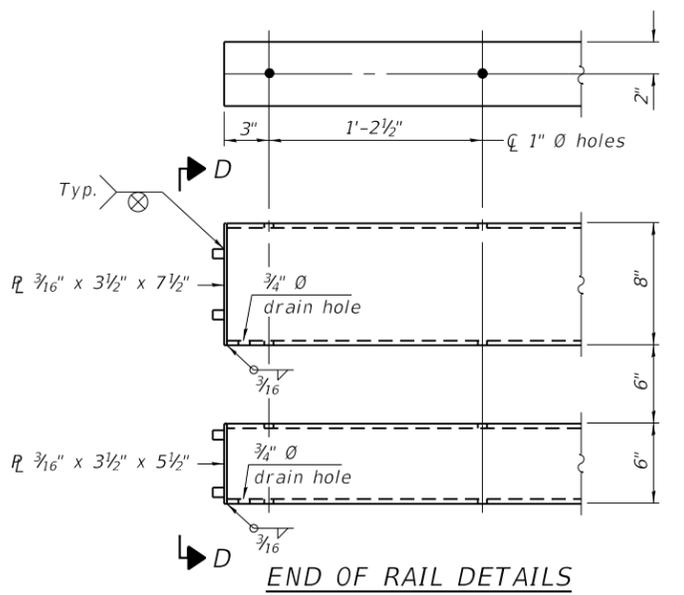
RAIL SPLICE CONNECTION AT EXPANSION JT.



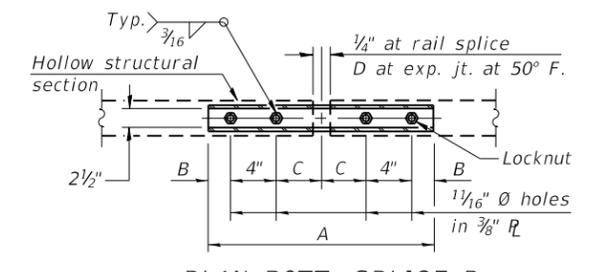
VIEW D-D



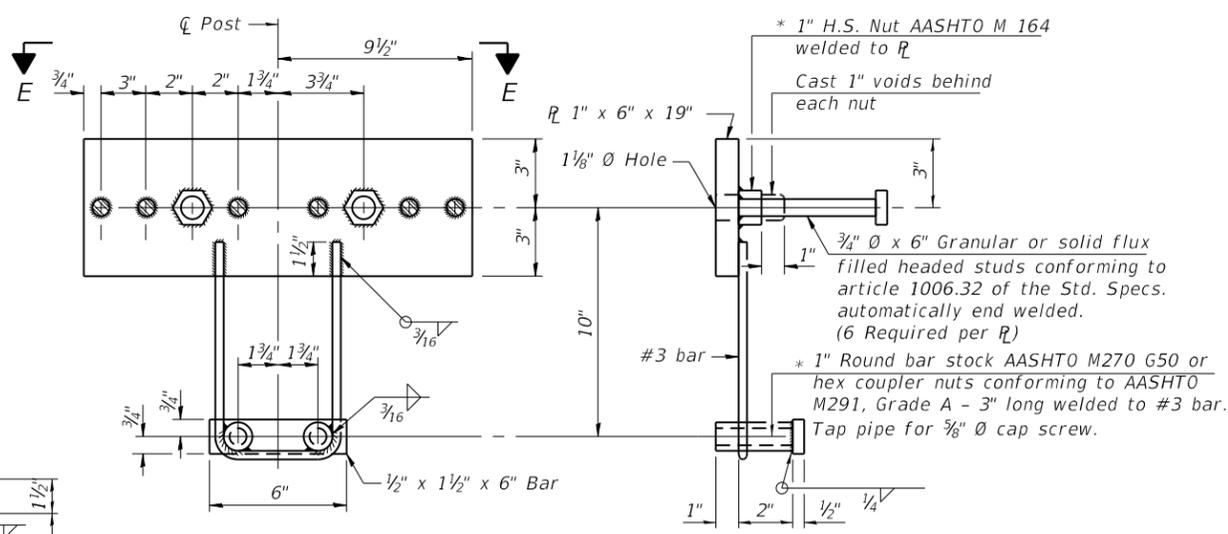
SECTION AT RAIL SPLICE



END OF RAIL DETAILS



PLAN-BOTT. SPLICE R TYPICAL



ANCHOR DEVICE

SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

\*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

T = Total movement at expansion joint as shown on the design plans.

Notes:  
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.  
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.  
 \*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	164

R-34HMAWS 8-11-2017 (6'-3" Maximum Post Spacing) (1 1/4" minimum to 3 1/8" maximum HMA thickness)



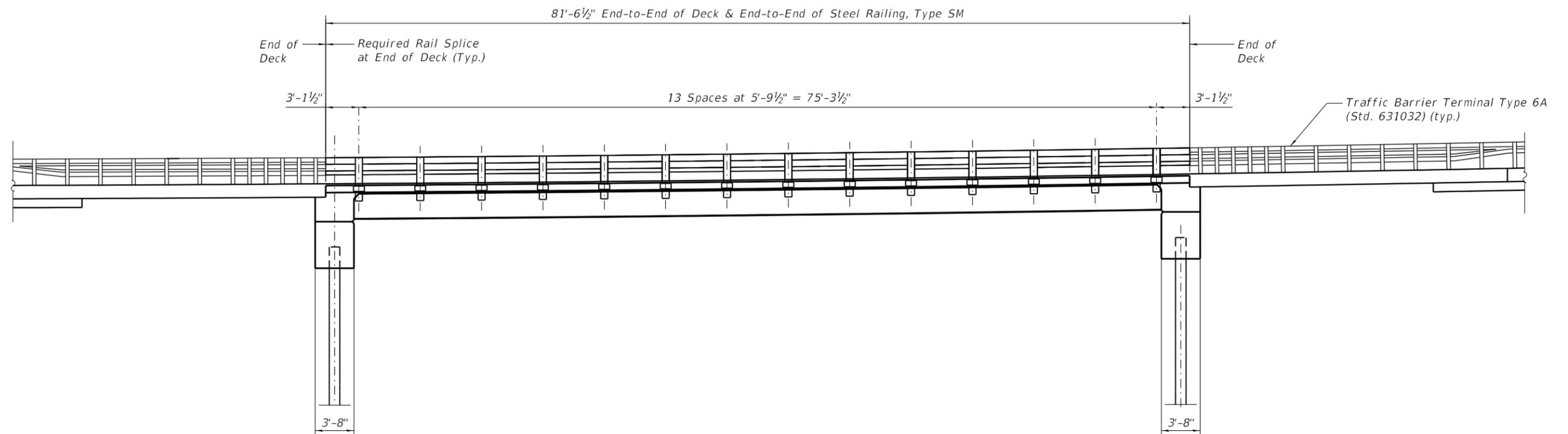
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	JW	-
	NDP	-
	JW	-

