

06-11-2021 LETTING ITEM 230

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	1
FEDERAL AID PROJECT		ILLINOIS	CONTRACT NO. 91594	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PLANS FOR PROPOSED  
FEDERAL-AID PROJECT**  
FAS 663 (CH 6)  
SECTION 13-00104-00-BR  
PROJECT NO. S42W(665)  
DOUGLAS COUNTY  
C-95-002-21

SEE SHEET 2 FOR  
INDEX OF SHEETS AND  
LIST OF ILLINOIS DOT HIGHWAY STANDARDS

**UTILITY CONTACTS:**

**UTILITY TYPE:**

**ELECTRIC**  
EASTERN ILLINI ELECTRIC COOP  
ATT: ALAN SCHWEIGHART  
PHONE: (217) 379-2131 EX 173

**UTILITY TYPE:**

**TELEPHONE**  
FRONTIER COMMUNICATIONS  
ATT: KALIN HINSHAW  
PHONE: (815) 895-1515

**UTILITY TYPE:**

**WATER**  
WEST PRAIRIE WATER COMPANY  
ATT: TERRY SUDETH  
PHONE: (217) 465-5306

**UTILITY TYPE:**

**TELEPHONE**  
IL CONSOLIDATED TELEPHONE  
ATTN: WES CHAMBERS  
PHONE: (217) 235-3355

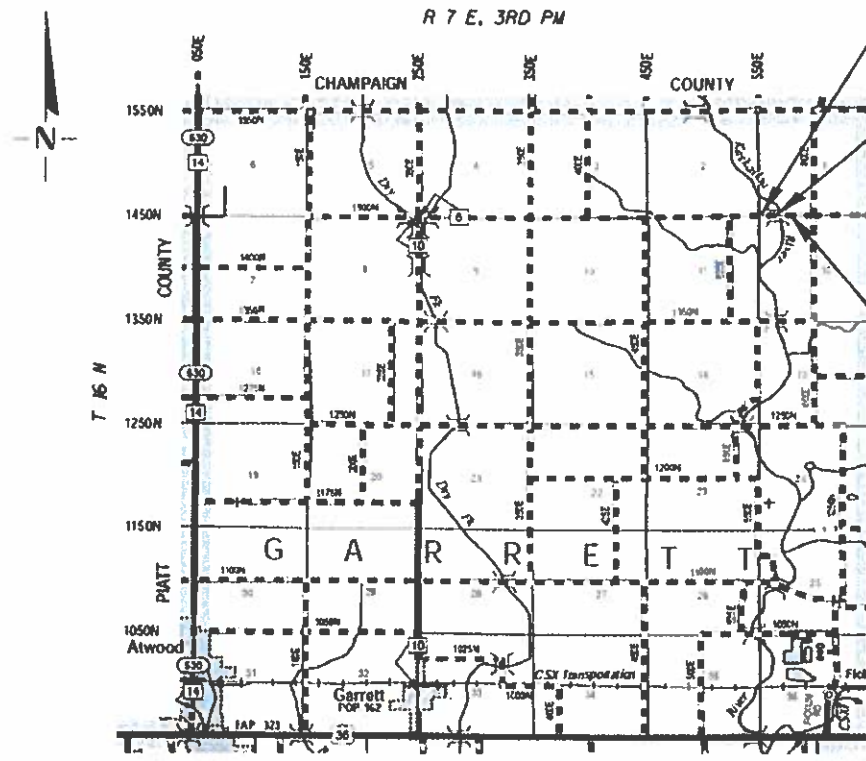
**UTILITY TYPE:**

**TELEPHONE /DATA**  
WINDSTREAM KGL INC  
ATTN: JOEL SCHROEDER  
PHONE: (800) 289-1901



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

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

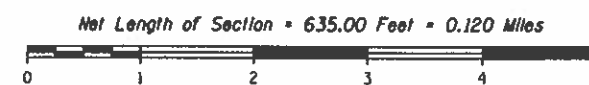


IMPROVEMENT BEGINS  
STA 6+95.00

STA. 10+12.50  
3-SPAN STEEL I-BEAM BRIDGE  
ON INTEGRAL ABUTMENTS  
148'-4" BK TO BK ABUTMENTS  
30'-0" OUT TO OUT DECK  
NO SKEW

PROPOSED SN 021-4040  
REPLACES  
EXISTING SN 021-4003

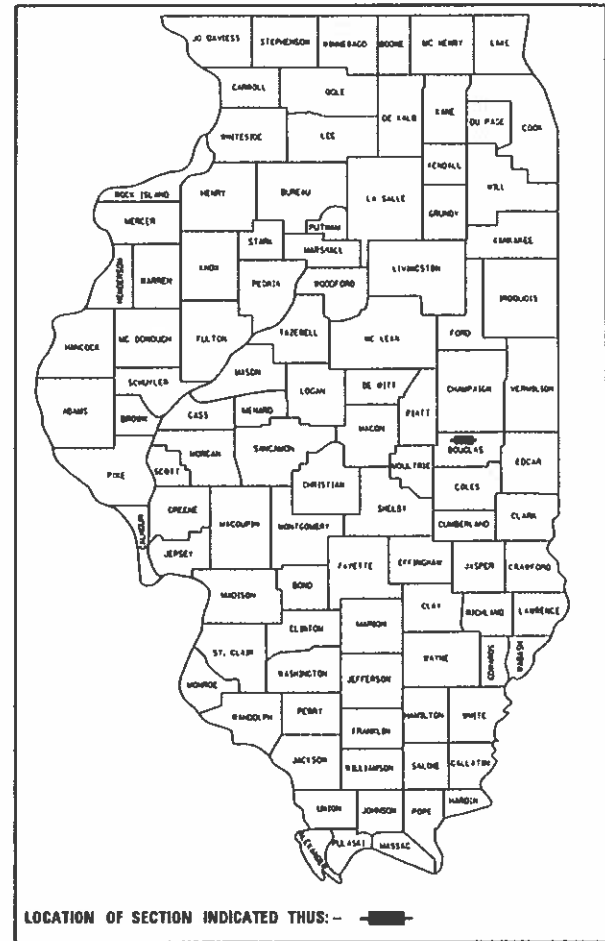
IMPROVEMENT ENDS  
STA 13+30.00



FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR  
DESIGN SPEED 40 MPH  
CURRENT ADT= 200 (2017)



*Kimberly S. Cummins* 12/21/20  
ILLINOIS PROFESSIONAL NO. 56816  
(Expires 11/30/21)



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

APPROVED Feb 17 2021

DOUGLAS COUNTY ENGINEER

PASSED MARCH 3 2021

DISTRICT FIVE ENGINEER OF  
LOCAL ROADS AND STREETS

RELEASED FOR  
BID BASED ON  
LIMITED REVIEW March 3 2021

REGION THREE ENGINEER

**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**

**INDEX OF SHEETS**

SHEET NO.	TITLE
1	COVER SHEET
2	INDEX OF SHEETS, HIGHWAY STANDARDS AND GENERAL NOTES
3 - 5	SUMMARY OF QUANTITIES
6	TYPICAL SECTIONS
7	SCHEDULES OF QUANTITIES
8	ALIGNMENT, BENCHMARKS AND CROSS TIES
9	PLAN AND PROFILE SHEET
10	GUARDRAIL AND SHOULDER WIDENING DETAIL
11	ENTRANCE DETAILS
12 - 34	BRIDGE PLANS
35 - 40	STATION CROSS SECTIONS

**GENERAL NOTES**

- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE ANY SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.  
SEEDING CLASS 2 (SPECIAL) = 0.75 ACRES
- ALL ELEVATIONS SHOWN IN THE PLANS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- TEMPORARY EROSION CONTROL SEEDING IS INCLUDED IN THIS CONTRACT TO SEED DISTURBED EARTH DURING TIME PERIODS WHEN PERMANENT SEEDING IS NOT ALLOWED. SOME OR ALL OF THE TEMPORARY EROSION CONTROL SEEDING WILL BE DELETED IF IT IS POSSIBLE TO PLACE PERMANENT SEEDING ON EARTH AT THE TIME OF THEIR COMPLETION.
- THE LOCATION OF THOSE BURIED AND ABOVE GROUND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.39 OF THE STANDARD SPECIFICATIONS. THE J.U.L.I.E NUMBER IS 1 (800) 892-0123. A MINIMUM 48 HOURS ADVANCE NOTICE IS REQUIRED. SEE SPECIAL PROVISIONS FOR STATUS OF UTILITIES WITH UTILITY COMPANIES LISTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS TO ANY UTILITY LINES AND EXISTING IMPROVEMENTS TO REMAIN THAT ARE DAMAGED AS A RESULT OF THE WORK.
- BEFORE ORDERING PIPE CULVERTS, THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER FOR THE EXACT PIPE LENGTHS.
- LAYOUT OF RIPRAP AND EROSION CONTROL ITEMS MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.

**COMMITMENTS**

NONE

**LIST OF ILLINOIS DOT HIGHWAY STANDARDS**

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
420401-13	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB
515001-04	NAME PLATE FOR BRIDGES
601101-02	CONCRETE HEADWALL FOR PIPE UNDERDRAINS
630301-09	SHOULDER WIDENING FOR TYPE I (SPECIAL) GUARDRAIL TERMINALS
631032-09	TRAFFIC BARRIER TERMINAL, TYPE 6A
666001-01	RIGHT-OF-WAY MARKERS
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' (4.5 M) TO 24' (600 MM) FROM PAVEMENT EDGE
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5M) AWAY

**APPLICATION RATES USED IN QUANTITY CALCULATIONS**

GRANULAR MATERIALS\_\_\_\_\_ 2.05 TONS/CU YD  
 RIPRAP\_\_\_\_\_ 1.5 TONS/CU YD  
 TEMPORARY EROSION CONTROL SEEDING\_\_\_\_\_ 100 LBS/ACRE

NOTE:  
 THE ABOVE NOTED APPLICATION RATES FOR MATERIALS ARE FOR QUANTITY CALCULATIONS ONLY. THE APPLICATION RATE TO BE APPLIED WILL BE DETERMINED BY THE ENGINEER AT THE TIME OF PLACEMENT.



JOB = 2343	DESIGNED - NAK	REVISED -
FILE NAME = 2343-ah-t-gen.dgn	DRAWN - SJS	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - CGF	REVISED -
PLOT DATE = 12/22/2020	DATE - 12/15/2020	REVISED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**INDEX OF SHEETS, HIGHWAY STANDARDS  
 AND GENERAL NOTES**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	2
CONTRACT NO. 91594				
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0010					
20200100	EARTH EXCAVATION	CU YD	705	705					
20300100	CHANNEL EXCAVATION	CU YD	510	510					
20400800	FURNISHED EXCAVATION	CU YD	1,250	1,250					
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	75	75					
28000500	INLET AND PIPE PROTECTION	EACH	4	4					
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	701	701					
42000080	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB	SQ YD	100	100					
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1					
50105220	PIPE CULVERT REMOVAL	FOOT	150	150					
50200100	STRUCTURE EXCAVATION	CU YD	160	160					
50200300	COFFERDAM EXCAVATION	CU YD	280	280					
50201121	COFFERDAM (TYPE 2) (LOCATION - 1)	EACH	1	1					
50201122	COFFERDAM (TYPE 2) (LOCATION - 2)	EACH	1	1					
50300225	CONCRETE STRUCTURES	CU YD	156.6	156.6					

• SEE SPECIAL PROVISIONS  
 Δ SPECIALTY ITEMS



JOB = 2343	DESIGNED - NAK	REVISED -
FILE NAME = 2343-ahtr-gerudgn	DRAWN - SJS	REVISED -
PLOT SCALE = 100.0000' / 1" =	CHECKED - CGF	REVISED -
PLOT DATE = 2/16/2021	DATE - 7/22/2020	REVISED -


**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**SUMMARY OF QUANTITIES**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	3
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 91594	

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0010					
50300255	CONCRETE SUPERSTRUCTURE	CU YD	141.4	141.4					
50300260	BRIDGE DECK GROOVING	SQ YD	735	735					
50300265	SEAL COAT CONCRETE	CU YD	87.6	87.6					
50300300	PROTECTIVE COAT	SQ YD	796	796					
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	83.4	83.4					
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1	1					
50500505	STUD SHEAR CONNECTORS	EACH	2,955	2,955					
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	84,670	84,670					
Δ 50901050	STEEL RAILING, TYPE SM	FOOT	296	296					
51200959	FURNISHING METAL SHELL PILES 14" X 0.312"	FOOT	920	920					
51202305	DRIVING PILES	FOOT	920	920					
51203200	TEST PILE METAL SHELLS	EACH	4	4					
51204650	PILE SHOES	EACH	18	18					
51500100	NAME PLATES	EACH	1	1					

• SEE SPECIAL PROVISIONS  
Δ SPECIALTY ITEMS

 <b>Cummins Engineering Corporation</b> <small>Civil and Structural Engineering</small>	JOB # 2343	DESIGNED - NAK	REVISED -	<b>DOUGLAS COUNTY CH 6 IMPROVEMENTS</b>	<b>SUMMARY OF QUANTITIES</b>	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT DATE = 2/16/2021	DATE - 12/15/2020	REVISED -			FED. ROAD DIST. NO.   ILLINOIS FED. AID PROJECT				

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0010					
52100520	ANCHOR BOLTS, 1"	EACH	40	40					
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	142	142					
542D0229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	42	42					
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	64	64					
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	52.4	52.4					
60100060	CONCRETE HEADWALLS FOR PIPE DRAINS	EACH	4	4					
Δ 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4	4					
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4					
67100100	MOBILIZATION	L SUM	1	1					
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4					
Δ 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	16	16					
▪ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.75	0.75					
▪ X2810808	STONE DUMPED RIPRAP, CLASS A4 (SPECIAL)	TON	990	990					
▪ X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1					
▪ Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	124	124					

• SEE SPECIAL PROVISIONS  
 Δ SPECIALTY ITEMS

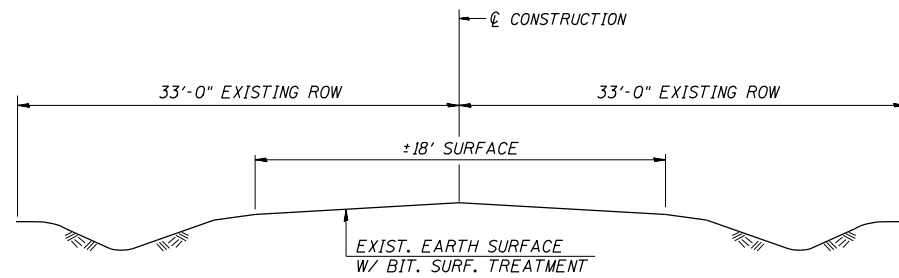


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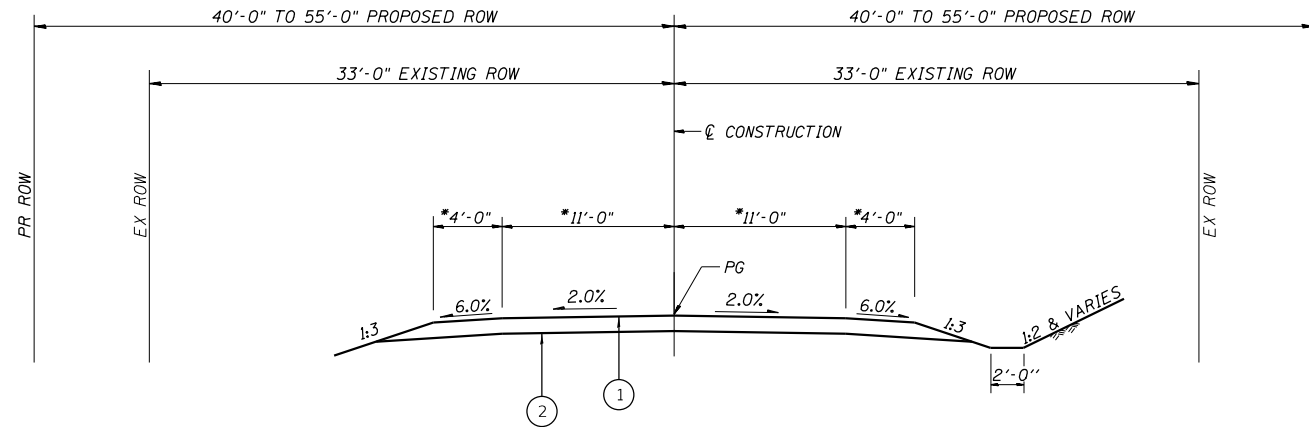
**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

**SUMMARY OF QUANTITIES**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	5
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 91594	



**EXISTING TYPICAL CROSS SECTION**



FILL SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

CUT SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

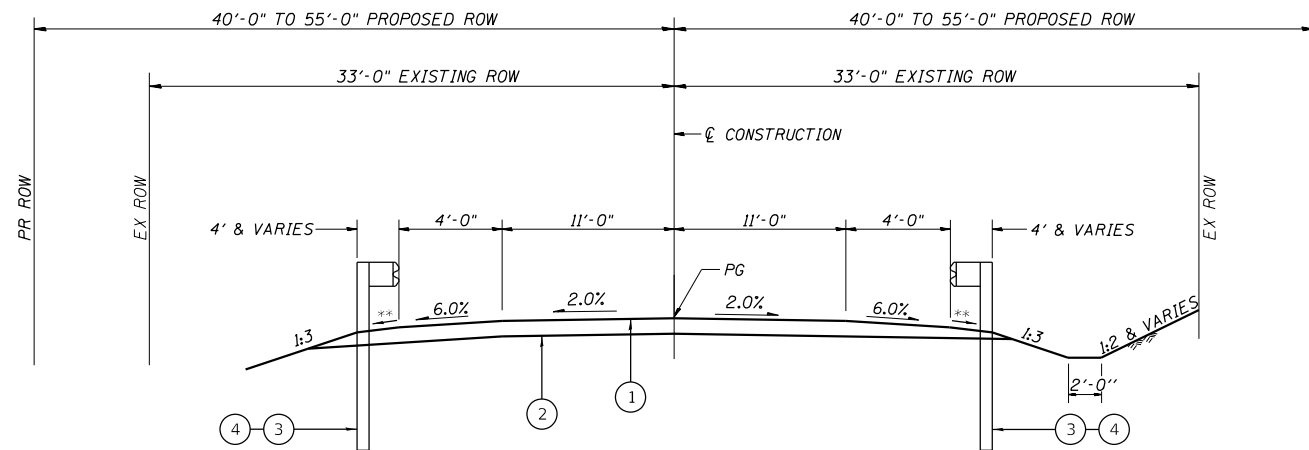
**PROPOSED TYPICAL CROSS SECTION**

STA 6+95.00 TO STA 8+53.77  
STA 11+71.33 TO STA 13+30.00

\* TRANSITION FROM EXISTING ROADWAY TO PROPOSED ROADWAY  
STA 6+95.00 TO STA 7+45.00  
TRANSITION FROM PROPOSED ROADWAY TO EXISTING ROADWAY  
STA 12+80.00 TO STA 13+30.00

**LEGEND**

- ① PROPOSED BITUMINOUS SURFACE TREATMENT A2 (BY OTHERS)
- ② PROPOSED AGGREGATE SURFACE COURSE, TYPE B - 8"
- ③ TRAFFIC BARRIER TERMINAL, TYPE 6A
- ④ TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT



FILL SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

CUT SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

**PROPOSED TYPICAL CROSS SECTION**

STA 8+53.77 TO STA 9+39.33  
STA 10+85.67 TO STA 11+71.33

\*\*10.0%

**OMISSIONS**

PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB  
STA 8+94.33 TO STA 9+09.33  
STA 11+15.67 TO STA 11+30.67  
BRIDGE APPROACH PAVEMENT  
STA 9+09.33 TO STA 9+39.33  
STA 10+85.67 TO STA 11+15.67  
BRIDGE  
STA 9+39.33 TO STA 10+85.67

**EARTHWORK**

LOCATION	20200100 20300100 EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	20400800 EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU YD	CU YD	CU YD	CU YD
<b>EARTH EXCAVATION</b>				
STA 6+95 TO STA 9+39	230	175 (1)	1110	-935
STA 10+86 TO STA 13+30	475	360 (1)	675	-315
<b>TOTAL</b>	<b>705</b>	<b>535 (1)</b>	<b>1785</b>	<b>-1250</b>
<b>CHANNEL EXCAVATION</b>				
STA 9+38 TO STA 10+87	510	195 (1, 2)	0	195
<b>* EXCAVATION FOR RIPRAP</b>				
STA 9+38 TO STA 10+87	585	220 (1, 2)	0	220
<b>TOTAL</b>	<b>1,215</b>	<b>730</b>	<b>1,785</b>	<b>-1,055</b>

(1) SHRINKAGE = 25%

(2) ASSUMES 50% OF EXCAVATED MATERIAL SUITABLE FOR EMBANKMENT

\* EXCAVATION FOR RIPRAP WILL NOT BE PAID FOR SEPERATELY BUT SHALL BE INCLUDED IN THE COST FOR STONE RIPRAP

**28000250 TEMPORARY EROSION CONTROL SEEDING**

LOCATION	POUNDS
LT STA 6+95 TO STA 9+80	19
LT STA 10+49 TO STA 13+30	20
RT STA 6+95 TO STA 9+80	20
RT STA 10+51 TO STA 13+30	16
<b>TOTAL</b>	<b>75</b>

**28000500 INLET AND PIPE PROTECTION**

LOCATION	EACH
LT STA 9+37.9	1
LT STA 10+91.0	1
RT STA 9+18.9	1
RT STA 10+91.0	1
<b>TOTAL</b>	<b>4</b>

**40200800 AGGREGATE SURFACE COURSE, TYPE B**

LOCATION	WIDTH (FOOT)	TON
STA 6+95.00 TO STA 7+45.00	22 - 30	65.80
STA 7+45.00 TO STA 8+19.80	30	113.59
STA 8+19.80 TO STA 8+43.80	30 - 38	41.30
STA 8+43.80 TO STA 8+94.33	38	97.19
STA 8+94.33 TO STA 9+39.33	8	18.22
STA 10+85.67 TO STA 11+30.67	8	18.22
STA 11+30.67 TO STA 11+81.20	38	86.96
STA 11+81.20 TO STA 12+05.20	38 - 30	41.30
STA 12+05.20 TO STA 12+80.00	30	113.59
STA 12+80.00 TO STA 13+30.00	30 - 22	65.80
RT STA 12+95.00 (FE) & STA 13+20.00 (CE)	-	39.42
<b>TOTAL</b>		<b>701.39</b>
USE		701

**42000080 PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB**

LOCATION	WIDTH (FOOT)	SQ YD
STA 8+94.33 TO STA 9+09.33	30	50
STA 11+15.67 TO STA 11+30.67	30	50
<b>TOTAL</b>		<b>100</b>
USE		100

**50105220 PIPE CULVERT REMOVAL**

LOCATION	TYPE	FOOT
LT STA 9+71	18" CMP	24
LT STA 10+65	24" CMP	32
RT STA 9+64	18" CMP	62
RT STA 10+75	18" CMP	32
<b>TOTAL</b>		<b>150</b>

**542D0223 PIPE CULVERTS, CLASS D, TYPE 1 18"**

LOCATION	FOOT
LT STA 9+37.9 TO STA 9+79.9	42
RT STA 9+18.9 TO STA 9+78.9	60
RT STA 10+51.0 TO STA 10+91.0	40
<b>TOTAL</b>	<b>142</b>

**542D0229 PIPE CULVERTS, CLASS D, TYPE 1 24"**

LOCATION	FOOT
LT STA 10+49.1 TO STA 10+91.0	42
<b>TOTAL</b>	<b>42</b>

**63100087 TRAFFIC BARRIER TERMINAL, TYPE 6A**

LOCATION	EACH
LT STA 9+03.77 TO STA 9+41.42	1
LT STA 10+83.58 TO STA 11+21.23	1
RT STA 9+03.77 TO STA 9+41.42	1
RT STA 10+83.58 TO STA 11+21.23	1
<b>TOTAL</b>	<b>4</b>

**63100167 TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT**

LOCATION	EACH
LT STA 8+53.77 TO STA 9+03.77	1
LT STA 11+21.23 TO STA 11+71.33	1
RT STA 8+53.77 TO STA 9+03.77	1
RT STA 11+21.33 TO STA 11+71.33	1
<b>TOTAL</b>	<b>4</b>

**78200005 GUARDRAIL REFLECTORS, TYPE A**

LOCATION	EACH
LT STA 9+03.77 TO STA 9+41.42	4
LT STA 10+83.58 TO STA 11+21.23	4
RT STA 9+03.77 TO STA 9+41.42	4
RT STA 10+83.58 TO STA 11+21.23	4
<b>TOTAL</b>	<b>16</b>

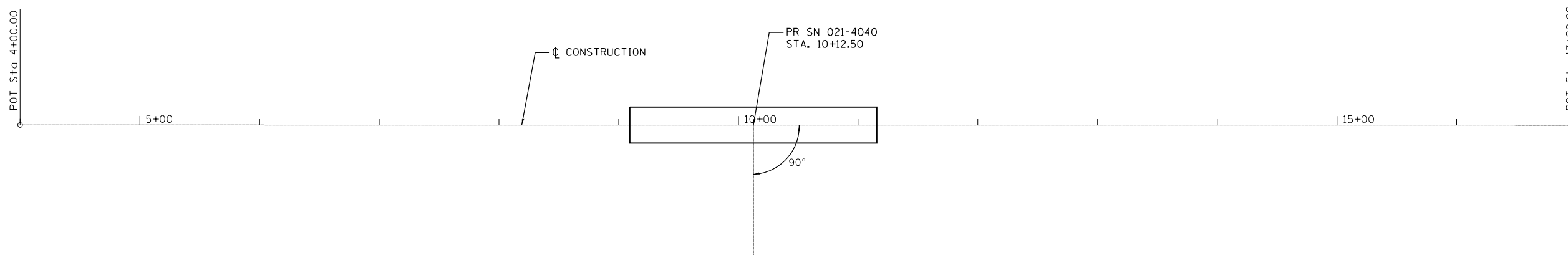
**72501000 TERMINAL MARKER - DIRECT APPLIED**

