03-10-2023 LETTING ITEM 038

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	1
	ILLINOIS	CONTRACT NO. 78610		

HIGHWAY STANDARDS

SEE SHEET 3 FOR "HIGHWAY STANDARDS"

INDEX OF SHEETS

DESIGN DESIGNATION

OLD IL 3 (LOCAL ROAD OR STREET)
CLASS II TRUCK ROUTE
SPEED LIMIT: 55 MPH
ADT = 175 (2017)
P.V. = 163 (83.50%)
S.U. = 6 (3.50%)
M.U. = 6 (3.50%)
NAD 1983 STATE PLANE ILLINOIS EAST

LICENSED PROFESSIONAL ENGINEER
SEAN D. MAXWELL
062.071986
OF ILLINOIS

SEAN D. MAXWELL ILLINOIS P.E. 062.071986 DATE
EXPIRES 11/30/2023

QEI QUIGG ENGINEERING INC
2351 SOUTH DIRKSEN PARKWAY
SPRINGFIELD, ILLINOIS 62703
PROJECT MANAGER: MICHAEL CIMA
www.quiggengineering.com

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

PROJECT ENGINEER GRANT DETERDING (618) 351-5226

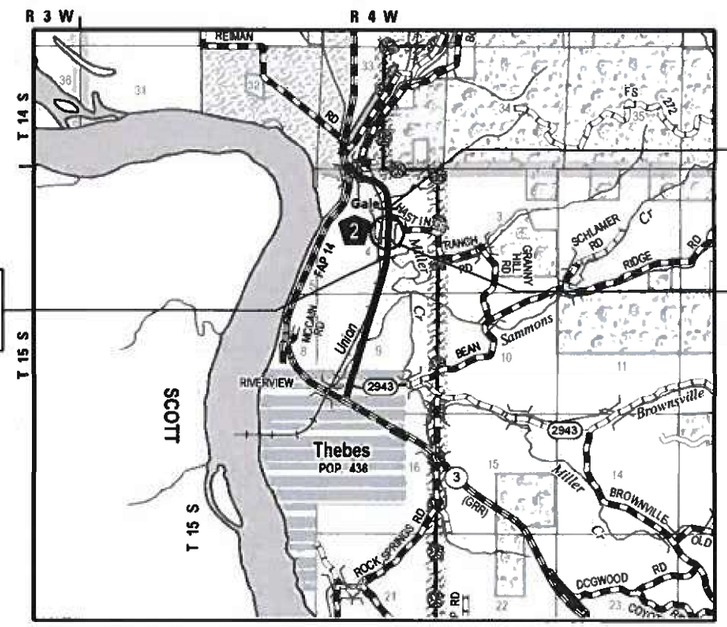
CONTRACT NO. 78610

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED HIGHWAY PLANS

SBI ROUTE 150C (OLD IL 3)
SECTION 133B-1
PROJECT NO. STP-Y3P6(130)
ROADWAY RECONSTRUCTION & BRIDGE REPLACEMENT
ALEXANDER COUNTY

C-99-064-017



BEGIN IMPROVEMENT
STA 1174+58.67

END IMPROVEMENT
STA 1178+56.75

EX SN 002-0010
PR SN 002-0037

PROJECT LENGTH

GROSS LENGTH = 398.08 FT. = 0.075 MILE
NET LENGTH = 398.08 FT. = 0.075 MILE

LOCATION MAP

TOWNSHIP: THEBES
SECTION: 4

C-99-064-017

LOCATION OF SECTION INDICATED THUS: -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED Dec. 14 2022

Kirk H. Brown
REGION FIVE ENGINEER

February 3, 2023
ENGINEER OF DESIGN AND ENVIRONMENT

February 3, 2023
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

PREPARED BY: ______________________
DISTRICT STUDIES AND PLANS ENGINEER

EXAMINED BY: ______________________
DISTRICT LAND ACQUISITION ENGINEER

EXAMINED BY: ______________________
DISTRICT PROGRAM DEVELOPMENT ENGINEER

EXAMINED BY: ______________________
DISTRICT OPERATIONS ENGINEER

EXAMINED BY: ______________________
DISTRICT PROJECT IMPLEMENTATION ENGINEER

EXAMINED BY: ______________________
DISTRICT CONSTRUCTION ENGINEER

EXAMINED BY: ______________________
DISTRICT MATERIALS ENGINEER

MODEL: Default
FILE NAME: S:\2021\21IL033 - PTB 199-38 09 - QEI - Various HRWO-5 - OL-3 BR Replace 002-0037\CADD\CADD Sheets\D978610 Sht GenNote1.dgn

QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - SM	REVISED -	
	DRAWN - SM	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED - SM	REVISED -	
PLOT DATE = 12/12/2022	DATE - 11/04/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT SIGNATURE BLOCK

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

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	2
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		

HIGHWAY STANDARDS

STD NO.	DESCRIPTION
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
515001-04	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631061-01	TRAFFIC BARRIER TERMINAL, TYPE 13
701901-08	TRAFFIC CONTROL DEVICES
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
780001-05	TYPICAL PAVEMENT MARKINGS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
420001-10	PAVEMENT JOINTS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

LOCATION(S):	FULL DEPTH PAVEMENT			SHOULDERS	
MIXTURE USE(S):	SURFACE	TOP LIFT BINDER	ALL OTHER LIFTS	TOP LIFT	ALL LOWER LIFTS
PG:	SBS PG64-22	SBS PG64-22	SBS PG64-22	SBS PG64-22	SBS PG64-22
DESIGN AIR VOIDS:	4.0%, N70	4.0%, N50	4.0%, N50	4.0%, N70	4.0%, N50
MIXTURE COMPOSITION	IL-9.5	IL-19.0	IL-19.0	IL-9.5	IL-19.0
FRICTION AGGREGATE	MIX C	NONE	NONE	MIX C	NONE
MIXTURE WEIGHT:	112 LBS/SQ YD	112 LBS/SQ YD	112 LBS/SQ YD	112 LBS/SQ YD	112 LBS/SQ YD
QUALITY MANAEMENT PROGRAM:	QC/QA	QC/QA	QC/QA	QC/QA	QC/QA
SUBLOT TONNAGE:	3000	3000	3000	3000	3000

THE FOLLOWING RATES OF APPLICATION HAVE BEEN ASSUMED IN CALCULATING PLAN QUANTITIES:

APPLICATION RATES

ALL BITUMINOUS ITEMS	=112 LBS / SQ YD / INCH
BITUMINOUS MATERIALS (PRIME COAT) ON AGGREGATE	= 0.25 LBS / SQ FT
BITUMINOUS MATERIALS (TACK COAT) BETWEEN LIFTS	= 0.025 LBS / SQ FT
NITROGEN FERTILIZER NUTRIENT (SEEDING)	= 90 LBS / ACRE
PHOSPHORUS FERTILIZER NUTRIENT (SEEDING)	= 90 LBS / ACRE
POTASSIUM FERTILIZER NUTRIENT (SEEDING)	= 90 LBS / ACRE
MULCH, METHOD 2	= 2 TONS / ACRE
AGRICULTURAL GROUND LIMESTONE	= 2 TONS / ACRE
TEMPORARY EROSION CONTROL SEEDING	= 100 LBS / ACRE
TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	= 50 FEET/ UNIT (37.5 FEET TO LENGTH OF NEED)

GENERAL NOTES

1. AT ALL LOCATIONS WHERE THE PROPOSED HOT MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT MIX ASPHALT OR CONCRETE PAVEMENT, A FULL DEPTH SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED.

2. REMOVAL OF ABANDONED UTILITIES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

3. THE CONTRACTOR SHALL STAMP STATIONING IN THE PROPOSED HOT MIX ASPHALT SURFACE AT 300 FT INTERVALS ON ALTERNATING SIDES OF THE PAVEMENT AND AS DIRECTED BY THE ENGINEER. THE STATION SYMBOL STAMPS USED SHALL BE FURNISHED BY THE CONTRACTOR. THEY SHALL BE 5 1/2 IN. TALL, OF A DESIGN APPROVED BY THE ENGINEER, AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

COMMITMENTS

1. TREES THREE INCHES OR GREATER IN DIAMETER AT BREAST HEIGHT WILL NOT BE CLEARED APRIL 1ST THROUGH OCTOBER 31ST.

REV. - MS

QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - TO	REVISED -
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PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES &
LIST OF HIGHWAY STANDARDS

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

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	3
		CONTRACT NO. 78610		
	ILLINOIS FED. AID PROJECT			

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE CODE	
				STP 80% FED, 20% STATE	
				ROADWAY	BRIDGE
				0004	0010
				RURAL	RURAL
20100500	TREE REMOVAL, ACRES	ACRE	0.25	0.25	
20200100	EARTH EXCAVATION	CU YD	190	190	
20300100	CHANNEL EXCAVATION	CU YD	1,708	1,708	
25000200	SEEDING, CLASS 2	ACRE	0.09	0.09	
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	10	10	
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	10	10	
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	10	10	
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.20	0.20	
25100115	MULCH, METHOD 2	ACRE	0.09	0.09	
25100630	EROSION CONTROL BLANKET	SQ YD	413	413	
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	240	240	
28000305	TEMPORARY DITCH CHECKS	FOOT	74	74	
28000400	PERIMETER EROSION BARRIER	FOOT	576	576	
28100109	STONE RIPRAP, CLASS A5	SQ YD	1,405		1,405

* SPECIALTY ITEM

REV. - MS

QUIGG ENGINEERING INC

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PLOT DATE = 12/16/2022	DATE - 11/04/2022	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET 1 OF 4 SHEETS | STA. | TO STA.

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	4
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

				CONSTRUCTION TYPE CODE	
				STP 80% FED, 20% STATE	
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	ROADWAY	BRIDGE
				0004	0010
				RURAL	RURAL
28200200	FILTER FABRIC	SQ YD	1,405		1,405
35100700	AGGREGATE BASE COURSE, TYPE A 8"	SQ YD	1,067	1,067	
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	2,400	2,400	
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	236	236	
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	89	89	
40604052	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70	TON	54	54	
44000100	PAVEMENT REMOVAL	SQ YD	766	766	
48203013	HOT-MIX ASPHALT SHOULDERS, 4"	SQ YD	409	409	
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1		1
50200100	STRUCTURE EXCAVATION	CU YD	156		156
50200300	COFFERDAM EXCAVATION	CU YD	161		161
50201121	COFFERDAM (TYPE 2) (LOCATION - 1)	EACH	1		1
50300225	CONCRETE STRUCTURES	CU YD	139.2		139.2
50300255	CONCRETE SUPERSTRUCTURE	CU YD	131.2		131.2

* SPECIALTY ITEM

REV. - MS

QUIGG ENGINEERING INC

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	DRAWN - SL	REVISED -
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PLOT DATE = 12/16/2022	DATE - 11/04/2022	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET 2 OF 4 SHEETS | STA. | TO STA.

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	5
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE CODE: STP 80% FED, 20% STATE — ROADWAY 0004 RURAL	CONSTRUCTION TYPE CODE: BRIDGE 0010 RURAL
50300260	BRIDGE DECK GROOVING	SQ YD	417		417
50300300	PROTECTIVE COAT	SQ YD	493		493
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1		1
50500505	STUD SHEAR CONNECTORS	EACH	2,670		2,670
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	64,090		64,090
50800530	MECHANICAL SPLICERS	EACH	200		200
50900211	STEEL RAILING, TYPE IL-OH	FOOT	296		296
51202100	FURNISHING STEEL PILES HP14X117	FOOT	1,899		1,899
51202305	DRIVING PILES	FOOT	1,899		1,899
51204100	TEST PILE STEEL HP14X117	EACH	2		2
51204650	PILE SHOES	EACH	38		38
51500100	NAME PLATES	EACH	1		1
52100520	ANCHOR BOLTS, 1"	EACH	30		30
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	128		128

* SPECIALTY ITEM

REV. - MS

					CONSTRUCTION TYPE CODE	
					STP 80% FED, 20% STATE	
	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	ROADWAY	BRIDGE
					0004	0010
					RURAL	RURAL
*	63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	25	25	
*	63100117	TRAFFIC BARRIER TERMINAL, TYPE 13	EACH	4	4	
*	63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4	
	63200310	GUARDRAIL REMOVAL	FOOT	295	295	
	67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	6	6	
	67100100	MOBILIZATION	L SUM	1	1	
	70107025	CHANGEABLE MESSAGE SIGN	CAL DA	42	42	
	72400330	REMOVE SIGN PANEL - TYPE 3	SQ FT	12	12	
*	72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4	
*	78009004	MODIFIED URETHANE PAVEMENT MARKING - LINE 4"	FOOT	1,230	1,230	
	78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	10	10	
Ø	Z0076600	TRAINEES	HOUR	500	500	
	Z0016702	DETOUR SIGNING	L SUM	1	1	
Ø	Z0076604	TRAINEES TRAINING PROGRAM GRADUATE	HOUR	500	500	

* SPECIALTY ITEM

Ø 0042

REV. - MS

EARTHWORK SCHEDULE

1	2	3	4	5	6	7
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	STRUCTURE EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE (15%)	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)
SOUTH OF BRIDGE						
STA 1174+50.00 TO STA 1175+93.67	91.02			77.37	126	-48.63
NORTH OF BRIDGE						
STA 1177+34.33 TO STA 1178+75.00	95.35			81.05	46	35.05
BRIDGE						
STA 1176+64.00		1,708	156		156	156
TOTALS	186.37	1,708	156	158.42		142.42
USE	190	1,708	156	158		143

COLUMN 1 - LOCATION FROM PLANS

COLUMN 2 - CUT QUANTITIES FROM CROSS SECTIONS

COLUMN 3 - CHANNEL EXCAVATION

COLUMN 4 - STRUCTURE EXCAVATION

COLUMN 5 - ADJUSTED EXCAVATION QUANTITIES TO BE USED AS FILL MATERIAL IN EMBANKMENT

COLUMN 6 - FILL QUANTITIES FROM CROSS SECTIONS

COLUMN 7 - MATERIAL TO WASTE OR FURNISHED EXCAVATION

REMOVAL SCHEDULE

LOCATION			20100500	44000100	63200310
			TREE REMOVAL, ACRES	PAVEMENT REMOVAL	GUARDRAIL REMOVAL
			ACRE	SQ YD	FOOT
STA	STA	LT/RT			
1174+87.23	1176+21.19	LT	0.026	-	73.5
1177+21.57	1178+44.91	LT	0.018	-	73.9
1175+76.92	1176+05.39	RT	0.005	-	73.5
1177+23.98	1177+44.80	RT	0.004		73.5
1174+58.67	1176+12.50	LT/RT	-	375.8	-
1176+97.27	1178+56.75	LT/RT	-	389.8	-
TOTAL			0.053	765.8	294.4
USE			0.25	766	295

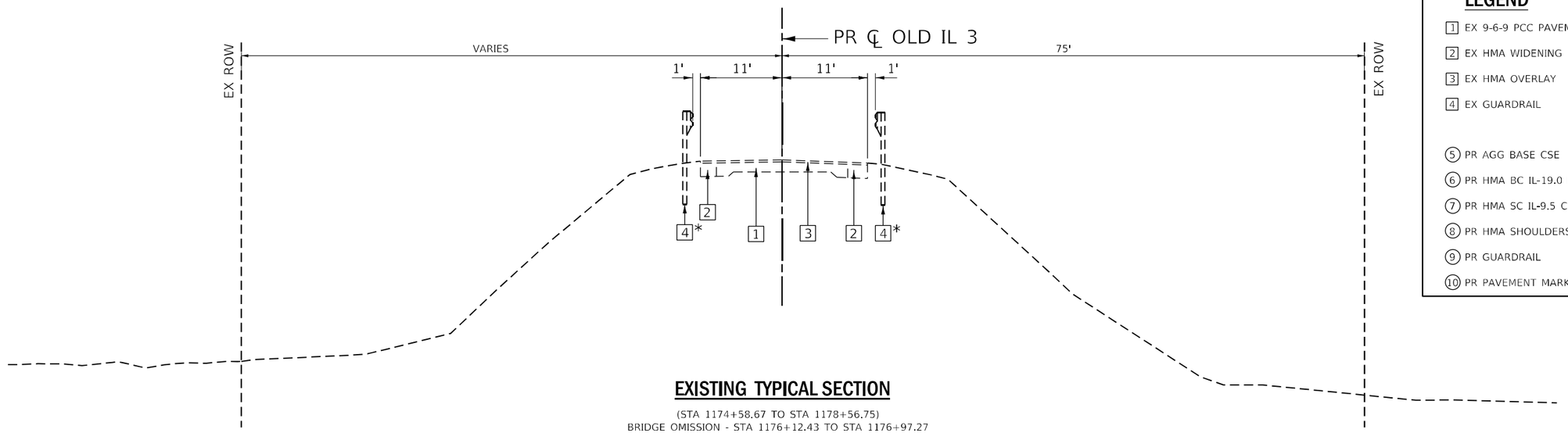
GUARDRAIL SCHEDULE

LOCATION		63000001		63100117		63100167	
		STEEL PLATE BEAM GUARDRAIL,TYPE A, 6 FOOT POSTS		TRAFFIC BARRIER TERMINAL, TYPE 13		TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL TANGENT	
STA	STA	FOOT		EACH		EACH	
		LT	RT	LT	RT	LT	RT
1174+94.09	1175+44.09					1	1
1175+44.09	1175+56.59	12.5	12.5				
1175+56.59	1175+95.05			1	1		
1177+32.87	1177+71.33			1	1		
1177+71.33	1178+21.33					1	1
TOTAL		25		4		4	

PAVING SCHEDULE								
LOCATION			35100700	40600275	40600290	40603080	40604052	48203013
			AGGREGATE BASE COURSE, TYPE A 8"	BITUMINOUS MATERIALS (PRIME COAT)	BITUMINOUS MATERIALS (TACK COAT)	HOT- MIX ASPHALT BINDER COURSE, IL-19.0, N50	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70	HOT-MIX ASPHALT SHOULDERS, 4"
			SQ YD	POUND	POUND	TON	TON	SQ YD
STA	STA	LT/RT						
1174+58.67	1175+94.63	LT/RT	558.90	1257.6	121.1	46.60	28.00	228.4
1177+33.29	1178+56.75	LT/RT	507.60	1142.1	114.4	42.40	25.40	179.8
TOTAL			1066.5	2399.7	235.5	89.0	53.4	408.2
USE			1067	2400	236	89	54	409

LANDSCAPING AND EROSION CONTROL SCHEDULE												
LOCATION			25000200	25000400	25000500	25000600	25000700	25100115	25100630	28000250	28000305	28000400
			SEEDING, CLASS 2	NITROGEN FERTILIZER NUTRIENT	PHOSPHORUS FERTILIZER NUTRIENT	POTASSIUM FERTILIZER NUTRIENT	AGRICULTURAL GROUND LIMESTONE	MULCH, METHOD 2	EROSION CONTROL BLANKET	TEMPORARY EROSION CONTROL SEEDING	TEMPORARY DITCH CHECKS	PERIMETER EROSION BARRIER
			ACRE	POUND	POUND	POUND	TON	ACRE	SQ YD	POUND	FOOT	FOOT
STA	STA	LT/RT										
1174+58.67	1176+07.67	LT	0.0195	1.76	1.76	1.76	0.0390	0.0195	94.38	52.65	11	146.18
1177+20.29	1178+56.81	LT	0.0312	2.81	2.81	2.81	0.0624	0.0312	151.01	84.24	19	140.79
1174+58.67	1176+07.67	RT	0.0218	1.96	1.96	1.96	0.0436	0.0218	105.51	58.86	24	147.44
1177+20.29	1178+56.81	RT	0.0127	1.14	1.14	1.14	0.0254	0.0127	61.47	34.29	20	141.45
TOTAL			0.086	7.67	7.67	7.67	0.1704	0.0852	412.37	230.04	74	575.86
USE			0.09	10	10	10	0.2	0.09	413	240	74	576

PAVEMENT MARKING SCHEDULE				
LOCATION				78009004
				MODIFIED URETHANE PAVEMENT MARKING - LINE 4"
				FOOT
STA	STA	LT/RT	TYPE	
1174+58.67	1178+56.81	LT	SOLID WHITE	398.2
1174+58.67	1178+56.81	RT	SOLID WHITE	399.0
1174+58.67	1175+93.63	LT/RT	SKIP DASH YELLOW	169.0
1174+68.95	1175+93.68	LT/RT	SOLID YELLOW	263.2
TOTAL				1,229.4
USE				1,230