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE SM WITH HOT-MIX ASPHALT  
 WEARING SURFACE  
 STRUCTURE NO. 060-3373  
 SHEET 13 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	30

CONTRACT NO. 97755  
 ILLINOIS FED. AID PROJECT



RAIL POST SPACING

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**Kaskaskia**  
 Engineering Group, LLC  
 PROFESSIONAL ENGINEERING GROUP  
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 617.233.2877 phone  
 617.233.2977 fax  
 www.kaskaskiaeng.com  
 11/27/2016  
 617.233.2877  
 20-000566

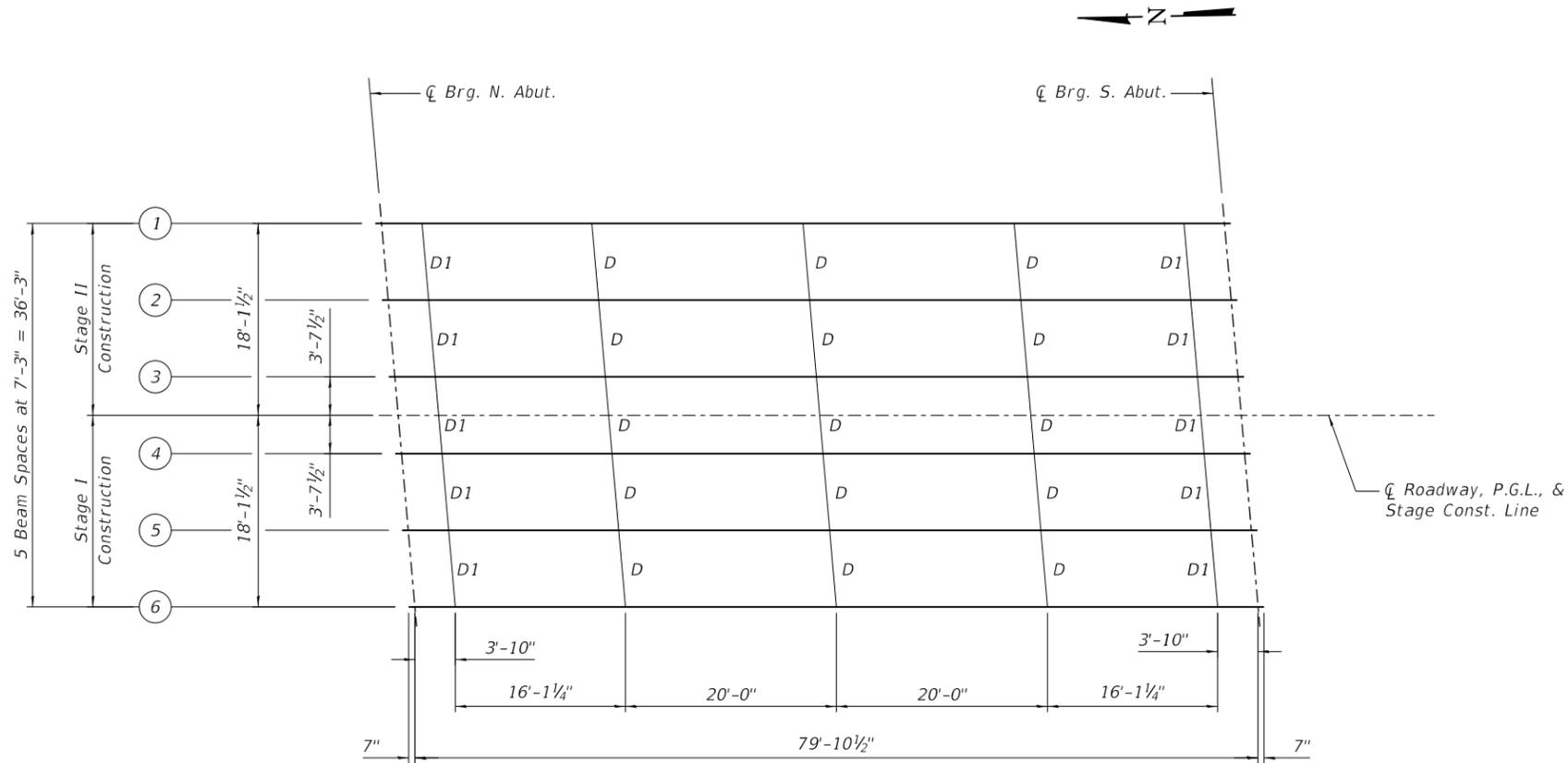
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE SM  
 STRUCTURE NO. 060-3373**

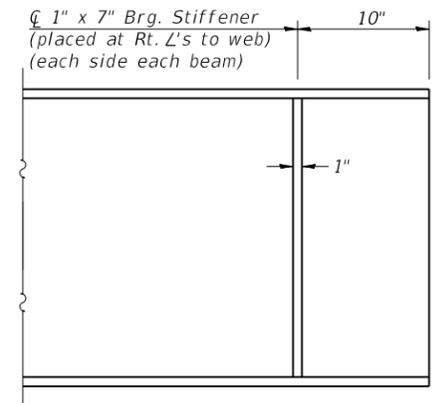
SHEET 14 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 97755				
		ILLINOIS	FED. AID PROJECT	

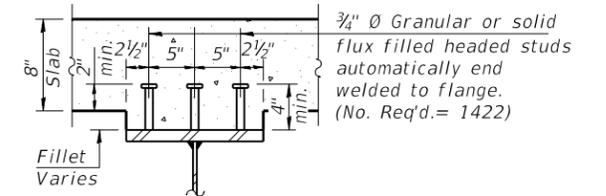


**FRAMING PLAN**

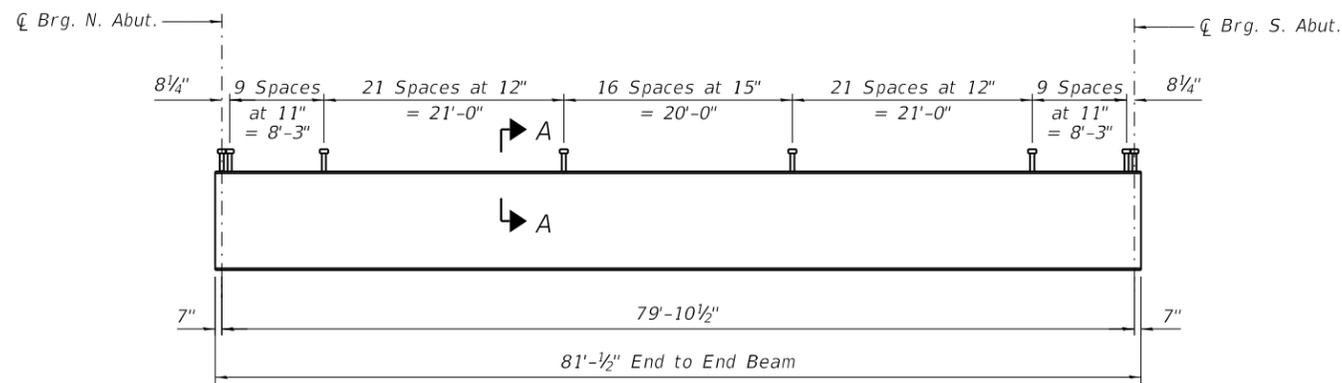
All beams are W 30x191, AASHTO M 270 Grade 50, NTR.