LOCATION	EACH
LT STA 8+53.77	1
LT STA 11+71.33	1
RT STA 8+53.77	1
RT STA 11+71.33	1
<b>TOTAL</b>	<b>4</b>

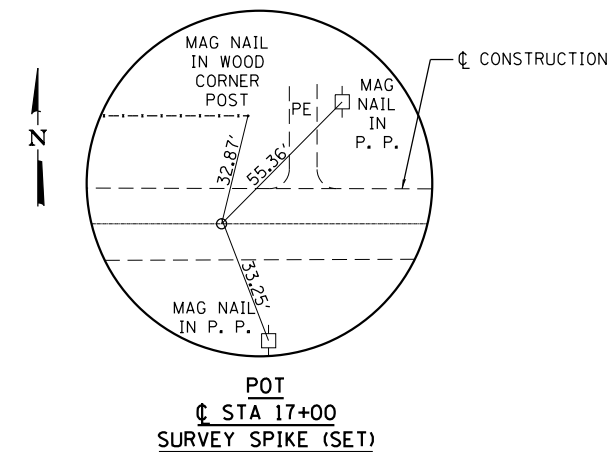
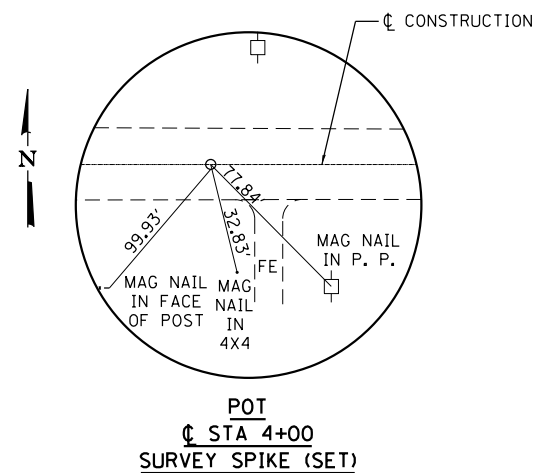
**X2501000 SEEDING, CLASS 2 (SPECIAL)**

LOCATION	ACRE
LT STA 6+95 TO STA 9+80	0.19
LT STA 10+49 TO STA 13+30	0.20
RT STA 6+95 TO STA 9+80	0.20
RT STA 10+51 TO STA 13+30	0.16
<b>TOTAL</b>	<b>0.75</b>
<b>ROUNDED TOTAL</b>	<b>0.75</b>

CENTERLINE CONSTRUCTION			
CONTROL POINT	STATION	COORDINATES	
		NORTHING	EASTING
P.O.T	4+00.00	1164633.03	974869.39
P.O.T	17+00.00	1164632.86	976169.39

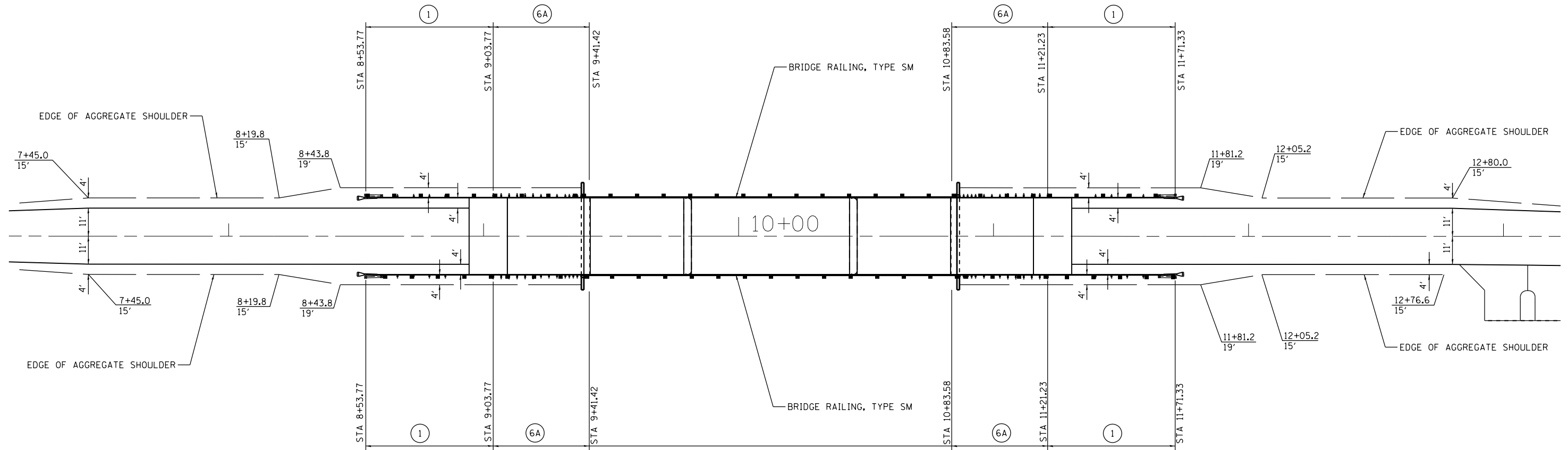


- BM\*1-MAG SPIKE IN POWER POLE  
33' RT. STA. 7+13.7  
ELEV. 659.05
- BM\*2-CUT "C" ON S.W. COR. S.W. WINGWALL  
16.7' RT. STA. 9+30  
ELEV. 667.83
- BM\*3-CUT "C" ON END OF S.E. WINGWALL  
16.7' RT. STA. 10+69  
ELEV. 668.41
- BM\*4-MAG SPIKE IN POWER POLE  
30' RT. STA. 12+07  
ELEV. 661.79
- BM\*5-CUT "C" ON CONCRETE FOUNDATION OF  
CEMETERY ENTRANCE GATE POST  
36' RT. STA. 13+85  
ELEV. 670.80 (D.C.H.D.)



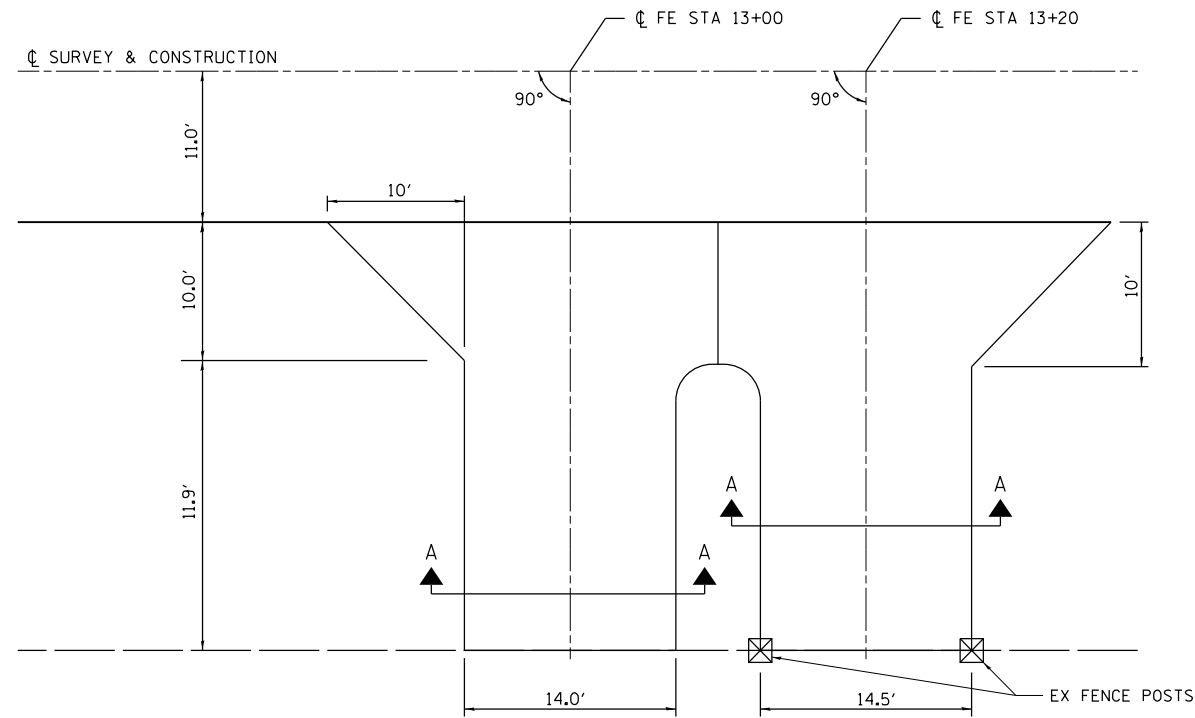






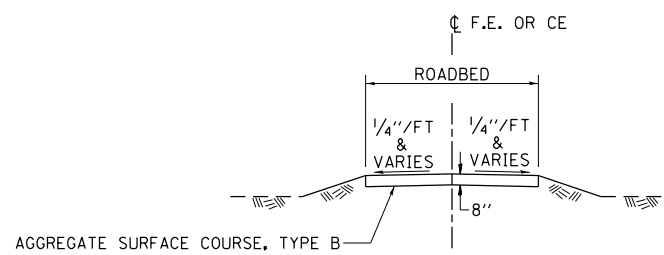
**LEGEND**

- ① TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (TANGENT)
- ⑥A TRAFFIC BARRIER TERMINAL, TYPE 6A



**AGGREGATE ENTRANCE DETAIL**

FE RT STA 13+00.00  
CE RT STA 13+20.00



**SECTION A-A**  
AGGREGATE CE & FE  
ENTRANCES TO BE CONSTRUCTED

B.M. #2 Cut square S.W. corner S.W. Wingwall 16.7' rt. sta. 9+30 elev. 667.83.

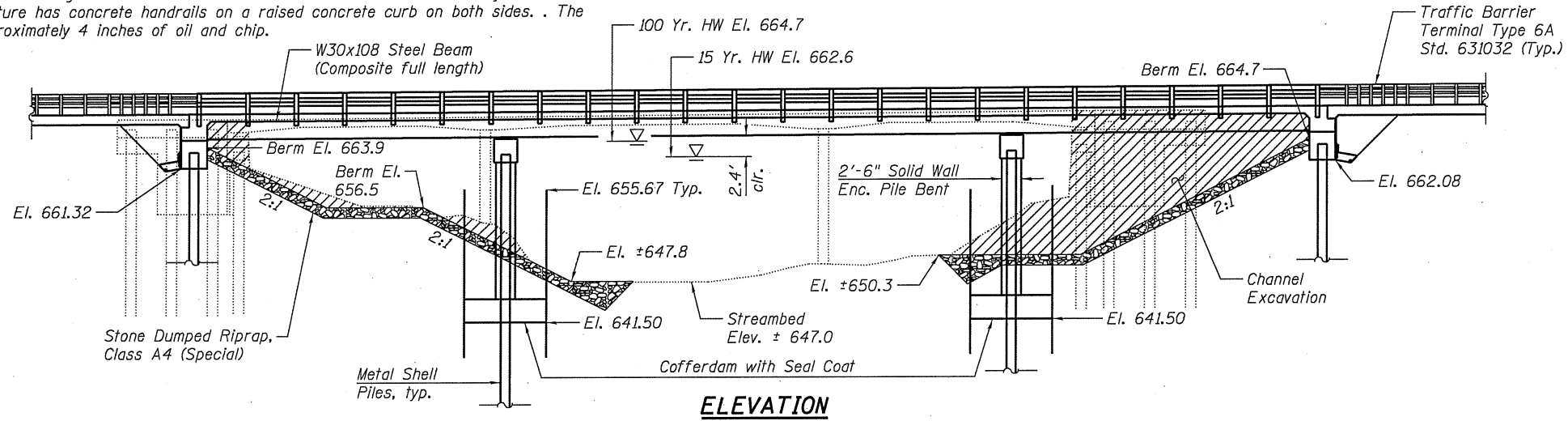
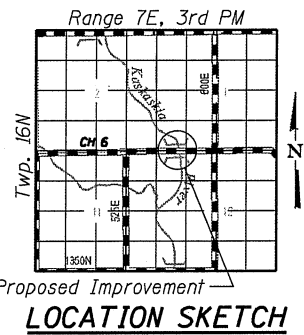
Existing Structure: S.N. 021-4003 was originally constructed in 1942 as F.A. Rte. 663 (CH 6), Section 13-00104-00-BR at Sta. 10+00. The existing structure is a three span haunched reinforced concrete slab superstructure on precast concrete pile abutments and piers. The abutments consist of precast concrete piles with a cast-in-place backing and abutment cap anchored to deadmen. The overall length of bridge is 112'-0" back to back of abutments with a roadway width of 22'-0" face-to-face of curbs. The structure has concrete handrails on a raised concrete curb on both sides. The concrete slab is currently covered by approximately 4 inches of oil and chip.

KASKASKIA RIVER  
BUILT 20\_\_ BY  
DOUGLAS COUNTY  
SEC. 13-00104-00-BR  
FAS RTE 663 STA 10+12.50  
STRUCTURE NO. 021-4040  
LOADING HL-93

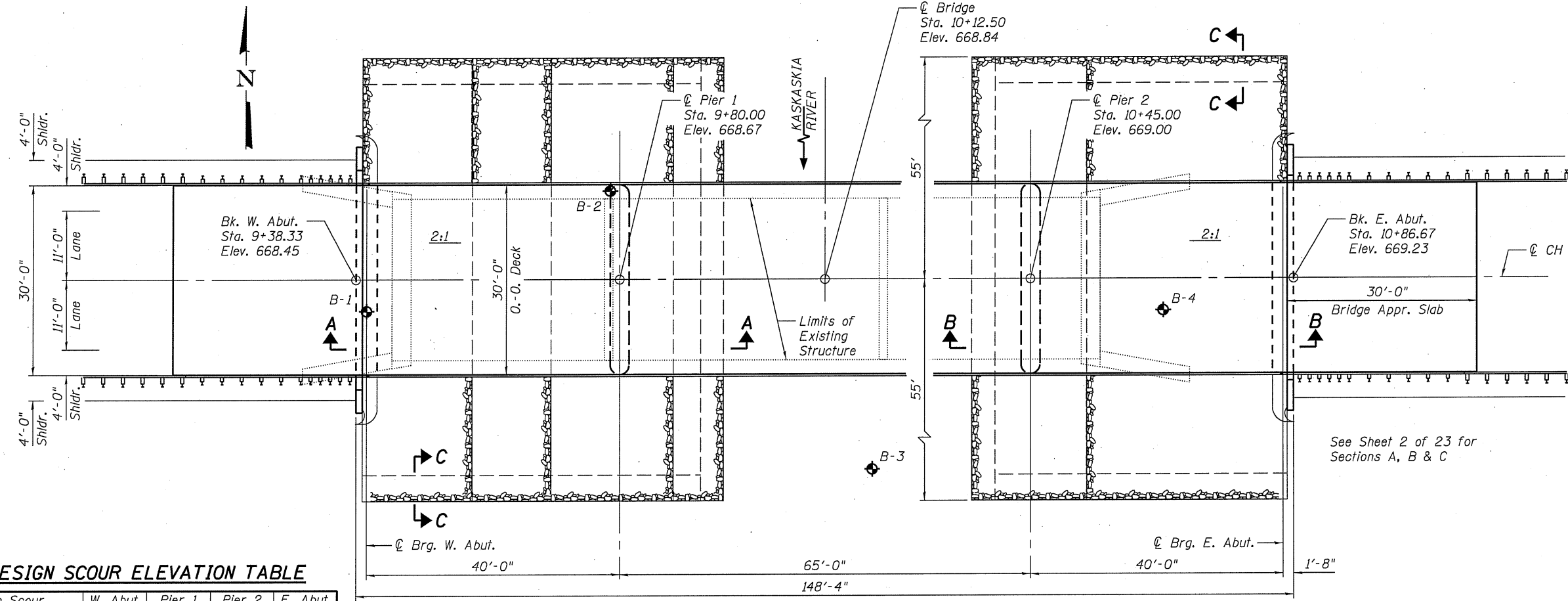
**NAME PLATE**  
See Std. 515001

**INDEX OF SHEETS**

1. General Plan & Elevation
2. General Data
- 3.-4. Top of Slab Elevations
5. Top of West Approach Slab Elevations
6. Top of East Approach Slab Elevations
7. Superstructure
8. Superstructure Details
9. Diaphragm Details
- 10.-11. Bridge Approach Slab Details
12. Steel Railing, Type SM
- 13.-14. Structural Steel
15. Bearing Details
16. West Abutment
17. East Abutment
18. Pier 1
19. Pier 2
20. Metal Shell Pile Details
- 21.-23. Soil Boring Logs



**ELEVATION**



**PLAN**

**DESIGN STRESSES**  
**FIELD UNITS**

f'c = 3,500 psi (Substructure)  
f'c = 5,000 psi (Superstructure)  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (M270 Grade 50W)

**CONSTRUCTION PERMITS**

This project has been approved for construction under statewide permit No. 12, as issued by the Department of Natural Resources Office of Water Resources.

**DESIGN SPECIFICATIONS**

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition

**LOADING HL-93**

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

**DESIGN SCOUR ELEVATION TABLE**

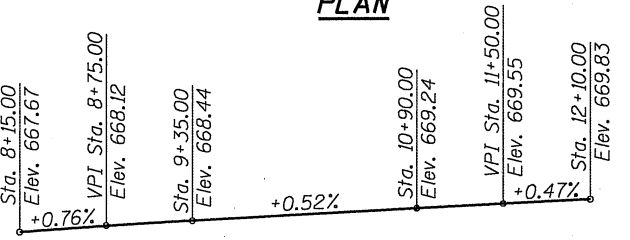
Design Scour Elevation (ft.)	W. Abut.	Pier 1	Pier 2	E. Abut.
	661.3	642.9	641.8	662.1

**WATERWAY INFORMATION**

Drainage Area = 113.0 Sq. Miles Low Grade Elev. 666.1 Ft. @ Sta. 2+43.5

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head - Ft.		Headwater El.		
			Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.
Design	15	4775	1107	1350	662.6	0.4	0.4	663.0	663.0
Base	100	7480	1322	1628	664.7	0.6	0.6	665.3	665.3
Max. Calc.	500	9840	1477	1750	666.2	0.6	0.6	666.8	666.8

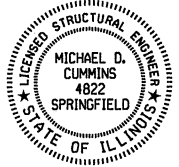
15-year Velocity through Existing Bridge - 4.3 fps  
15-year Velocity through Proposed Bridge - 3.5 fps



**PROFILE GRADE**  
(along @ Construction)

"I certify that to 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 Standard Specifications for Highway Bridges'."

*Michael D. Cummins* 12/21/2020  
ILLINOIS STRUCTURAL NO. 4822 (Expires 11/30/22)



**GENERAL PLAN AND ELEVATION**  
**CH 6 OVER KASKASKIA RIVER**  
**SECTION 13-00104-00-BR**  
**DOUGLAS COUNTY**  
**STA 10+12.50**  
**STRUCTURE NO. 021-4040**



JOB = 2343  
FILE = 0214040-0000-01-GPE.dgn  
DATE = 12/21/2020

DESIGNED - RK  
CHECKED - AAN  
DRAWN - SJS  
CHECKED - MDC

REVISED -  
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REVISED -

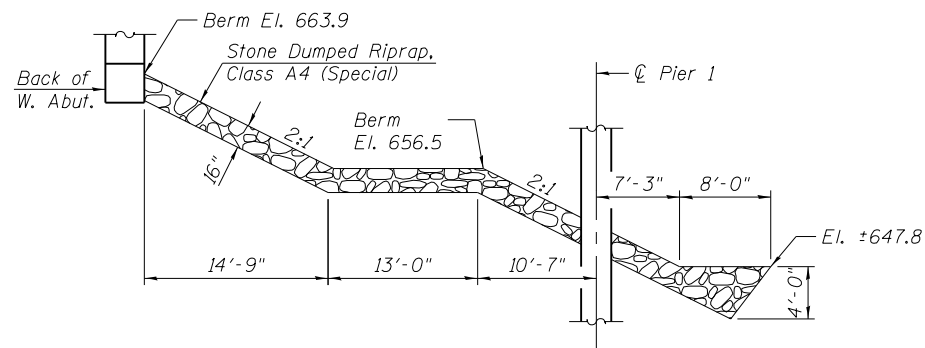
**DOUGLAS COUNTY**  
**CH 6 IMPROVEMENTS**

**GENERAL PLAN AND ELEVATION**  
**STRUCTURE NO. 021-4040**

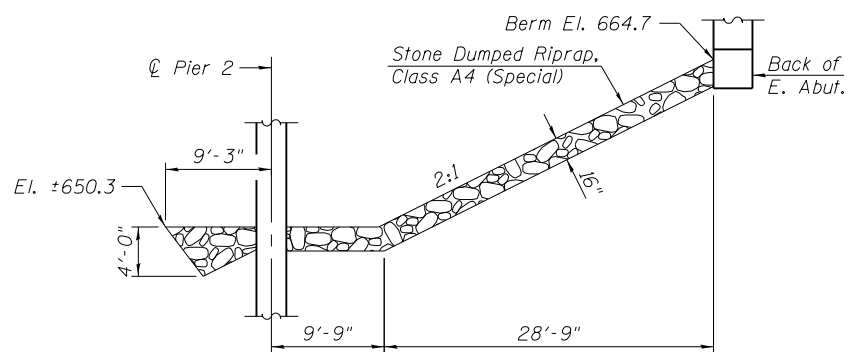
SHEET NO. 1 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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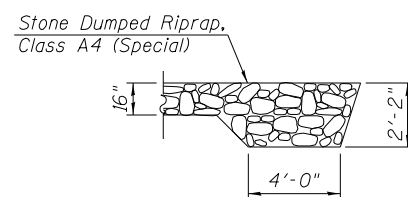
CONTRACT NO. 91594  
ILLINOIS FED. AID PROJECT



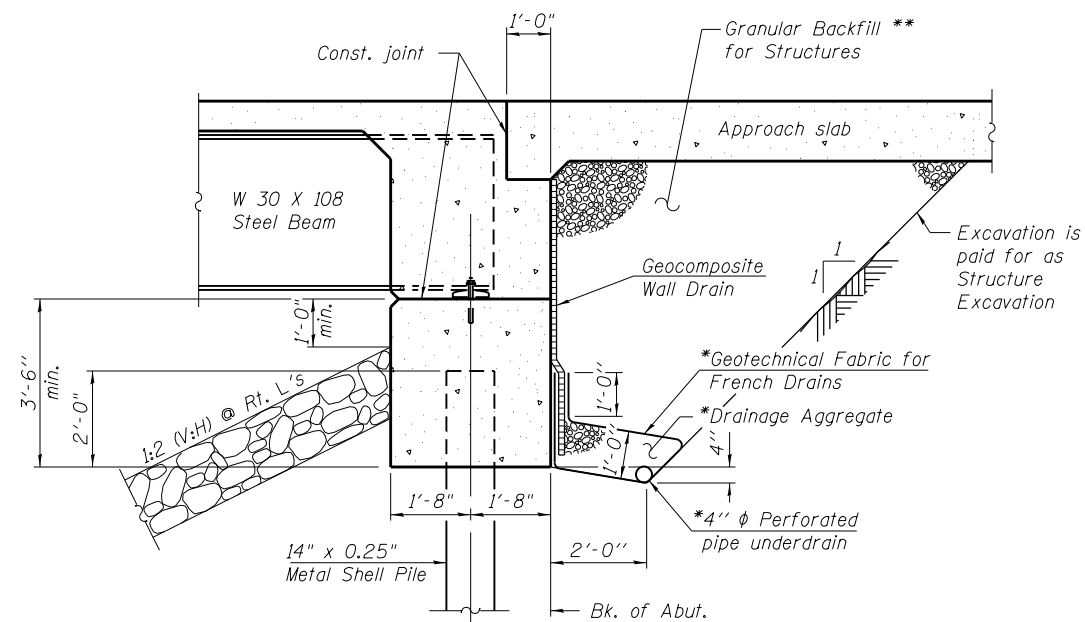
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**SECTION THRU INTEGRAL ABUTMENT**

(Horiz. dim. @ Rt. L's)

\* Included in the cost of Pipe Underdrains for Structures.

\*\* Granular Backfill behind abutments shall be compacted according to Article 205.06 of the Standard Specifications.