EXISTING TYPICAL SECTION

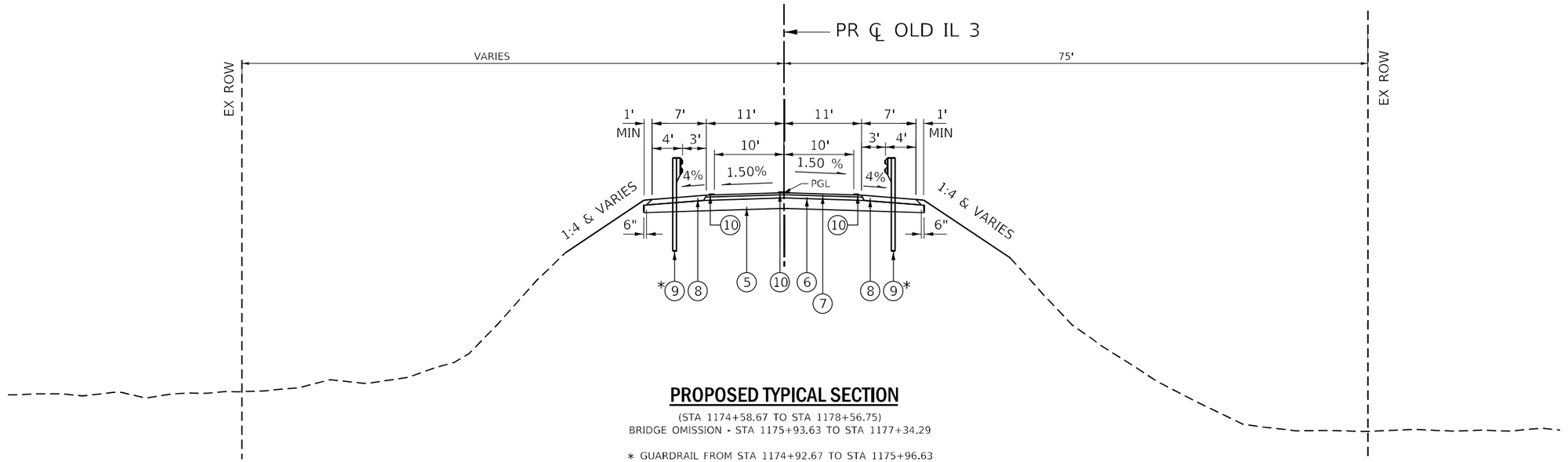
(STA 1174+58.67 TO STA 1178+56.75)
BRIDGE OMISSION - STA 1176+12.43 TO STA 1176+97.27

* GUARDRAIL FROM STA 1175+05.48 TO 1175+79.18
AND STA 1177+30.39 TO 1178+04.28

LEGEND

- [1] EX 9-6-9 PCC PAVEMENT
- [2] EX HMA WIDENING
- [3] EX HMA OVERLAY
- [4] EX GUARDRAIL

- (5) PR AGG BASE CSE A 8
- (6) PR HMA BC IL-19.0 N50 - 2 1/2"
- (7) PR HMA SC IL-9.5 C N70 - 1 1/2"
- (8) PR HMA SHOULDERS 4"
- (9) PR GUARDRAIL
- (10) PR PAVEMENT MARKING



PROPOSED TYPICAL SECTION

(STA 1174+58.67 TO STA 1178+56.75)
BRIDGE OMISSION - STA 1175+93.63 TO STA 1177+34.29

* GUARDRAIL FROM STA 1174+92.67 TO STA 1175+96.63
AND STA 1177+34.29 TO 1178+22.75

MODEL: Default
FILE NAME: S:\2021\21IL033 - PTB 199-38 09 - QEI - Various-HBWO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\D97861O_SM_Typical.dgn

QUIGG ENGINEERING INC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

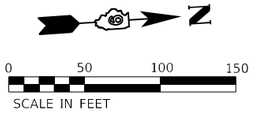
TYPICAL SECTIONS
OLD IL 3

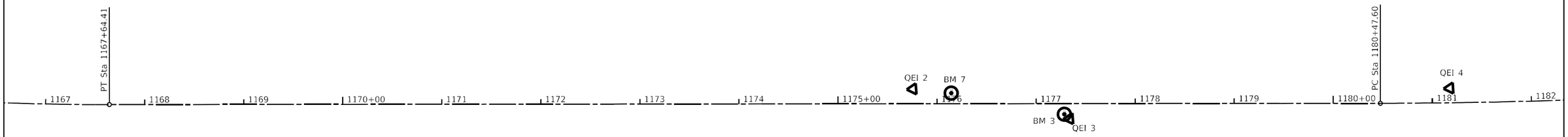
SCALE: NTS | SHEET 1 OF 1 SHEETS | STA. | TO STA.

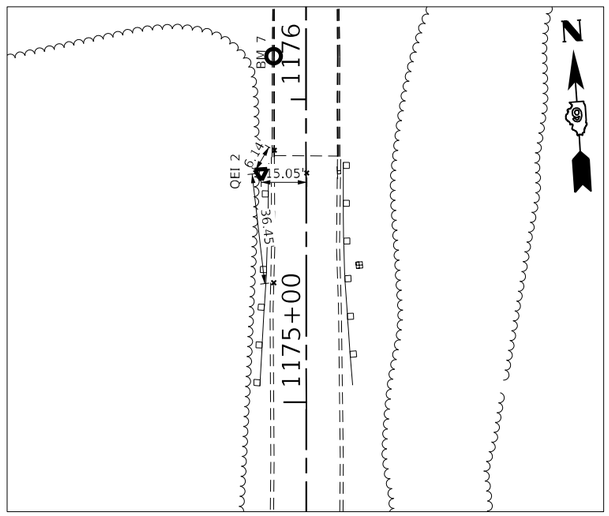
S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	10
		CONTRACT NO. 78610		
	ILLINOIS FED. AID PROJECT			

BENCHMARK	ELEVATION	STATION	NORTHING	EASTING	DESCRIPTION
BM 3	347.153	1177+28.45	209707.349	2507057.766	CUT SQUARE IN THE NE HUB GUARD OF SN 002-0010 (MILLER CREEK), LOCATED IN THE NE CORNER OF BRIDGE END, RIGHT OF THE CL OF OLD ROUTE 3 @ STA. 1177+29
BM 7	347.558	1176+14.29	209594.905	2507095.161	CUT SQUARE ON SE CORNER OF BRIDGE ON CURB

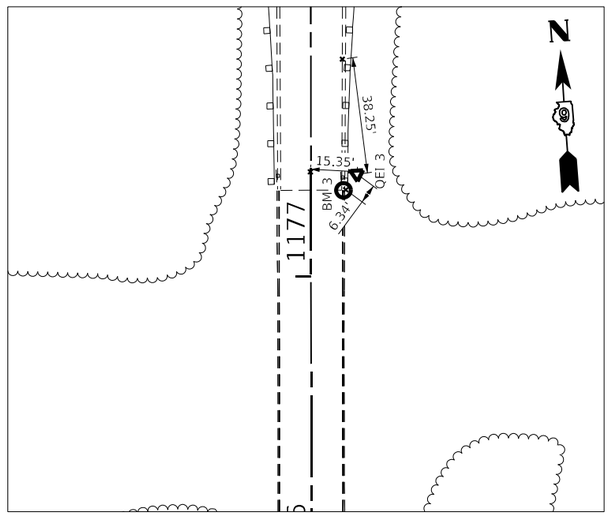
POINT	STATION	NORTHING	EASTING
PT	1167+64.41	2506981.620	208746.257
QEI 2	1175+75.71	2507021.917	209556.697
QEI 3	1177+33.76	2507062.618	209712.343
PC	1180+47.60	2507068.756	210026.487
QEI 4	1181+17.91	2507058.468	210097.482



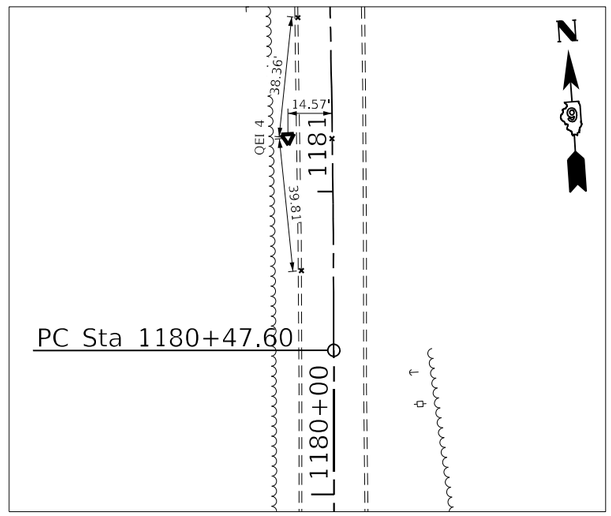




QEI #2
STA. 1175+75.71
14.83' LT
N: 2507021.917
E: 209556.697



QEI #3
STA. 1177+33.76
15.21' LT
N: 2507062.618
E: 209712.343



QEI #4
STA. 1181+17.91
14.65' LT
N: 2507058.468
E: 210097.482

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	DRAWN - TO	REVISED -
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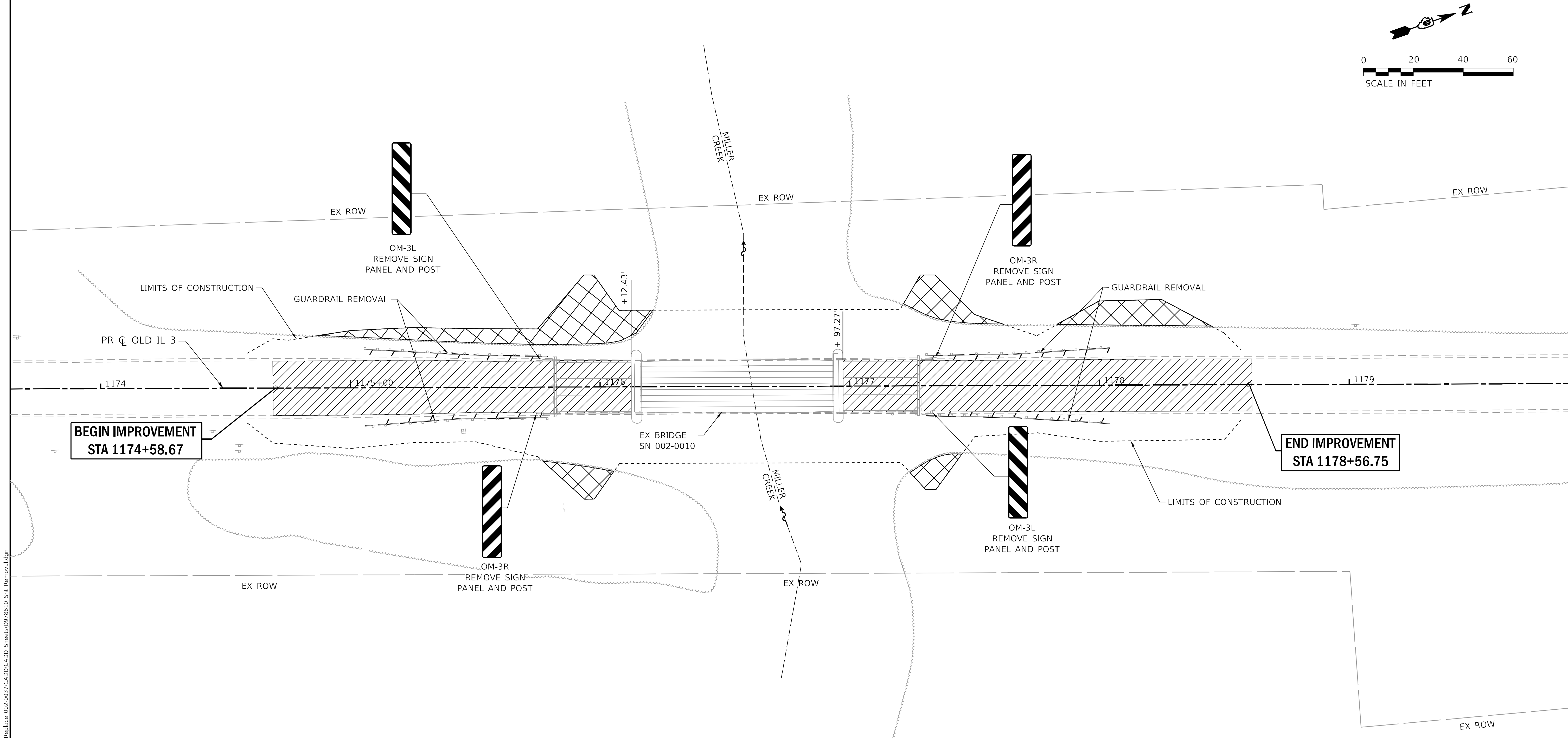
PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ALIGNMENT TIES AND BENCHMARKS
OLD IL 3

SCALE: 1"=50' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	11
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



LEGEND

- TREE REMOVAL ACRES
- PAVEMENT REMOVAL
- LINEAR ITEM TO BE REMOVED

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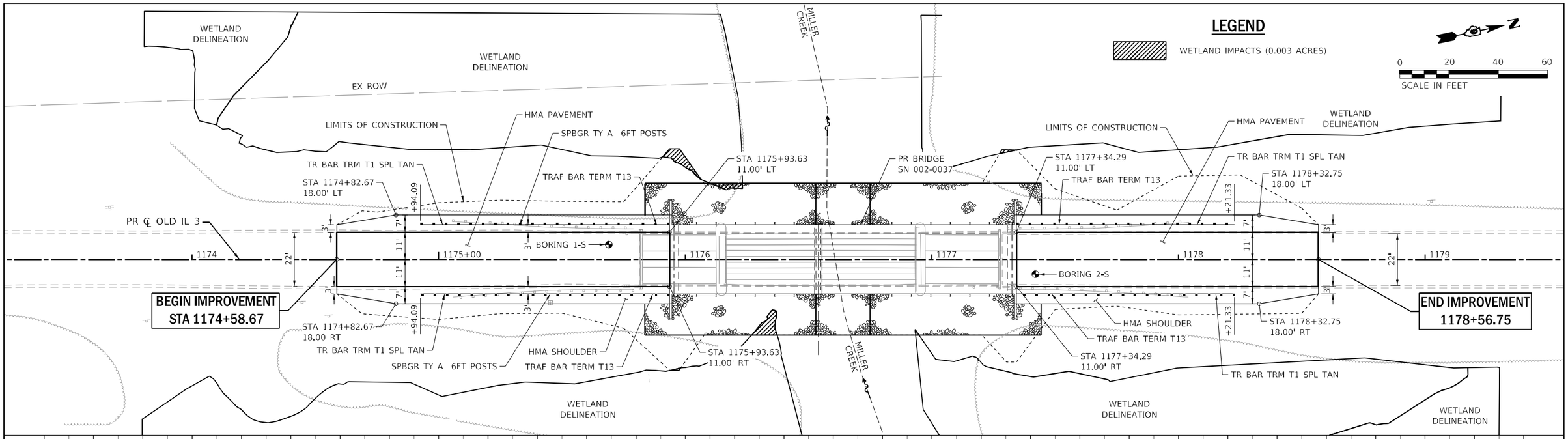
PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -	

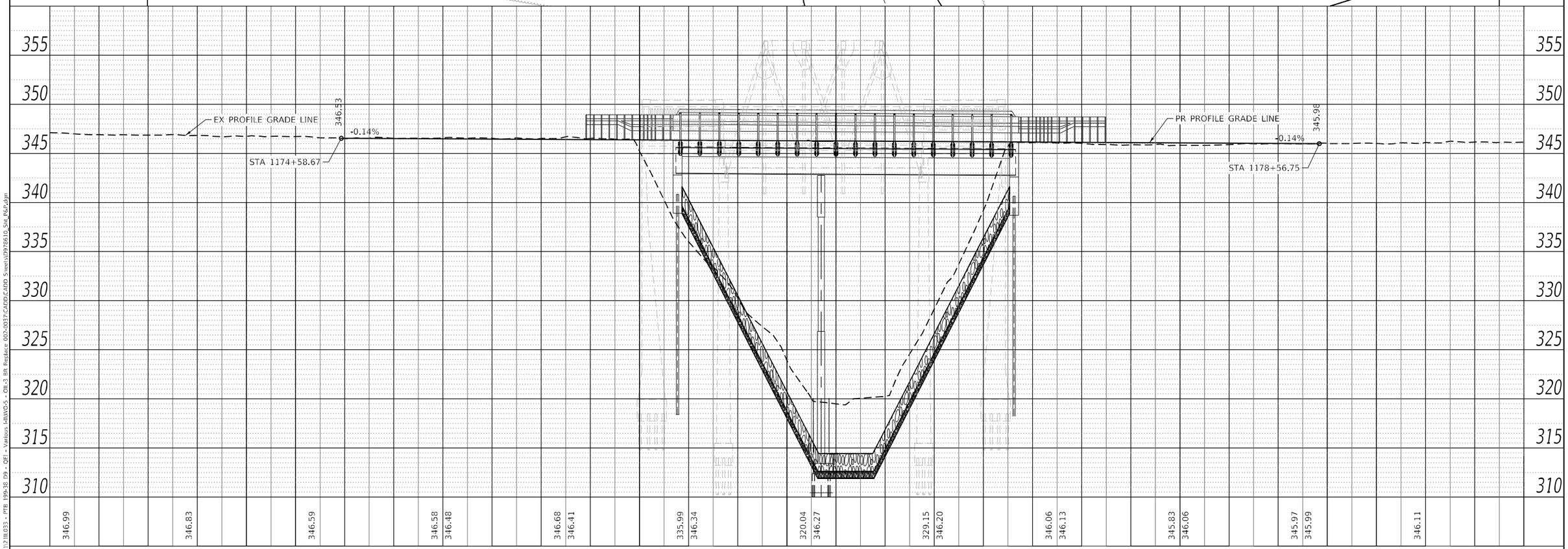
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REMOVAL PLAN
OLD IL 3

SCALE: 1"=20' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	12
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		





PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.T. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADE CHECKED
DRA. NOTED
STRUCTURE NO(S).(TYPE)

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QUIGG ENGINEERING INC

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PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

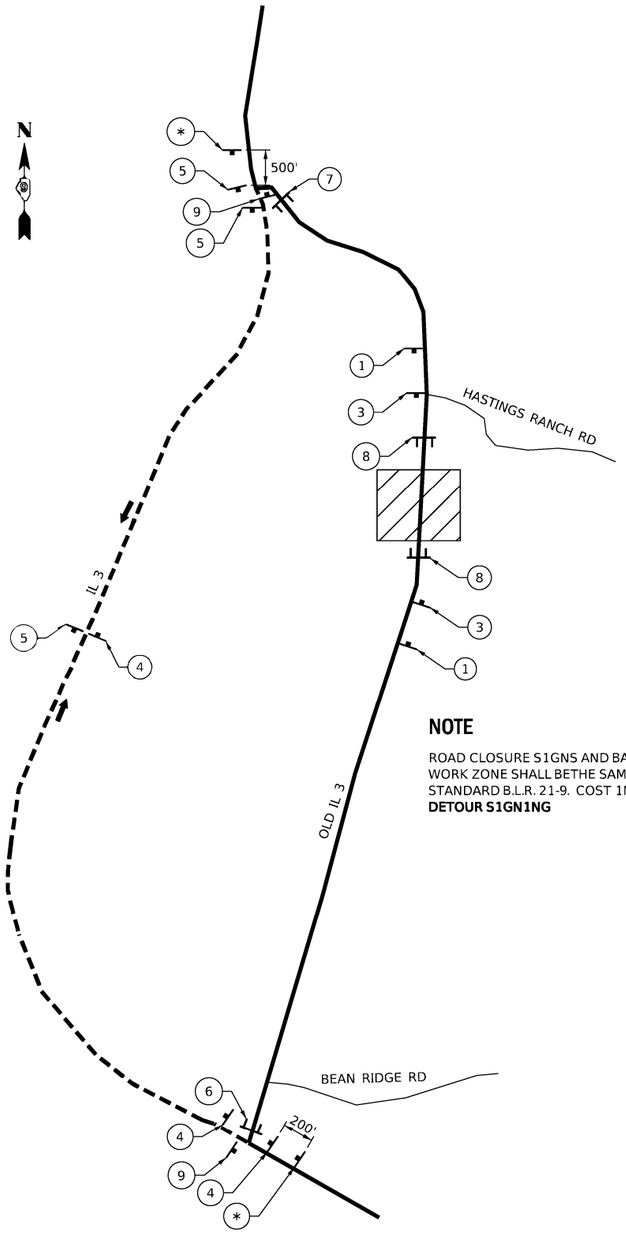
PLAN AND PROFILE
OLD IL 3

SCALE: 1"=20' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	13

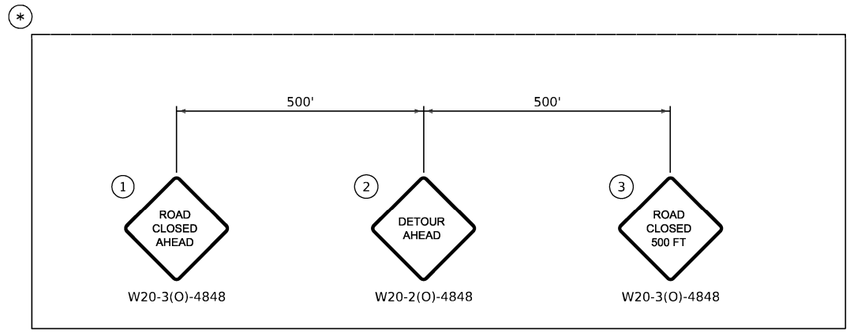
CONTRACT NO. 78610

ILLINOIS | FED. AID PROJECT



NOTE

ROAD CLOSURE S1GNS AND BARR1CADES USED ON OLD IL 3 NEAR WORK ZONE SHALL BETHE SAME AND PLACED AS SHOWN ON STANDARD B.L.R. 21-9. COST 1NCLUDED 1N THE PAY 1TEM
DETOUR S1GN1NG



W20-3(O)-4848 W20-2(O)-4848 W20-3(O)-4848

M4-8(O)-2412
M3-1-2412
W16-8P(O)-3615
M6-3-2115

M4-8(O)-2412
M3-3-2412
W16-8P(O)-3615
M6-3-2115

R11-3a(O)-6030
M4-10L-4818

R11-3a(O)-6030
M4-10R-4818

R11-2-4830

M4-8A-2418

LEGEND

- WORK AREA
- DETOUR ROUTE
- TRAFFIC FLOW
- TYPE III BARRICADE
- DETOUR SIGN

NOTE

A DETOUR ROUTE WILL BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION. THE ROADWAY AT THE PROJECT LOCATION WILL BE CLOSED TO THROUGH TRAFFIC. LOCAL ACCESS IS TO BE MAINTAINED TO ALL ENTRANCES OUTSIDE OF THE IMPROVEMENT LIMITS.