**END ELEVATION**



**SECTION A-A**



**ELEVATION**

**TOP OF BEAM ELEVATIONS**

	☐ N. Abut.	☐ S. Abut.
Beam 1	483.53	484.43
Beam 2	483.65	484.55
Beam 3	483.77	484.68
Beam 4	483.77	484.68
Beam 5	483.66	484.58
Beam 6	483.56	484.48

For Fabrication Only

MODEL: Default  
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USER NAME =	ndp	DESIGNED -	MLC	REVISED -	
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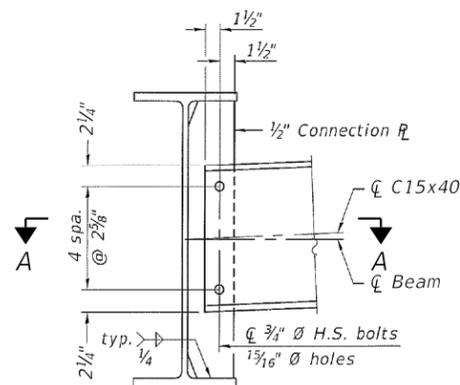
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**STRUCTURAL STEEL**  
**STRUCTURE NO. 060-3373**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	32
CONTRACT NO. 97755				

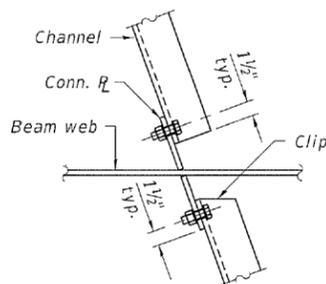
INTERIOR BEAM MOMENT TABLE		
		0.5 Sp.
$I_s$	( $in^4$ )	9200
$I_c(n)$	( $in^4$ )	23645
$I_c(3n)$	( $in^4$ )	17382
$S$	( $in^3$ )	600
$S(n)$	( $in^3$ )	849
$S(3n)$	( $in^3$ )	771
DC1	( $k/ft$ )	0.966
$M_{DC1}$	( $k$ )	770.7
DC2	( $k/ft$ )	0.078
$M_{DC2}$	( $k$ )	62.5
DW	( $k/ft$ )	0.489
$M_{DW}$	( $k$ )	389.9
LLDF		0.612
$M_{\ell+IM}$	( $k$ )	1259.9
$M_u$ (Strength I)	( $k$ )	3831.1
$\phi_f M_n$	( $k$ )	4165.7
$f_s$ DC1	( $ksi$ )	15.4
$f_s$ DC2	( $ksi$ )	1.0
$f_s$ DW	( $ksi$ )	6.1
$f_s$ ( $\ell+IM$ )	( $ksi$ )	17.8
$f_s$ (Service II)	( $ksi$ )	45.6
$0.95R_n F_{yf}$	( $ksi$ )	47.5
$V_f$	( $k$ )	27.5

BEAM REACTION TABLE		
	Abutments	
	Interior	Exterior
LLDF	0.775	0.610
OCF	-	1.017
$R_{DC1}$	( $k$ ) 38.6	31.6
$R_{DC2}$	( $k$ ) 3.1	3.1
$R_{DW}$	( $k$ ) 19.5	19.5
$R_{\ell}$	( $k$ ) 59.0	55.3
$R_{IM}$	( $k$ ) 16.3	13.0
$R_{Total}$	( $k$ ) 136.5	122.6

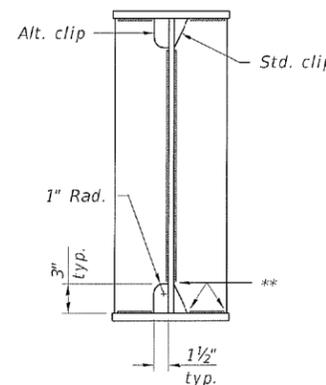


**INTERIOR DIAPHRAGM D**  
(15 Required)

- Notes:
- Two hardened washers required for each set of oversized holes.
  - Alternate channels of equal depth and larger weight are permitted to facilitate material acquisition. Alternate channels if utilized, shall be provided at no additional cost to the Department.
  - See Interior Diaphragm/Cross-Frame Framing Details for connection plate orientation.

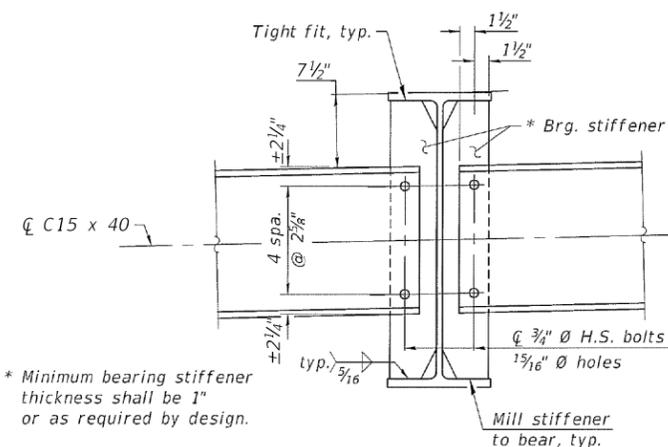


**SECTION A-A**



**WELD LIMITS AND CLIP DETAILS**

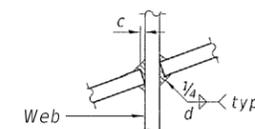
Interior beam shown, exterior beam similar  
\*\* Stop welds 1/4" ( $\pm 1/8$ ") from edges as shown.  
Typical.



\* Minimum bearing stiffener thickness shall be 1" or as required by design.

**END DIAPHRAGM D1**  
(10 Required)

- Notes:
- Two hardened washers required for each set of oversized holes.
  - Alternate channels of equal depth and larger weight are permitted to facilitate material acquisition. Alternate channels if utilized, shall be provided at no additional cost to the Department.
  - See Diaphragm/Cross-Frame Framing Details for connection plate orientation.



**WEB WELD DETAIL**

$d = 1/4 + c$

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads ( $in^4$  and  $in^3$ ).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) due to short-term composite live loads ( $in^4$  and  $in^3$ ).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads ( $in^4$  and  $in^3$ ).

DC1: Un-factored non-composite dead load (kips/ft.).  
 $M_{DC1}$ : Un-factored moment due to non-composite dead load (kip-ft.).  
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).  
 $M_{DC2}$ : Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).  
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).  
 $M_{DW}$ : Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
 $M_{\ell+IM}$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).  
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\ell+IM}$

$\phi_f M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1.