Note:

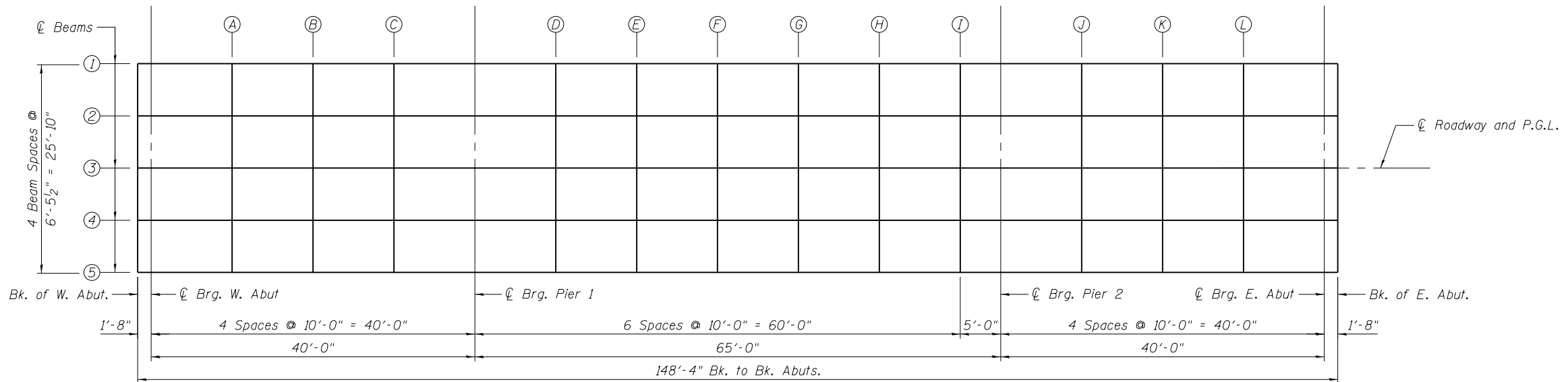
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

**GENERAL NOTES**

- Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts (in painted areas and M164 Type 3 in unpainted areas). Bolts  $\frac{7}{8}$  in.  $\phi$ , holes  $\frac{15}{16}$  in.  $\phi$ , unless otherwise noted.
- Calculated weight of Structural Steel = 91,400 lbs.
- All structural steel shall be AASHTO M 270 Grade 50W.
- 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  $\frac{1}{8}$  in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
- Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 inches. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- Seal coat thickness design is based on the Cofferdam Design Water Elevation (CDWE). Cofferdam design details and proposed changes in seal coat thickness shall be submitted to the Engineer for approval with the cofferdam design.
- Should the Contractor deem that dewatering is necessary or that a temporary cofferdam or temporary excavation support system is necessary to complete removal of existing substructure elements the contractor shall include such cost with "Removal of Existing Structures". No additional compensation will be considered or made.
- After blasting and painting, all areas of the steel to remain unpainted shall be sprayed with a stream of potable water to ensure uniform weathering.
- The piers and abutments shall be protected during construction to prevent rust staining of the concrete. This can be accomplished by temporarily wrapping the piers and abutments with polyethylene covering. Any rust staining of the piers or abutments shall be cleaned to the satisfaction of the Engineer after the bridge deck is complete.
- Concrete Superstructure shall be Class BS concrete with a compressive strength (f'c) of 5,000 psi.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Dumped Riprap, Class A4 (Special)	Ton		990	990
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		160	160
Cofferdam Excavation	Cu. Yd.		280	280
Cofferdam (Type 2) (Location-1)	Each		1	1
Cofferdam (Type 2) (Location-2)	Each		1	1
Concrete Structures	Cu. Yd.		156.6	156.6
Concrete Superstructure	Cu. Yd.	141.4		141.4
Concrete Superstructure (Approach Slab)	Cu. Yd.	83.4		83.4
Bridge Deck Grooving	Sq. Yd.	735		735
Protective Coat	Sq. Yd.	796		796
Furnishing and Erecting Structural Steel	L Sum.	1		1
Stud Shear Connectors	Each	2955		2955
Reinforcement Bars, Epoxy Coated	Pound	70,170	14,500	84,670
Steel Railing, Type SM	Foot	296		296
Furnishing Metal Sheel Piles 14" x 0.312"	Foot		920	920
Driving Piles	Foot		920	920
Test Pile Metal Shells	Each		4	4
Name Plates	Each	1		1
Anchor Bolts, 1"	Each		40	40
Geocomposite Wall Drain	Sq. Yd.		52.4	52.4
Pipe Underdrains for Structures, 4"	Foot		124	124
Granular Backfill for Structures	Cu. Yd.		64	64
Seal Coat Concrete	Cu. Yd.		87.6	87.6
Pile Shoes	Each		18	18
Concrete Headwalls For Pipe Drains	Each		4	4



**BEAM 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	9+38.33	-12.92	668.18	668.19
Cl. Bearing W. Abut.	9+40.00	-12.92	668.19	668.19
A	9+50.00	-12.92	668.25	668.25
B	9+60.00	-12.92	668.30	668.30
C	9+70.00	-12.92	668.35	668.35
Cl. Pier 1	9+80.00	-12.92	668.40	668.40
D	9+90.00	-12.92	668.45	668.47
E	10+00.00	-12.92	668.51	668.55
F	10+10.00	-12.92	668.56	668.61
G	10+20.00	-12.92	668.61	668.66
H	10+30.00	-12.92	668.66	668.69
I	10+40.00	-12.92	668.71	668.72
Cl. Pier 2	10+45.00	-12.92	668.74	668.74
J	10+55.00	-12.92	668.79	668.79
K	10+65.00	-12.92	668.84	668.85
L	10+75.00	-12.92	668.90	668.90
Cl. Bearing E. Abut.	10+85.00	-12.92	668.95	668.95
Bk. E. Abut.	10+86.67	-12.92	668.96	668.96

**BEAM 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	9+38.33	-6.46	668.32	668.32
Cl. Bearing W. Abut.	9+40.00	-6.46	668.33	668.33
A	9+50.00	-6.46	668.38	668.38
B	9+60.00	-6.46	668.43	668.43
C	9+70.00	-6.46	668.48	668.48
Cl. Pier 1	9+80.00	-6.46	668.54	668.54
D	9+90.00	-6.46	668.59	668.61
E	10+00.00	-6.46	668.64	668.68
F	10+10.00	-6.46	668.69	668.74
G	10+20.00	-6.46	668.74	668.79
H	10+30.00	-6.46	668.80	668.83
I	10+40.00	-6.46	668.85	668.86
Cl. Pier 2	10+45.00	-6.46	668.87	668.87
J	10+55.00	-6.46	668.93	668.93
K	10+65.00	-6.46	668.98	668.98
L	10+75.00	-6.46	669.03	669.03
Cl. Bearing E. Abut.	10+85.00	-6.46	669.08	669.08
Bk. E. Abut.	10+86.67	-6.46	669.09	669.09

**BEAM 3, CL. ROADWAY & P.G.L.**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	9+38.33	0.00	668.45	668.45
Cl. Bearing W. Abut.	9+40.00	0.00	668.46	668.46
A	9+50.00	0.00	668.52	668.52
B	9+60.00	0.00	668.57	668.57
C	9+70.00	0.00	668.62	668.62
Cl. Pier 1	9+80.00	0.00	668.67	668.67
D	9+90.00	0.00	668.72	668.74
E	10+00.00	0.00	668.78	668.81
F	10+10.00	0.00	668.83	668.88
G	10+20.00	0.00	668.88	668.93
H	10+30.00	0.00	668.93	668.96
I	10+40.00	0.00	668.98	668.99
Cl. Pier 2	10+45.00	0.00	669.01	669.01
J	10+55.00	0.00	669.06	669.06
K	10+65.00	0.00	669.11	669.11
L	10+75.00	0.00	669.16	669.16
Cl. Bearing E. Abut.	10+85.00	0.00	669.22	669.22
Bk. E. Abut.	10+86.67	0.00	669.23	669.23

E-S

7-1-10

**CEC** Cummins Engineering Corporation  
Civil and Structural Engineering

JOB = 2343  
FILE = 0214040-0000-03-04-TopSlabElev.dgn  
DATE = 2/17/2021

DESIGNED - RK  
CHECKED - AAN  
DRAWN - SJS  
CHECKED - MDC

REVISED -  
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REVISED -  
REVISED -

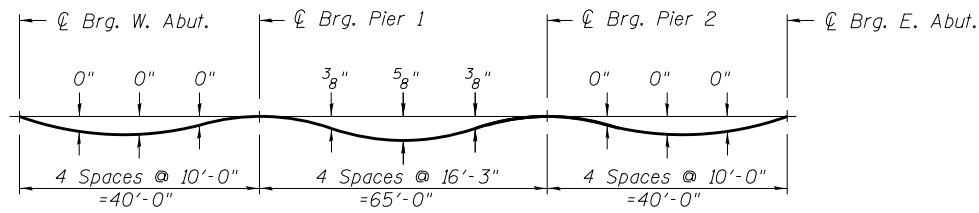
**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

**TOP OF SLAB ELEVATIONS  
STRUCTURE NO. 021-4040**

SHEET NO. 3 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	14
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT

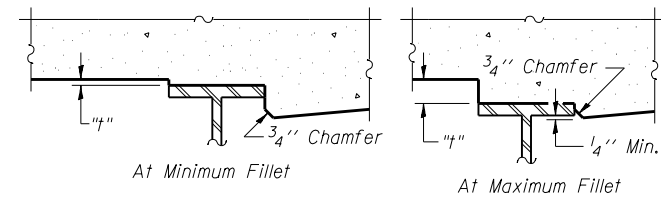


**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete 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 below.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 3 of 24 and below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

**FILLET HEIGHTS**

**BEAM 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	9+38.33	+6.46	668.32	668.32
Cl. Bearing W. Abut.	9+40.00	+6.46	668.33	668.33
A	9+50.00	+6.46	668.38	668.38
B	9+60.00	+6.46	668.43	668.43
C	9+70.00	+6.46	668.48	668.48
Cl. Pier 1	9+80.00	+6.46	668.54	668.54
D	9+90.00	+6.46	668.59	668.61
E	10+00.00	+6.46	668.64	668.68
F	10+10.00	+6.46	668.69	668.74
G	10+20.00	+6.46	668.74	668.79
H	10+30.00	+6.46	668.80	668.83
I	10+40.00	+6.46	668.85	668.86
Cl. Pier 2	10+45.00	+6.46	668.87	668.87
J	10+55.00	+6.46	668.93	668.92
K	10+65.00	+6.46	668.98	668.98
L	10+75.00	+6.46	669.03	669.03
Cl. Bearing E. Abut.	10+85.00	+6.46	669.08	669.08
Bk. E. Abut.	10+86.67	+6.46	669.09	669.09

**BEAM 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	9+38.33	+12.92	668.18	668.18
Cl. Bearing W. Abut.	9+40.00	+12.92	668.19	668.19
A	9+50.00	+12.92	668.25	668.25
B	9+60.00	+12.92	668.30	668.30
C	9+70.00	+12.92	668.35	668.35
Cl. Pier 1	9+80.00	+12.92	668.40	668.40
D	9+90.00	+12.92	668.45	668.47
E	10+00.00	+12.92	668.51	668.55
F	10+10.00	+12.92	668.56	668.61
G	10+20.00	+12.92	668.61	668.66
H	10+30.00	+12.92	668.66	668.69
I	10+40.00	+12.92	668.71	668.72
Cl. Pier 2	10+45.00	+12.92	668.74	668.74
J	10+55.00	+12.92	668.79	668.79
K	10+65.00	+12.92	668.84	668.85
L	10+75.00	+12.92	668.90	668.90
Cl. Bearing E. Abut.	10+85.00	+12.92	668.95	668.95
Bk. E. Abut.	10+86.67	+12.92	668.96	668.96

E-S

7-1-10



JOB = 2343  
 FILE = 0214040-0000-03-04-TopSlabElev.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

**TOP OF SLAB ELEVATIONS  
STRUCTURE NO. 021-4040**

SHEET NO. 4 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	15
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT

NORTH EDGE OF PAVEMENT

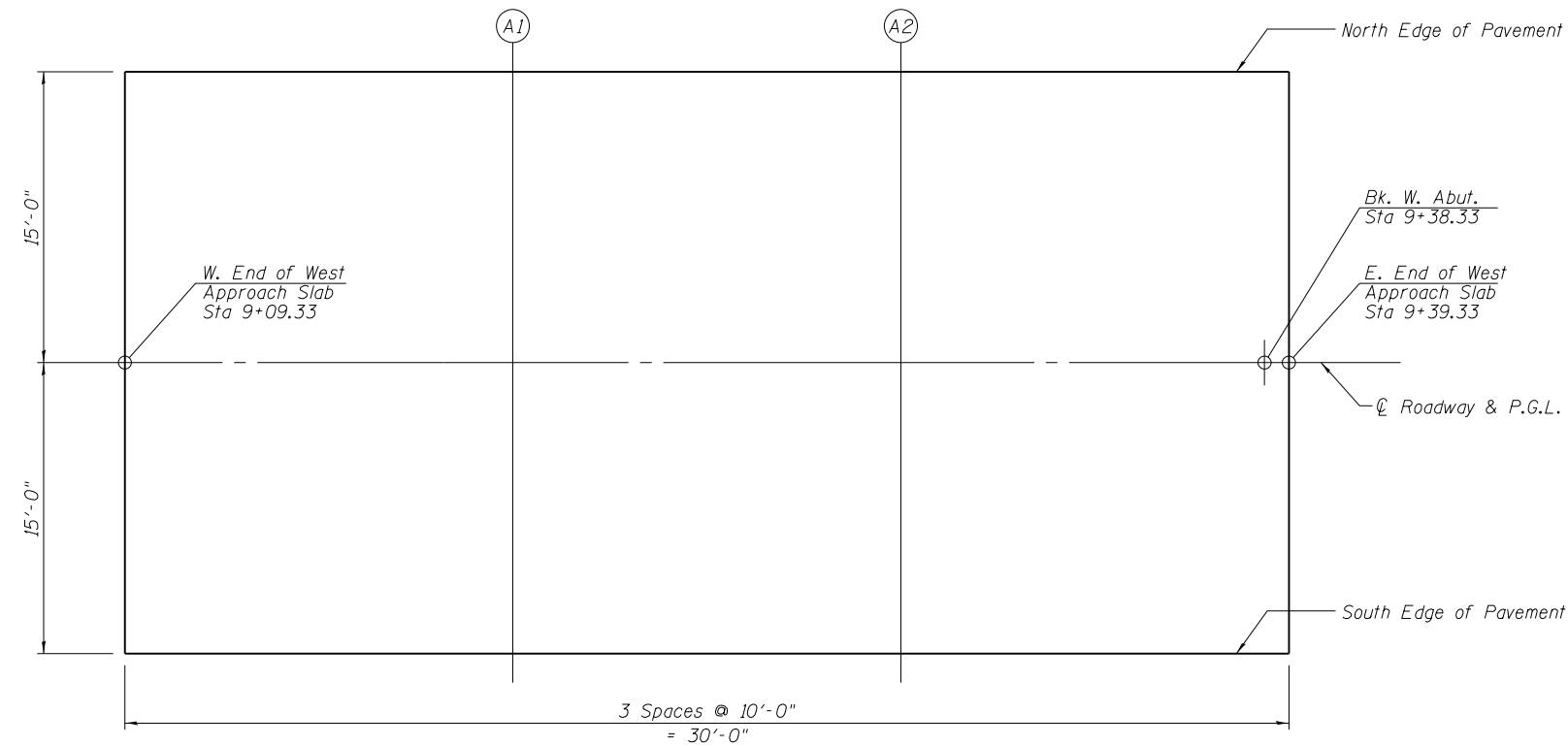
Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	9+09.33	-15.00	667.99
A1	9+19.33	-15.00	668.04
A2	9+29.33	-15.00	668.10
E. End West Appr. Slab	9+39.33	-15.00	668.15

☉ ROADWAY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	9+09.33	0.00	668.30
A1	9+19.33	0.00	668.35
A2	9+29.33	0.00	668.41
E. End West Appr. Slab	9+39.33	0.00	668.46

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	9+09.33	15.00	667.99
A1	9+19.33	15.00	668.04
A2	9+29.33	15.00	668.10
E. End West Appr. Slab	9+39.33	15.00	668.15



PLAN

E-AS

7-1-10



JOB = 2343  
 FILE = 0214040-0000-05-06-Top of Approach  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**TOP OF WEST APPROACH SLAB ELEVATIONS  
 STRUCTURE NO. 021-4040**

SHEET NO. 5 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	16
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



NORTH EDGE OF PAVEMENT

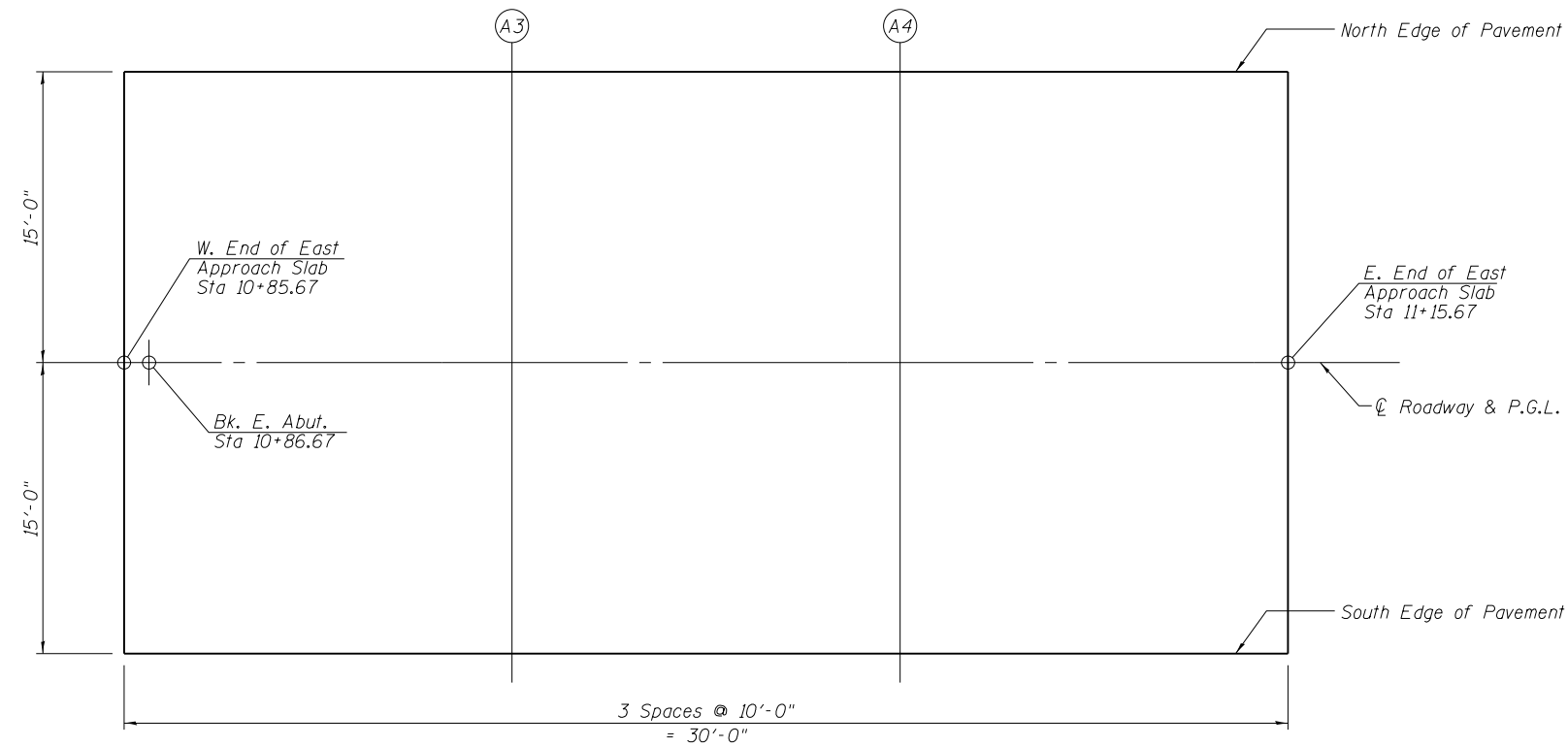
Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	10+85.67	-15.00	668.91
A3	10+95.67	-15.00	668.96
A4	11+05.67	-15.00	669.01
E. End East Appr. Slab	11+15.67	-15.00	669.06

☉ ROADWAY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	10+85.67	0.00	669.22
A3	10+95.67	0.00	669.27
A4	11+05.67	0.00	669.32
E. End East Appr. Slab	11+15.67	0.00	669.37

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	10+85.67	15.00	668.91
A3	10+95.67	15.00	668.96
A4	11+05.67	15.00	669.01
E. End East Appr. Slab	11+15.67	15.00	669.06



PLAN

E-AS

7-1-10



JOB = 2343	DESIGNED - RK	REVISED -
FILE = 0214040-0000-05-06-Top of Approach	CHECKED - AAN	REVISED -
DATE = 2/17/2021	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

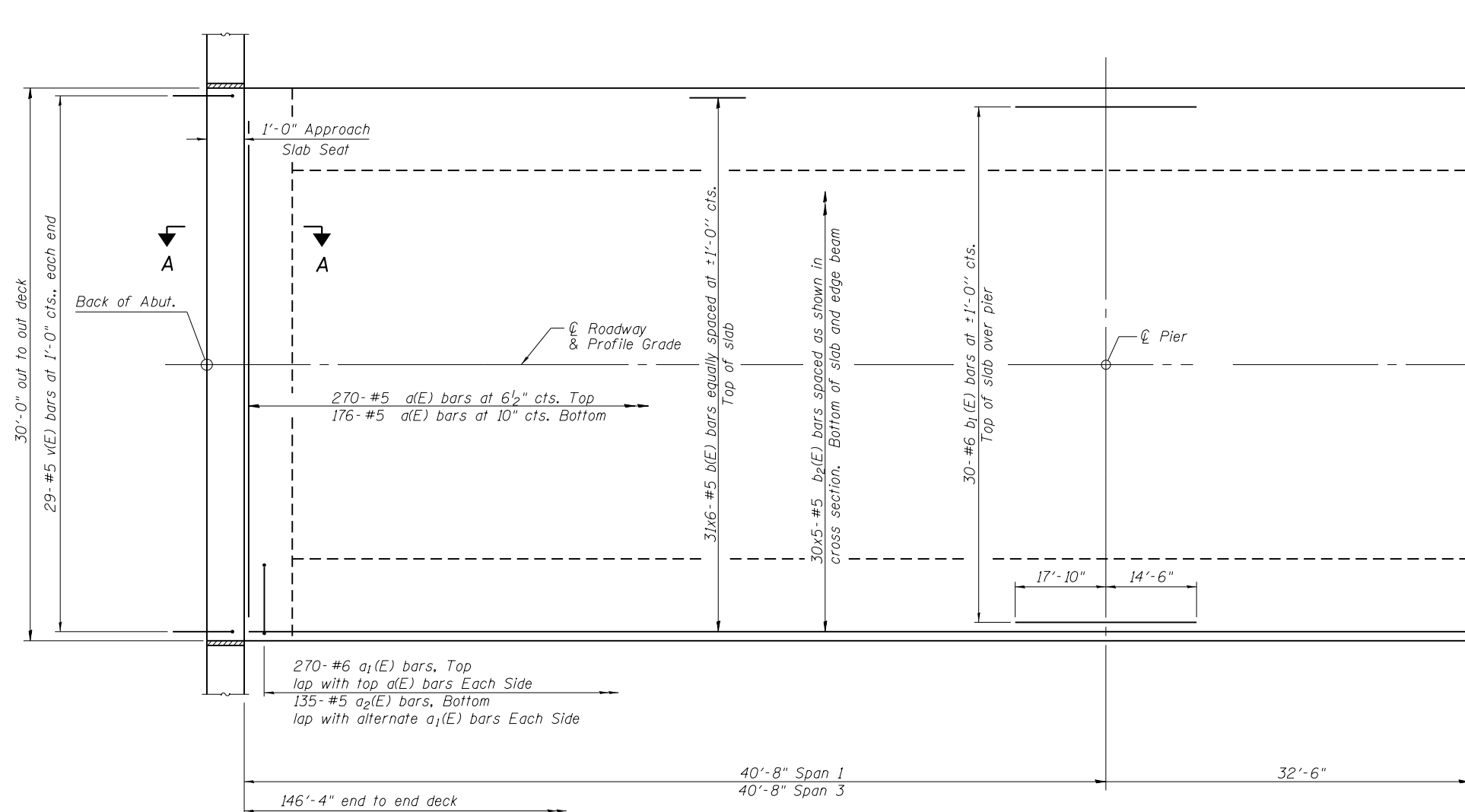
**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

**TOP OF EAST APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 021-4040**

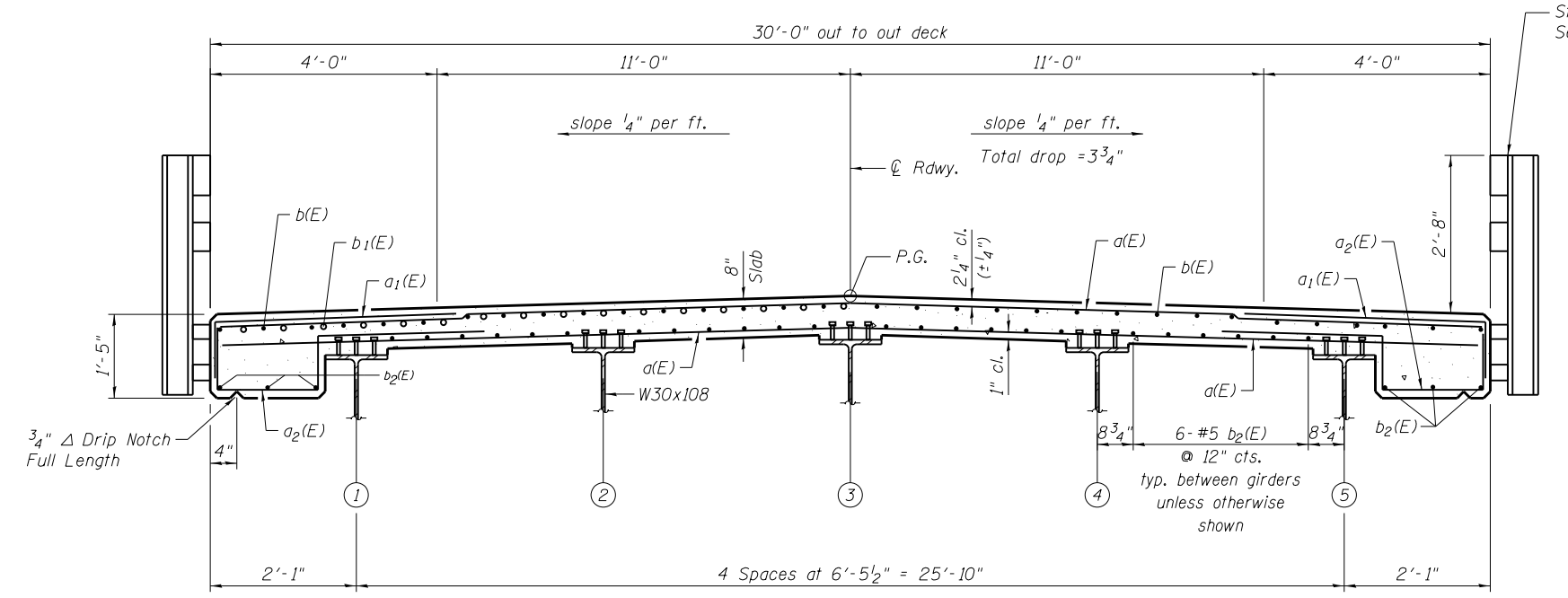
SHEET NO. 6 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	17
CONTRACT NO. 91594				

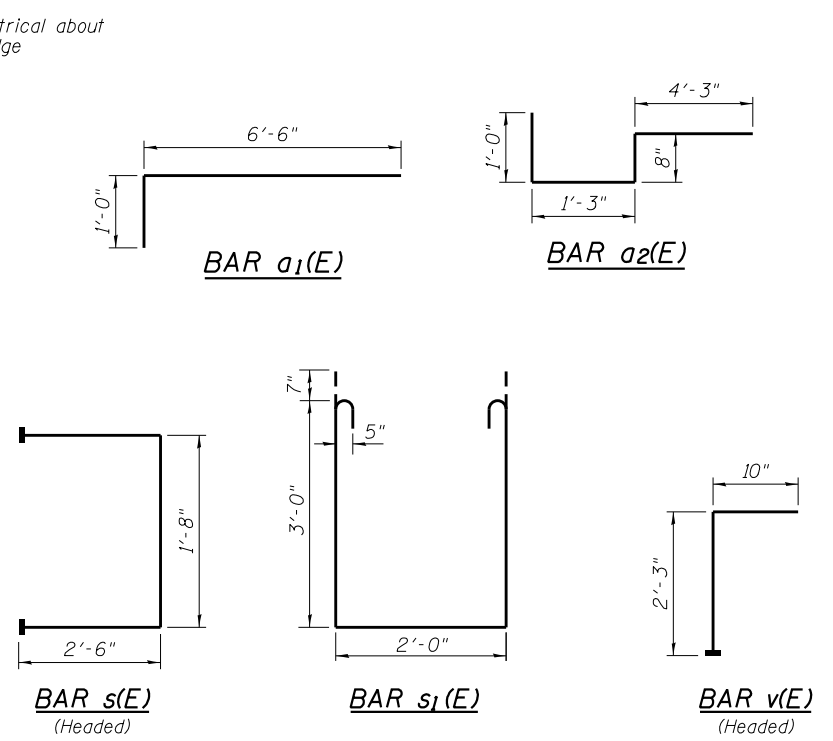
ILLINOIS FED. AID PROJECT



**PARTIAL PLAN**



**CROSS SECTION**  
(Looking South)



**MIN. BAR LAPS**  
#5 Bar = 3'-6"

**SUPERSTRUCTURE  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	446	#5	29'-8"	—
a1(E)	540	#6	7'-6"	┌
a2(E)	270	#5	7'-2"	┌
b(E)	186	#5	27'-3"	—
b1(E)	60	#6	32'-4"	—
b2(E)	150	#5	32'-0"	—
m(E)	8	#6	29'-8"	—
m1(E)	24	#6	6'-2"	—
m2(E)	12	#6	1'-9"	—
m3(E)	30	#5	4'-0"	—
s(E)	60	#5	6'-8"	┌
s1(E)	60	#5	9'-2"	┌
v(E)	58	#5	3'-1"	┌
Concrete Superstructure			Cu. Yd.	141.4
Reinforcement Bars, Epoxy Coated			Pound	37,030

Notes:  
Bars indicated thus 35 x 3-#5 etc. indicates 35 lines of bars with 3 lengths per line.  
See Sheet 8 of 23 for diaphragm details and Section A-A.  
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.