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QUIGG ENGINEERING INC

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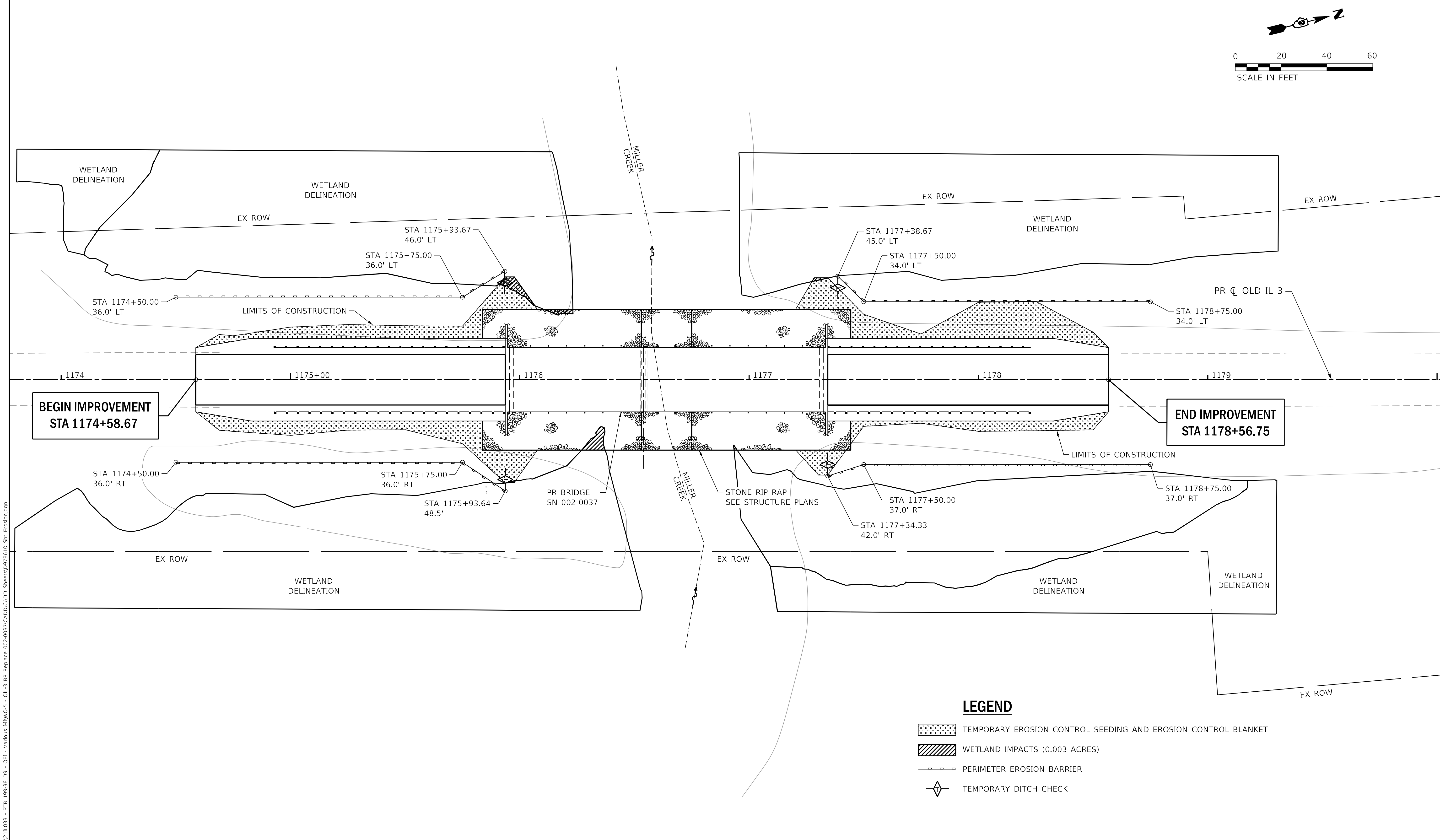
PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETOUR MAP
OLD IL 3

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

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	14
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



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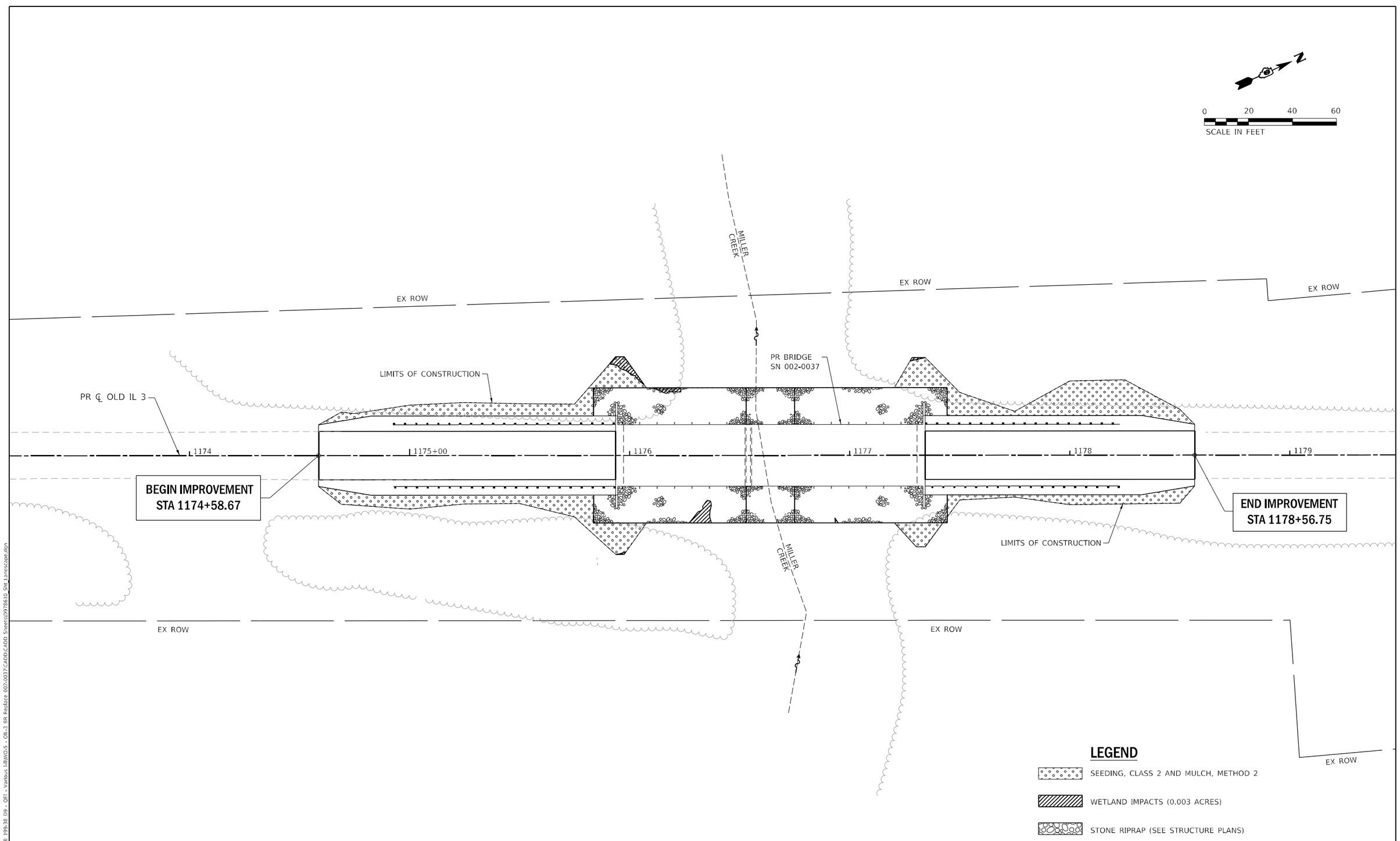
PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EROSION CONTROL PLAN
OLD IL 3

SCALE: 1"=20' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	15
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

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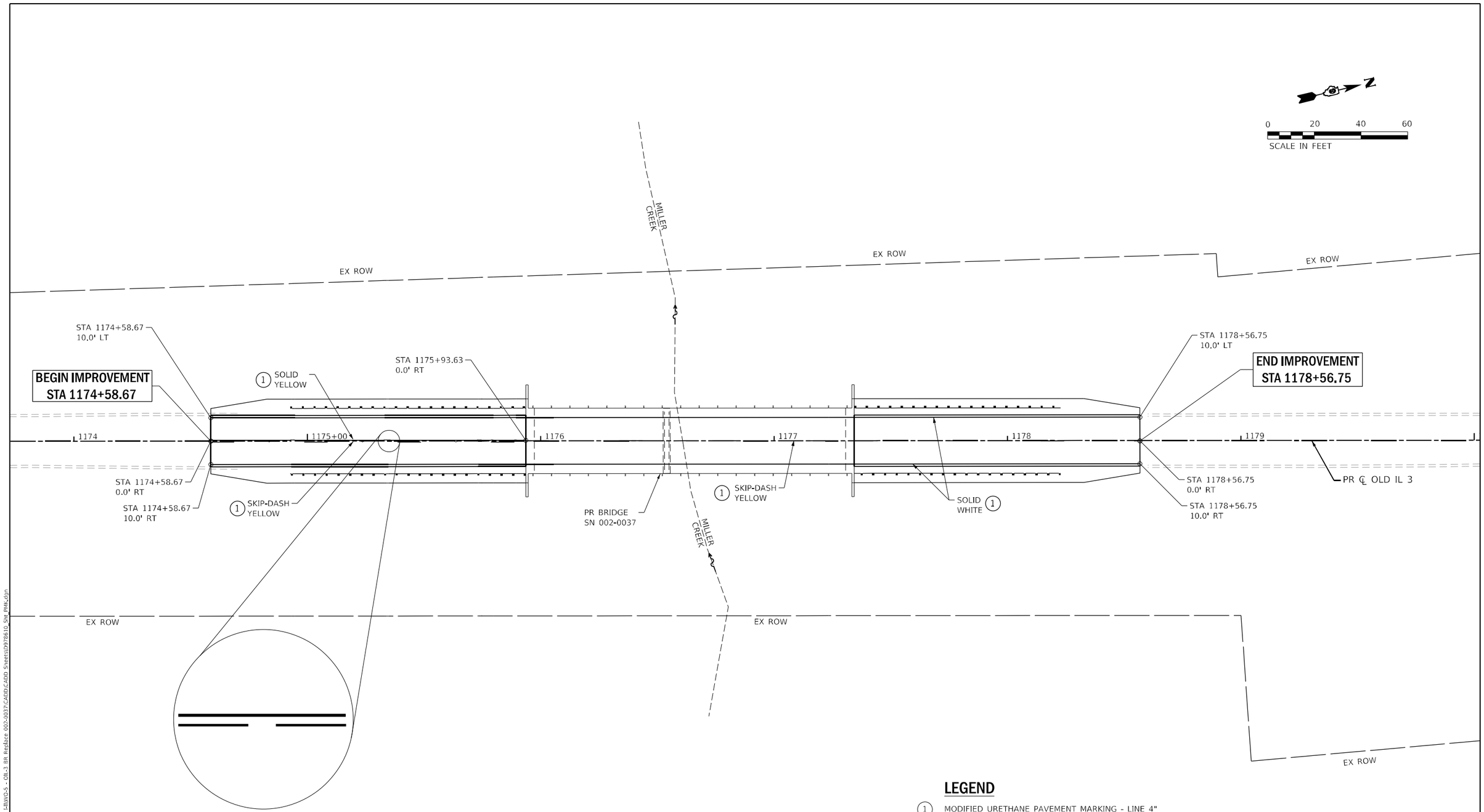
PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LANDSCAPING PLAN
OLD IL 3

SCALE: 1"=20' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	16
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



LEGEND

(1) MODIFIED URETHANE PAVEMENT MARKING - LINE 4"

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QUIGG ENGINEERING INC

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PLOT DATE = 1/16/2023	DATE - 11/04/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
OLD IL 3

SCALE: 1"=20' | SHEET 1 OF 1 SHEETS | STA. 1174+68.95 TO STA. 1178+61.04

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	17
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		

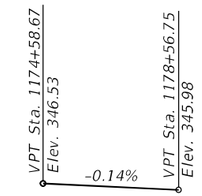
Bench Mark: Chiseled "□" at the S.E. corner of bridge curb S.N. 002-0010 - El. 347.53

Existing Structure: Structure number 002-0010, built in 1933 under S.B.I. Route 150, Section 133-C at Station 1176+55. The existing structure is a three span bridge having a back to back abutment length of 148'-0", a face to face of curb width of 22'-0", an out to out deck width of 23'-8". Spans 1 and 3 consist of a 4" wearing surface on concrete T-beams with an ornamental concrete railing. Spans 1 and 3 are 33'-3" long. The abutments consist of a concrete counterforts on concrete footings founded on timber piling. Span 2 consists of a Pratt Pony Truss supported by solid concrete piers on concrete footings. Span 2 has a 6" thick reinforced concrete deck with concrete curbs and steel channel railing. The structure is not skewed and will be replaced under road closure.

No Salvage.

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)			
	S. Abut.	Pier	N. Abut.	Item 113
Q100	338.5	303.3	338.3	5
Q200	338.5	302.0	338.3	
Design	338.5	303.3	338.3	
Check	338.5	302.0	338.3	



PROFILE GRADE

(Along ℄ Old IL-3)

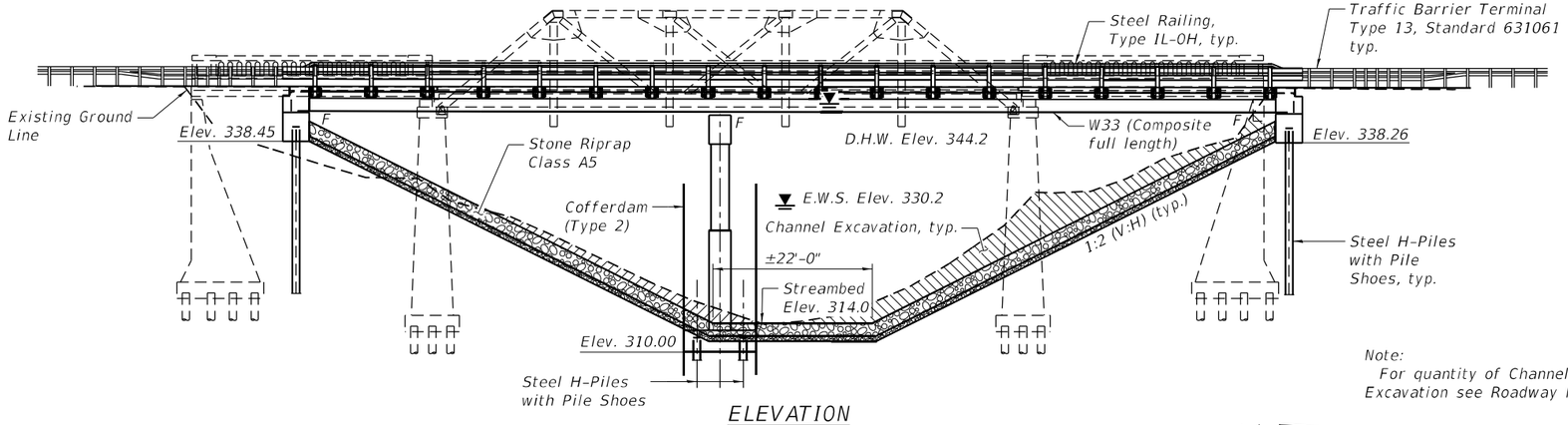
WATERWAY INFORMATION

Drainage Area = 13.9 mi^2

Exist. Low Grade Elev. 346.08 @ Sta. 1178+00
Prop. Low Grade Elev. 346.28 @ Sta. 1178+50

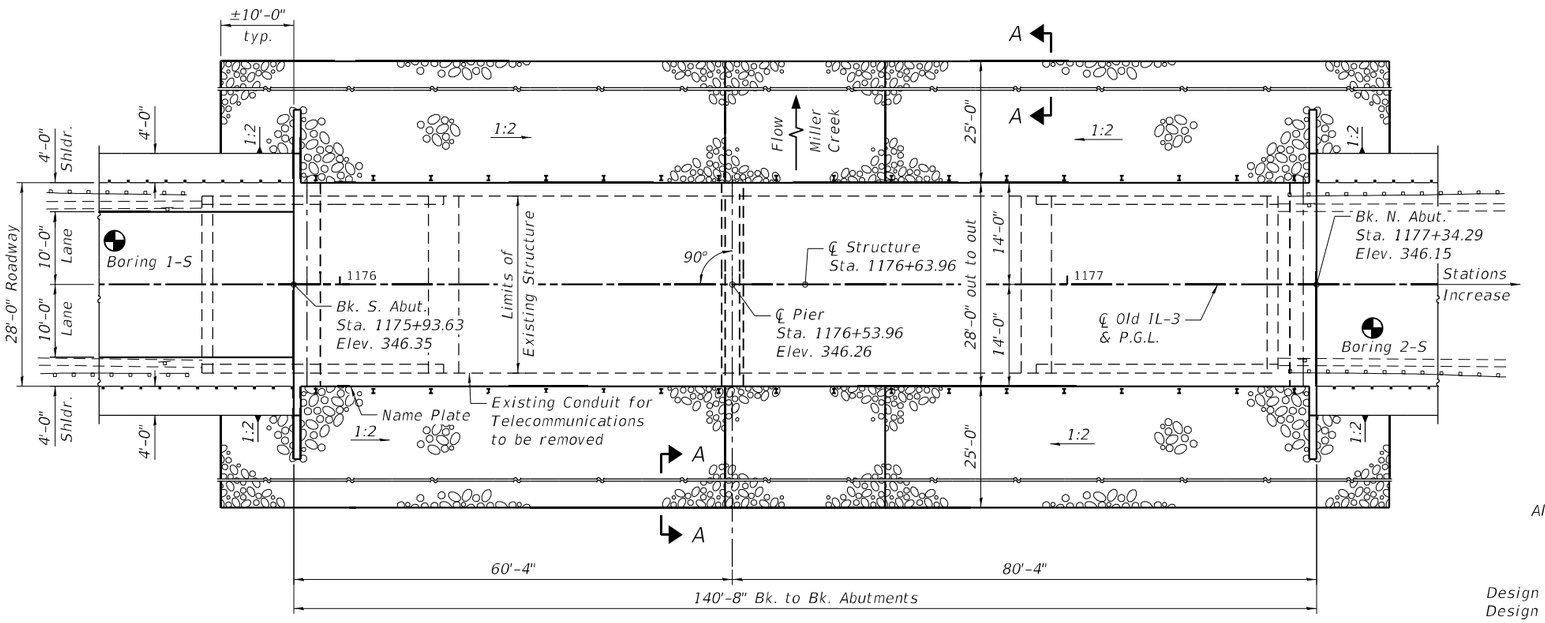
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	3610	2200	2225	343.7	0.0	0.0	343.7	343.7
Design	20	4390	2269	2225	344.2	0.0	0.0	344.2	344.2
Base	100	6250	2343	2225	345.9	0.1	0.1	346.0	346.0
Scour Design Check	200	7150	2343	2225	347.0	0.1	0.1	347.1	347.1
Overtop. Existing	110	6380	2343		346.1	0.1		346.2	
Overtop. Proposed	125	6500		2225	346.2		0.1		346.3

10 year velocity through existing bridge = 1.6 fps
10 year velocity through prop. bridge = 1.6 fps

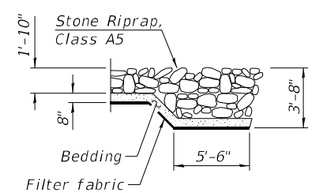


ELEVATION

Note:
For quantity of Channel Excavation see Roadway Plans.