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
 $M_{DC1} / S_{nc}$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
 $M_{DC2} / S_c(3n)$

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
 $M_{DW} / S_c(3n)$

$f_s$  ( $\ell+IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).  
 $M_{\ell+IM} / S_c(n)$

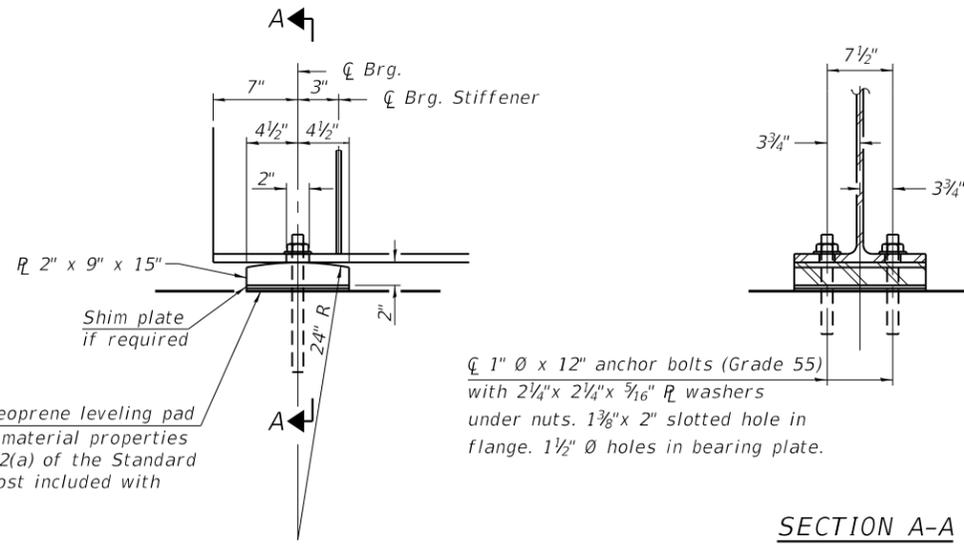
$f_s$  (Service II): Sum of stresses as computed below (ksi).  
 $f_{SDC1} + f_{SDC2} + f_{SDW} + 1.3 f_s \ell + IM$

$0.95R_n F_{yf}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_{SDC1} + f_{SDC2}) + 1.5 f_{SDW} + 1.75 f_s (\ell + IM)$

$\phi_f F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

$V_f$ : Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



1/8" elastomeric neoprene leveling pad according to the material properties of Article 1052.02(a) of the Standard Specifications. Cost included with Structural Steel.

1"  $\varnothing$  x 12" anchor bolts (Grade 55) with 2 1/4" x 2 1/4" x 5/16" R washers under nuts. 1 3/8" x 2" slotted hole in flange. 1 1/2"  $\varnothing$  holes in bearing plate.

**SECTION A-A**

**ELEVATION AT ABUTMENT**

**FIXED BEARING AT ABUTMENTS**  
(12 Required)

**BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Anchor Bolts 1"	Each	24

**Notes:**

- Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer -approved alternate material) of the grade and diameter specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- The structural steel plates of the bearings shall conform to the requirements of AASHTO M 270, Grade 50.
- All bearing plates, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M 111 or M 262 as applicable.
- Beams shall be braced for stability during erection and remain braced until deck is poured and cured.
- Anchor bolts at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.
- Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

MODEL: Default  
FILE NAME: P:\20-1124-00 Mill Creek Bridge\0\_IDOT\Structures\017\_Bearing\_Details.dgn



200 E. Main St., Suite 300  
Marengo, Illinois 62428  
618.233.2877 phone  
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11727662400  
Illinois Professional Design Firm  
Professional Engineering Group  
20-086266

USER NAME =	ndp	DESIGNED -	MLC	REVISED -	
		CHECKED -	JW	REVISED -	
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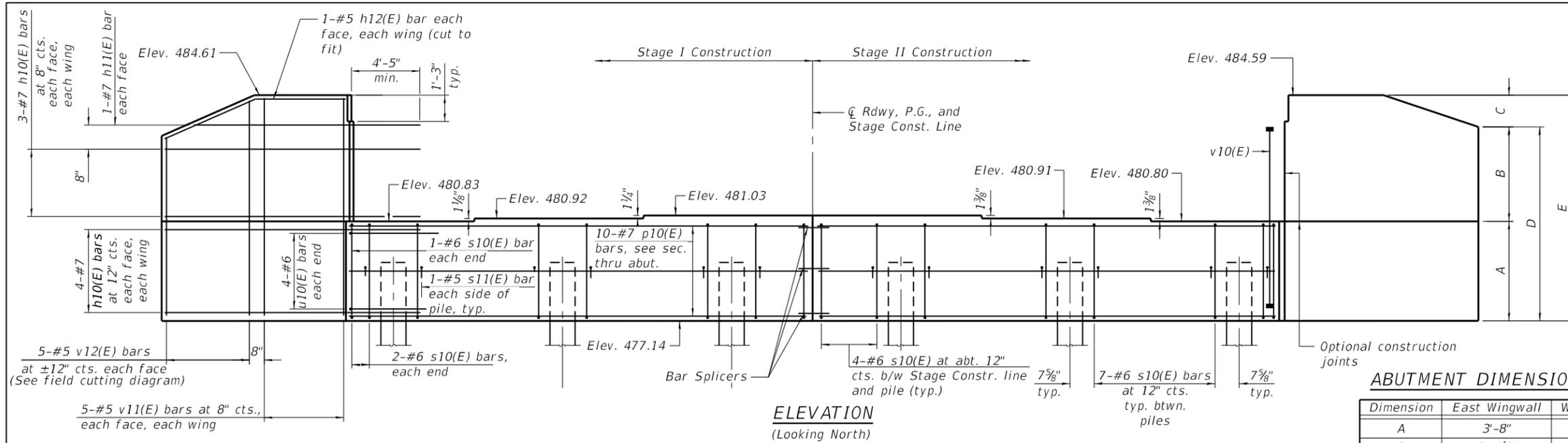
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BEARING DETAILS**  
**STRUCTURE NO. 060-3373**

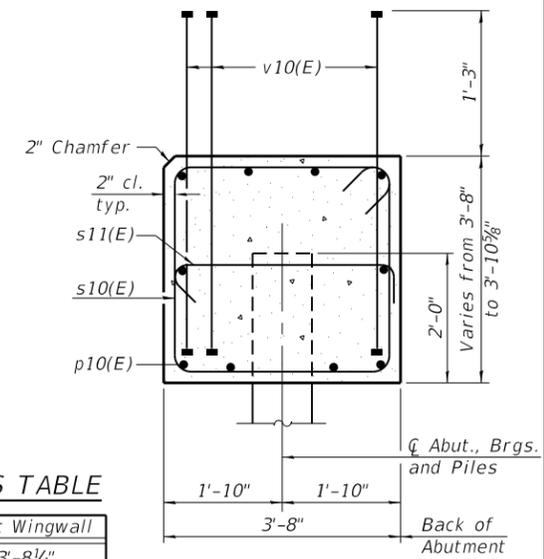
SHEET 17 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	34
CONTRACT NO. 97755				