JOB = 2343  
FILE = 0214040-0000-07-Superstructure.dgn  
DATE = 2/17/2021

DESIGNED - RK  
CHECKED - AAN  
DRAWN - SJS  
CHECKED - MDC

REVISED -  
REVISED -  
REVISED -  
REVISED -

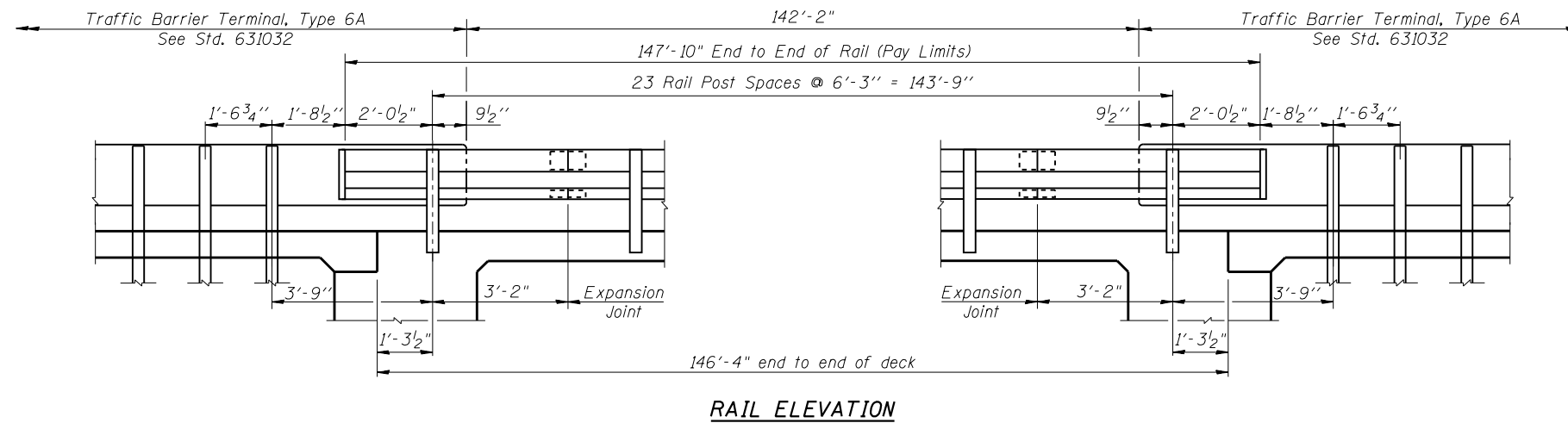
**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

**SUPERSTRUCTURE  
STRUCTURE NO. 021-4040**

SHEET NO. 7 OF 23 SHEETS

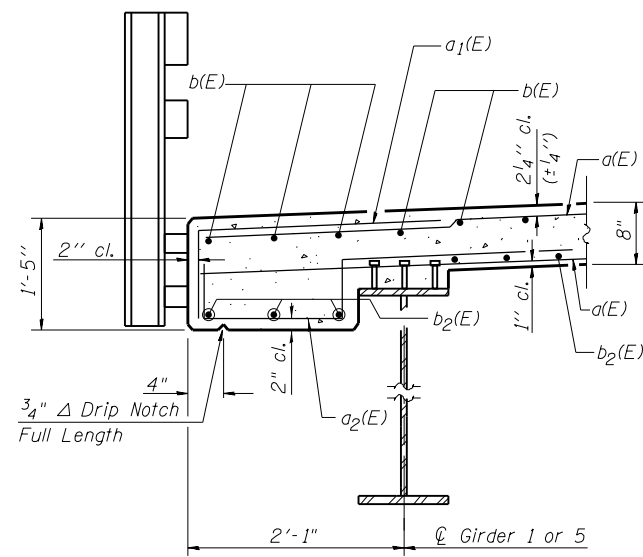
F.A.S. RT.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	18
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



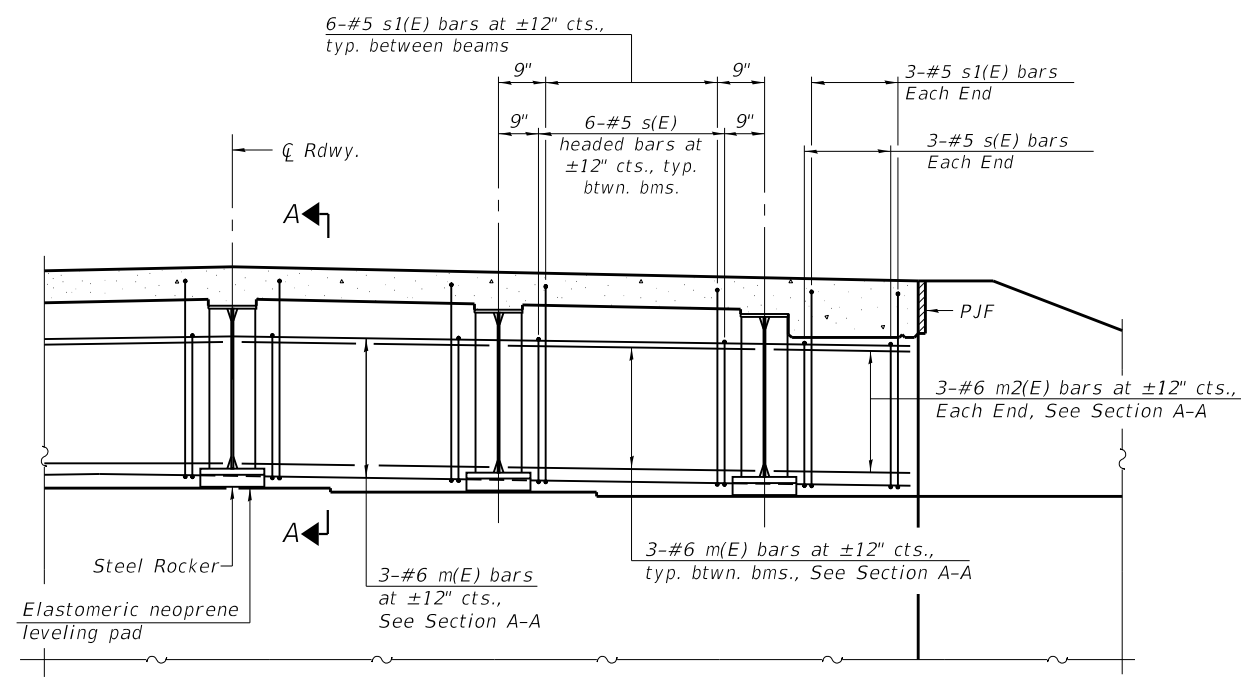
**RAIL ELEVATION**

Note:  
Dimensions shown are along edge of bridge deck.  
See Sheet 12 of 23 for railing details.

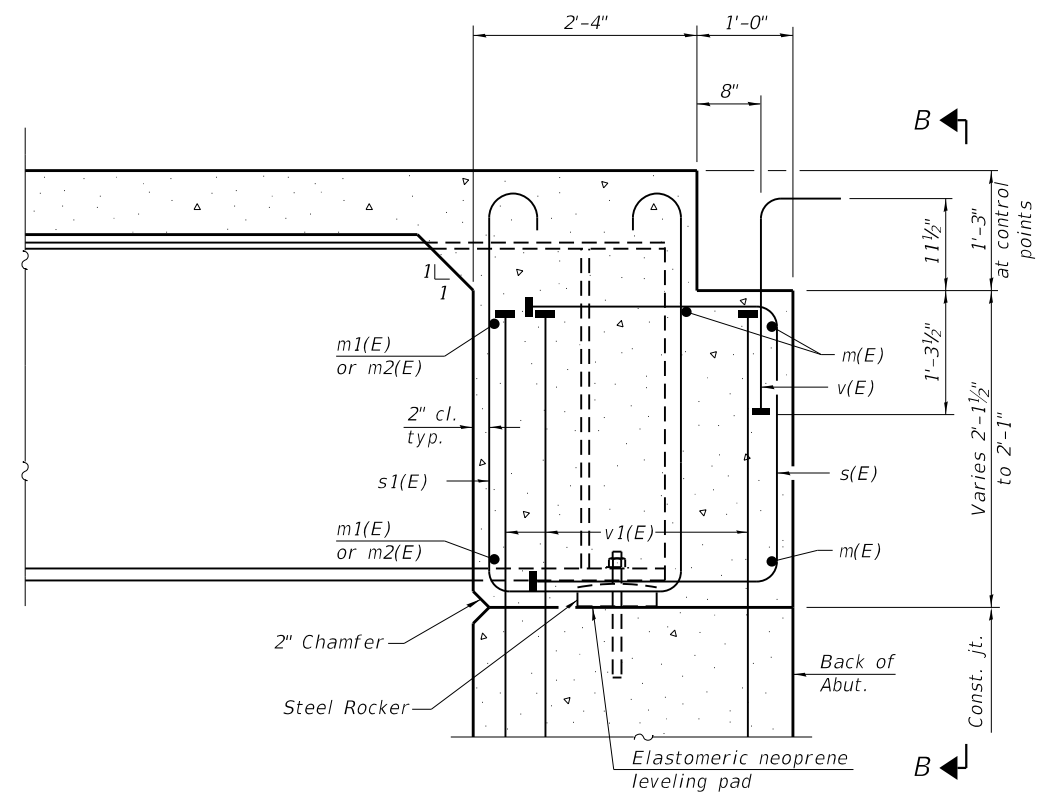


**SECTION THRU EDGE OF SLAB**

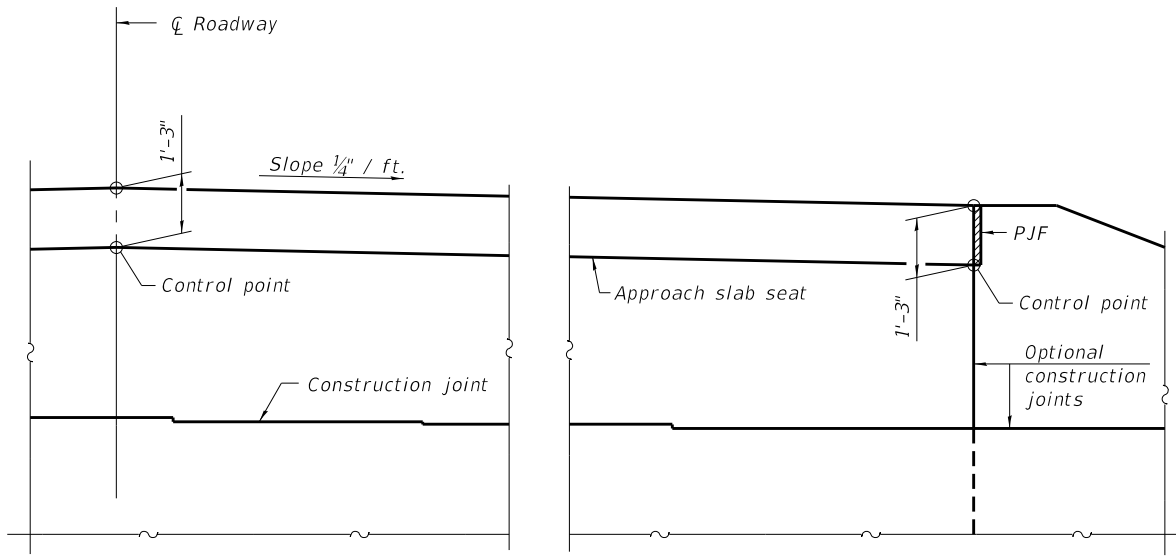
Reinforcement bars in the top of the deck may be placed with a 1/2" minimum clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



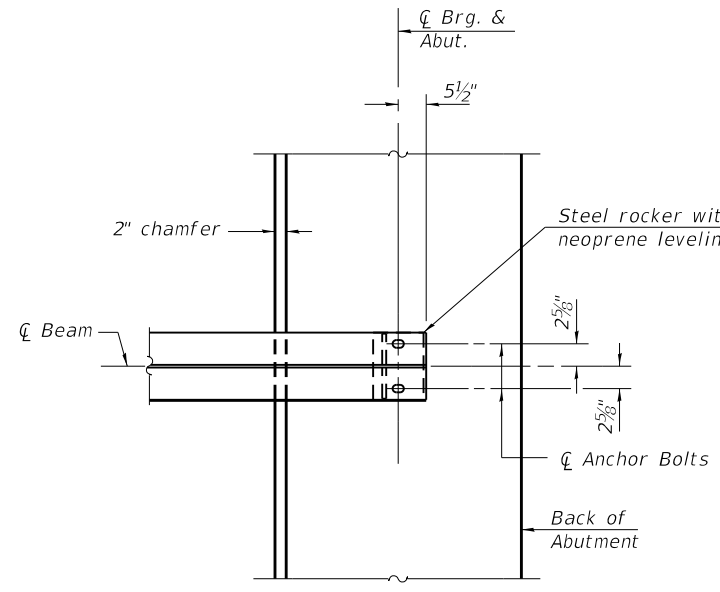
DIAPHRAGM AT ABUTMENT



SECTION A-A

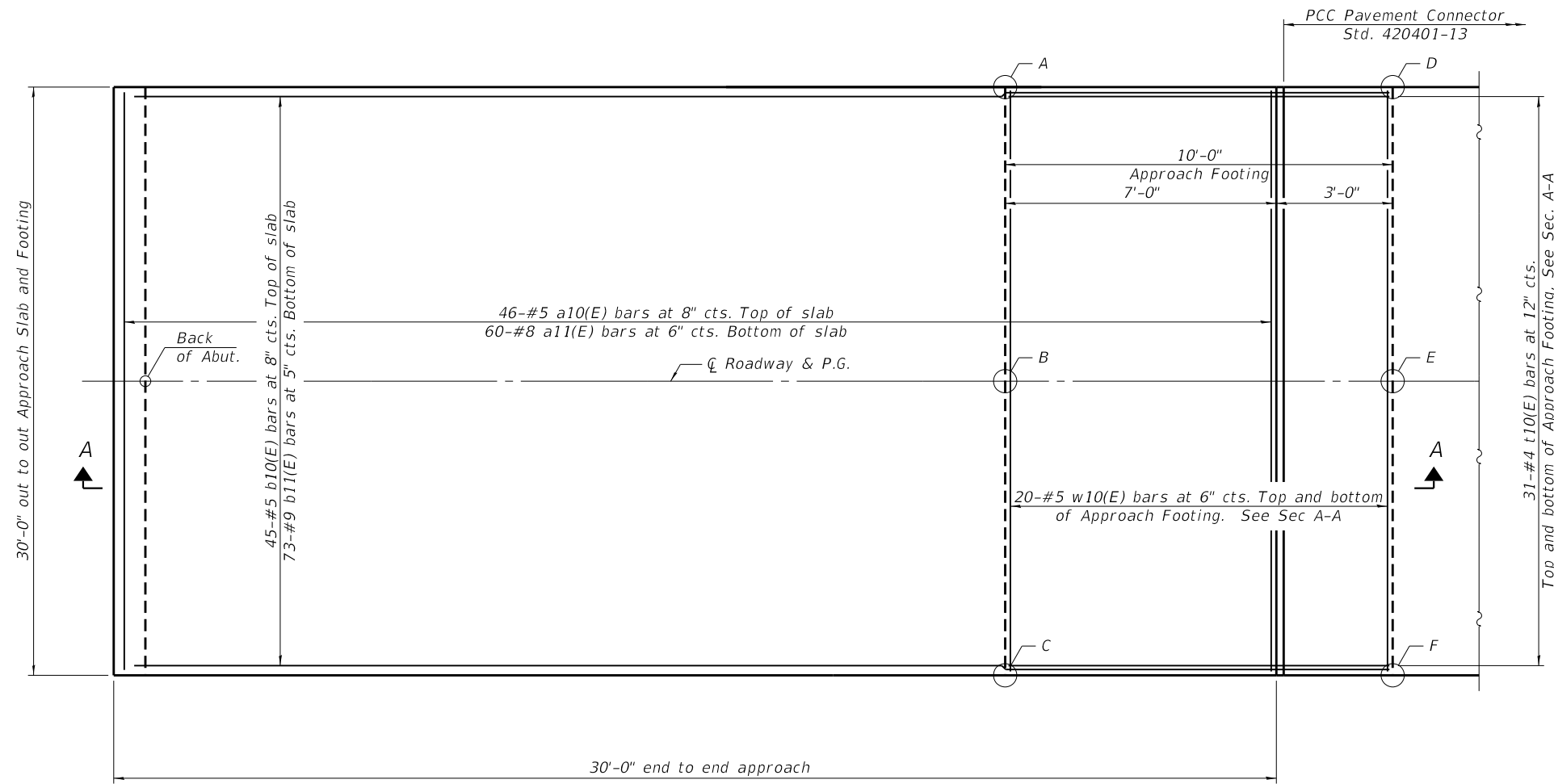


VIEW B-B



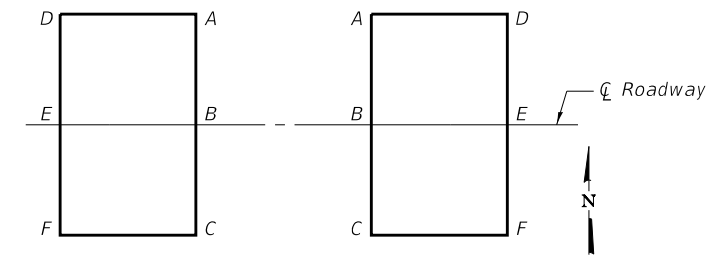
PLAN AT ABUTMENT  
(Showing bottom flange of beam)

Notes:  
See sheet 7 of 23 for superstructure details and Bill of Material.  
See sheet 10 of 23 for P.J.F. details.  
The approach slab seat shall have a constant slope determined from the control points shown.



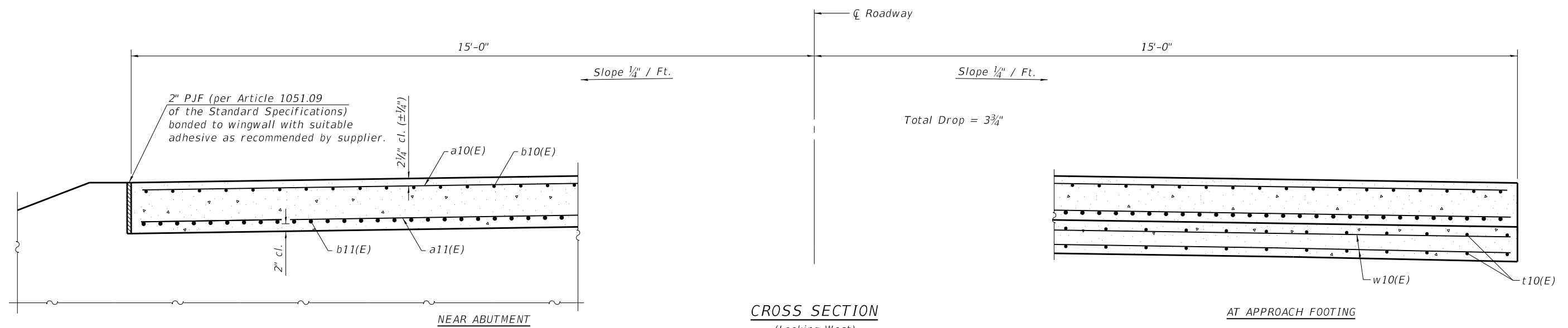
**TOP AND BOTTOM ELEVATIONS  
FOR APPROACH FOOTING**

Point	West Approach		East Approach	
	Top	Bottom	Top	Bottom
A	666.78	665.95	667.77	666.94
B	667.09	666.26	668.08	667.25
C	666.78	665.95	667.77	666.94
D	666.72	665.89	667.83	667.00
E	667.03	666.20	668.14	667.31
F	666.72	665.89	667.83	667.00



**LEGEND FOR APPROACH FOOTING ELEVATION**

**PLAN**  
(East Approach shown, West Approach similar)

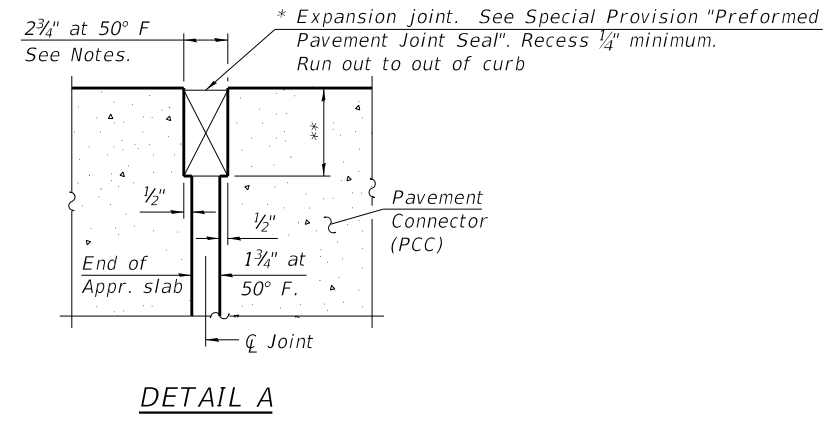
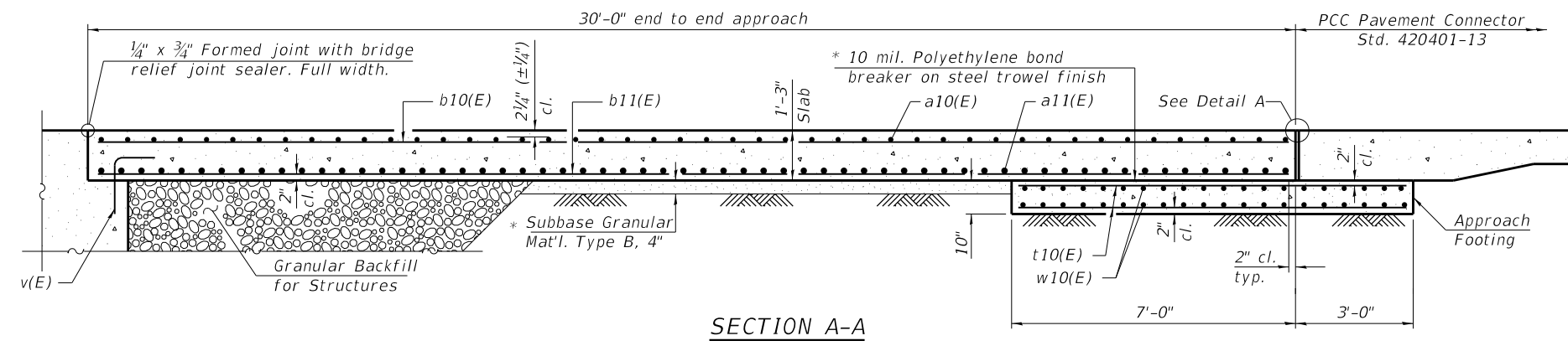


**CROSS SECTION**  
(Looking West)

**AT APPROACH FOOTING**

(Sheet 1 of 2)

Notes:  
 The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications. However, since this detail is for jointless structures, the length of bridge used to calculate the adjustment shall be equal to half the total bridge length plus the length of the bridge approach slab.  
 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 (Qmax) = 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 23.