PLAN



SECTION A-A

STATE OF ILLINOIS
MICHAEL D. CIMA
081-005984
SPRINGFIELD, ILL.
LICENSED STRUCTURAL ENGINEER

Michael D. Cima 01/16/2023
Michael D. Cima, Illinois S.E. 081-005984 Date
Expires 11/30/2024

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

DESIGN STRESSES

FIELD UNITS

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

DESIGN SPECIFICATIONS

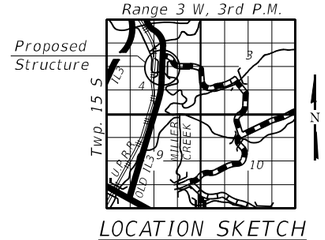
2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

LOADING HL-93

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 4
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.572g
Design Spectral Acceleration at 0.2 sec. (SDS) = 1.249g
Soil Site Class = D



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
OLD IL-3 OVER MILLER CREEK
SBI 150C - SECTION 133B-1
ALEXANDER COUNTY
STATION 1176+63.96
STRUCTURE NO. 002-0037

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 002-0037
SHEET 1 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	18
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

GENERAL NOTES

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts in metallized areas. Bolts 7/8" Ø, holes 15/16" Ø, unless otherwise noted.

All new structural steel shall be metallized. See special provision for "Metallizing of Structural Steel."

Calculated weight of Structural Steel = 10,590 lbs (M270 Grade 36)
= 104,140 lbs (M270 Grade 50)

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.

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

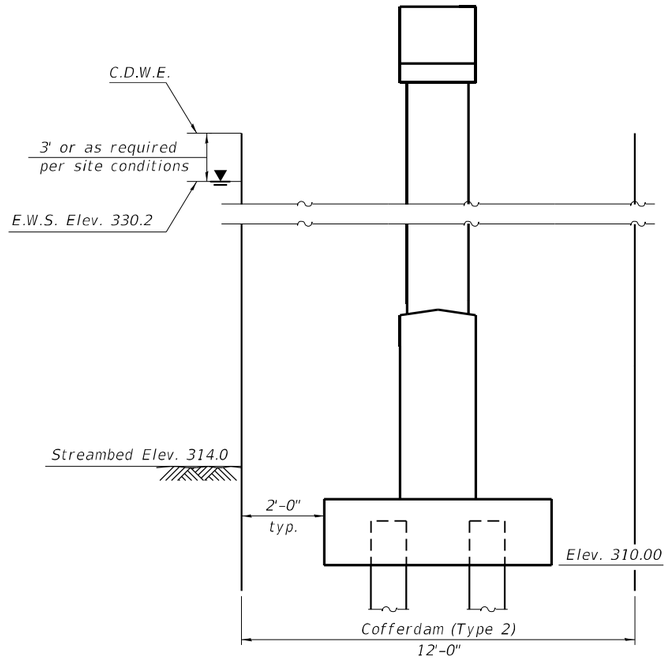
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Controlled Low-Strength Material shall be in accordance with Section 593 and Section 1019, Mix 2 of the Standard Specifications.

Care must be taken to not overpour the Controlled Low-Strength Material behind the abutments to ensure proper post embedment for the Traffic Barrier Terminal. The use of form boards parallel to the ends of the abutment cap is recommended.

Protective Coat shall be applied to the top of the deck, vertical exterior face of the deck, and the bottom of the deck from the outer edge to the drip notch.



COFFERDAM DETAIL

BILL OF MATERIAL

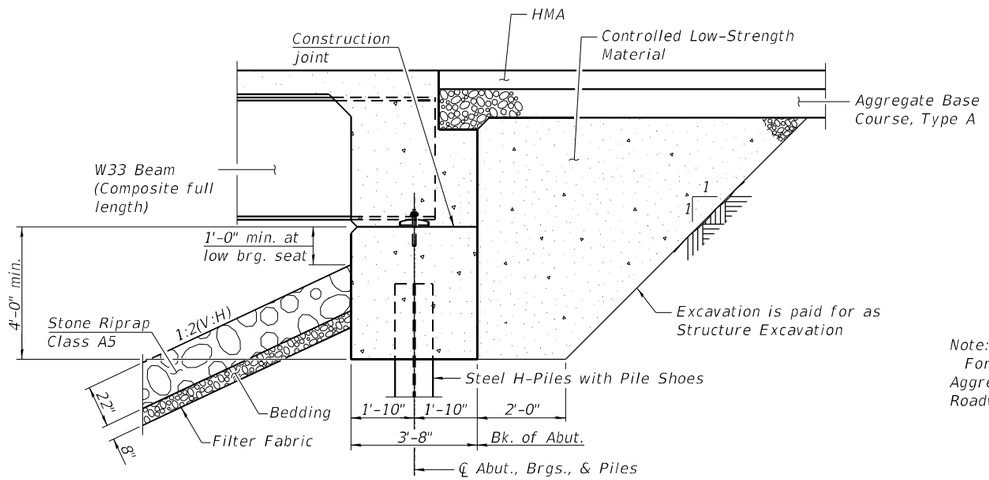
ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A5	Sq. Yd.	-	1,405	1,405
Filter Fabric	Sq. Yd.	-	1,405	1,405
Removal of Existing Structures	Each	-	-	1
Structure Excavation	Cu. Yd.	-	156	156
Cofferdam Excavation	Cu. Yd.	-	161	161
Cofferdam (Type 2) (Location - 1)	Each	-	1	1
Concrete Structures	Cu. Yd.	-	139.2	139.2
Concrete Superstructure	Cu. Yd.	131.2	-	131.2
Bridge Deck Grooving	Sq. Yd.	417	-	417
Protective Coat	Sq. Yd.	493	-	493
Furnishing & Erecting Structural Steel	L. Sum	1	-	1
Stud Shear Connectors	Each	2,670	-	2,670
Reinforcement Bars, Epoxy Coated	Pound	32,840	31,250	64,090
Mechanical Splicers	Each	-	200	200
Steel Railing, Type IL-0H	Foot	296	-	296
Furnishing Steel Piles HP14x117	Foot	-	1,899	1,899
Driving Piles	Foot	-	1,899	1,899
Test Pile Steel HP14x117	Each	-	2	2
Pile Shoes	Each	-	38	38
Name Plates	Each	1	-	1
Anchor Bolts, 1"	Each	-	30	30
Controlled Low-Strength Material	Cu. Yd.	-	128	128

STATION 1176+63.96
BUILT 202_ BY
STATE OF ILLINOIS
SBI 150C - SEC. 133B-1
LOADING HL-93
STRUCTURE NO. 002-0037

NAME PLATE

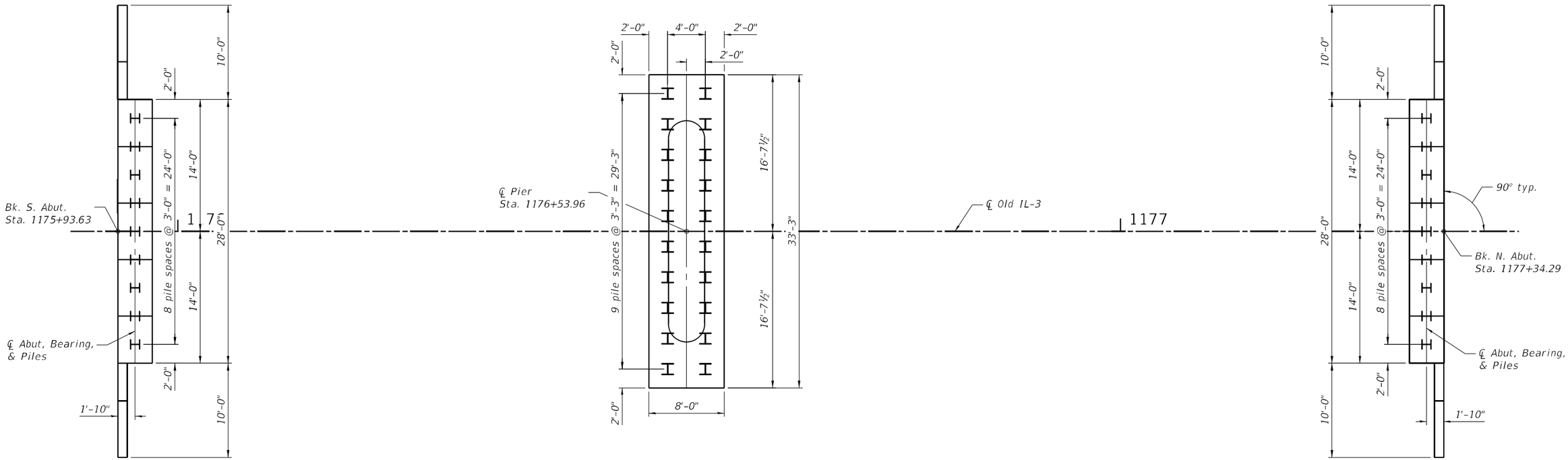
See Std. 515001

INDEX OF SHEETS



SECTION THRU INTEGRAL ABUTMENT

Note:
For pay items and quantities of HMA and Aggregate Base Course, Type A see Roadway Plans.



SUBSTRUCTURE LAYOUT

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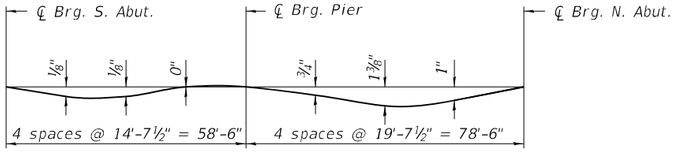
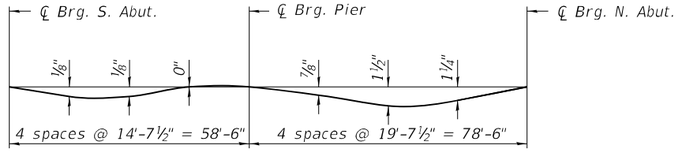
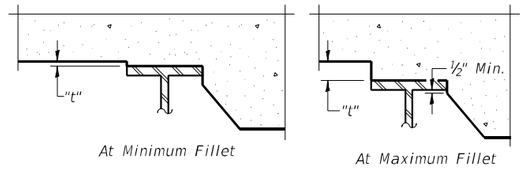


DEAD LOAD DEFLECTION DIAGRAM
INTERIOR BEAM
(Includes weight of concrete only.)



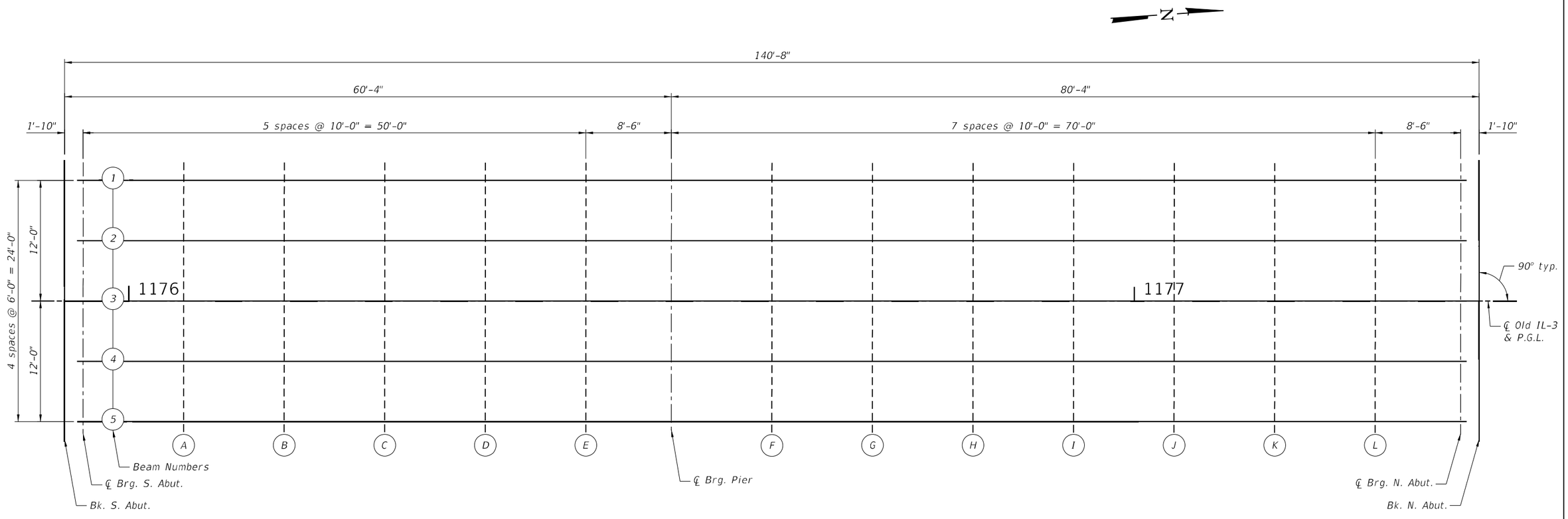
DEAD LOAD DEFLECTION DIAGRAM
EXTERIOR BEAM
(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working form the grade elevations adjusted for dead load deflections as shown on sheet 5 of 24.



FILLET HEIGHTS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on this sheet. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 5 of 24, minus slab thickness, equals the fillet heights "t" above top flange of beams.



PLAN

BEAM 1

Location	Station	Offset (ft.)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflections
Bk. South Abut.	1175+93.63	-12.00	346.16	346.16
℄ Brg - South Abut.	1175+95.46	-12.00	346.15	346.15
A	1176+05.46	-12.00	346.14	346.15
B	1176+15.46	-12.00	346.13	346.14
C	1176+25.46	-12.00	346.11	346.12
D	1176+35.46	-12.00	346.10	346.10
E	1176+45.46	-12.00	346.08	346.08
℄ Pier	1176+53.96	-12.00	346.07	346.07
F	1176+63.96	-12.00	346.06	346.09
G	1176+73.96	-12.00	346.04	346.12
H	1176+83.96	-12.00	346.03	346.14
I	1176+93.96	-12.00	346.02	346.14
J	1177+03.96	-12.00	346.00	346.13
K	1177+13.96	-12.00	345.99	346.08
L	1177+23.96	-12.00	345.98	346.02
℄ Brg - North Abut.	1177+32.46	-12.00	345.96	345.96
Bk. North Abut.	1177+34.29	-12.00	345.96	345.96

BEAM 2

Location	Station	Offset (ft.)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflections
Bk. South Abut.	1175+93.63	-6.00	346.26	346.26
℄ Brg - South Abut.	1175+95.46	-6.00	346.25	346.25
A	1176+05.46	-6.00	346.24	346.25
B	1176+15.46	-6.00	346.23	346.24
C	1176+25.46	-6.00	346.21	346.22
D	1176+35.46	-6.00	346.20	346.20
E	1176+45.46	-6.00	346.18	346.18
℄ Pier	1176+53.96	-6.00	346.17	346.17
F	1176+63.96	-6.00	346.16	346.19
G	1176+73.96	-6.00	346.14	346.21
H	1176+83.96	-6.00	346.13	346.22
I	1176+93.96	-6.00	346.12	346.23
J	1177+03.96	-6.00	346.10	346.21
K	1177+13.96	-6.00	346.09	346.17
L	1177+23.96	-6.00	346.08	346.12
℄ Brg - North Abut.	1177+32.46	-6.00	346.06	346.06
Bk. North Abut.	1177+34.29	-6.00	346.06	346.06

℄ OLD IL-3, P.G.L., & BEAM 3

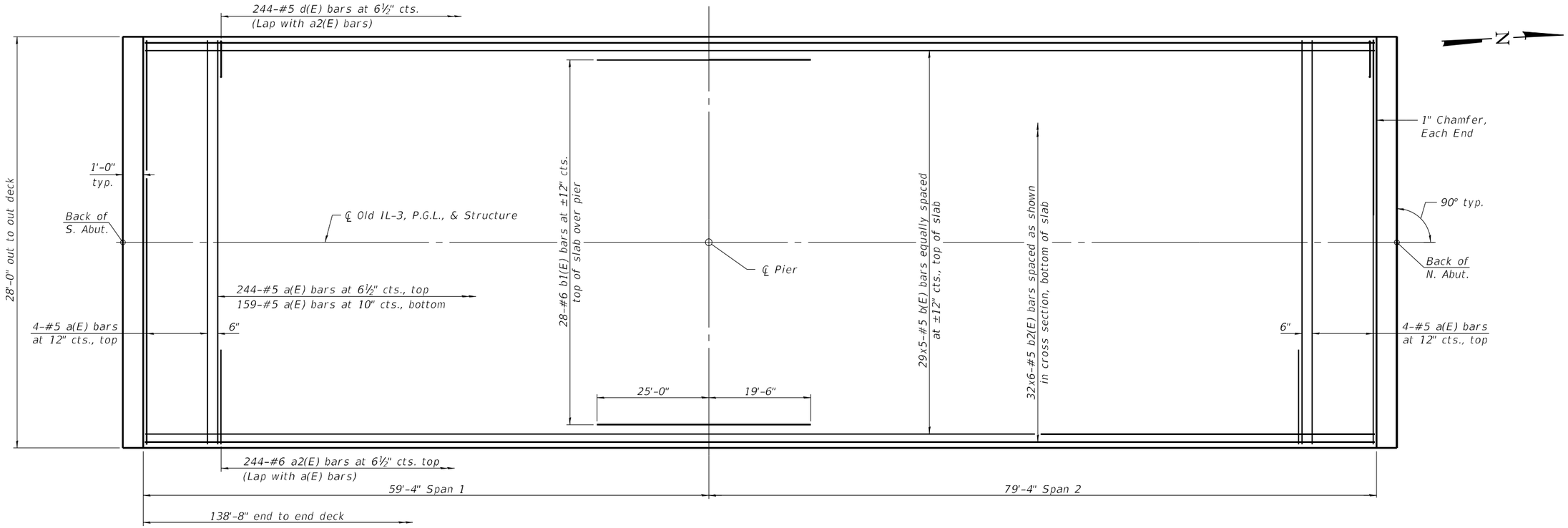
Location	Station	Offset (ft.)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflections
Bk. South Abut.	1175+93.63	0.00	346.35	346.35
℄ Brg - South Abut.	1175+95.46	0.00	346.34	346.34
A	1176+05.46	0.00	346.33	346.34
B	1176+15.46	0.00	346.32	346.33
C	1176+25.46	0.00	346.30	346.31
D	1176+35.46	0.00	346.29	346.29
E	1176+45.46	0.00	346.27	346.27
℄ Pier	1176+53.96	0.00	346.26	346.26
F	1176+63.96	0.00	346.25	346.28
G	1176+73.96	0.00	346.23	346.30
H	1176+83.96	0.00	346.22	346.31
I	1176+93.96	0.00	346.21	346.32
J	1177+03.96	0.00	346.19	346.30
K	1177+13.96	0.00	346.18	346.26
L	1177+23.96	0.00	346.17	346.21
℄ Brg - North Abut.	1177+32.46	0.00	346.15	346.15
Bk. North Abut.	1177+34.29	0.00	346.15	346.15

BEAM 4

Location	Station	Offset (ft.)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflections
Bk. South Abut.	1175+93.63	6.00	346.26	346.26
℄ Brg - South Abut.	1175+95.46	6.00	346.25	346.25
A	1176+05.46	6.00	346.24	346.25
B	1176+15.46	6.00	346.23	346.24
C	1176+25.46	6.00	346.21	346.22
D	1176+35.46	6.00	346.20	346.20
E	1176+45.46	6.00	346.18	346.18
℄ Pier	1176+53.96	6.00	346.17	346.17
F	1176+63.96	6.00	346.16	346.19
G	1176+73.96	6.00	346.14	346.21
H	1176+83.96	6.00	346.13	346.22
I	1176+93.96	6.00	346.12	346.23
J	1177+03.96	6.00	346.10	346.21
K	1177+13.96	6.00	346.09	346.17
L	1177+23.96	6.00	346.08	346.12
℄ Brg - North Abut.	1177+32.46	6.00	346.06	346.06
Bk. North Abut.	1177+34.29	6.00	346.06	346.06

BEAM 5

Location	Station	Offset (ft.)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflections
Bk. South Abut.	1175+93.63	12.00	346.16	346.16
℄ Brg - South Abut.	1175+95.46	12.00	346.15	346.15
A	1176+05.46	12.00	346.14	346.15
B	1176+15.46	12.00	346.13	346.14
C	1176+25.46	12.00	346.11	346.12
D	1176+35.46	12.00	346.10	346.10
E	1176+45.46	12.00	346.08	346.08
℄ Pier	1176+53.96	12.00	346.07	346.07
F	1176+63.96	12.00	346.06	346.09
G	1176+73.96	12.00	346.04	346.12
H	1176+83.96	12.00	346.03	346.14
I	1176+93.96	12.00	346.02	346.14
J	1177+03.96	12.00	346.00	346.13
K	1177+13.96	12.00	345.99	346.08
L	1177+23.96	12.00	345.98	346.02
℄ Brg - North Abut.	1177+32.46	12.00	345.96	345.96
Bk. North Abut.	1177+34.29	12.00	345.96	345.96