ILLINOIS FED. AID PROJECT



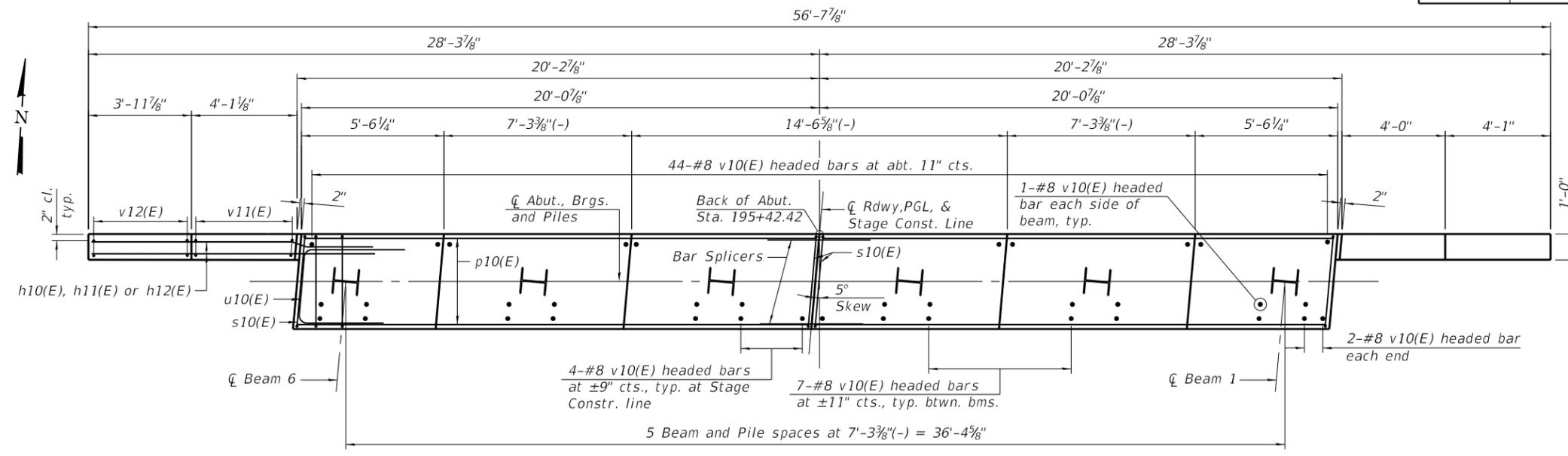
**ELEVATION**  
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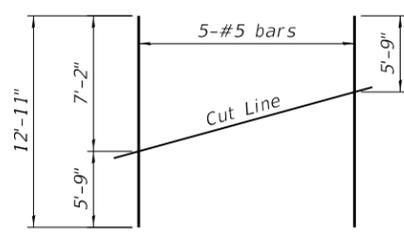
**SEC. THRU ABUT.**  
Dimensions at right angles to abutment.

**ABUTMENT DIMENSIONS TABLE**

Dimension	East Wingwall	West Wingwall
A	3'-8"	3'-8 1/4"
B	2'-4 1/2"	2'-4 3/8"
C	1'-5"	1'-5"
D	6'-0 3/8"	6'-0 5/8"
E	7'-5 3/8"	7'-5 5/8"

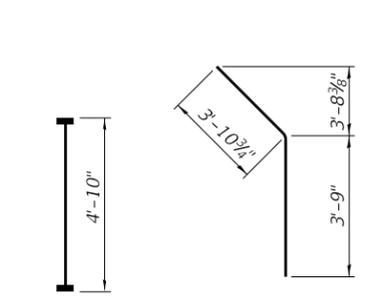


**PLAN**

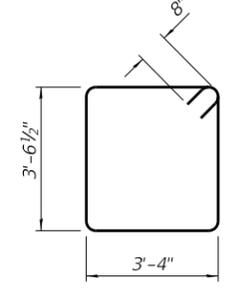


**FIELD CUTTING DIAGRAM**

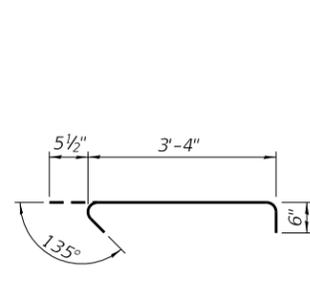
Order v12(E) full length. Cut as shown and use remainder of bars in opposite wing.



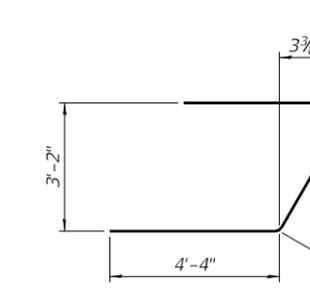
**BAR v10(E)**  
(Headed)



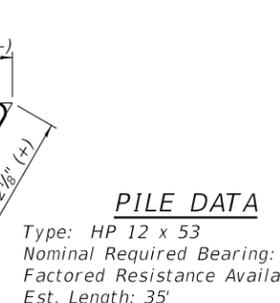
**BAR h12(E)**



**BAR s10(E)**



**BAR s11(E)**



**BAR u10(E)**

**PILE DATA**

Type: HP 12 x 53  
Nominal Required Bearing: 152 k  
Factored Resistance Available: 230 k  
Est. Length: 35'  
No. Production Piles: 5  
No. Test Piles: 1

**Notes:**  
Pour steps monolithically with cap.  
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.  
For details of piles see sheet 20 of 22.  
Space reinforcement in cap to miss dowel rods.

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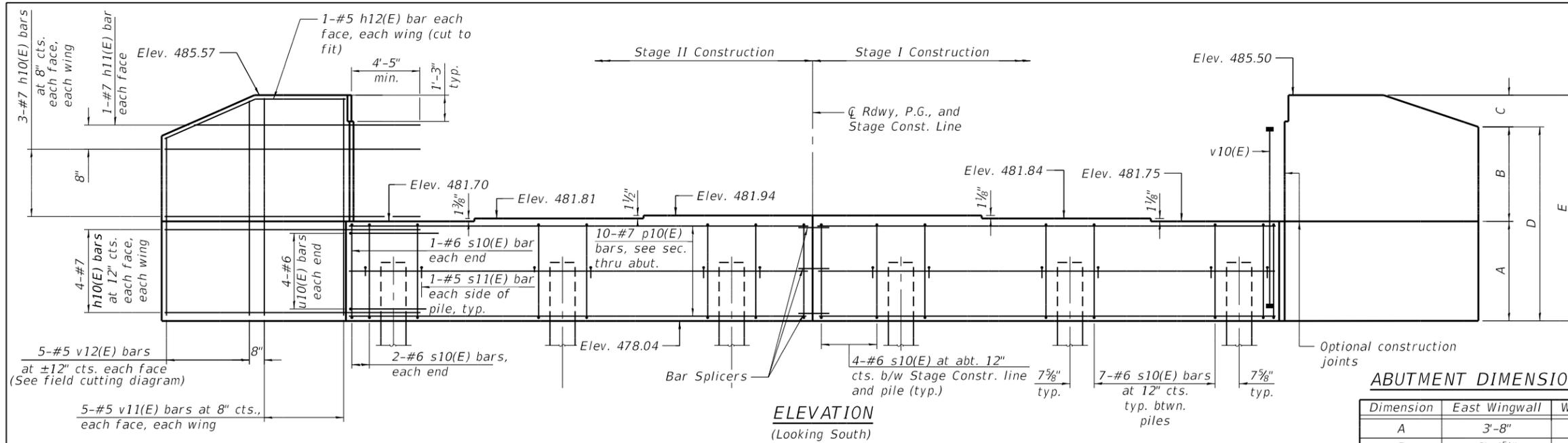
**Kaskaskia**  
Engineering Group, LLC  
Professional Engineering Firm  
1127 N. Main St., Suite 200  
Moline, IL 61401  
662.233.2877  
www.kaskaskia.com