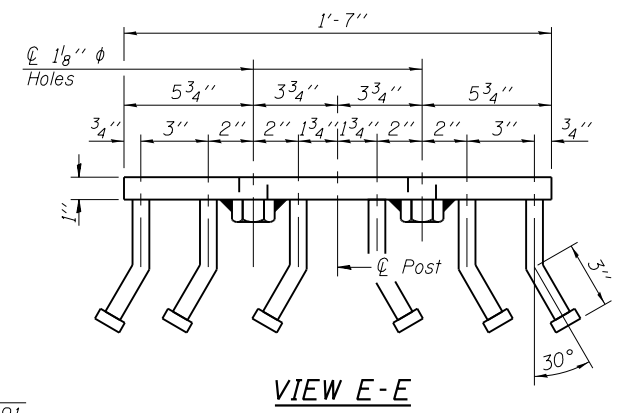
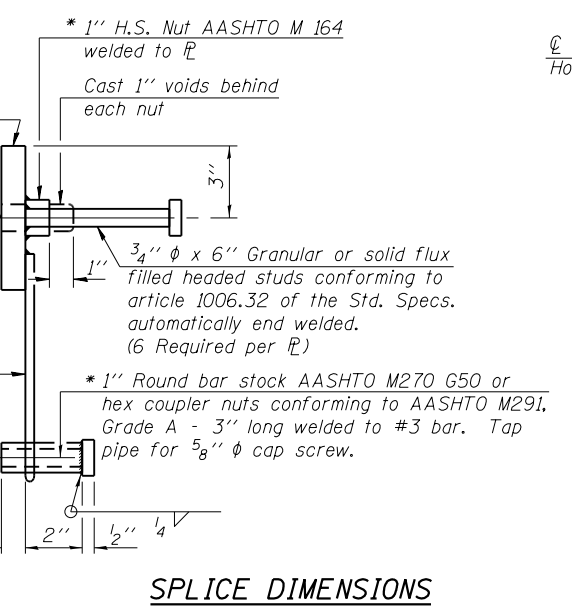
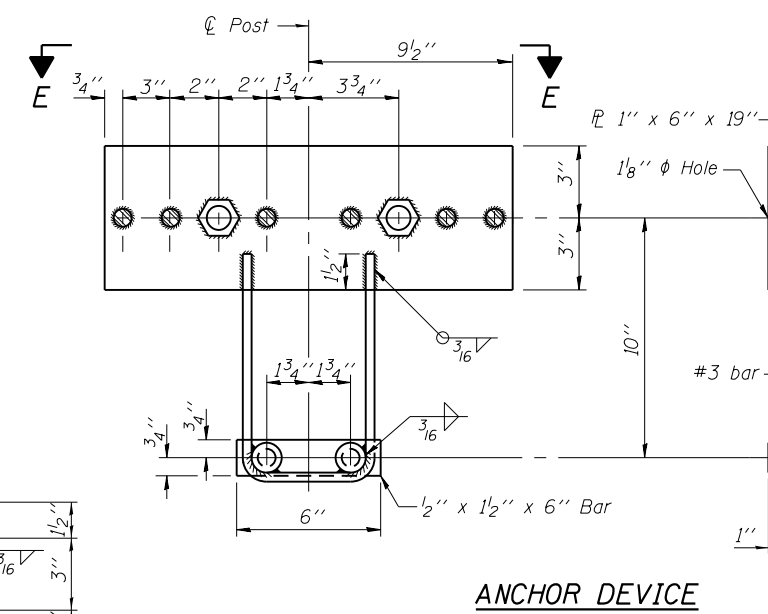
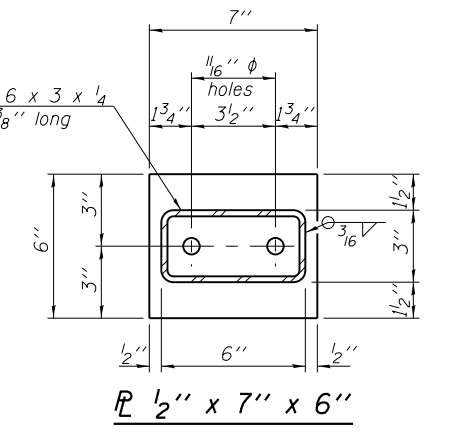
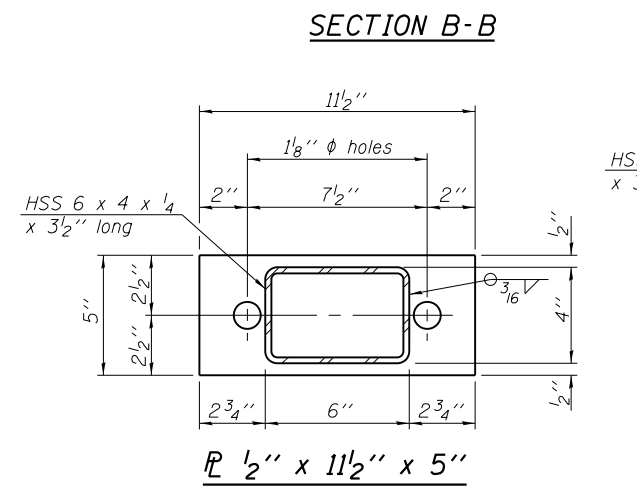
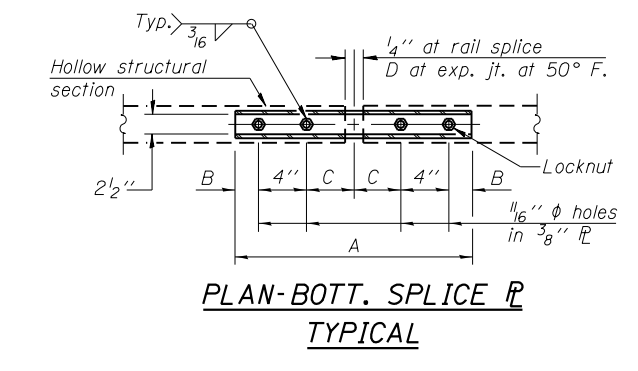
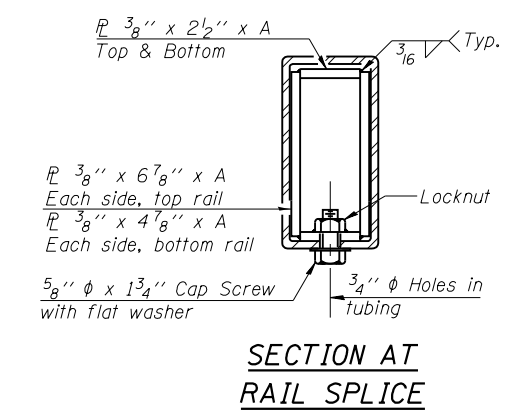
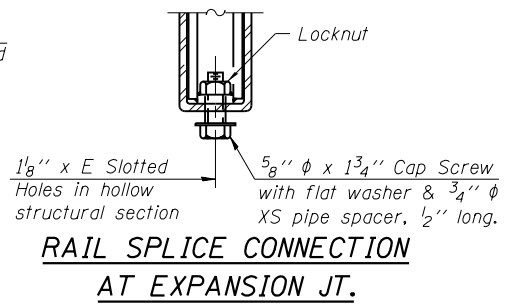
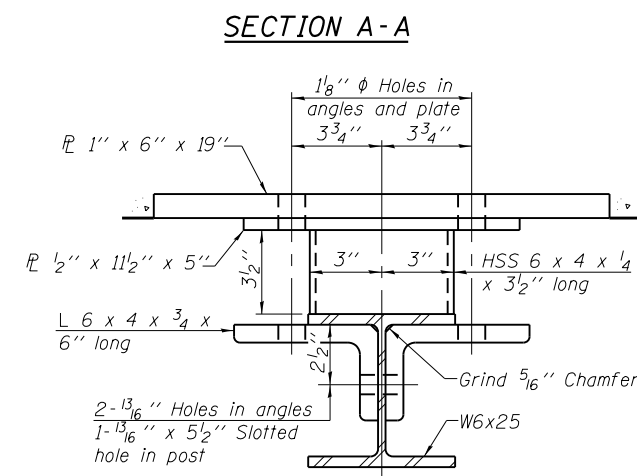
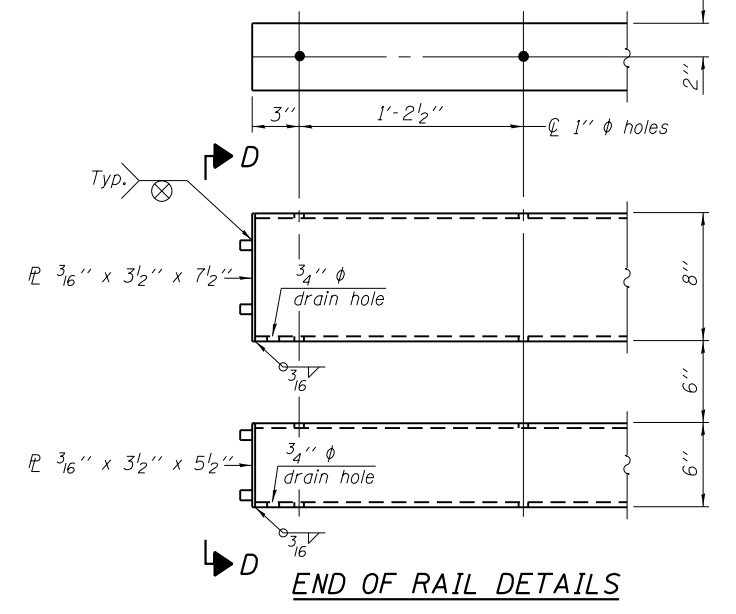
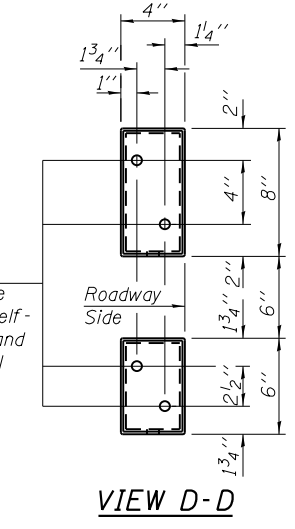
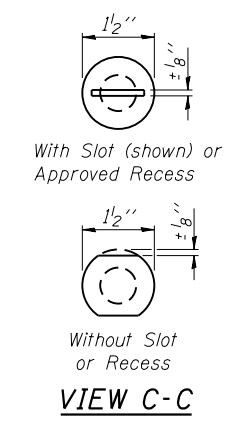
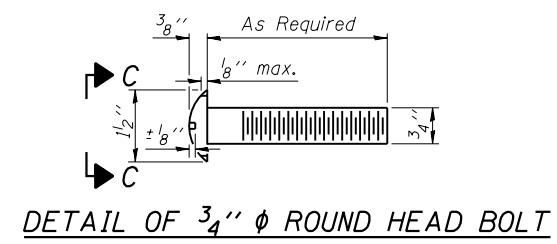
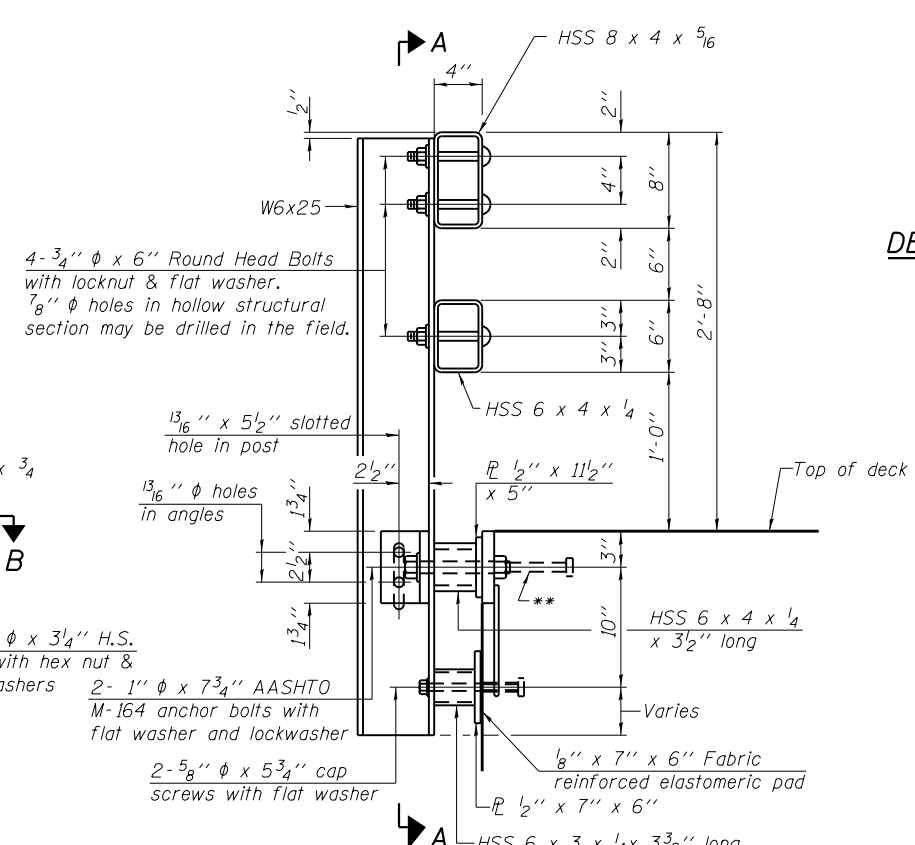
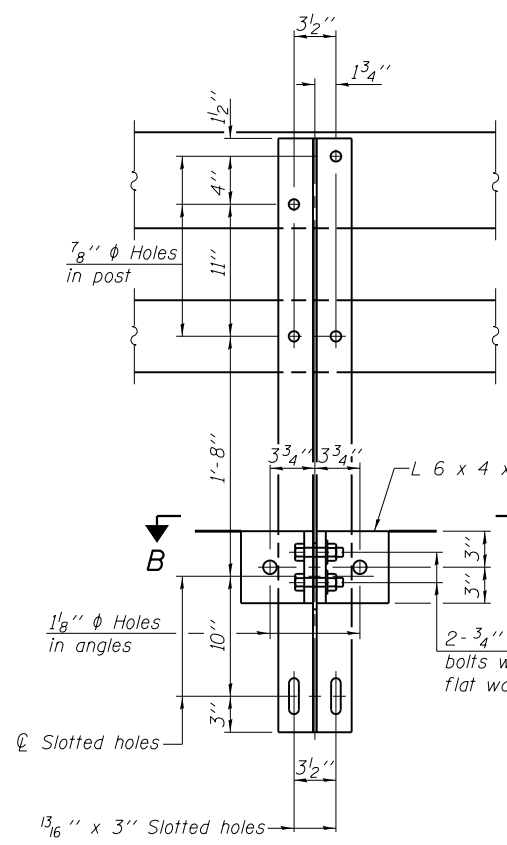


\* Cost included with Concrete Superstructure (Approach Slab).  
 \*\* Per manufacturer recommendations

**TWO APPROACHES  
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a10(E)	92	#5	29'-8"	—
a11(E)	120	#8	29'-8"	—
b10(E)	90	#5	29'-8"	—
b11(E)	146	#9	29'-8"	—
t10(E)	124	#4	9'-8"	—
w10(E)	80	#5	29'-8"	—
Concrete Superstructure (Approach Slab)			Cu. Yd.	83.4
Concrete Structures			Cu. Yd.	18.4
Reinforcement Bars, Epoxy Coated			Pound	33,140

(Sheet 2 of 2)



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

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"	

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.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type SM	Foot	296

(6'-3" Maximum Post Spacing) (1/4" minimum to 3/8" maximum HMA thickness)



Cummins Engineering Corporation  
 JOB = 2343  
 FILE = 0214040-0000-12-Rail.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC  
 REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**DOUGLAS COUNTY CH 6 IMPROVEMENTS**

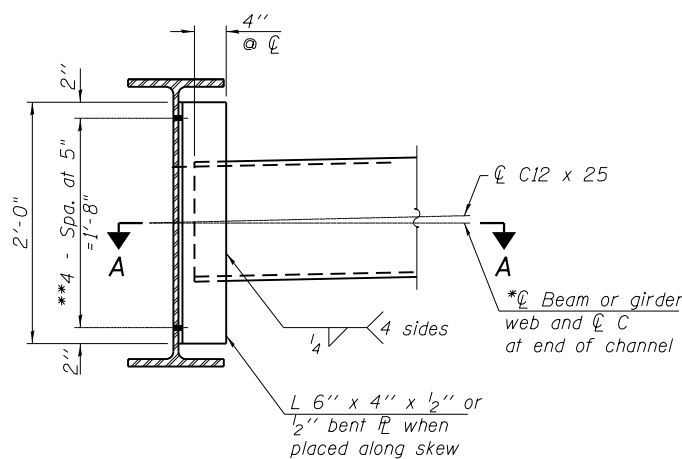
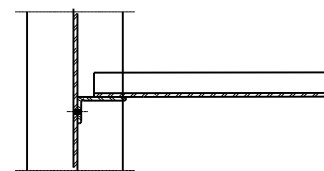
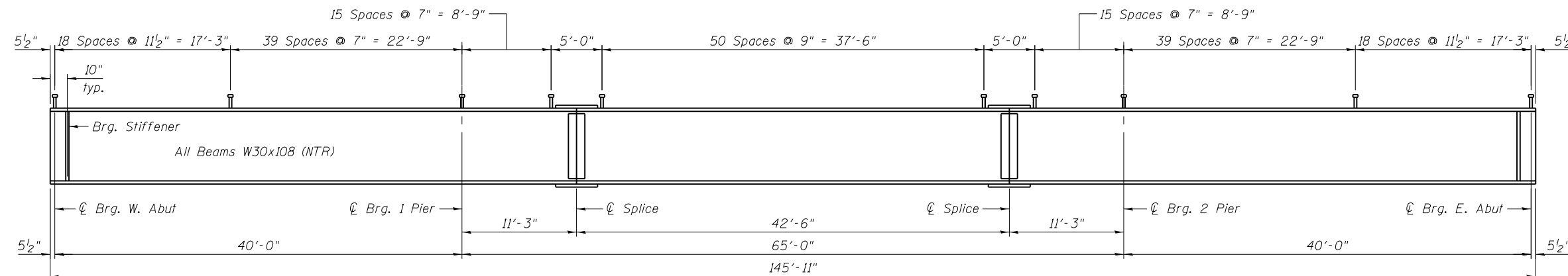
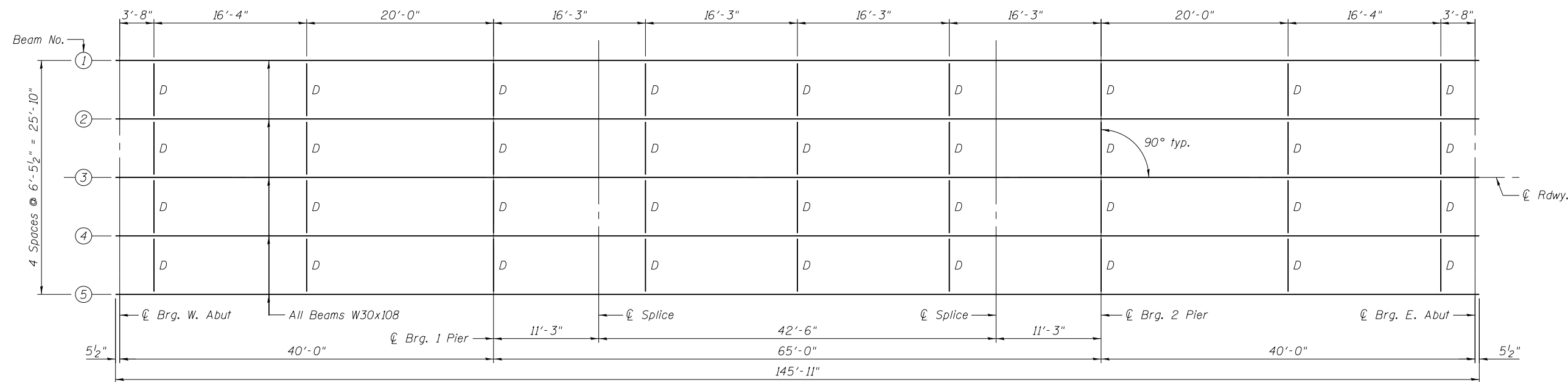
**STEEL RAILING, TYPE SM WITH HOT-MIX ASPHALT WEARING SURFACE STRUCTURE NO. 021-4040**

SHEET NO. 12 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	23

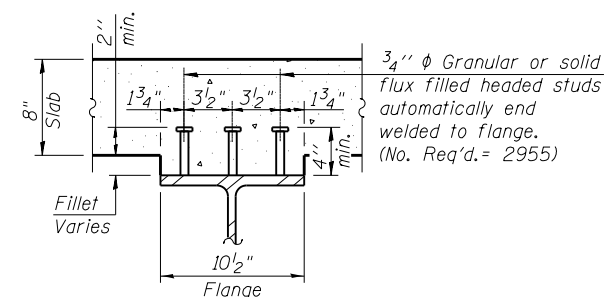
CONTRACT NO. 91594

ILLINOIS FED. AID PROJECT



**INTERIOR DIAPHRAGM D**

Note:  
 Two hardened washers required for each set of oversized holes.  
 \*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.  
 \*\* $\frac{3}{4}$ "  $\phi$  HS bolts,  $\frac{15}{16}$ "  $\phi$  holes



**TOP OF BEAM ELEVATIONS**

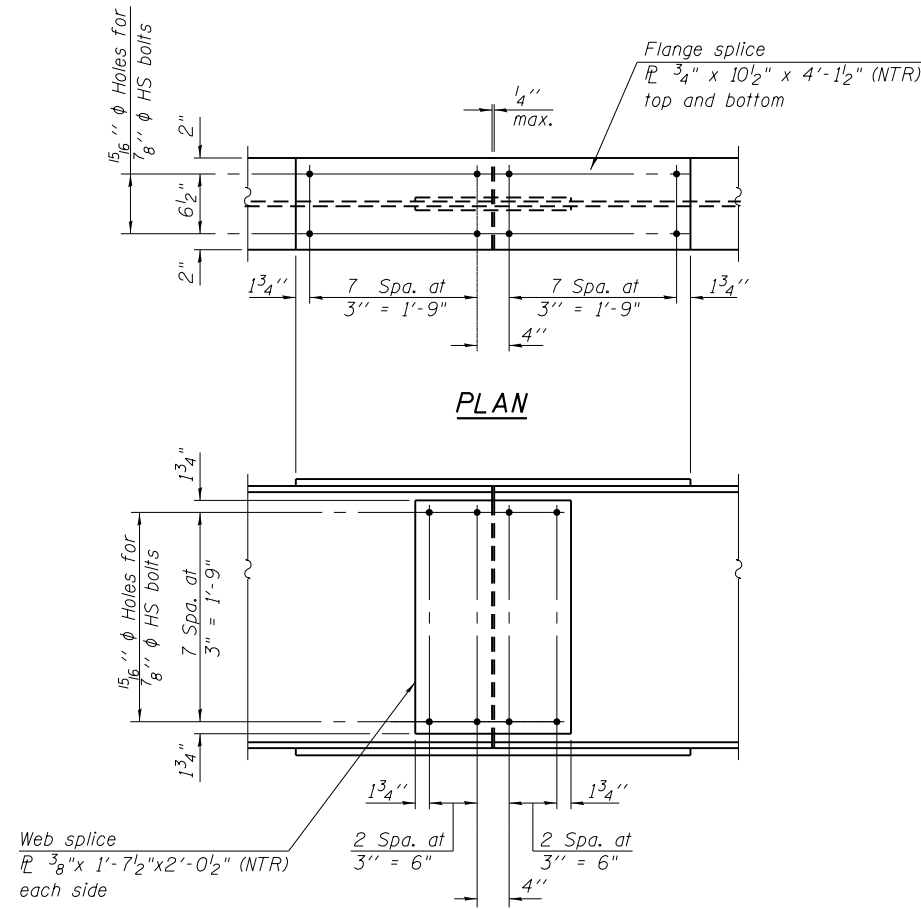
(For Information Only)

Beam	W. Abutment	Pier 1	Splice 1	Splice 2	Pier 2	E. Abutment
1 & 5	667.49	667.68	668.74	667.96	668.02	668.24
2 & 4	667.62	667.82	667.87	668.09	668.15	668.37
3	667.76	667.95	668.00	668.23	668.29	668.51

Elevations shown at splice do not include the  $\frac{3}{4}$ " flange splice plate.

Notes:  
 All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.  
 Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2. All steel for diaphragms and connection plates shall be AASHTO M207 Grade 50W. For bearing details, see sheet 15 of 23.



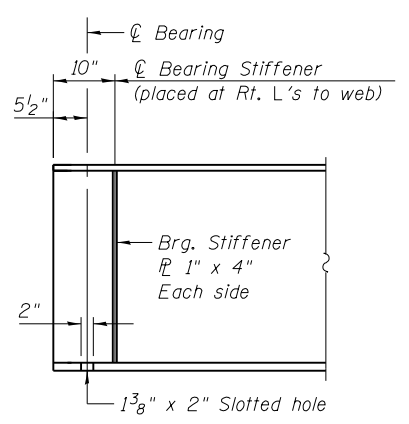


**PLAN**

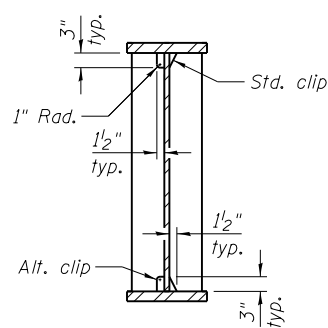
**ELEVATION**

**SPLICE DETAIL**  
(10 Required)

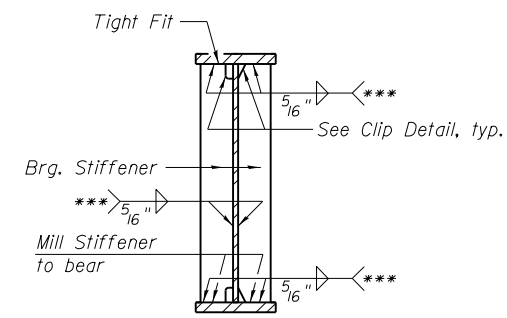
All splice plates shall be AASTHO M 270, Grade 50W, NTR  
Load carrying components designated "NTR" shall conform to  
Impact Testing Requirement, Zone 2.



**TYPICAL END OF BEAM ELEVATION**



**CLIP DETAIL**



**SECTION AT ABUTMENT**

\*\*\* Terminate 1/4" (± 1/8") from the end of plate intersects.