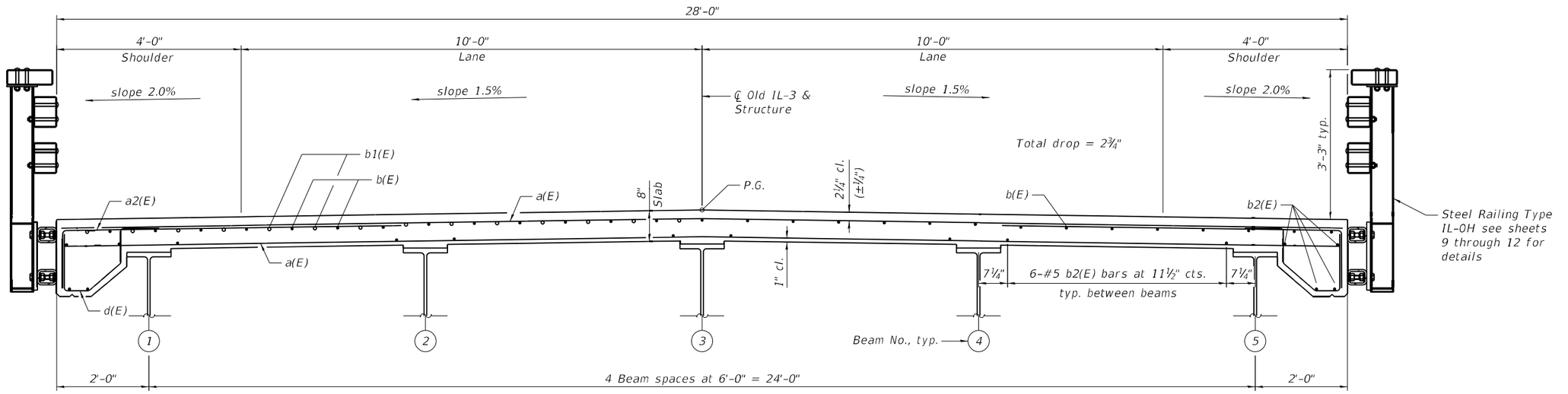


PLAN

Notes:
See sheet 7 of 24 for superstructure details and Bill of Material.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

MINIMUM BAR LAP

#5 bar = 3'-6"



NEAR PIER

CROSS SECTION
(Looking North)

NEAR MIDSPAN

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
STRUCTURE NO. 002-0037
SHEET 6 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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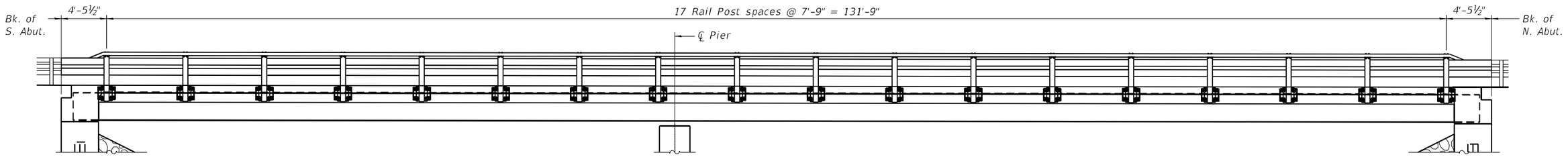
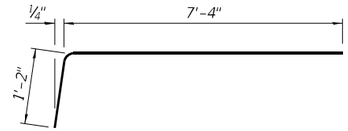
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

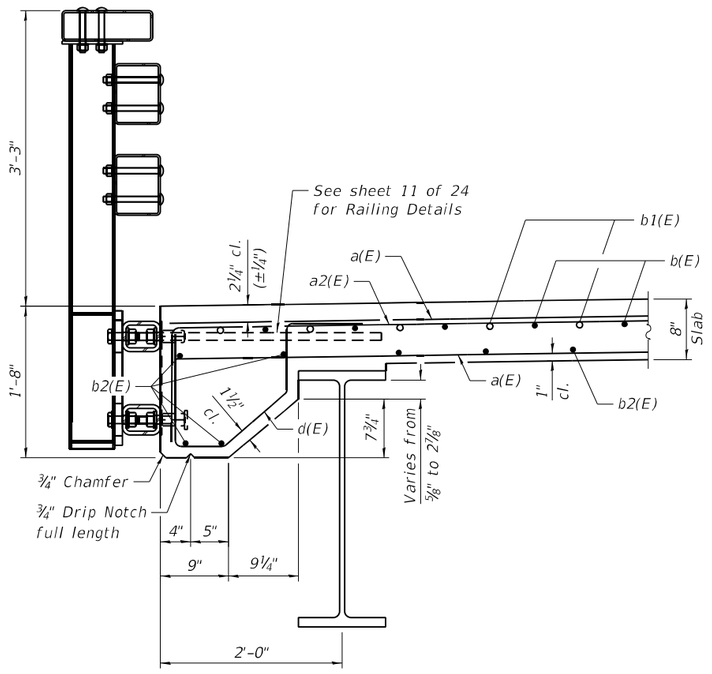


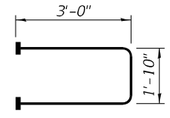
ELEVATION

(Showing Rail Post Spacing)
See sheets 9 thru 12 of 24 for Railing Details

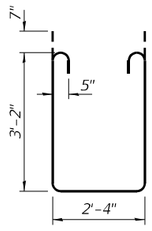


BAR a2(E)

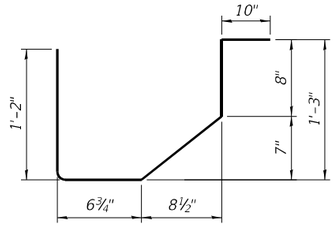




BAR s20(E)
(Headed)



BAR s21(E)



BAR d(E)

Note:
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.

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	411	#5	27'-8"	
a2(E)	488	#6	8'-6"	
b(E)	145	#5	30'-8"	
b1(E)	28	#6	44'-6"	
b2(E)	192	#5	26'-2"	
d(E)	488	#5	4'-2"	
m20(E)	4	#6	27'-8"	
m21(E)	16	#6	5'-8"	
m22(E)	8	#6	1'-8"	
s20(E)	30	#5	7'-10"	
s21(E)	30	#5	9'-10"	
Concrete Superstructure			Cu. Yds.	131.2
Bridge Deck Grooving			Sq. Yds.	417
Protective Coat			Sq. Yds.	493
Reinforcement Bars, Epoxy Coated			Pound	32,840

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 002-0037
SHEET 7 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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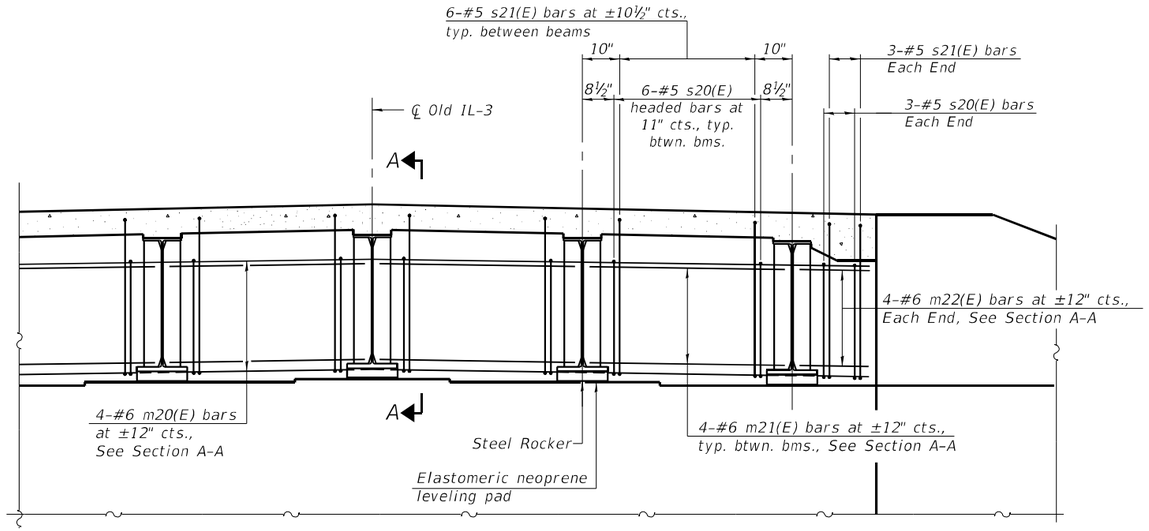
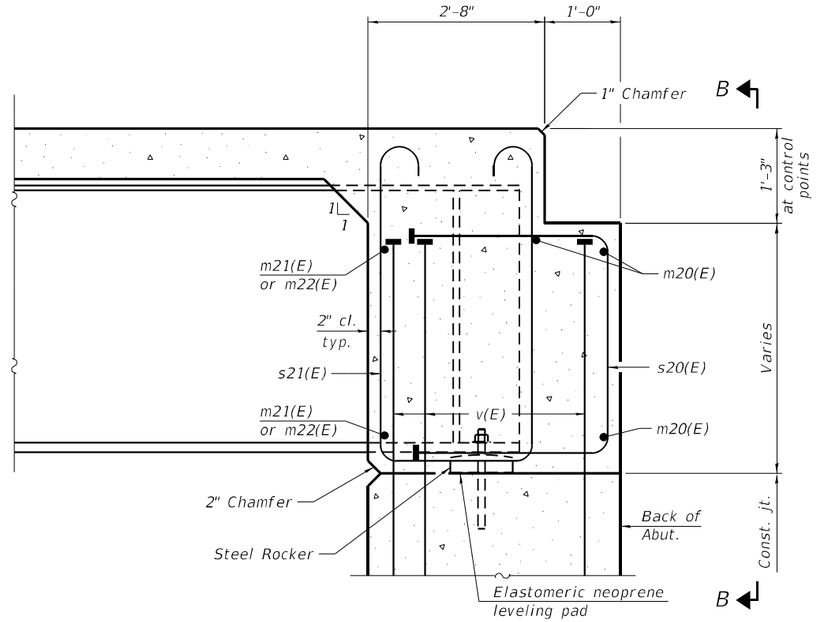
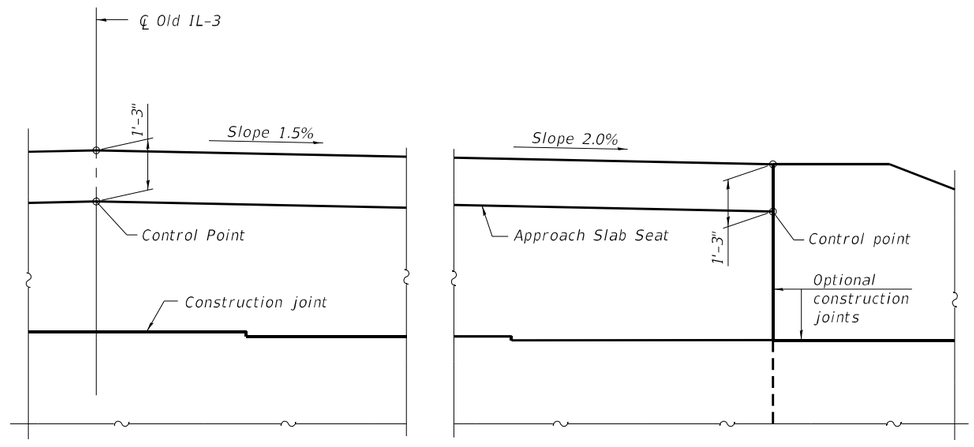
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



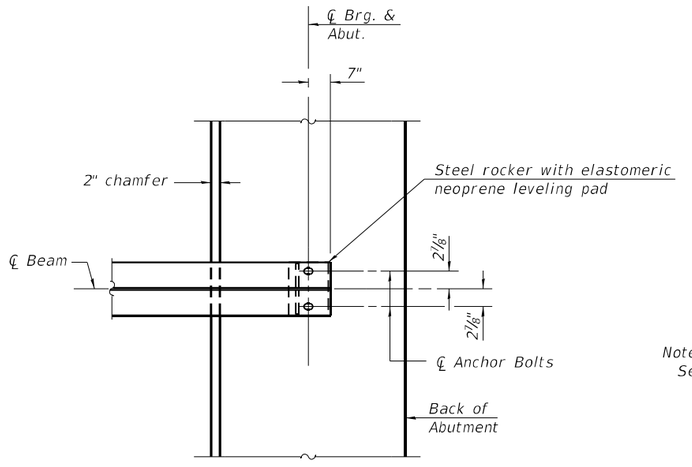
DIAPHRAGM AT ABUTMENT



SECTION A-A



VIEW B-B



PLAN AT ABUTMENT
(Showing bottom flange of beam)

Note:
See sheet 7 of 24 for superstructure details and Bill of Material.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DIAPHRAGM DETAILS
STRUCTURE NO. 002-0037
SHEET 8 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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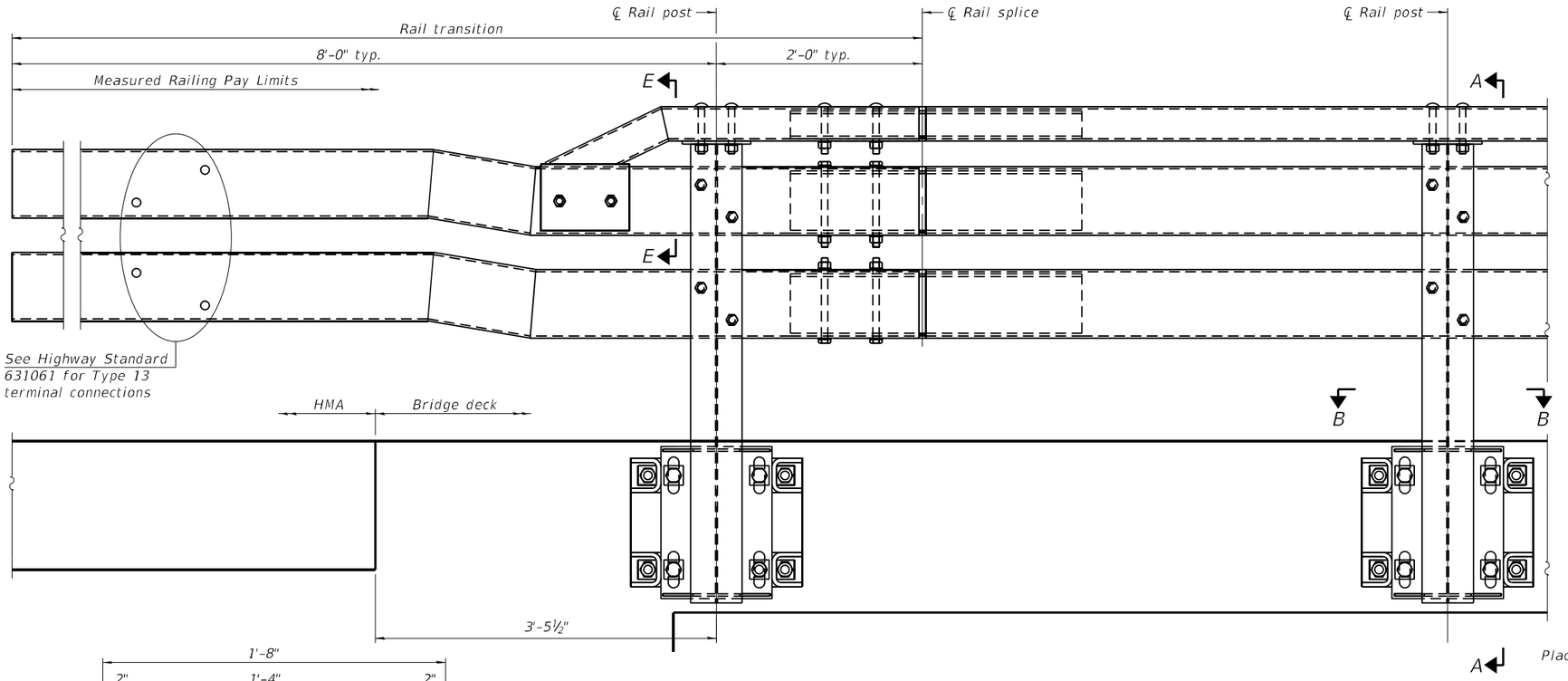
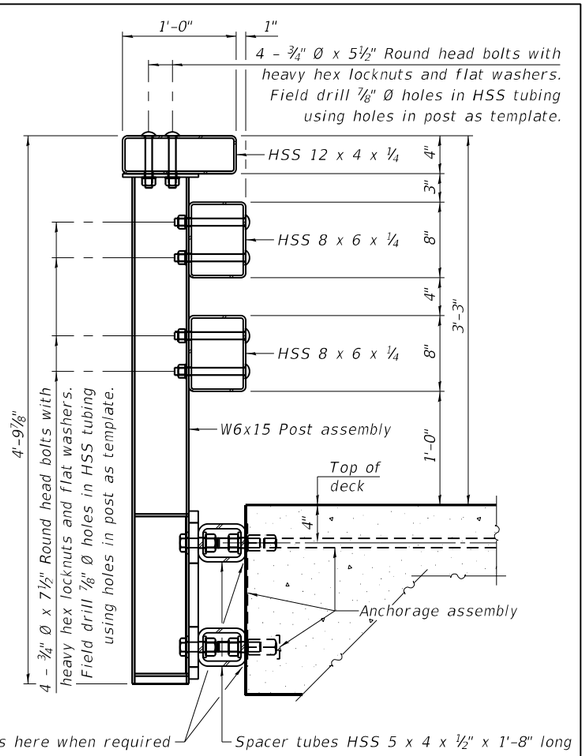
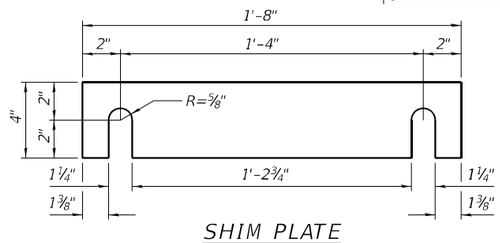
	ILLINOIS	FED. AID PROJECT		



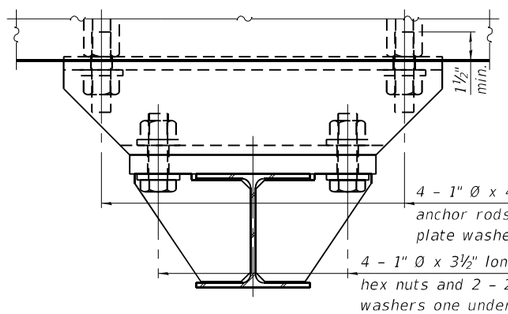
OUTSIDE ELEVATION OF RAIL



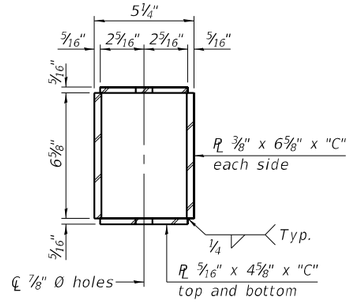
SECTION A-A



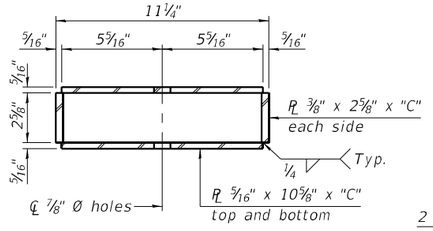
SHIM PLATE



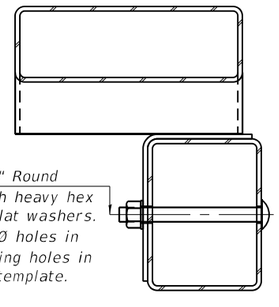
SECTION B-B



SECTION C-C



SECTION D-D



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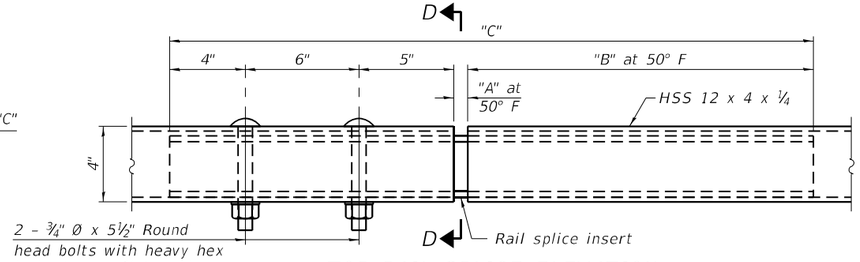
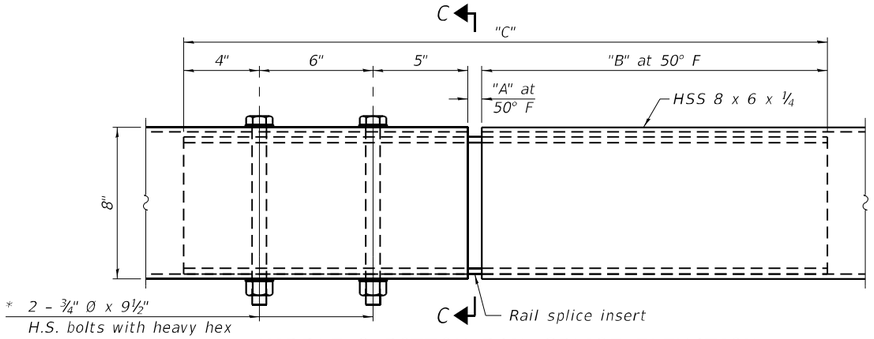


TOP RAIL SPLICE ELEVATION



MIDDLE & BOTTOM RAIL SPLICE ELEVATION

* Bolt orientation shown for middle rail. Flip for bottom rail.