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PLOT DATE =	3/15/2021	DRAWN -	NDP	REVISED -	
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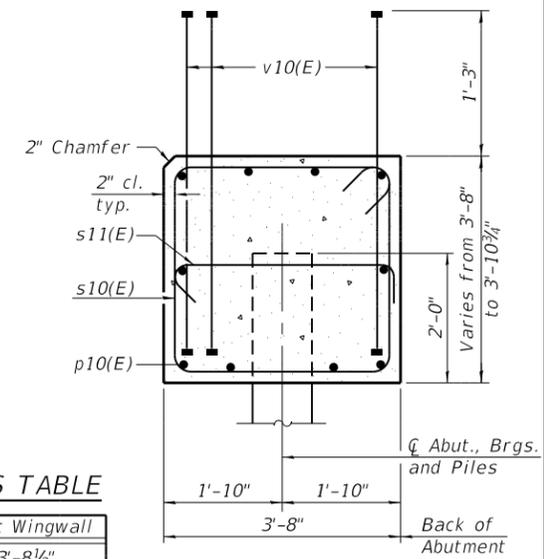
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**NORTH ABUTMENT**  
**STRUCTURE NO. 060-3373**  
SHEET 18 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	35
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				



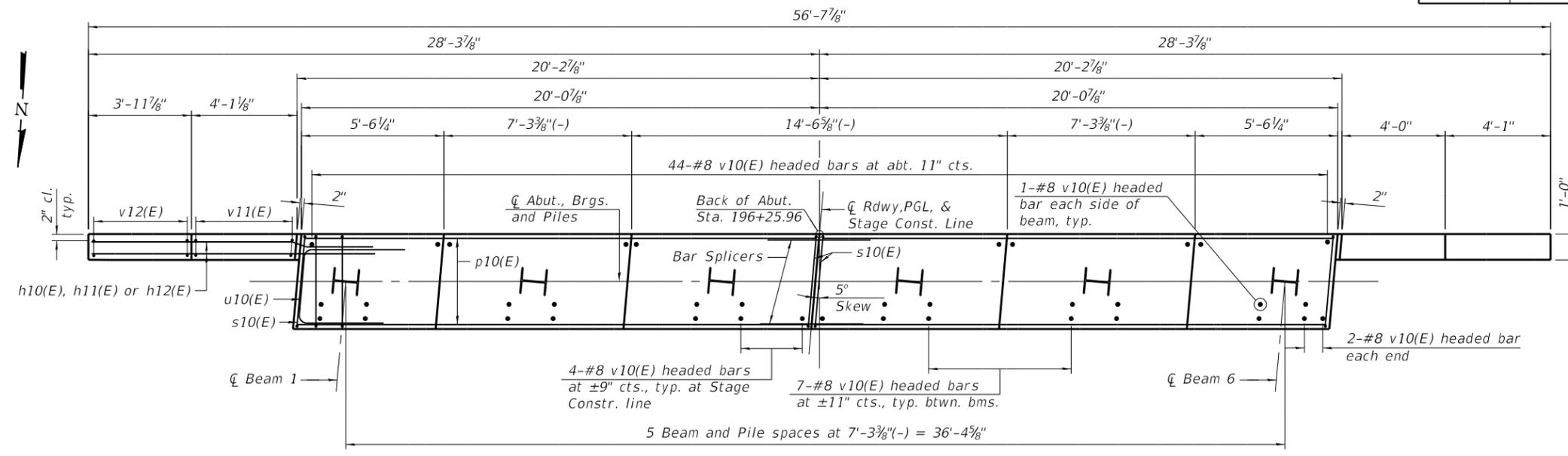
**ELEVATION**  
(Looking South)



**SEC. THRU ABUT.**  
Dimensions at right angles to abutment.

**ABUTMENT DIMENSIONS TABLE**

Dimension	East Wingwall	West Wingwall
A	3'-8"	3'-8 1/2"
B	2'-4 3/8"	2'-4 3/8"
C	1'-5"	1'-5"
D	6'-0 1/2"	6'-1 1/8"
E	7'-5 1/2"	7'-6 1/8"



**PLAN**

**BILL OF MATERIAL**  
(Two Abutments)

Bar	No.	Size	Length	Shape
h10(E)	56	#7	12'-6"	—
h11(E)	8	#7	10'-4"	—
h12(E)	8	#5	7'-8"	—
p10(E)	40	#7	19'-9"	—
s10(E)	84	#6	15'-1"	□
s11(E)	24	#5	4'-4"	┌
u10(E)	16	#6	11'-10"	└
v10(E)	192	#8	4'-8"	—
v11(E)	40	#5	7'-2"	—
v12(E)	20	#5	12'-11"	—
Structure Excavation		Cu. Yd.	184	
Concrete Structures		Cu. Yd.	50.3	
Reinforcement Bars, Epoxy Coated		Pound	8,540	
Furnishing - Piles, HP 12 x 53		Foot	375	
Driving Piles		Foot	375	
Test Pile, HP 12 x 53		Each	2	
Protective Coating		Sq. Yd.	30	

**PILE DATA**

Type: HP 12 x 53  
Nominal Required Bearing: 152 k  
Factored Resistance Available: 230 k  
Est. Length: 40'  
No. Production Piles: 5  
No. Test Piles: 1

Notes:  
Pour steps monolithically with cap.  
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.  
For details of piles see sheet 20 of 22.  
Space reinforcement in cap to miss dowel rods.