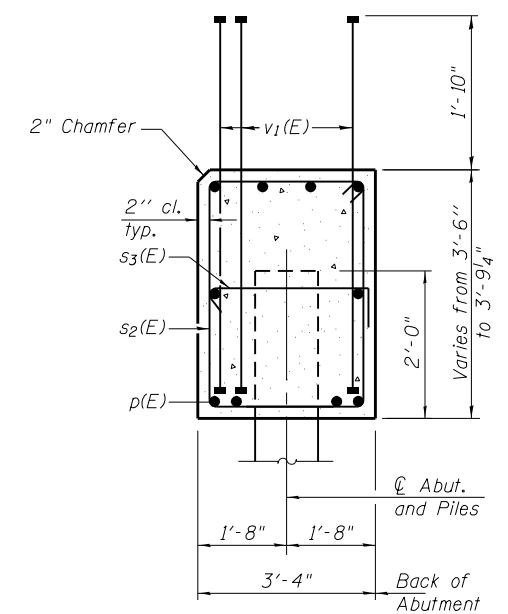
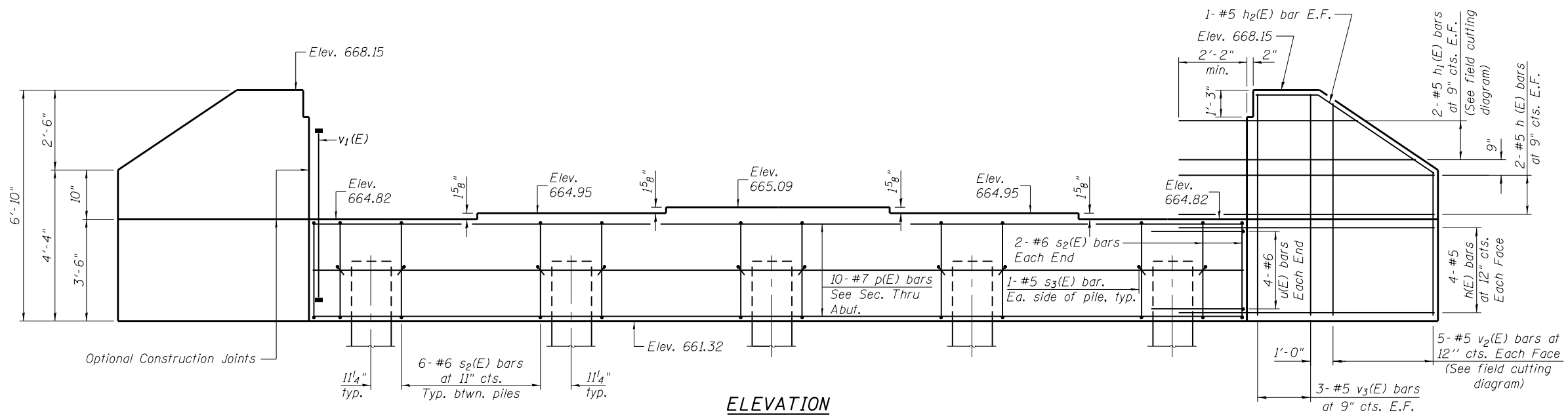
INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 & 2	0.5 Sp. 2
$I_s$	(in <sup>4</sup> )	4,470	4,470	4,470
$I_c(n)$	(in <sup>4</sup> )	13,728	-	13,728
$I_c(3n)$	(in <sup>4</sup> )	10,380	-	10,380
$I_c(cr)$	(in <sup>4</sup> )	-	6,498	-
$S_s$	(in <sup>3</sup> )	299	299	299
$S_c(n)$	(in <sup>3</sup> )	470	-	470
$S_c(3n)$	(in <sup>3</sup> )	428	-	428
$S_c(cr)$	(in <sup>3</sup> )	-	358	-
DC1	(k/ft)	0.787	0.787	0.787
M <sub>DC1</sub>	(k)	61	240	176
DC2	(k/ft)	0.026	0.026	0.026
M <sub>DC2</sub>	(k)	2	8	6
DW	(k/ft)	0.300	0.300	0.300
M <sub>DW</sub>	(k)	23	92	67
M <sub>ℓ + IM</sub>	(k)	385	457	510
M <sub>u</sub> (Strength I)	(k)	787	1,248	1,221
φ <sub>f</sub> M <sub>n</sub>	(k)	2,461	-	2,338
f <sub>s</sub> DC1	(ksi)	2.4	9.6	7.1
f <sub>s</sub> DC2	(ksi)	0.1	0.1	0.1
f <sub>s</sub> DW	(ksi)	0.7	3.1	1.9
f <sub>s</sub> (ℓ + IM)	(ksi)	9.8	15.3	13.0
f <sub>s</sub> (Service II)	(ksi)	15.3	32.7	26.0
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.5	47.5	47.5
f <sub>s</sub> (Total)(Strength I)	(ksi)	-	43.6	-
φ <sub>f</sub> F <sub>n</sub>	(ksi)	-	50.0	-
V <sub>f</sub>	(k)	18.1	17.2	13.3

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
R <sub>DC1</sub>	(k)	9.7	47.3
R <sub>DC2</sub>	(k)	0.3	1.6
R <sub>DW</sub>	(k)	3.7	18.0
R <sub>ℓ + IM</sub>	(k)	60.8	102.0
R <sub>Total</sub>	(k)	74.5	168.9

- $I_s, S_s$ : 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.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(n), S_c(n)$ : 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) in uncracked sections due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(3n), S_c(3n)$ : 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) in uncracked sections, due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).
- DC1: Un-factored non-composite dead load (kips/ft.).
- M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- M<sub>ℓ + IM</sub>: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>ℓ + IM</sub>
- φ<sub>f</sub>M<sub>n</sub>: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).
- f<sub>s</sub> DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
M<sub>DC1</sub> / S<sub>nc</sub>
- f<sub>s</sub> DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
M<sub>DC2</sub> / S<sub>c(3n)</sub> or M<sub>DC2</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> 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<sub>DW</sub> / S<sub>c(3n)</sub> or M<sub>DW</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> (ℓ + IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).  
M<sub>ℓ + IM</sub> / S<sub>c(n)</sub> or M<sub>DW</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> (Service II): Sum of stresses as computed below (ksi).  
f<sub>sDC1</sub> + f<sub>sDC2</sub> + f<sub>sDW</sub> + 1.3 f<sub>s</sub> (ℓ + IM)
- 0.95R<sub>n</sub>F<sub>yf</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).
- f<sub>s</sub> (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
1.25 (f<sub>sDC1</sub> + f<sub>sDC2</sub>) + 1.5 f<sub>sDW</sub> + 1.75 f<sub>s</sub> (ℓ + IM)
- φ<sub>f</sub>F<sub>n</sub>: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).
- V<sub>f</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

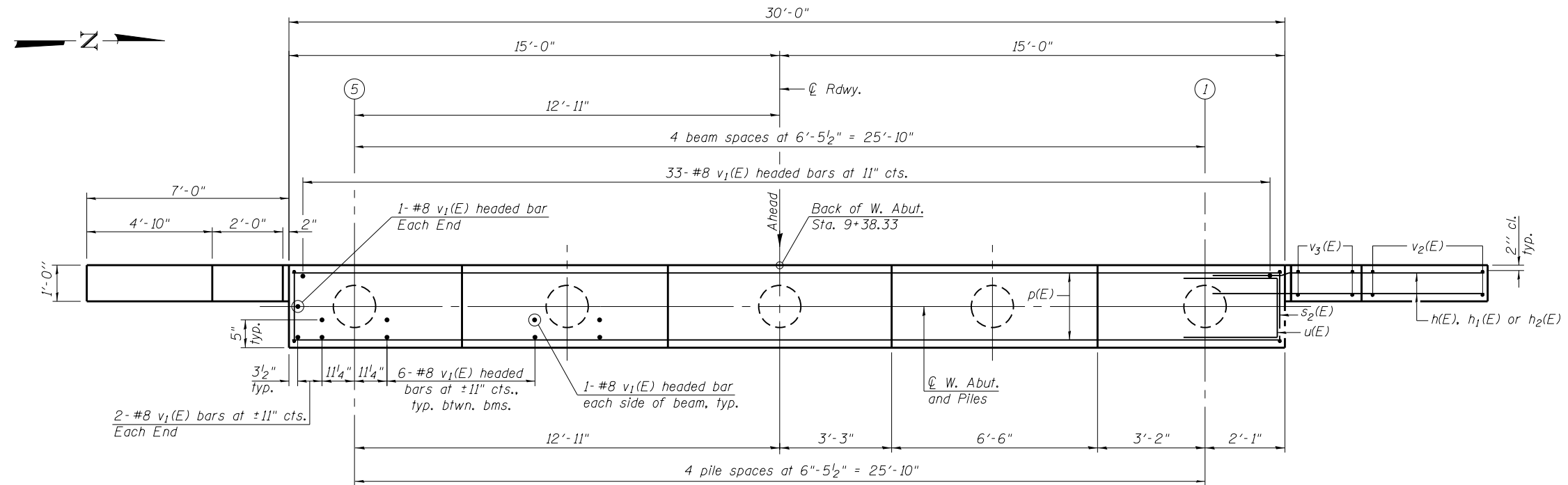
Note:  
M<sub>ℓ</sub> and R<sub>ℓ</sub> include the effects of centrifugal force and superelevation.





**ELEVATION**

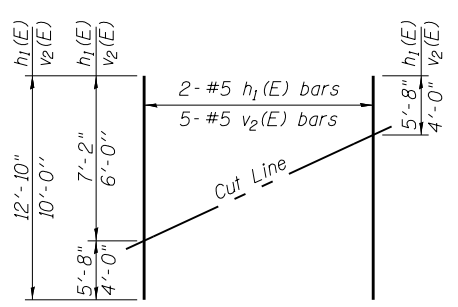
**SEC. THRU ABUT.**



**PLAN**

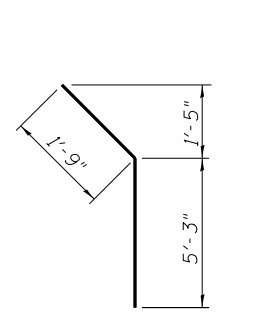
**PILE DATA**  
 Type: Metal Shell 14" X 0.312" (with Pile Shoes)  
 Nominal Required Bearing: 291 Kips  
 Factored Resistance Available: 160 Kips  
 Est. Length: 45'  
 No. Production Piles: 4  
 No. Test Piles: 1 \*

\* To be driven in a permanent location at the West Abutment. Test Pile to include Pile Shoe. Cost included in Test Pile.

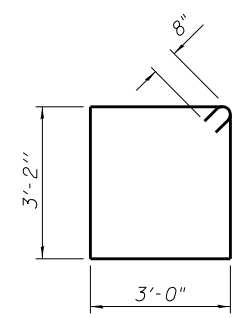


**FIELD CUTTING DIAGRAM**

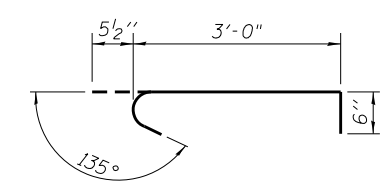
Order h<sub>1</sub>(E) and v<sub>2</sub>(E) full length. Cut as shown and use remainder of bars in opposite face.



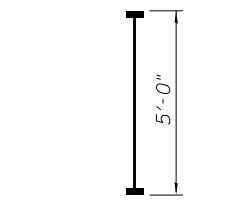
**BAR h<sub>2</sub>(E)**



**BAR s<sub>2</sub>(E)**



**BAR s<sub>3</sub>(E)**



**BAR v(E)  
(Headed)**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	24	#5	9'-0"	—
h <sub>1</sub> (E)	4	#5	12'-10"	—
h <sub>2</sub> (E)	4	#5	7'-0"	—
p(E)	10	#7	29'-8"	—
s <sub>2</sub> (E)	28	#6	13'-8"	□
s <sub>3</sub> (E)	10	#5	4'-0"	┌
u(E)	8	#6	11'-6"	□
v <sub>1</sub> (E)	73	#8	5'-0"	—
v <sub>2</sub> (E)	10	#5	10'-0"	—
v <sub>3</sub> (E)	12	#5	6'-6"	—
Structure Excavation		Cu. Yd.	80	
Concrete Structures		Cu. Yd.	16.1	
Reinforcement Bars, Epoxy Coated		Pound	2830	
Furnishing Metal Shell Piles 14" x 0.312"		Foot	180	
Driving Piles		Foot	180	
Test Pile, Metal Shell		Each	1	
Pile Shoes		Each	4	
Geocomposite Wall Drain		Sq. Yd.	26.2	
Pipe Underdrains for Structures, 4"		Foot	62	
Granular Backfill for Structures		Cu. Yd.	32	

**Notes:**  
 Pour steps monolithically with cap.  
 For details of piles see sheet 20 of 23.  
 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.



JOB = 2343  
 FILE = 0214040-0000-16-17-Abutments.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

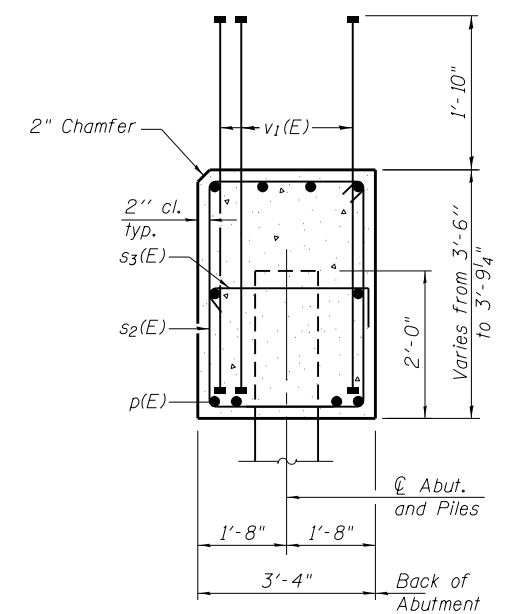
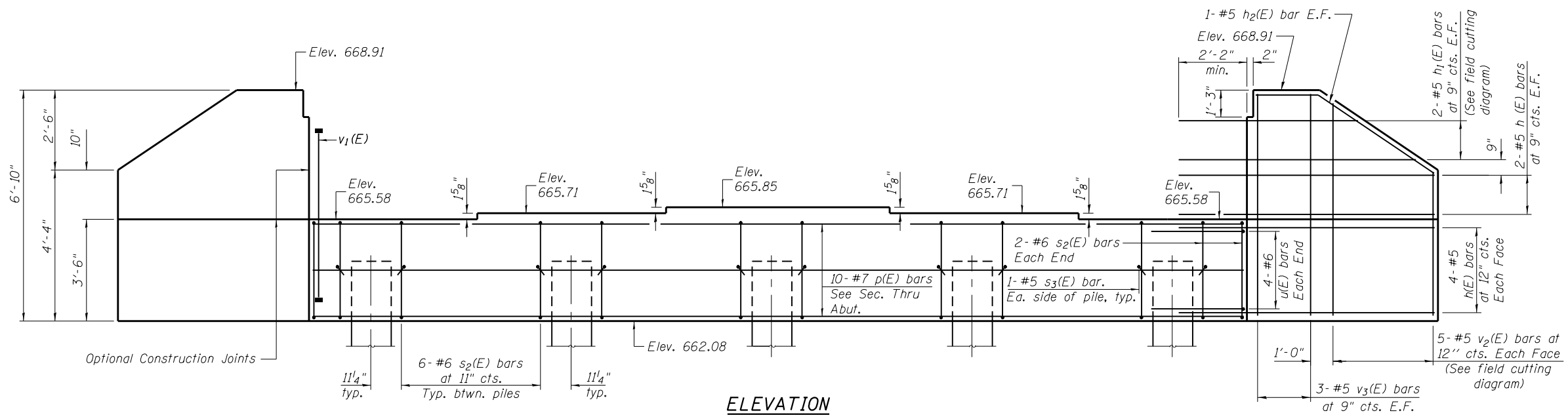
**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**WEST ABUTMENT  
 STRUCTURE NO. 021-4040**

SHEET NO. 16 OF 23 SHEETS

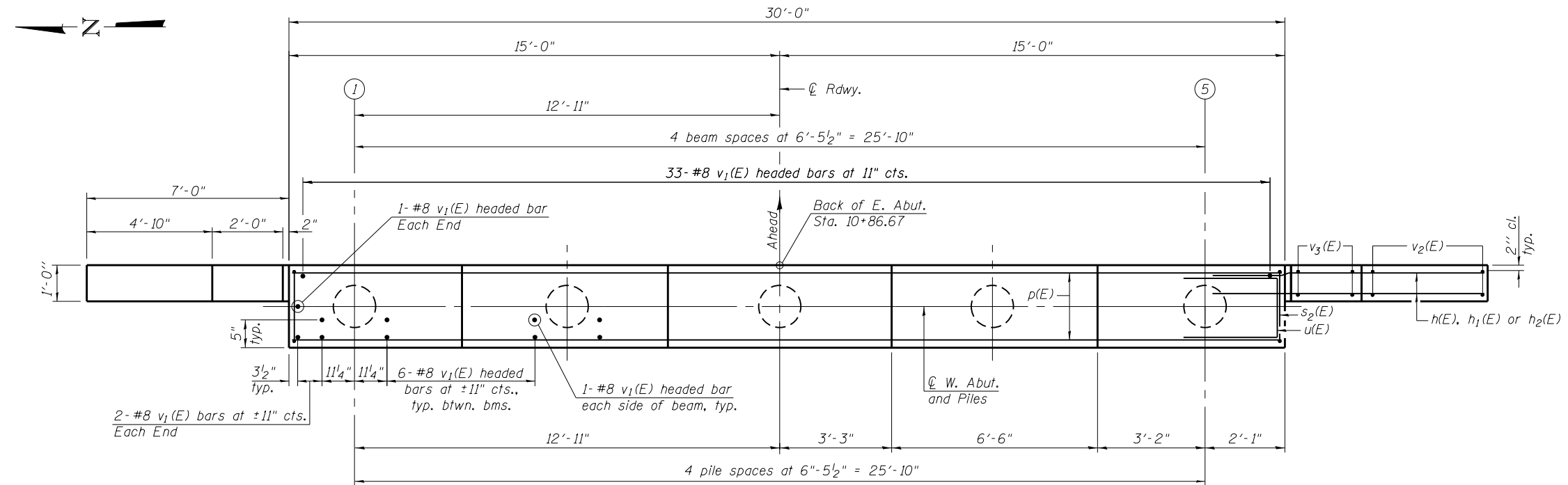
F.A.S. RT.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	27
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



**ELEVATION**

**SEC. THRU ABUT.**

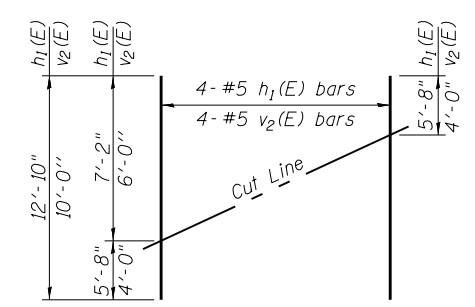


**PLAN**

**PILE DATA**

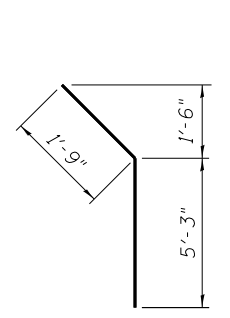
Type: Metal Shell 14" X 0.312" (with Pile Shoes)  
 Nominal Required Bearing: 291 Kips  
 Factored Resistance Available: 160 Kips  
 Est. Length: 45'  
 No. Production Piles: 4  
 No. Test Piles: 1 \*

\* To be driven in a permanent location at the West Abutment. Test Pile to include Pile Shoe. Cost included in Test Pile.

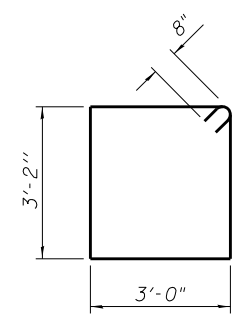


**FIELD CUTTING DIAGRAM**

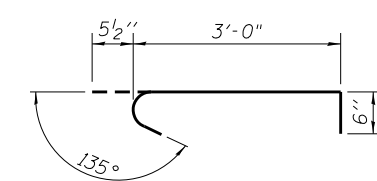
Order  $h_1(E)$  and  $v_2(E)$  full length. Cut as shown and use remainder of bars in opposite face.



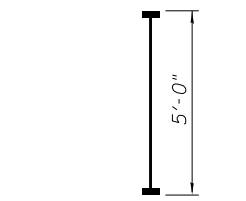
**BAR  $h_2(E)$**



**BAR  $s_2(E)$**



**BAR  $s_3(E)$**



**BAR  $v(E)$   
(Headed)**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
$h(E)$	24	#5	9'-0"	—
$h_1(E)$	4	#5	12'-10"	—
$h_2(E)$	4	#5	7'-0"	—
$p(E)$	10	#7	29'-8"	—
$s_2(E)$	28	#6	13'-8"	□
$s_3(E)$	10	#5	4'-0"	┌
$u(E)$	8	#6	11'-6"	□
$v_1(E)$	73	#8	5'-0"	—
$v_2(E)$	10	#5	10'-0"	—
$v_3(E)$	12	#5	6'-6"	—
Structure Excavation		Cu. Yd.	80	
Concrete Structures		Cu. Yd.	16.1	
Reinforcement Bars, Epoxy Coated		Pound	2830	
Furnishing Metal Shell Piles 14" x 0.312"		Foot	180	
Driving Piles		Foot	180	
Test Pile, Metal Shell		Each	1	
Pile Shoes		Each	4	
Geocomposite Wall Drain		Sq. Yd.	26.2	
Pipe Underdrains for Structures, 4"		Foot	62	
Granular Backfill for Structures		Cu. Yd.	32	

Notes:  
 Pour steps monolithically with cap.  
 For details of piles see sheet 20 of 23.  
 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.



JOB = 2343  
 FILE = 0214040-0000-16-17-Abutments.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

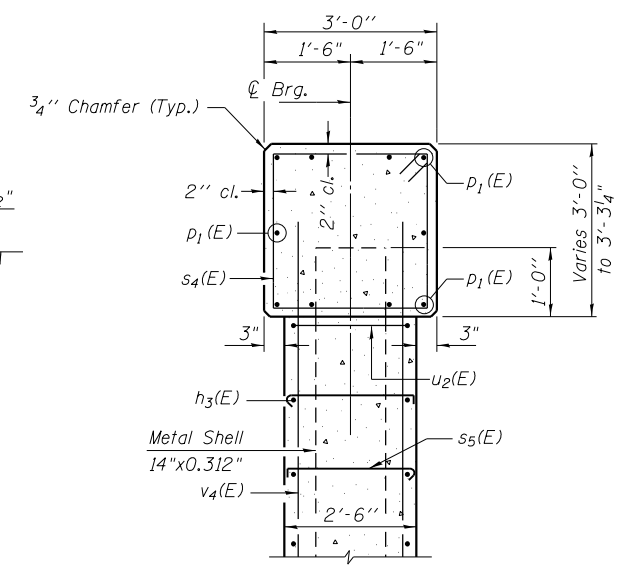
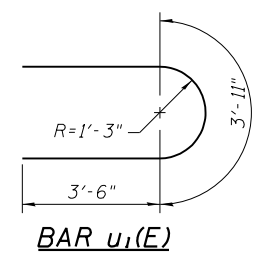
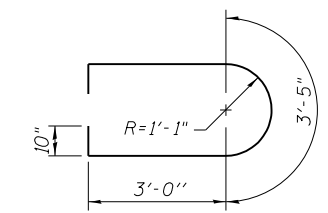
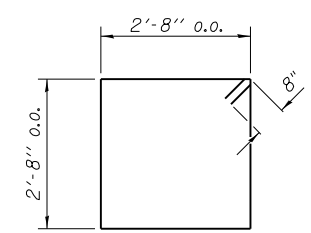
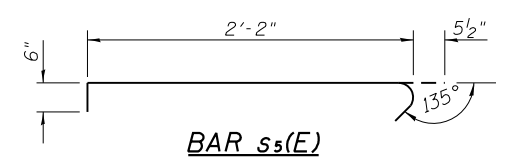
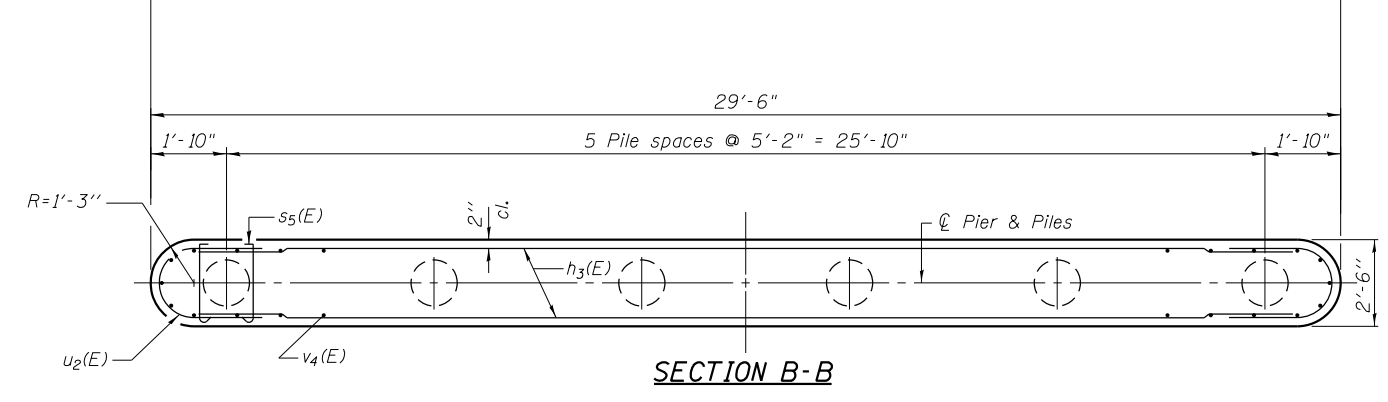
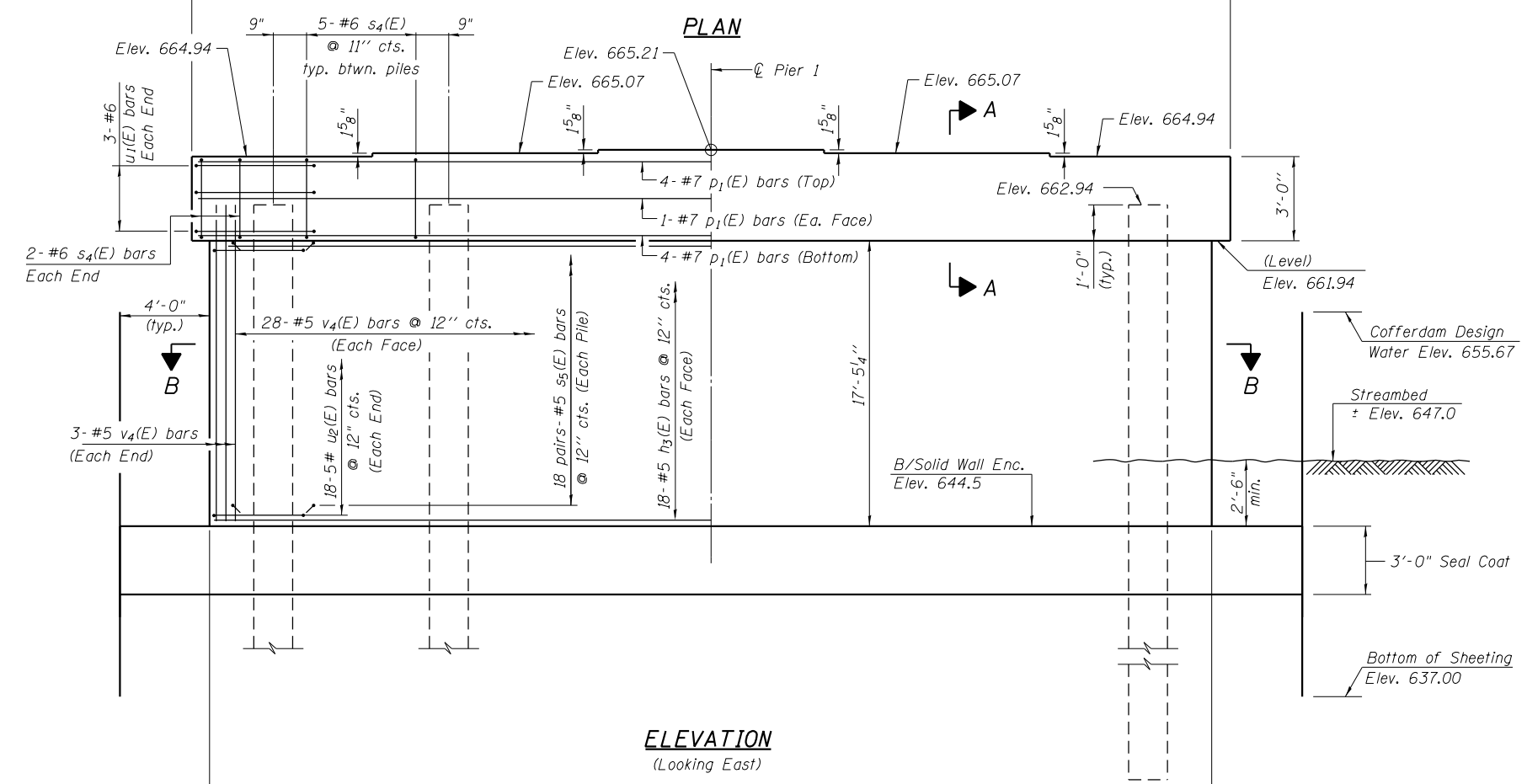
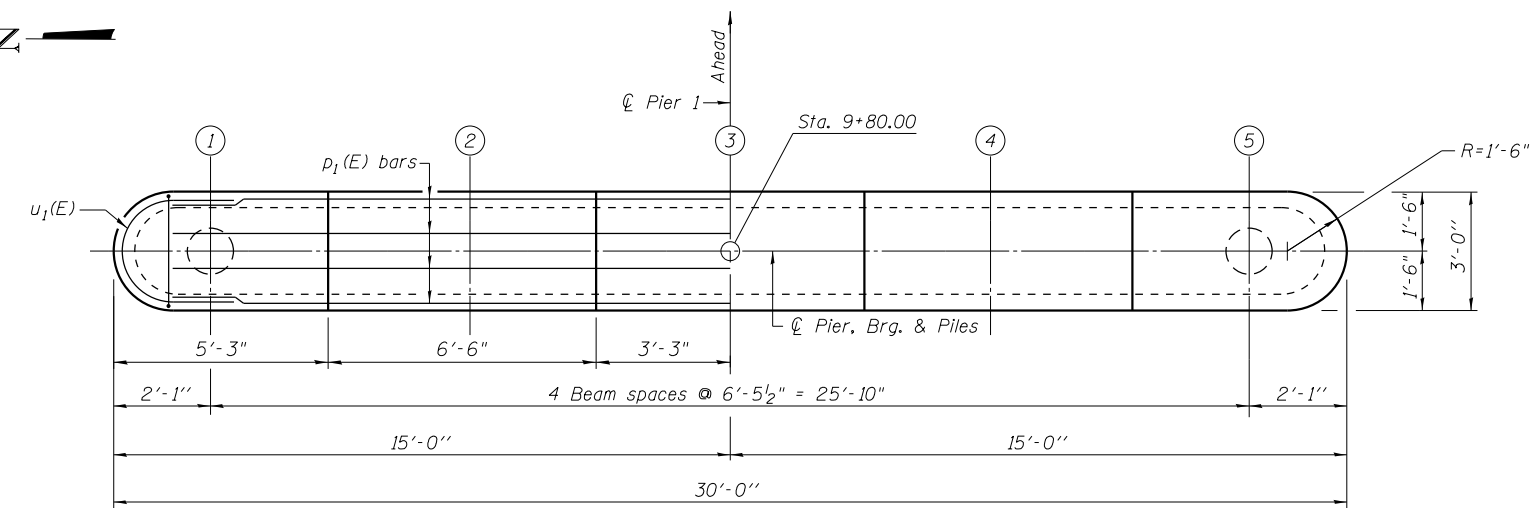
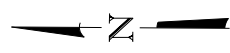
**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**EAST ABUTMENT  
 STRUCTURE NO. 021-4040**