RAILING CRITERIA

MASH 2016 Test Level	4
Rail system weight (plf)	120
Max post spacing	8'-0"

SPLICE DIMENSIONS

Location	T	A	B	C
All locs. not over exp. jts.	0	½"	1'-6"	2'-9½"
Over Strip Seal Jt.	≤4"	2½"	1'-8"	3'-1½"
Over Finger or Modular Jt.	≤9½"	5½"	1'-10¾"	3'-7¼"
Over Finger or Modular Jt.	≤15"	8¼"	2'-1½"	4'-0¾"

T = ; total movement along centerline of roadway at expansion joint.

(Sheet 1 of 4)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE IL-0H
STRUCTURE NO. 002-0037
SHEET 9 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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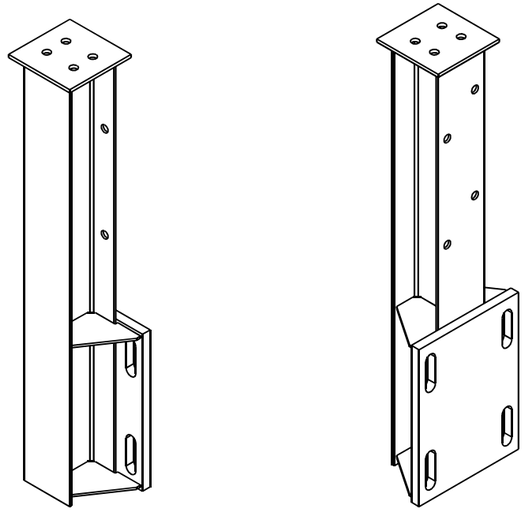
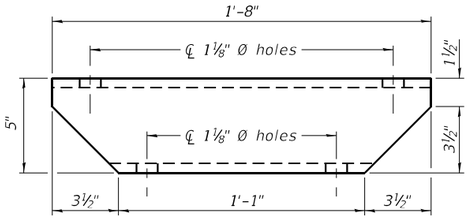
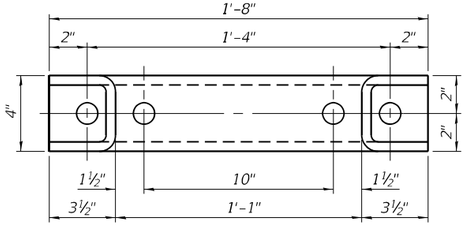
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



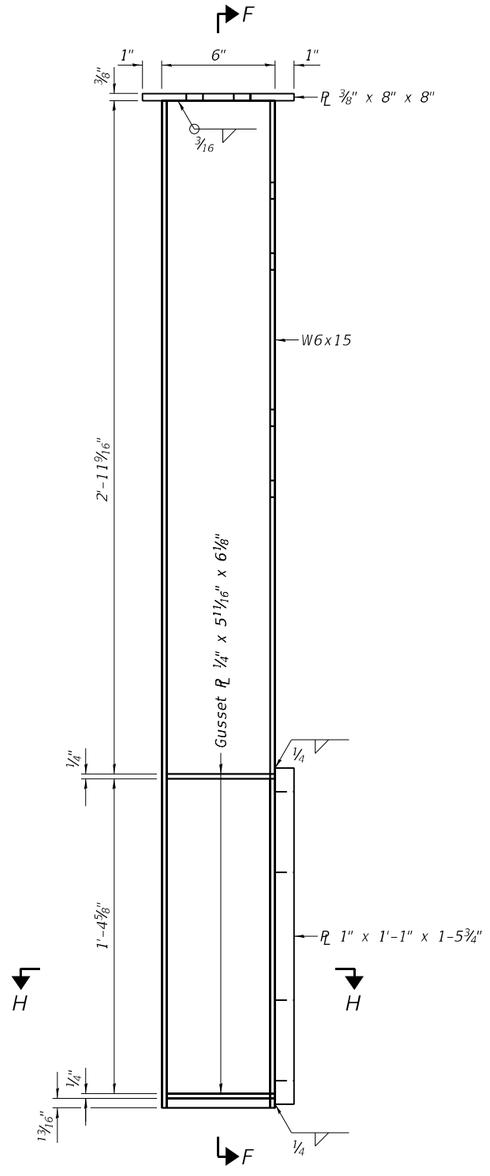
ISOMETRIC VIEWS POST ASSEMBLY



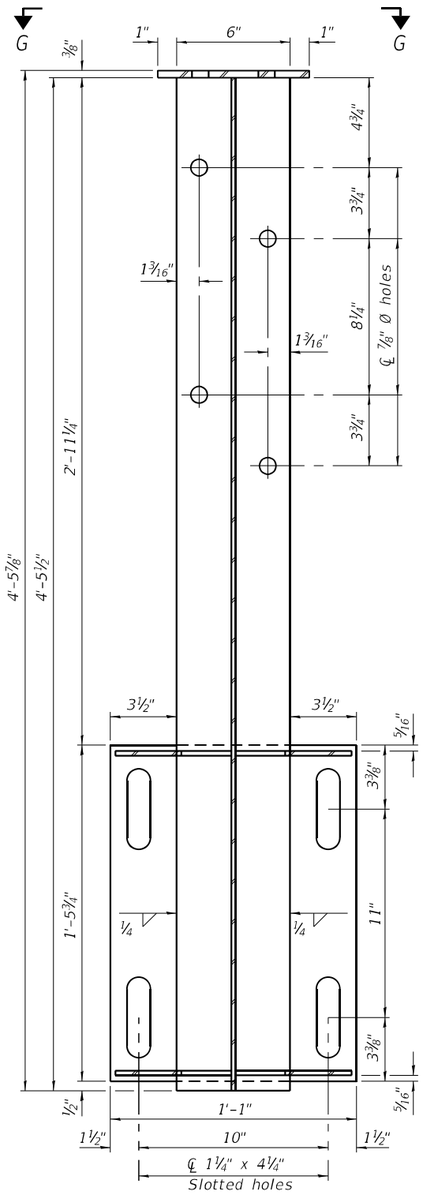
SPACER TUBE PLAN



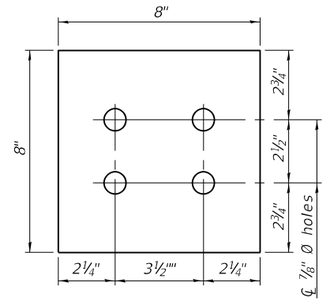
SPACER TUBE ELEVATION



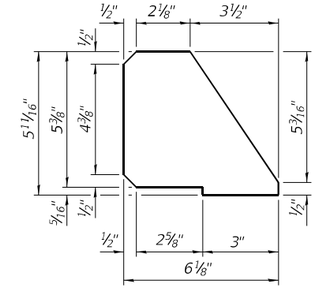
SIDE ELEVATION POST ASSEMBLY



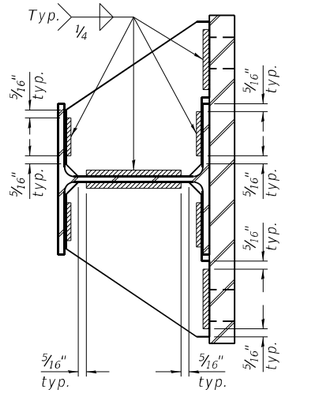
SECTION F-F



VIEW G-G
(Showing top plate)



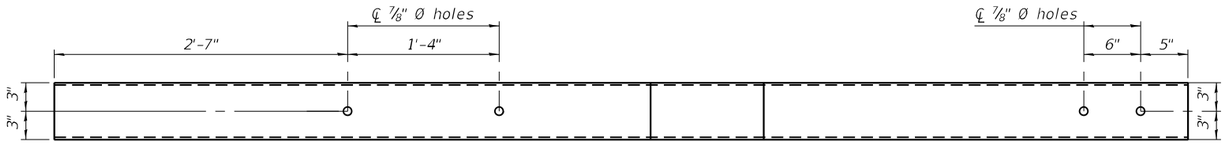
GUSSET PLATE



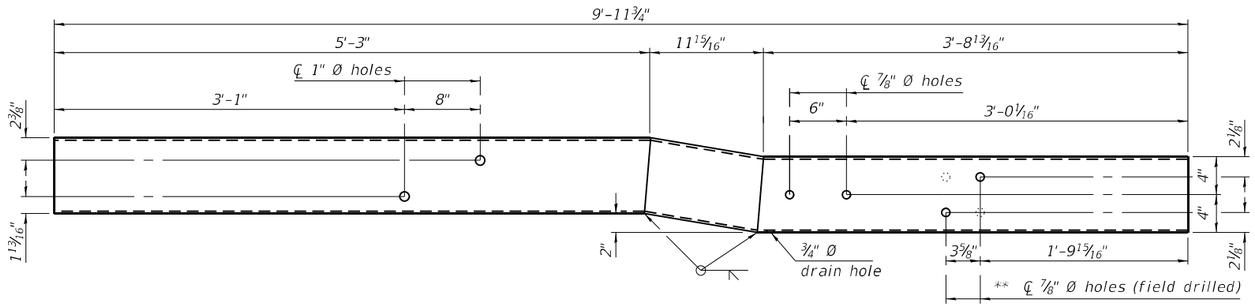
SECTION H-H
(Showing gusset plate welds)

QUIGG ENGINEERING INC	USER NAME = smaxwell	DESIGNED - RPW	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL RAILING, TYPE IL-OH STRUCTURE NO. 002-0037 SHEET 10 OF 24 SHEETS
	0020037-78610-010-Steel_Railing.dgn	CHECKED - ZLD	REVISED -		
	PLOT SCALE = 0:2.0000 ':' / in.	DRAWN - ZLD	REVISED -		
	PLOT DATE =	CHECKED - MDC	REVISED -		

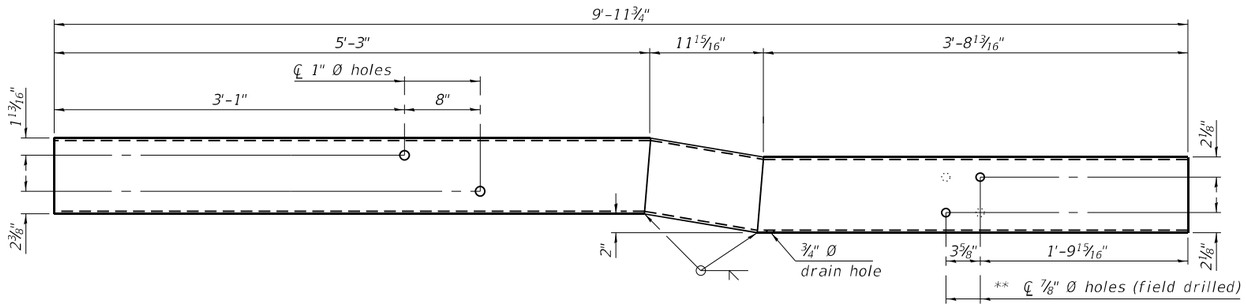
S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	27
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



PLAN OF MIDDLE AND BOTTOM RAIL TRANSITION

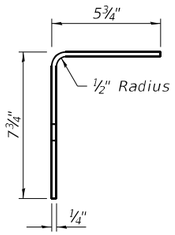


INSIDE ELEVATION OF LEFT MIDDLE RAIL TRANSITION

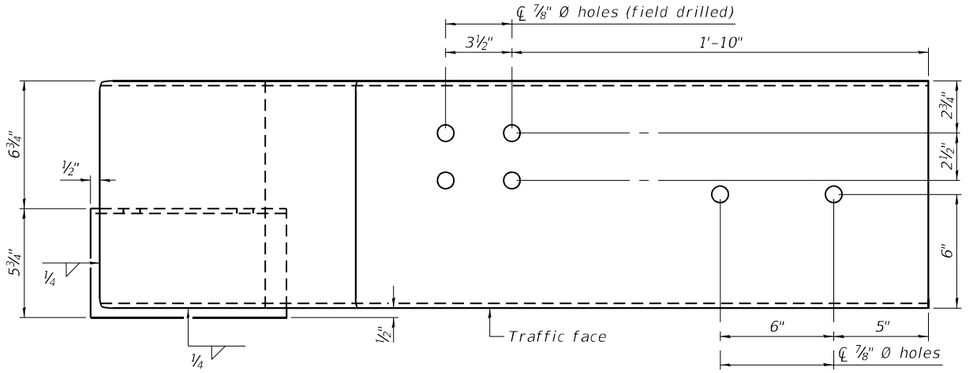


INSIDE ELEVATION OF LEFT BOTTOM RAIL TRANSITION

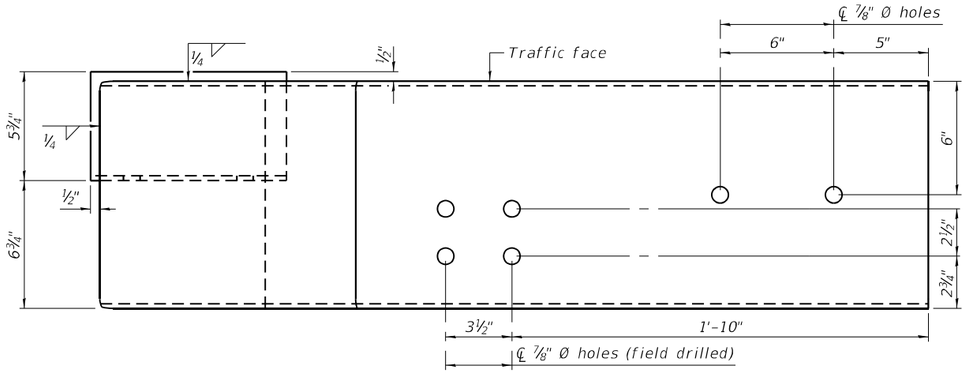
** Hole orientation is flipped as shown with the dashed holes for the right side piece.



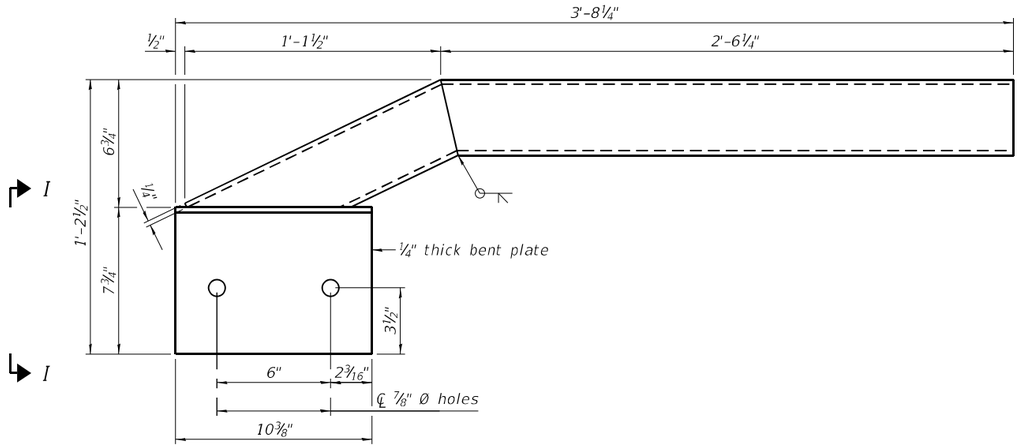
VIEW I-I



PLAN OF LEFT TOP RAIL TERMINATION ASSEMBLY



PLAN OF RIGHT TOP RAIL TERMINATION ASSEMBLY



INSIDE ELEVATION OF LEFT TOP RAIL TERMINATION ASSEMBLY

(Right Similar)

R-40BD 10-12-2021

(Sheet 3 of 4)

QUIGG ENGINEERING INC

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PLOT DATE =	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE IL-OH
STRUCTURE NO. 002-0037

SHEET 11 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	28
		CONTRACT NO. 78610		
	ILLINOIS FED. AID PROJECT			

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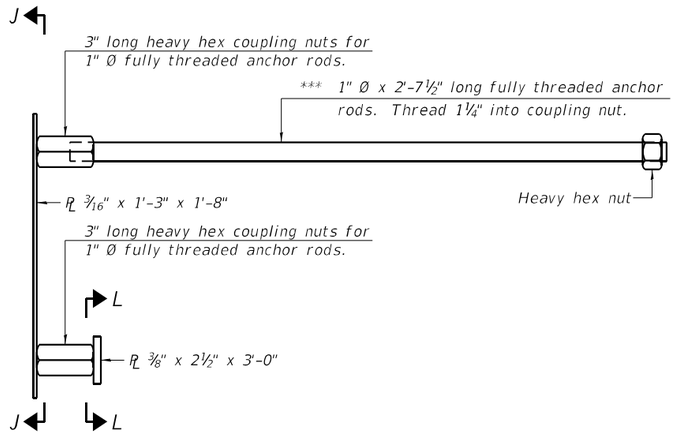
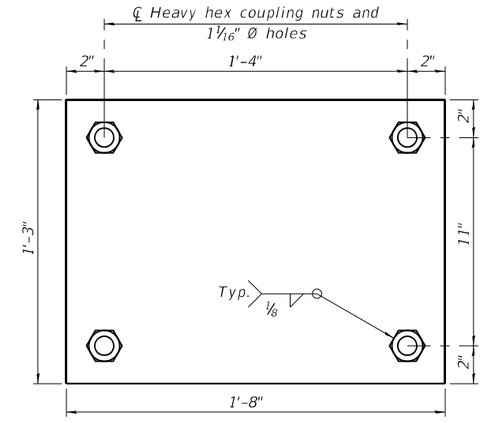
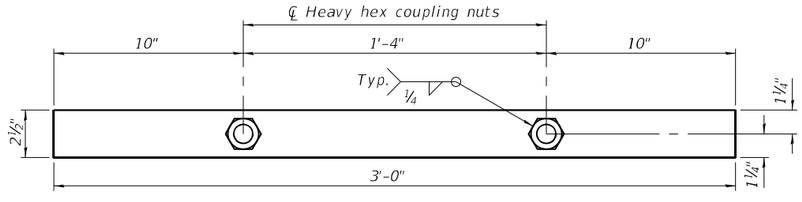


ANCHORAGE ASSEMBLY

*** For skewed bridge decks use 1" Ø x 1'-3" long fully threaded anchor rods at acute corners of bridge deck.



SECTION J-J



SECTION L-L

Notes:

All plates shall be AASHTO M270 grade 50.

All HSS tubing shall be ASTM A500 grade C.

All heavy hex nuts including heavy hex coupling nuts shall be according to ASTM A563 grade DH.

All fully threaded anchor rods shall be ASTM F1554 grade 105.

All round head bolts shall be ASTM A449.

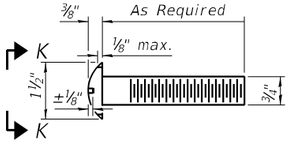
All steel rail elements including shims shall be galvanized according to Article 509.05 of the Standard Specifications.

Rail splice inserts may be built out of 2 – 3/8" bent plates in lieu of the 4 plate rail splice inserts shown, provided the outside dimensions are matched.

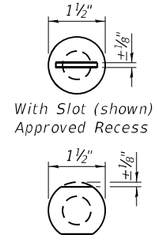
A sufficient number shims of various thicknesses, built to the dimensions shown in the shim plate detail, shall be provided to adjust posts for plumbness and horizontal alignment. Cost included with Steel Railing, Type IL-OH.

The spacer tubes shall be fastened to the bridge deck and bridge approach slab snug tight and given an additional ⅓ turn. The 1" diameter high strength bolts used to connect the spacer tubes to the post assemblies shall be tightened according to Article 505.04(f)(2) of the Standard Specifications.

All HSS tubing serving as railing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.