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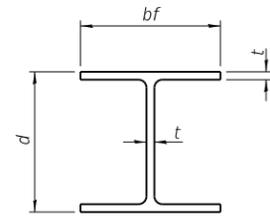
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT  
STRUCTURE NO. 060-3373

SHEET 19 OF 22 SHEETS

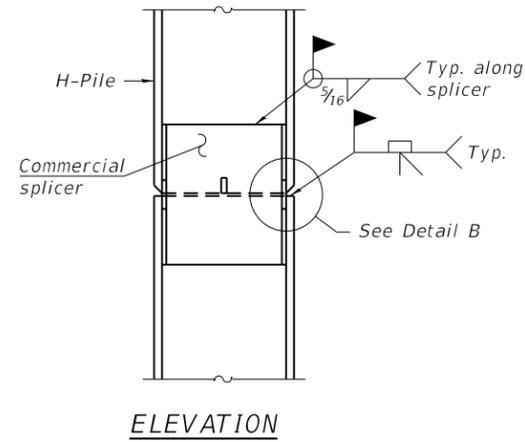
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	36
CONTRACT NO. 97755				

ILLINOIS FED. AID PROJECT

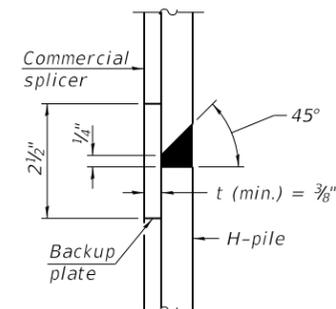


**STEEL PILE TABLE**

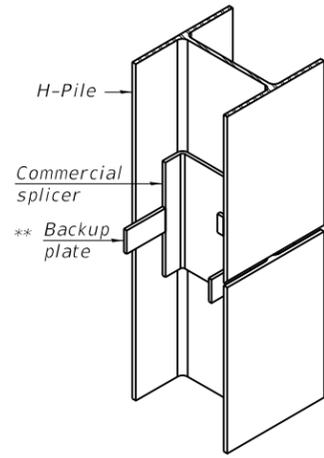
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 3/8"	14 3/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



**ELEVATION**

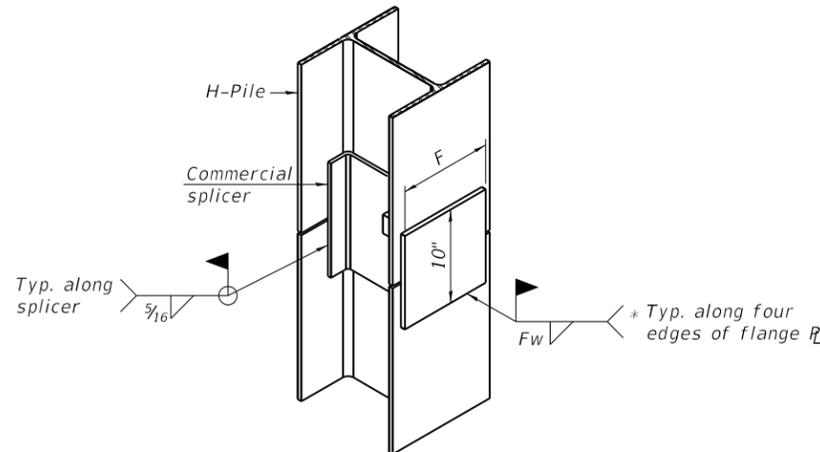


**DETAIL "B"**



**ISOMETRIC VIEW**

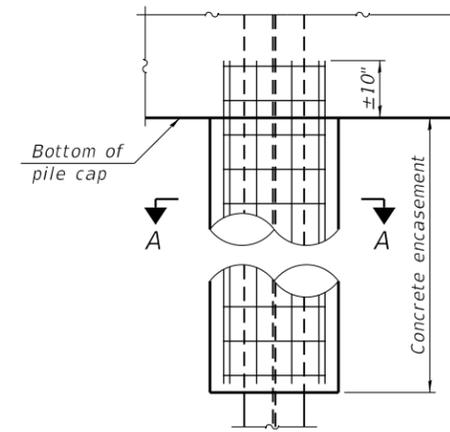
**WELDED COMMERCIAL SPLICE**



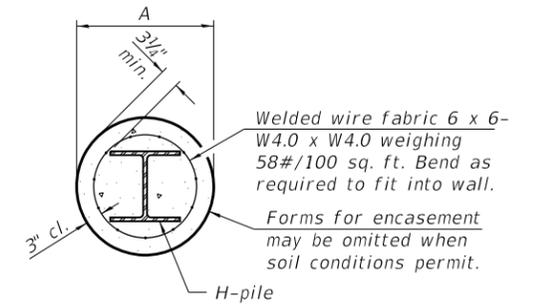
**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

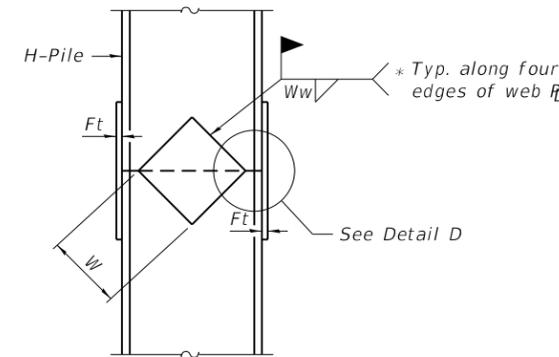


**ELEVATION**

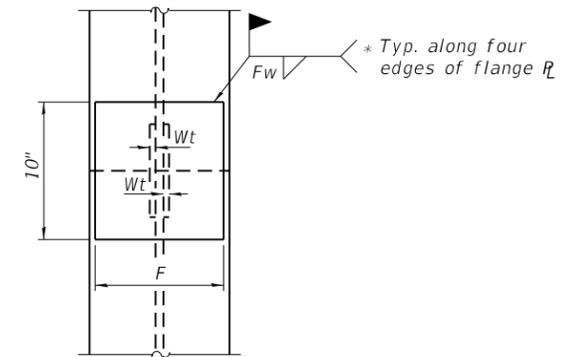


**SECTION A-A**

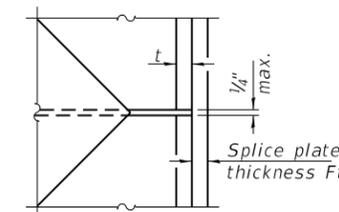
**INDIVIDUAL PILE CONCRETE ENCASUREMENT (when specified)**



**ELEVATION**



**END VIEW**



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

Note:  
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 1-1-2020

MODEL: Default  
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200 E. Main St., Suite 200  
Moline, IL 61704  
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617.233.2977 fax  
www.kaskaskiaeng.com