SHEET NO. 17 OF 23 SHEETS

F.A.S. RT.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	28
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



**BILL OF MATERIAL - PIER 1**

BAR	NO.	SIZE	LENGTH	SHAPE
h3(E)	36	#5	27'-0"	—
p1(E)	10	#7	27'-0"	—
s4(E)	24	#6	12'-0"	□
s5(E)	216	#5	3'-2"	┌┐
u1(E)	6	#6	10'-11"	U
u2(E)	36	#5	11'-1"	U
v4(E)	62	#5	18'-3"	—
Concrete Structures			Cu. Yd.	52.6
Reinforcement Bars, Epoxy Coated			Pound	4410
Furnishing Metal Shell Piles 14"x0.312"			Foot	280
Driving Piles			Foot	280
Cofferdam (Type 2) (Location 1)			Each	1
Test Pile Metal Shell			Each	1
Cofferdam Excavation			Cu. Yd.	150
Seal Coat Concrete			Cu. Yd.	43.8
Pile Shoes			Each	5

**PILE DATA**

Type: Metal Shell 14' x 0.312" (with Pile Shoes)  
 Nominal Required Bearing: 395 kips.  
 Allowable Resistance Available: 217 kips.  
 Est. Length: 56 ft.  
 No. of Production Piles: 5  
 No. of Test Piles: 1 \*

\* To be driven at a permanent location at Pier 1. Test Pile to include Pile Shoe. Cost included with Test Pile.



JOB = 2343  
 FILE = 0214040-0000-18-19-Pier 1 and 2.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

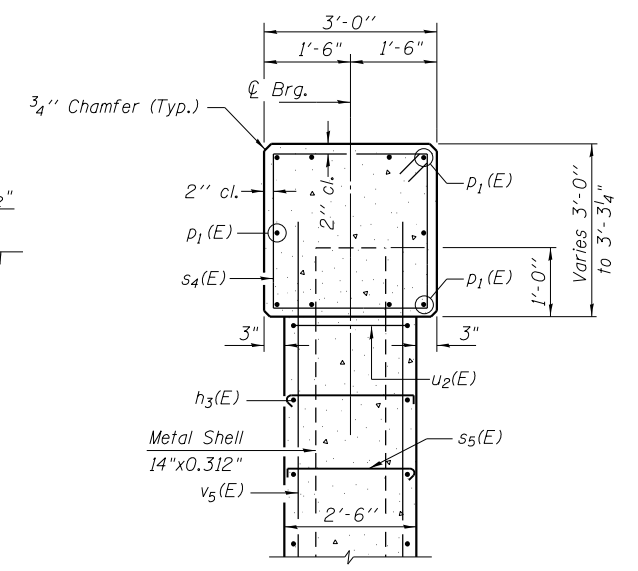
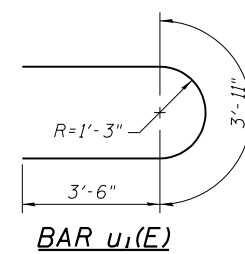
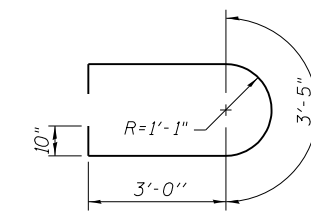
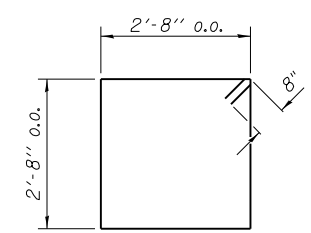
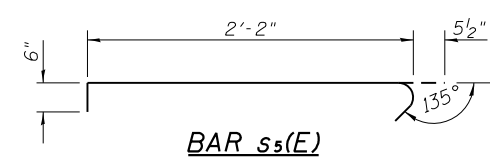
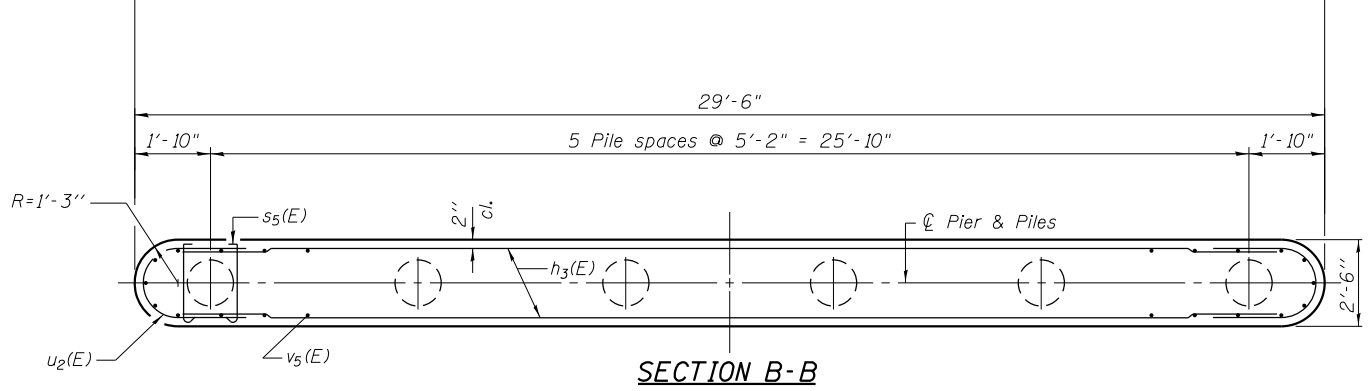
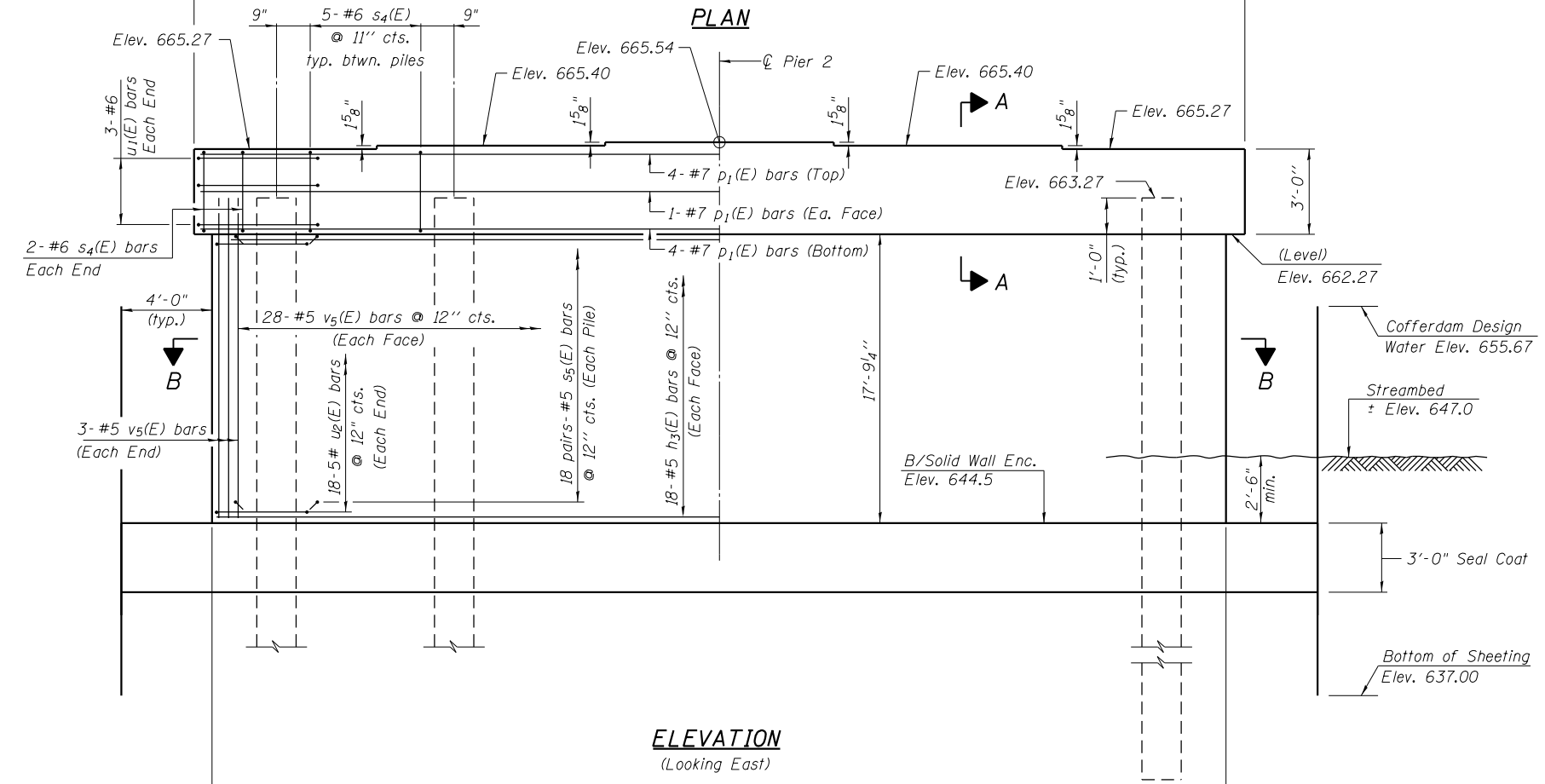
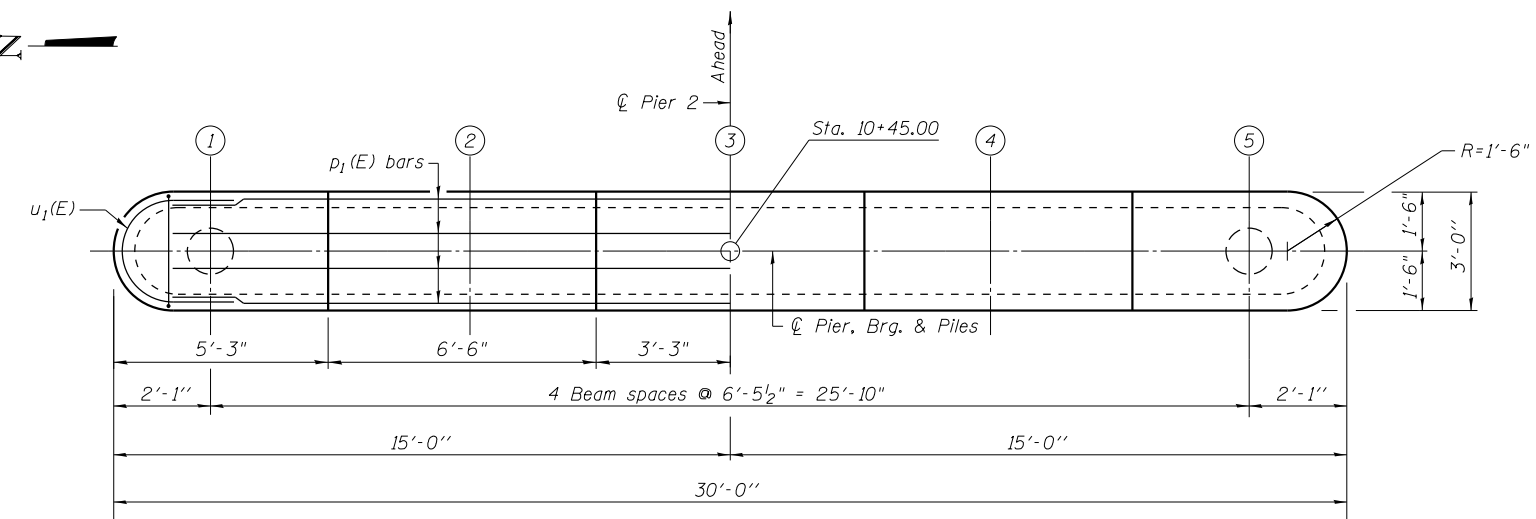
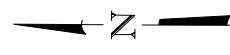
**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**PIER 1  
 STRUCTURE NO. 021-4040**

SHEET NO. 18 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	29
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



**BILL OF MATERIAL - PIER 2**

BAR	NO.	SIZE	LENGTH	SHAPE
h <sub>3</sub> (E)	36	#5	27'-0"	—
p <sub>1</sub> (E)	10	#7	27'-0"	—
s <sub>4</sub> (E)	24	#6	12'-0"	□
s <sub>5</sub> (E)	216	#5	3'-2"	┌┐
u <sub>1</sub> (E)	6	#6	10'-11"	⌢
u <sub>2</sub> (E)	36	#5	11'-1"	⌢
v <sub>5</sub> (E)	62	#5	18'-7"	—
Concrete Structures			Cu. Yd.	53.4
Reinforcement Bars, Epoxy Coated			Pound	4430
Furnishing Metal Shell Piles 14"x0.312"			Foot	280
Driving Piles			Foot	280
Cofferdam (Type 2) (Location 2)			Each	1
Test Pile Metal Shell			Each	1
Cofferdam Excavation			Cu. Yd.	130
Seal Coat Concrete			Cu. Yd.	43.8
Pile Shoes			Each	5

**PILE DATA**

Type: Metal Shell 14' x 0.312" (with Pile Shoes)  
 Nominal Required Bearing: 395 kips.  
 Allowable Resistance Available: 217 kips.  
 Est. Length: 56 ft.  
 No. of Production Piles: 5  
 No. of Test Piles: 1 \*

\* To be driven at a permanent location at Pier 1. Test Pile to include Pile Shoe. Cost included with Test Pile.



JOB = 2343  
 FILE = 0214040-0000-18-19-Pier 1 and 2.dgn  
 DATE = 2/17/2021

DESIGNED - RK  
 CHECKED - AAN  
 DRAWN - SJS  
 CHECKED - MDC

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

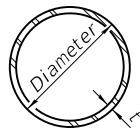
**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**PIER 2  
 STRUCTURE NO. 021-4040**

SHEET NO. 19 OF 23 SHEETS

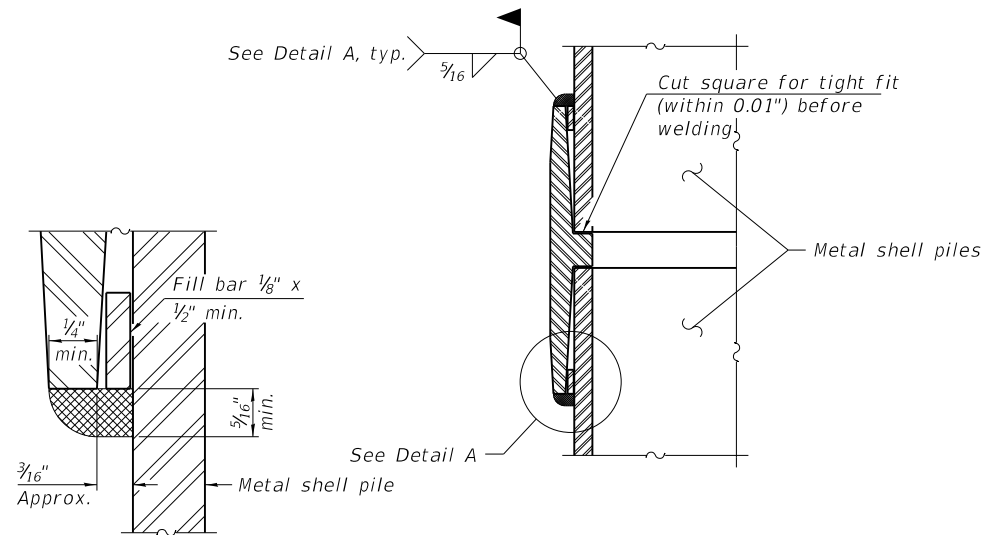
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	30
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT



**METAL SHELL PILE TABLE**

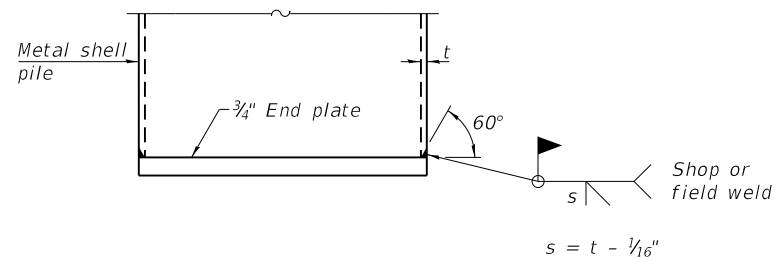
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361
PP16	0.312"	52.32	0.0478
PP16	0.375"	62.64	0.0470



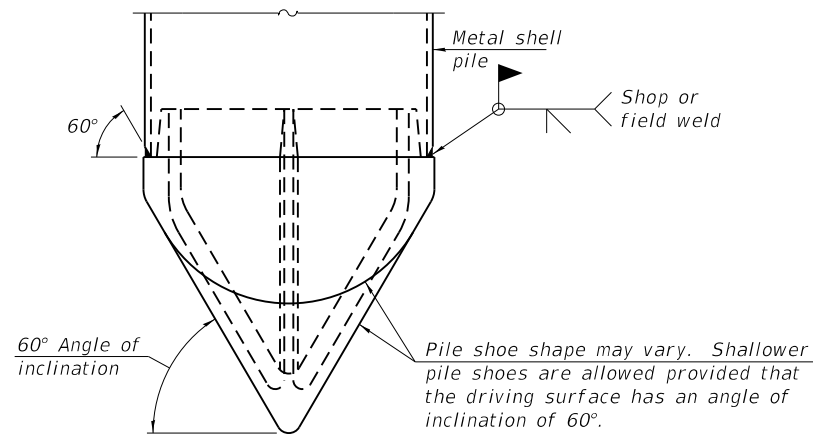
**DETAIL A**

**WELDED COMMERCIAL SPLICE**

Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

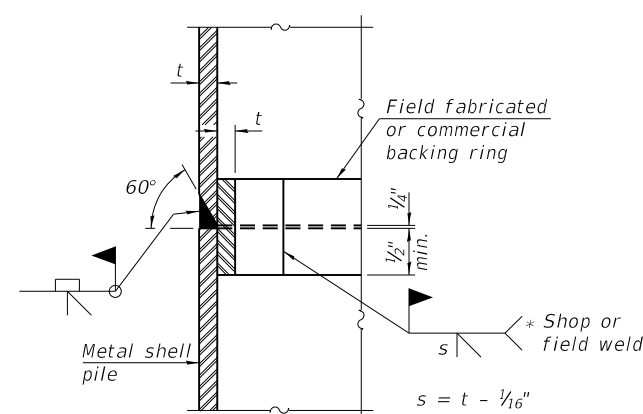


**END PLATE ATTACHMENT**



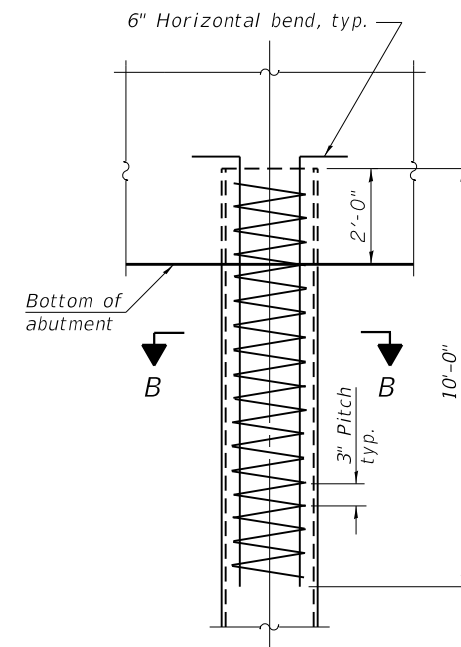
**PILE SHOE ATTACHMENT**

(When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 80-50 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld).



**COMPLETE PENETRATION WELD SPLICE**

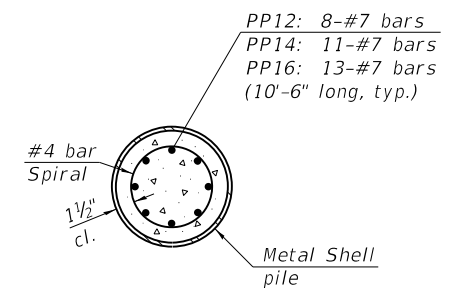
\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**

**REINFORCEMENT AT ABUTMENTS**

(Omit when concrete encasement is specified)



**SECTION B-B**

Note:  
 The metal shell piles shall be according to Article 1006.05 of the Standard Specifications.