ROUND HEAD BOLT DETAIL



VIEW K-K

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type IL-OH	Foot	296

QUIGG ENGINEERING INC	USER NAME = smaxwell	DESIGNED - RPW	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
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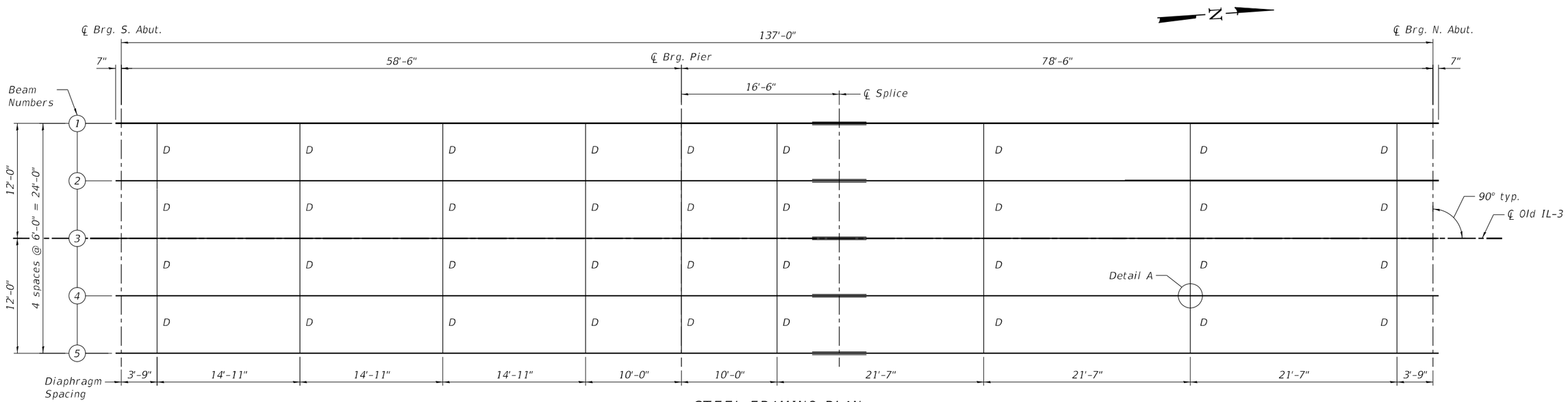
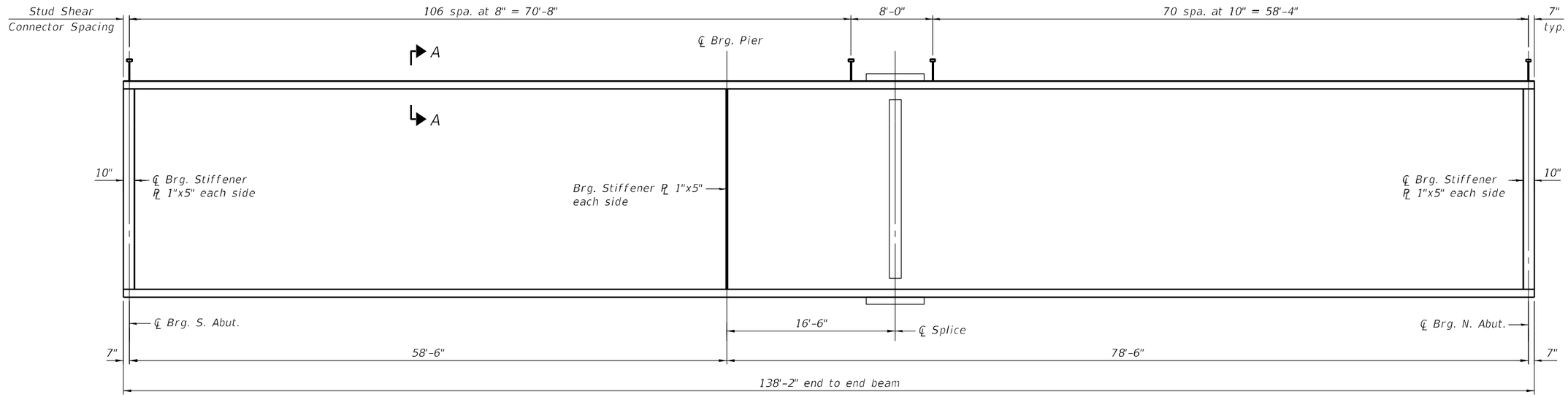
STEEL RAILING, TYPE IL-OH
STRUCTURE NO. 002-0037
SHEET 12 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	29
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



STEEL FRAMING PLAN



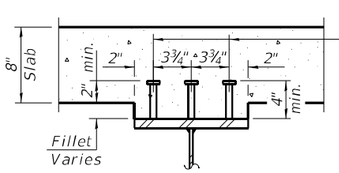
BEAM ELEVATION

(All beams are W33x141, AASHTO M270 Grade 50, CVN)

TOP OF BEAM ELEVATIONS

(For Fabrication Only)

Beam	℄ Brg. S. Abut.	℄ Brg. Pier	℄ Splice	℄ Brg. N. Abut.
1	345.41	345.29	345.28	345.22
2	345.51	345.39	345.39	345.32
3	345.60	345.48	345.48	345.41
4	345.51	345.39	345.39	345.32
5	345.41	345.29	345.28	345.22



¾" Ø Granular or solid flux filled headed studs, automatically end welded to flange. (2,670 Required)

SECTION A-A

Notes:

See sheet 14 of 24 for Detail A and additional details.

All girders, bearing stiffeners, and splice plates shall be AASHTO M270 Grade 50.

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Girders shall be braced for stability during erection and remain braced until deck is poured and cured.

MODEL: Default
FILE NAME: S:\2021\IL033 - PTB 199-38 D9 - QEI - Various HIWO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\0020037-78610-013-Framing.dgn
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QUIGG ENGINEERING INC

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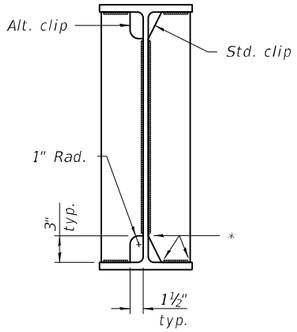
PLOT DATE =	CHECKED - MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

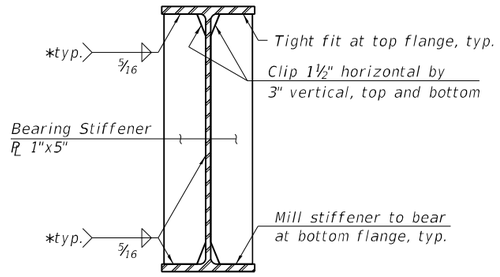
FRAMING PLAN
STRUCTURE NO. 002-0037
SHEET 13 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	30
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



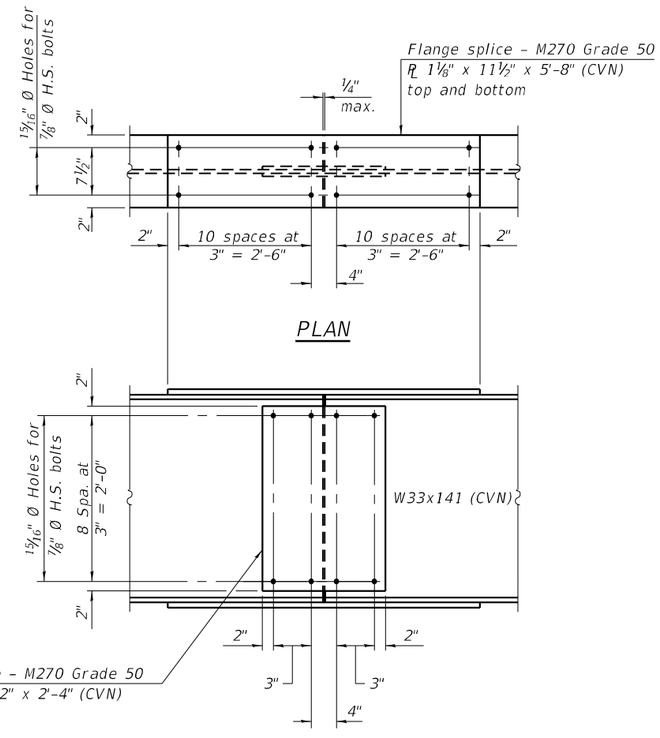
DIAPHRAGM WELD LIMITS AND CLIP DETAILS

* Stop welds ¼" (±⅛") from edges as shown. Typical.



BEARING STIFFENER DETAIL

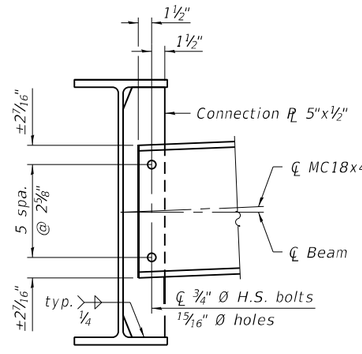
(15 Required)



ELEVATION

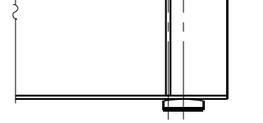
SPLICE DETAIL

(5 Required)



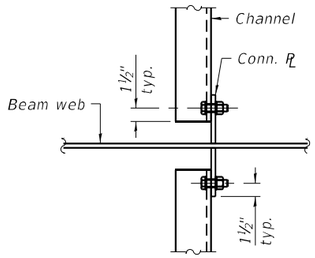
INTERIOR DIAPHRAGM D

(36 Required)



END OF BEAM DETAIL

(Showing bearing stiffener location)



DETAIL A

Notes:

See sheet 13 of 24 for Detail A location and additional details.

Two hardened washers required for each set of oversized holes.

All girders, bearing stiffeners, and splice plates shall be AASHTO M270 Grade 50.

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

QUIGG ENGINEERING INC	USER NAME = smaxwell	DESIGNED - RPW	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**
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	PLOT DATE =	CHECKED - MDC	REVISED -	**STRUCTURE NO. 002-0037**
				SHEET 14 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	31
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

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INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1	Pier 1	0.6 Sp. 2
I_s	(in^4)	7,450	7,450	7,450
I_c (n)	(in^4)	22,252	22,252	22,252
I_c (3n)	(in^4)	16,268	16,268	16,268
I_c (cr)	(in^4)	–	–	–
S_s	(in^3)	447	447	447
S_c (n)	(in^3)	698	698	698
S_c (3n)	(in^3)	629	629	629
S_c (cr)	(in^3)	–	–	–
DC1	(k/')	0.796	0.796	0.796
M_{DC1}	('k)	130	-492	392
DC2	(k/')	0.048	0.048	0.048
M_{DC2}	('k)	8	-30	24
DW	(k/')	0.280	0.280	0.280
M_{DW}	('k)	45	-175	137
LLDF		0.528	0.507	0.489
M_{LL+IM}	('k)	567	-673	755
f_f (Strength I)	(ksi)	0	0	0
$M_u + \frac{1}{3}f_f S_{xc}$	('k)	1,232	-2,093	2,047
$\emptyset_f M_n$	('k)	3,652	2,471	3,393
f_s DC1	(ksi)	3.49	-13.19	10.51
f_s DC2	(ksi)	0.15	-0.57	0.46
f_s DW	(ksi)	0.86	-3.34	2.61
f_s (LL + IM)	(ksi)	9.75	-11.57	12.98
f_f (Service II)	(ksi)	0	0	0
$f_s + f_f/2$ (Service II)	(ksi)	17.17	-32.14	30.46
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50
$f_s + f_f/3$ (Total)(Strength I)	(ksi)	–	–	–
$\emptyset_f F_n$	(ksi)	–	–	–
V_f	(k)	22.44	–	22.92

BEAM REACTION TABLE						
		S. Abut.		Pier 1		N. Abut.	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
LLDF		0.671	0.600	0.671	0.600	0.671	0.600
OCF		–	1.000	–	–	–	1.000
R_{DC1}	(k)	15.6	17.2	69.2	77.2	25.7	28.5
R_{DC2}	(k)	0.9	0.9	4.2	4.2	1.5	1.5
R_{DW}	(k)	5.2	5.2	24.4	24.4	8.8	8.8
R_l	(k)	50.4	45.1	85.9	76.9	55.5	49.7
R_{LM}	(k)	12.9	11.5	17.3	15.5	13.5	12.1
R_{total}	(k)	85.0	79.9	201.0	198.2	105.0	100.6

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) in uncracked sections 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) in uncracked sections, due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$)

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 ($in.^4$ and $in.^3$)

DC1 : Un-factored non-composite dead load (kips/ft.).

M_{DC1} : Un-factored moment due to non-composite dead load (kips-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.).

LLDF : Live load distribution factor.

M_{LL+IM} : Unfactored live load moment plus dynamic load allowance (impact) (kip-ft.).

f_f (Strength I) : Flange lateral bending stress (ksi).

$M_u + \frac{1}{3}f_f S_{xc}$: Factored design moment (kip-ft.).
$1.25(M_{DC1} + M_{DC2}) + 1.5M_{DW} + 1.75M_{LL+IM} + 1/3\ f_f$ (Strength I)S_{xc}

$\emptyset_f M_n$: 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_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) or M_{DC2}/S_c (cr) as applicable.

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) or M_{DW}/S_c (cr) as applicable.

f_s (LL + 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_{LL+IM}/S_c (n) or M_{LL+IM}/S_c (cr) as applicable.

f_f (Service II) : Un-factored flange lateral bending stress (ksi).

$f_s + f_f/2$ (Service II) : Sum of stresses as computed below (ksi).
f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (LL + IM) + 1/2 f_f (Service II)

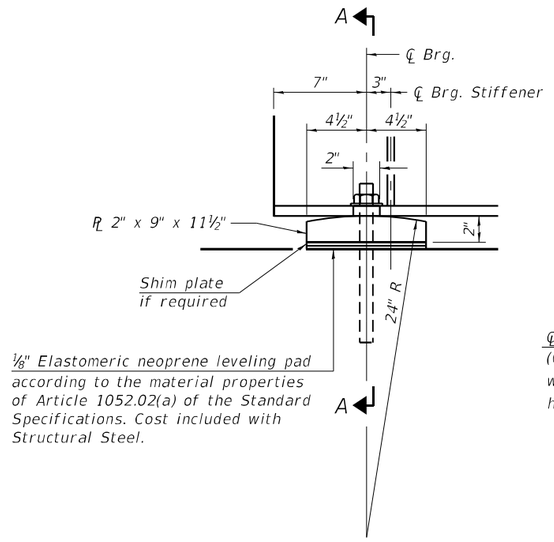
$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + f_f/3$ (Total)(Strength I) : Sum of stresses as computed below on non-compact section (ksi). 1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (LL + IM) + 1/3 f_f (Strength I)

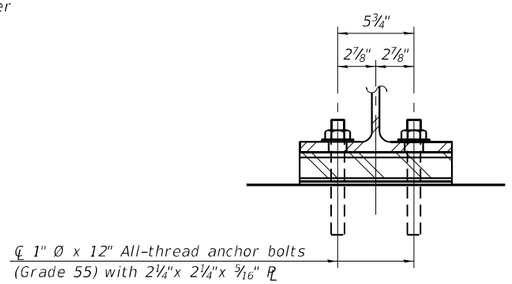
$\emptyset_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V_f : Maximum factored shear range in span computed according to Article 6.10.10 (kip).

OCF : Obtuse Correction Factor computed according to AASHTO LRFD 9 Table 4.6.2.2.3c-1 or as simplified in Section 3.3.1 of the Bridge Manual.

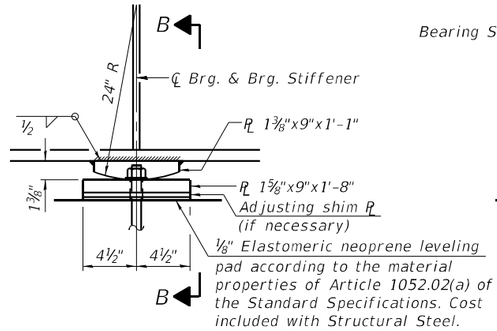


ELEVATION AT ABUTMENT

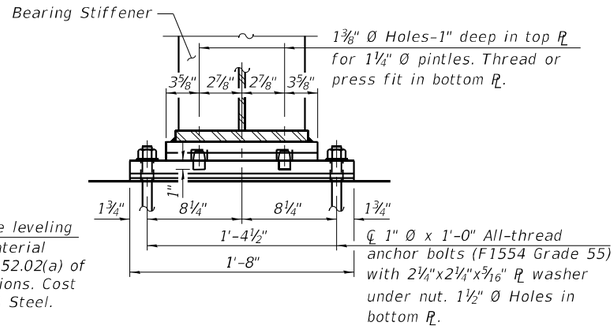


SECTION A-A

FIXED BEARING AT ABUTMENT
(10 Required)

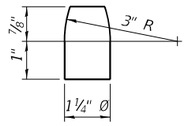


ELEVATION AT PIER



SECTION B-B

FIXED BEARING
(5 Required)



PINTLE

Notes:

Anchor bolts at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

The structural steel plates and pintles of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.

Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

All bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	30

MODEL: Default
FILE NAME: S:\2021\IL033 - PTB 199-38 D9 - QEI - Various I-IIWO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\0020037-78610-016-Bearings.dgn
1/16/2023 4:45:15 PM

QUIGG ENGINEERING INC

USER NAME =	smaxwell	DESIGNED -	RPW	REVISED -	
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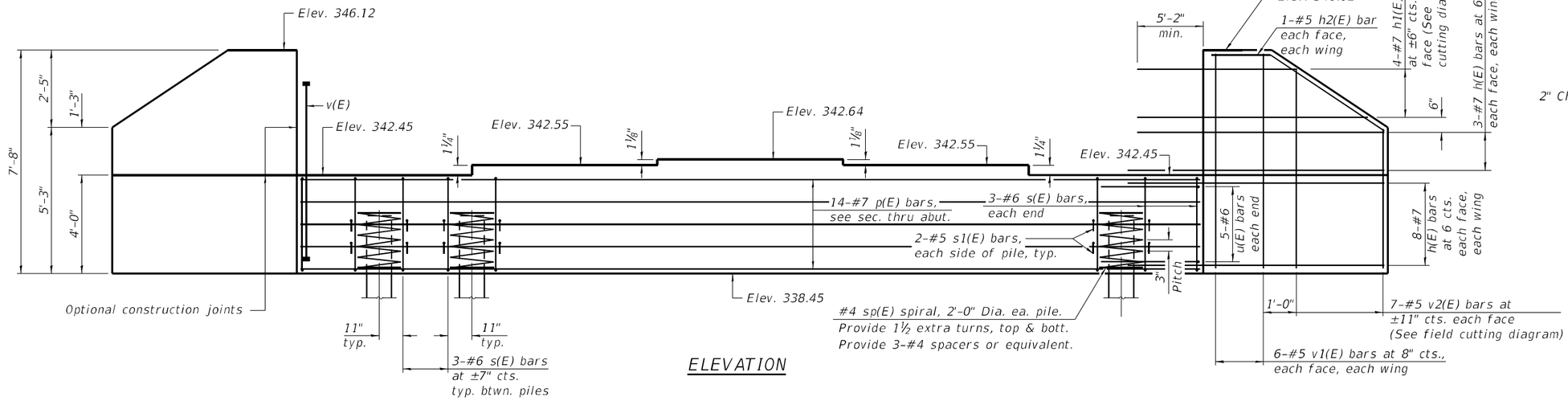
PLOT SCALE =	0:2.0000 ':" / in.	DRAWN -	ZLD	REVISED -	
PLOT DATE =		CHECKED -	MDC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS
STRUCTURE NO. 002-0037
SHEET 16 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	33
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	



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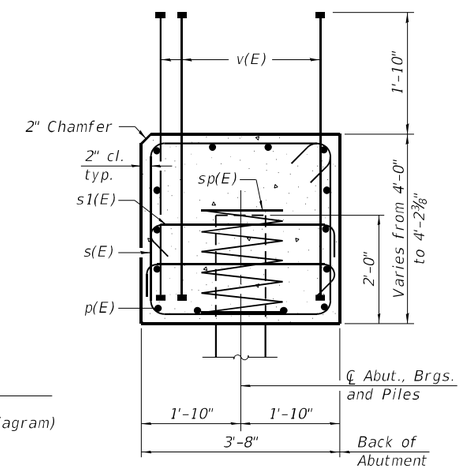
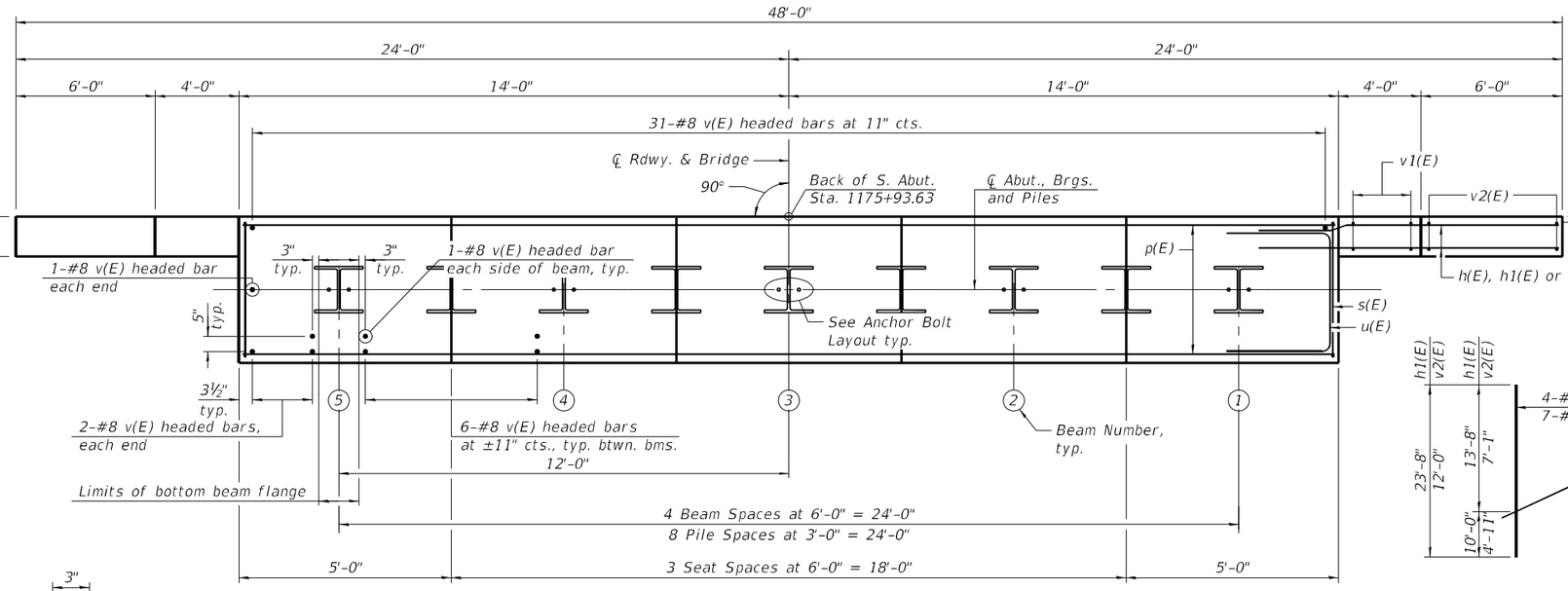
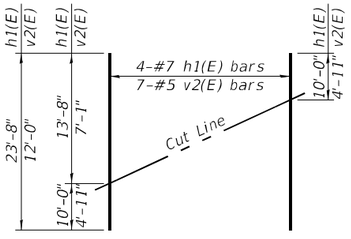


SEC. THRU ABUT.