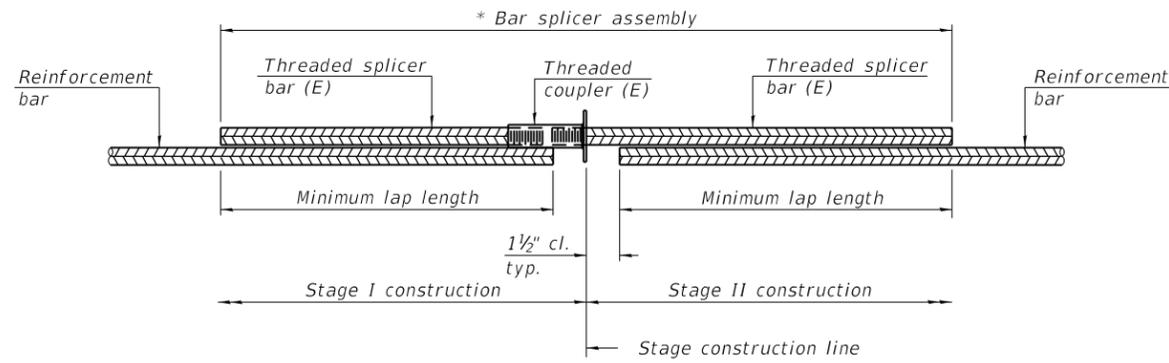
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS  
STRUCTURE NO. 060-3373

SHEET 20 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	37
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

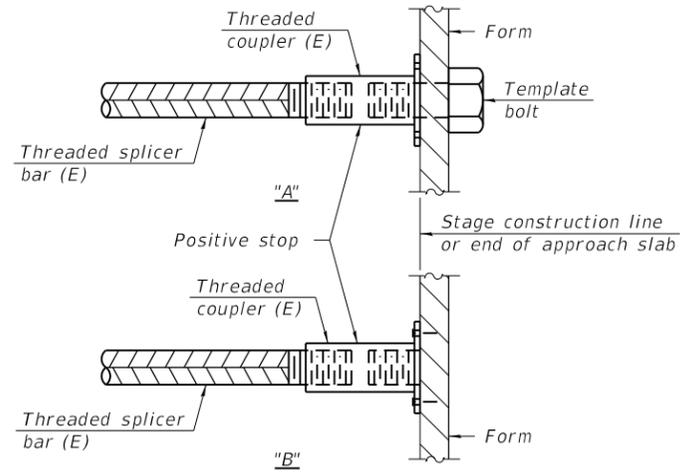


**STANDARD BAR SPLICER ASSEMBLY PLAN**  
 (All components shall be provided from one supplier)

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

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

Location	Bar size	No. assemblies required	Minimum lap length
Deck	#5	263	3'-0"
Abutment Diaphragm	#6	14	4'-0"
Abutment Cap	#7	20	4'-2"
Approach	#5	92	3'-0"
Approach	#8	120	4'-9"
Approach Footing	#5	80	3'-0"



**INSTALLATION AND SETTING METHODS**

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

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

MODEL: Default  
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BSD-1

1-1-2020



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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY DETAILS  
 STRUCTURE NO. 060-3373

SHEET 21 OF 22 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	38
CONTRACT NO. 97755				

ILLINOIS FED. AID PROJECT

**RECORD OF SUBSURFACE EXPLORATION**

BORING: B-1

PROJECT: MILL CREEK BRIDGE ELEV.: 477.43 Ft.  
 MADISON COUNTY, ILLINOIS DATE DRILLED: 12/16/93  
 DRILLING METHOD: Hollow Stem Auger PROJECT NO.: 11345  
 DRILLED BY: Gotto GROUNDWATER: During drilling - 15.3 Feet  
 LOGGED BY: Brooks 4.0 Hours after completion - 11.4 Feet  
 PIEZOMETER INSTALLED: No

ELEVATION DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	DESCRIPTION	REMARKS	RECOVERY RATIO in/in	DRY UNIT WEIGHT, pcf	MOISTURE CONTENT %	PENETROMETER, tsf
480		CL	Gray-Brown Silty CLAY, FILL					
475	7/6 8/6 13/6				8/18		22	3.25
470		ML	Gray-Brown Clayey SILT					
465	2/6 4/6 7/6				14/18		23	
460			"Gray below 12.0"					
455	4/6 5/6				18/18		26	2.0
450			"w Sand layers below 19.7"					
445	3/5 5/6 19/6				18/18		28	1.5
440		CL	Gray Clayey SHALE	1.	8/8		16	4.0

Remark: 1. Auger refusal @ 23.0'.

BURLINGTON ENVIRONMENTAL INC.

**RECORD OF SUBSURFACE EXPLORATION**

BORING: B-2

PROJECT: MILL CREEK BRIDGE ELEV.: 480.95 Ft.  
 MADISON COUNTY, ILLINOIS DATE DRILLED: 12/16/93  
 DRILLING METHOD: Hollow Stem Auger PROJECT NO.: 11345  
 DRILLED BY: Gotto GROUNDWATER: Not noticed during drilling  
 LOGGED BY: Brooks At completion - 33.6 Feet  
 PIEZOMETER INSTALLED: No 0.5 Hours after completion - 16.2 Feet

ELEVATION DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	DESCRIPTION	REMARKS	RECOVERY RATIO in/in	DRY UNIT WEIGHT, pcf	MOISTURE CONTENT %	PENETROMETER, tsf
485		ML	Gray-Brown Clayey SILT					
480	3/5 4/6 4/6				18/18		27	0.75
475								
470	4/6 4/6 5/6				18/18		24	1.5
465			"w Sand below 12.0"					
460	7/6 8/6 9/6				16/18		24	
455		SH	Gray-Brown Silty SAND					
450	5/6 6/6 6/6				14/18			
445		ML	Gray Clayey SILT					
440	4/6 5/6 2/6	SH	Gray-Brown Silty SAND		8/18		27	

Remark: 1. Auger refusal @ 33.5'.

BURLINGTON ENVIRONMENTAL INC.

**RECORD OF SUBSURFACE EXPLORATION**

BORING: B-2

PROJECT: MILL CREEK BRIDGE ELEV.: 480.95 Ft.  
 MADISON COUNTY, ILLINOIS DATE DRILLED: 12/16/93  
 DRILLING METHOD: Hollow Stem Auger PROJECT NO.: 11345  
 DRILLED BY: Gotto GROUNDWATER: Not noticed during drilling  
 LOGGED BY: Brooks At completion - 33.6 Feet  
 PIEZOMETER INSTALLED: No 0.5 Hours after completion - 16.2 Feet

ELEVATION DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	DESCRIPTION	REMARKS	RECOVERY RATIO in/in	DRY UNIT WEIGHT, pcf	MOISTURE CONTENT %	PENETROMETER, tsf
455		CL	Gray Clayey SHALE					
450	8/6 25/6 48/6				18/18		22	3.75
445								
440	50/6 88/1			1.	7/7		15	4.5*

Remark: 1. Auger refusal @ 33.5'.

BURLINGTON ENVIRONMENTAL INC.

FOR INFORMATION ONLY

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS  
STRUCTURE NO. 060-3373

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1937	18-00084-04-BR	MADISON	39	39
CONTRACT NO. 97755				
ILLINOIS FED. AID PROJECT				

SHEET 22 OF 22 SHEETS

MODEL: Default  
FILE NAME: P:\20-1124-00 Mill Creek Bridge\0\_IDOT\Structures\022\_Borings.dgn

**Kaskaskia**  
Engineering Group, LLC  
Professional Engineering Group

USER NAME =	ndp	DESIGNED -	MLC	REVISED -	
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