F-MS 1-1-2020



JOB = 2343	DESIGNED - RK	REVISED -
FILE = 0214040-0000-20-Metal Shell Pile Details	CHECKED - AAN	REVISED -
DATE = 2/17/2021	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**METAL SHELL PILE DETAILS  
 STRUCTURE NO. 021-4040**

SHEET NO. 20 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	31
CONTRACT NO. 91594				

ILLINOIS FED. AID PROJECT







**BRIDGE FOUNDATION SOIL BORING LOG**      **MET** Midwest Engineering and Testing, Inc.

Route:	County Highway 6 Over Kaskaskia River	Boring:	B-4, East Abutment
Section:	13-00104-00-BR	Page:	Page 2 of 2
County:	Douglas	Date of Boring:	November 24, 2014
Structure No.:	Existing SN 021-4003, Proposed 021-4040	Drilled By:	Zach Wilcoxon
Station:	Sta: 40 +72.5 ft.	Checked By:	Daniel E. Tappendorf, P.E.
Offset:	5 ft. Rt.	MET Project No.:	43082

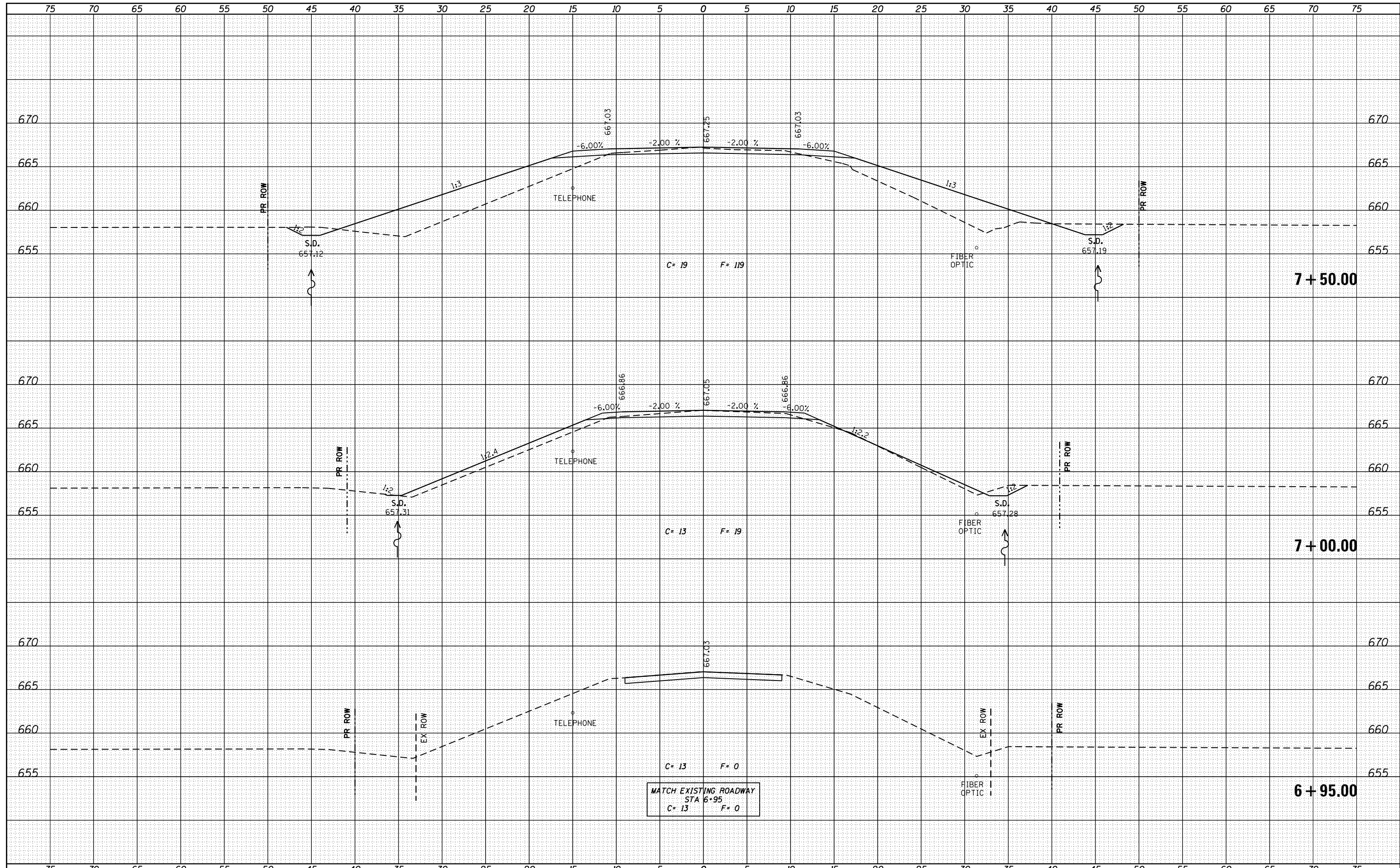
DEPTH TH (ft.)	BLOW S (6")	Qu (tsf)	MC (%)	DESCRIPTION	DEPTH TH (ft.)	BLOW S (6")	Qu (tsf)	MC (%)	DESCRIPTION
55	10 13 17	-	19	Gray medium to coarse SAND (SP)	80				
EL: 611.0 ft									
60	9 14 15	-	22	Gray clayey SAND (SC)	85				
EL: 607.5 ft									
End of Boring: 61.5 Ft.									
65					90				
70					95				
75					100				
					105				

N - Standard Penetration Test (SPT) = Sum of last two blow values in sample  
 MC - Moisture Content - Percent of dry weight  
 Qu - Unconfined Compressive Strength- tons per square foot (tsf)

Type Failure  
 Qu test  
 B-Bulge  
 S-Shear  
 P-Penetrometer

DATE	
BY	
FINAL SURVEY NO.	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	

DATE	
BY	
ORIGINAL SURVEY NO.	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	



JOB = 2343	DESIGNED - NAK	REVISED -
FILE NAME = 2343-sh1-x.s.dgn	DRAWN - SJS	REVISED -
PLOT SCALE = 10.0000' / in.	CHECKED - NAK	REVISED -
PLOT DATE = 12/22/2020	DATE - 12/15/2020	REVISED -

**DOUGLAS COUNTY  
CH 6 IMPROVEMENTS**

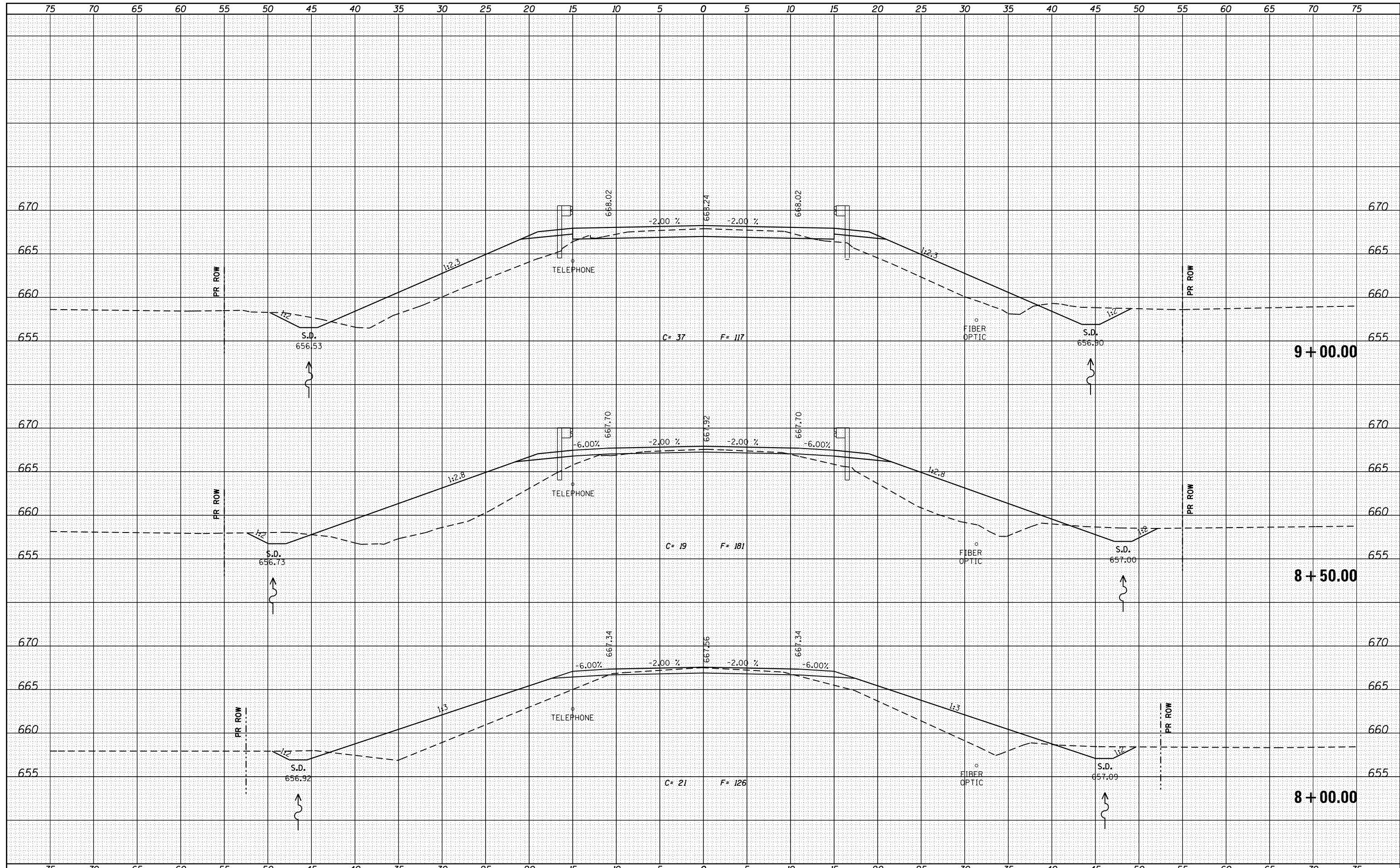
**CH 6 CROSS SECTION**

SCALE: SHEET NO. OF SHEETS STA. 6+95.00 TO STA. 7+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	35
				CONTRACT NO. 91594
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED



JOB = 2343  
 FILE NAME = 2343-shr-xs.dgn  
 PLOT SCALE = 10.0000' / in.  
 PLOT DATE = 12/22/2020

DESIGNED - NAK  
 DRAWN - SJS  
 CHECKED - NAK  
 DATE - 12/15/2020

REVISIED -  
 REVISIED -  
 REVISIED -  
 REVISIED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**CH 6 CROSS SECTION**

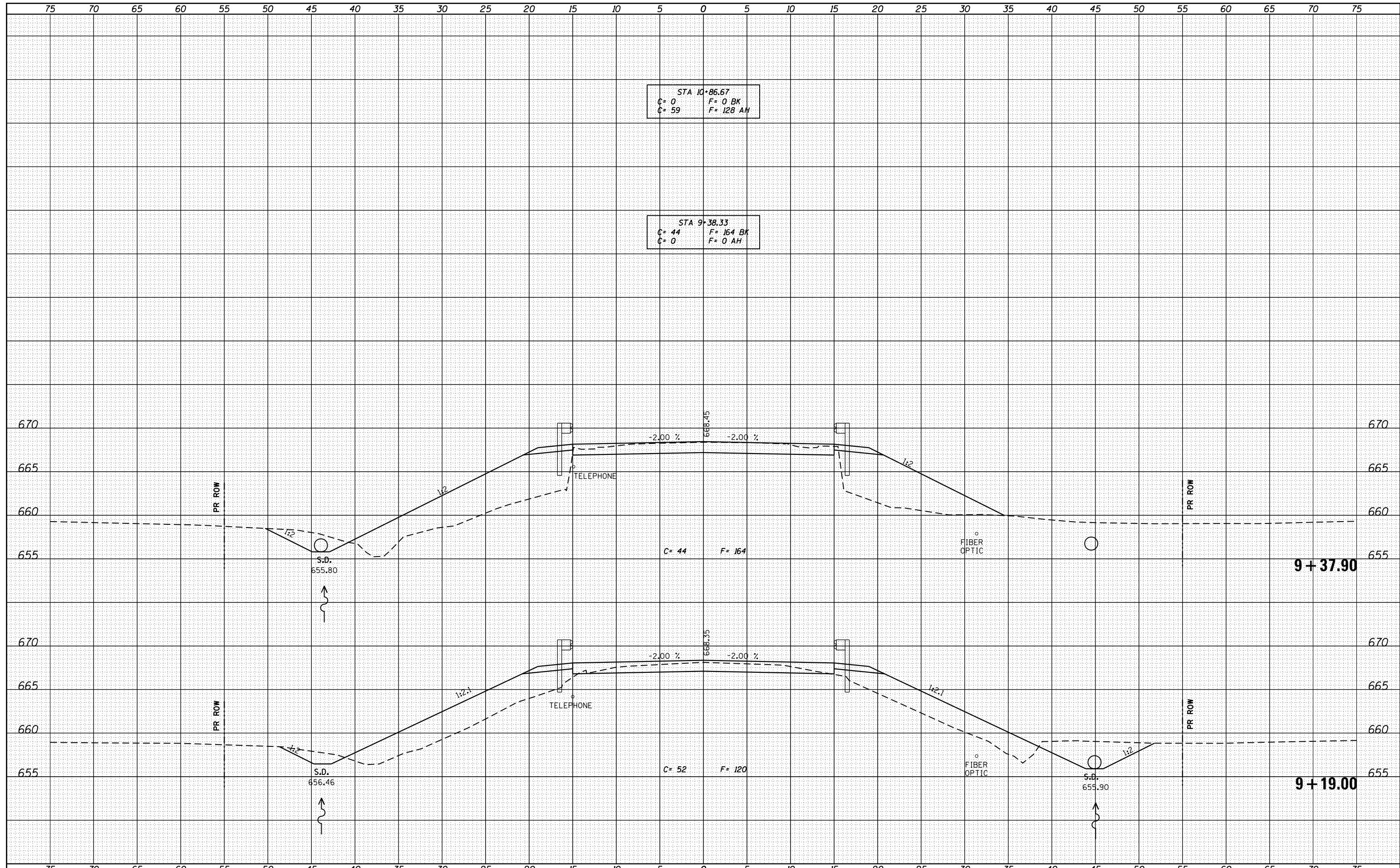
SCALE: SHEET NO. OF SHEETS STA. 8+00.00 TO STA. 9+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	36
CONTRACT NO. 91594				

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

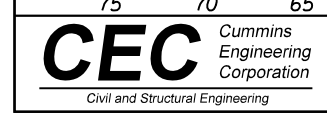
DATE	
BY	
FINAL SURVEY	
NOTE BOOK	
NO.	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	

DATE	
BY	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	



STA 10+86.67  
 C= 0 F= 0 BK  
 C= 59 F= 128 AH

STA 9+38.33  
 C= 44 F= 164 BK  
 C= 0 F= 0 AH



JOB = 2343	DESIGNED - NAK	REVISED -
FILE NAME = 2343-sh1-x.s.dgn	DRAWN - SJS	REVISED -
PLOT SCALE = 10.0000' / in.	CHECKED - NAK	REVISED -
PLOT DATE = 12/22/2020	DATE - 12/15/2020	REVISED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**CH 6 CROSS SECTION**

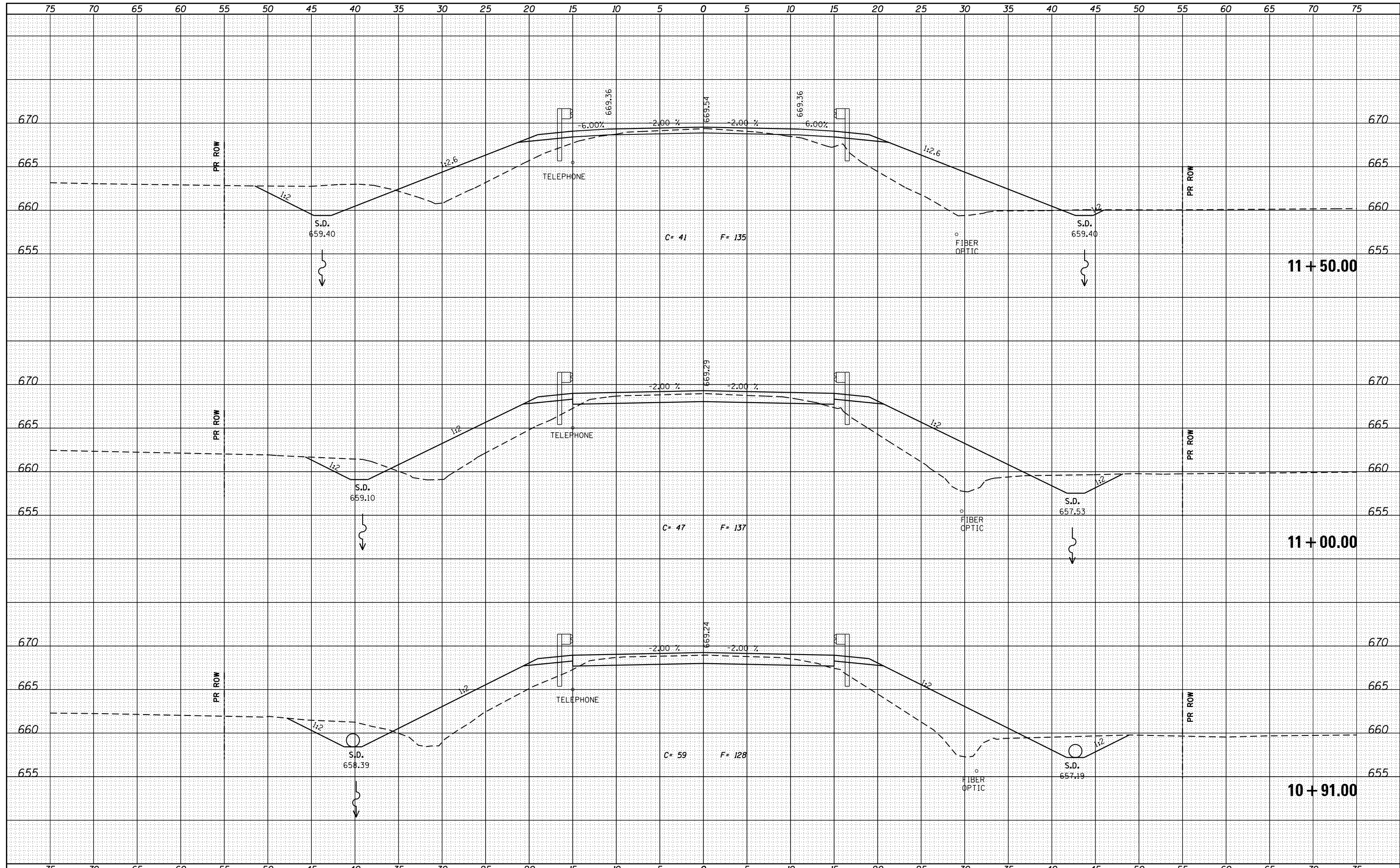
SCALE:	SHEET NO.	OF	SHEETS	STA. 9+19.00	TO STA. 9+37.90
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	37
CONTRACT NO. 91594				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED



JOB = 2343  
 FILE NAME = 2343-sh1-x.s.dgn  
 PLOT SCALE = 10.0000' / 1" = 1000  
 PLOT DATE = 12/22/2020

DESIGNED - NAK  
 DRAWN - SJS  
 CHECKED - NAK  
 DATE - 12/15/2020

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**CH 6 CROSS SECTION**

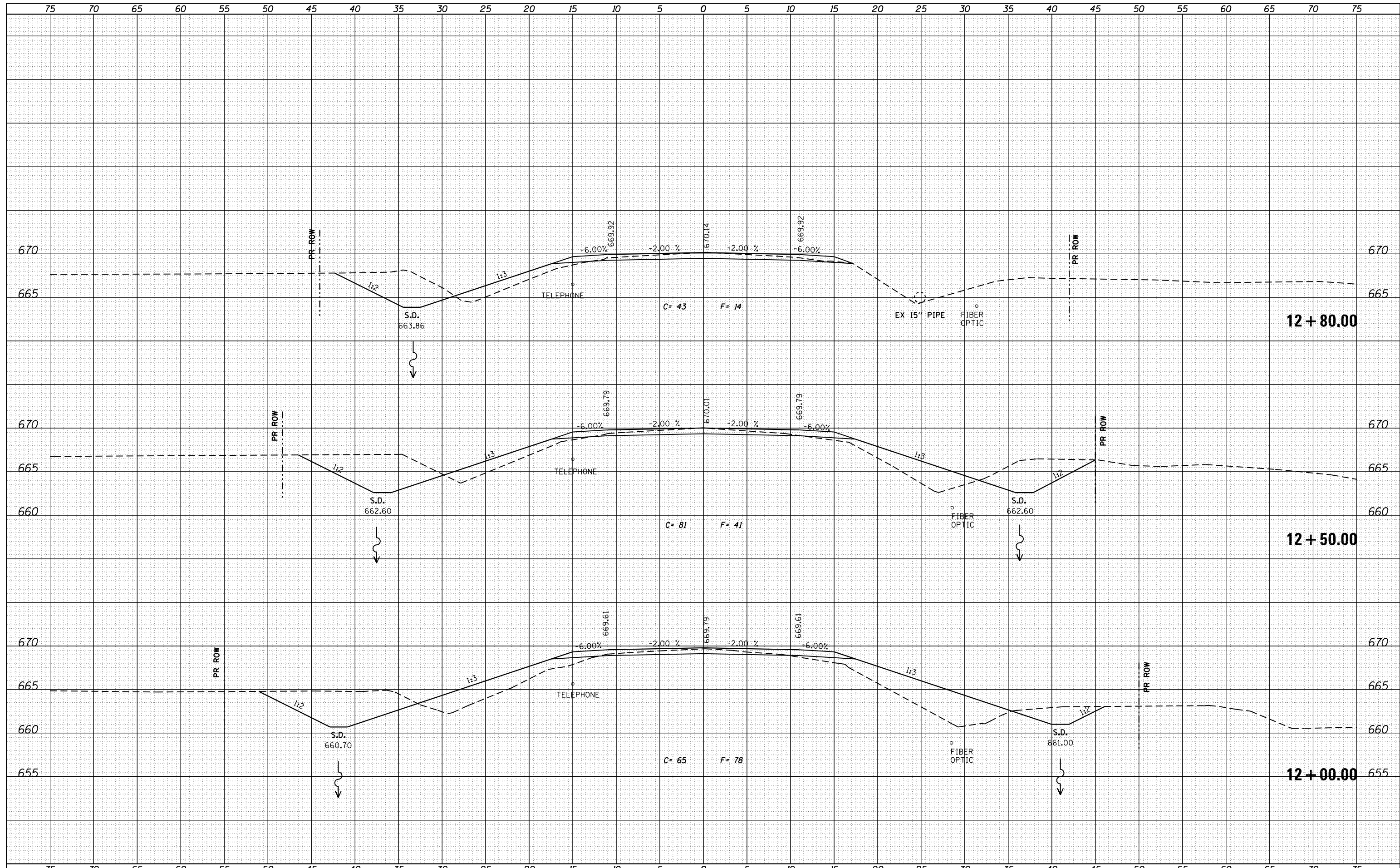
SCALE: SHEET NO. OF SHEETS STA. 10+91.00 TO STA. 11+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	38
CONTRACT NO. 91594				

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

DATE	
BY	
FINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	



JOB = 2343  
 FILE NAME = 2343-sh1-x.s.dgn  
 PLOT SCALE = 10.0000' / in.  
 PLOT DATE = 12/22/2020

DESIGNED - NAK  
 DRAWN - SJS  
 CHECKED - NAK  
 DATE - 12/15/2020

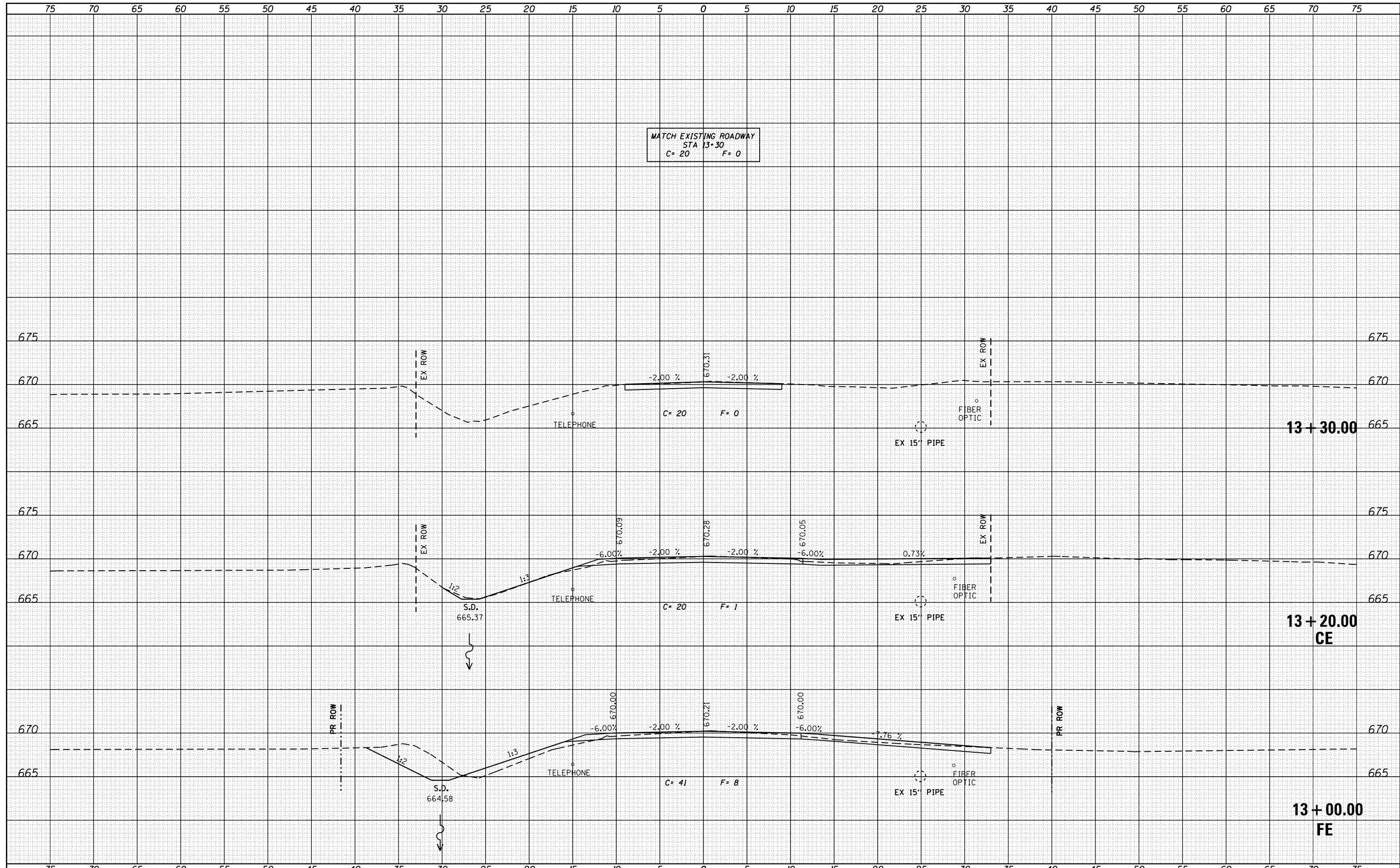
**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**CH 6 CROSS SECTION**  
 SCALE: SHEET NO. OF SHEETS STA. 12+00.00 TO STA. 12+81.80

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	39
CONTRACT NO. 91594				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

DATE	
BY	
FINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
SURVEYED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
NO.	



MATCH EXISTING ROADWAY  
 STA 13+30  
 C= 20 F= 0

**DOUGLAS COUNTY  
 CH 6 IMPROVEMENTS**

**CH 6 CROSS SECTION**



JOB = 2343	DESIGNED - NAK	REVISED -
FILE NAME = 2343-sh1-x.s.dgn	DRAWN - SJS	REVISED -
PLOT SCALE = 10.0000' / in.	CHECKED - NAK	REVISED -
PLOT DATE = 12/22/2020	DATE - 12/15/2020	REVISED -

DESIGNED - NAK	REVISED -
DRAWN - SJS	REVISED -
CHECKED - NAK	REVISED -
DATE - 12/15/2020	REVISED -

SCALE:	SHEET NO.	OF	SHEETS	STA. 13+00.00	TO STA. 13+30.00
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
663	13-00104-00-BR	DOUGLAS	40	40
CONTRACT NO. 91594				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				