PLAN



FIELD CUTTING DIAGRAM

Order h1(E) and v2(E) full length. Cut as shown and use remainder of bars in opposite wing.

PILE DATA

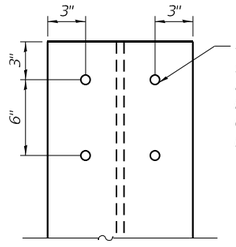
Type: HP14x117 with Pile Shoes
Nominal Required Bearing: 929 kips
Factored Resistance Available: 511 kips
Est. Length: 67 ft
No. Production Piles: 8
No. Test Piles: 1

BILL OF MATERIAL

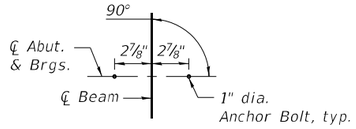
Bar	No.	Size	Length	Shape
h(E)	44	#7	15'-0"	
h1(E)	8	#7	23'-8"	
h2(E)	4	#5	10'-0"	
p(E)	14	#7	27'-8"	
s(E)	30	#6	15'-4"	
s1(E)	36	#5	4'-4"	
* sp(E)	9	#4	2'-0"	
u(E)	10	#6	11'-10"	
v(E)	71	#8	5'-8"	
v1(E)	24	#5	7'-4"	
v2(E)	14	#5	12'-0"	
Concrete Structures		Cu. Yd.	20.7	
Reinforcement Bars, Epoxy Coated		Pound	5,450	
Furnishing Steel Piles HP14x117		Foot	536	
Driving Piles		Foot	536	
Test Pile Steel HP14x117		Each	1	
Pile Shoes		Each	9	

* Length is height of spiral.

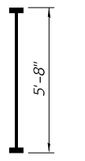
Notes:
Pour steps monolithically with cap.
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.
For details of piles see sheet 22 of 24.



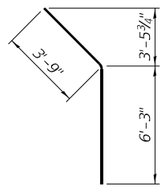
SEISMIC PILE DETAIL



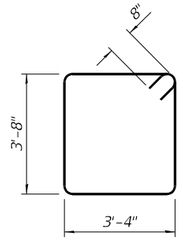
ANCHOR BOLT LAYOUT



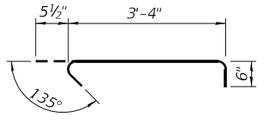
BAR v(E) (Headed)



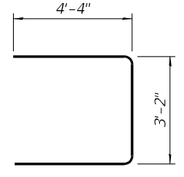
BAR h2(E)



BAR s(E)



BAR s1(E)



BAR u(E)

USER NAME = smaxwell	DESIGNED - RPW	REVISED -	
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PLOT DATE =	CHECKED - MDC	REVISED -	

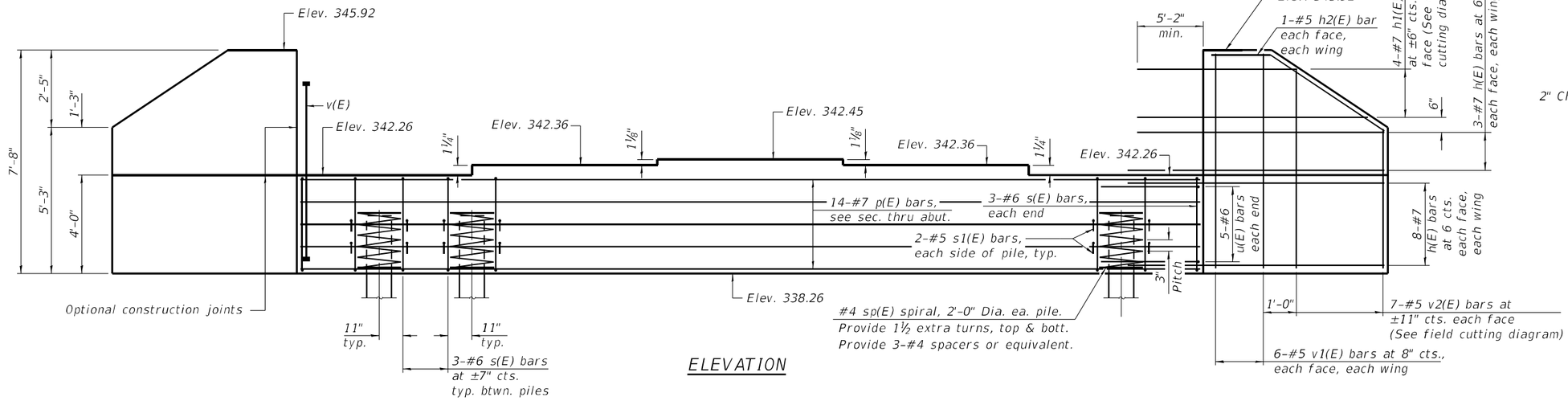
QUIGG ENGINEERING INC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

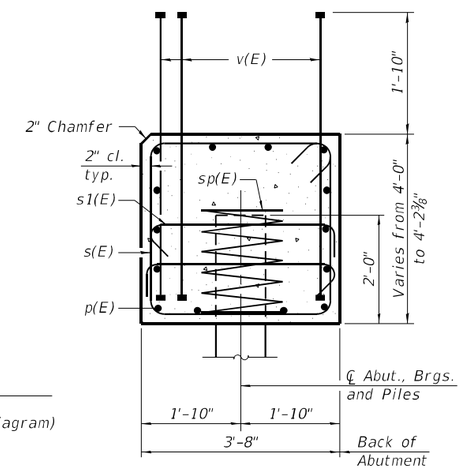
SOUTH ABUTMENT
STRUCTURE NO. 002-0037
SHEET 17 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	34
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		

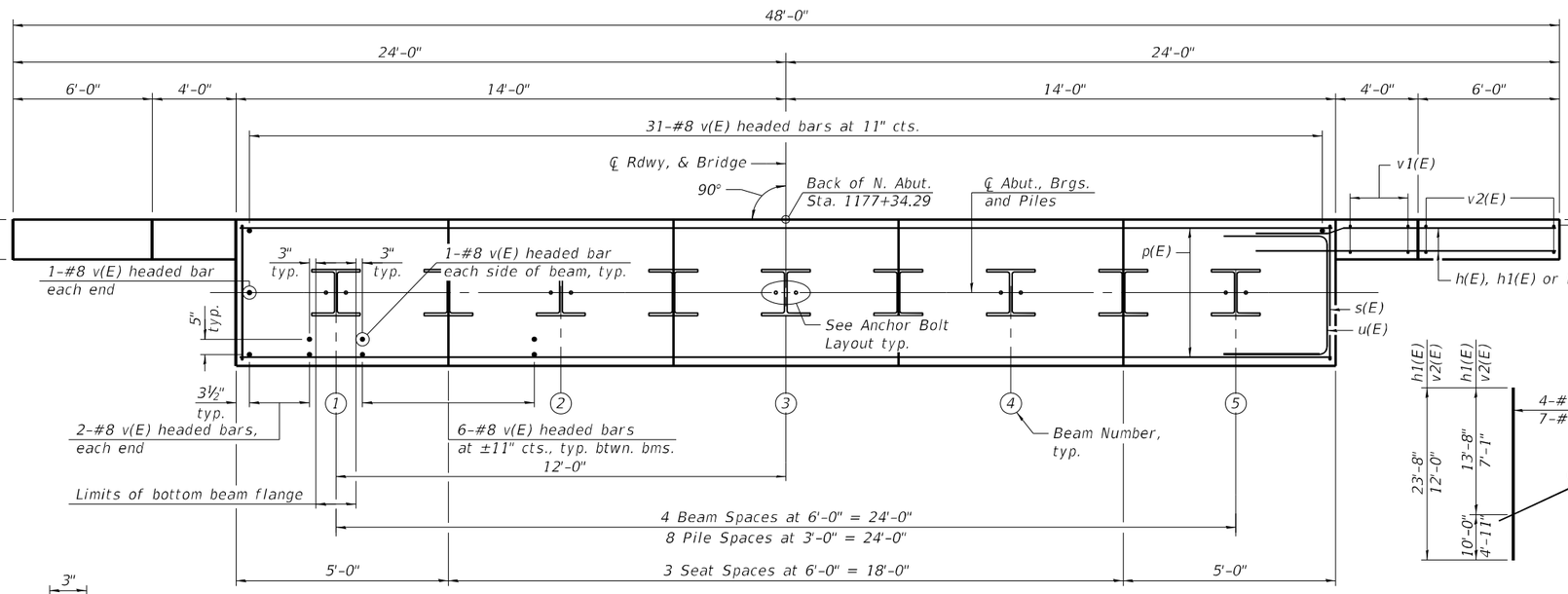
MODEL: Default
FILE NAME: S:\2021\2IL033 - PTB 199-38 D9 - QEI - Various HIWO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\0020037-78610-017-SAbut.dgn
1/16/2023 4:45:16 PM



ELEVATION



SEC. THRU ABUT.



PLAN

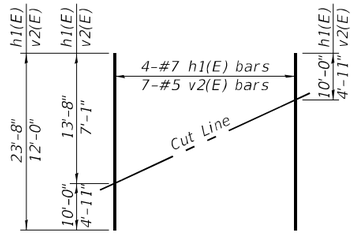
PILE DATA

Type: HP14x117 with Pile Shoes
Nominal Required Bearing: 929 kips
Factored Resistance Available: 511 kips
Est. Length: 67 ft
No. Production Piles: 9
No. Test Piles: 0

BILL OF MATERIAL

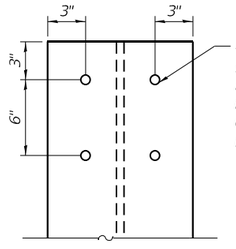
Bar	No.	Size	Length	Shape
h(E)	44	#7	15'-0"	
h1(E)	8	#7	23'-8"	
h2(E)	4	#5	10'-0"	
p(E)	14	#7	27'-8"	
s(E)	30	#6	15'-4"	
s1(E)	36	#5	4'-4"	
* sp(E)	9	#4	2'-0"	
u(E)	10	#6	11'-10"	
v(E)	71	#8	5'-8"	
v1(E)	24	#5	7'-4"	
v2(E)	14	#5	12'-0"	
Structure Excavation		Cu. Yd.	156	
Concrete Structures		Cu. Yd.	20.7	
Reinforcement Bars, Epoxy Coated		Pound	5,450	
Furnishing Steel Piles HP14x117		Foot	603	
Driving Piles		Foot	603	
Pile Shoes		Each	9	

* Length is height of spiral.



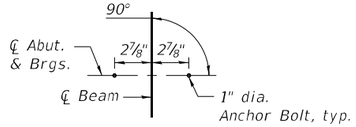
FIELD CUTTING DIAGRAM

Order h1(E) and v2(E) full length. Cut as shown and use remainder of bars in opposite wing.



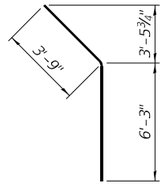
4-¾" ∅ x 4" Granular or solid flux filled headed studs automatically end welded, typ. each flange, each pile. Cost included with Furnishing Piles.

SEISMIC PILE DETAIL

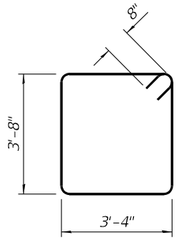


ANCHOR BOLT LAYOUT

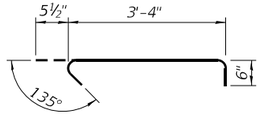
BAR v(E)
(Headed)



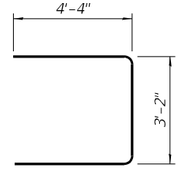
BAR h2(E)



BAR s(E)



BAR s1(E)



BAR u(E)

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 22 of 24 .

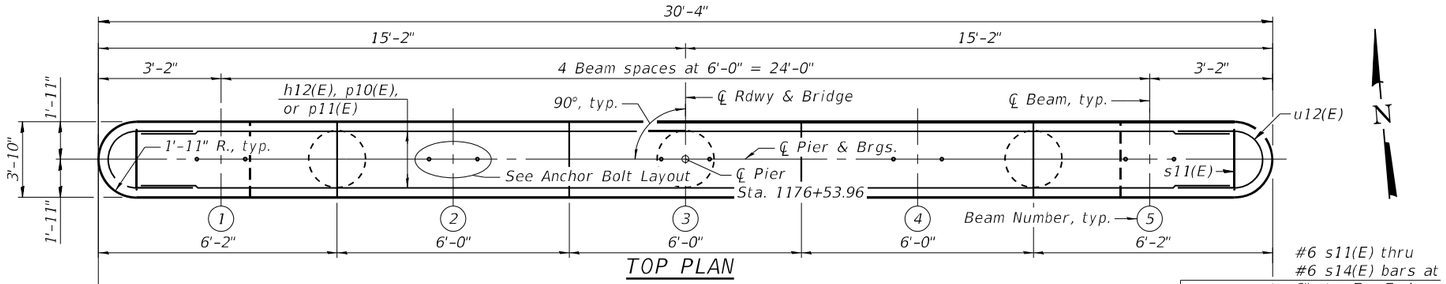
MODEL: Default
FILE NAME: S:\2021\21IL033 - PTB 199-38 D9 - QEI - Various HIWO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\0020037-78610-018-NAbut.dgn
1/16/2023 4:45:16 PM

QUIGG ENGINEERING INC

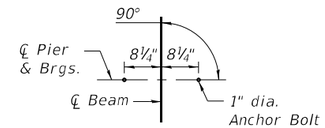
USER NAME = smaxwell	DESIGNED - RPW	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	NORTH ABUTMENT STRUCTURE NO. 002-0037	
0020037-78610-018-NAbut.dgn	CHECKED - ZLD	REVISED -			
PLOT SCALE = 0:2.0000 ':" / in.	DRAWN - ZLD	REVISED -		SHEET 18 OF 24 SHEETS	
PLOT DATE =	CHECKED - MDC	REVISED -			

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	35
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 22 of 24.
When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1½ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
For Mechanical Bar Splicer details, see sheet 21 of 24.
For additional details and Bill of Material, see sheet 20 of 24.



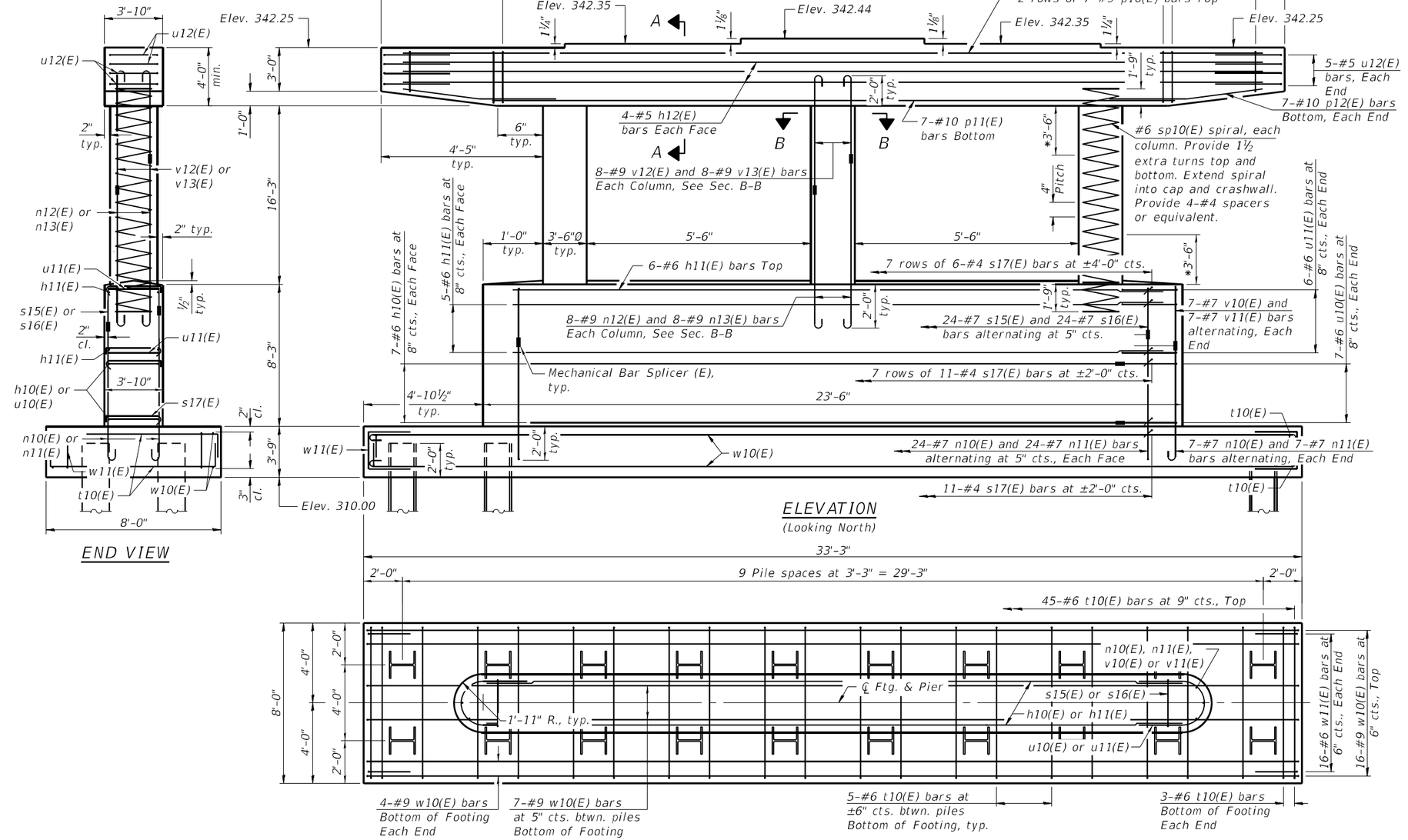
TOP PLAN



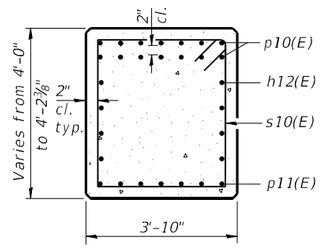
ANCHOR BOLT LAYOUT

PILE DATA

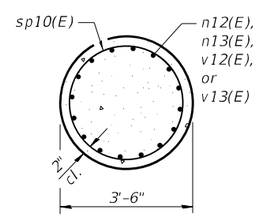
Type: HP14x117 with Pile Shoes
Nominal Required Bearing: 929 kips
Factored Resistance Available: 494 kips
Est. Length: 40 ft
No. Production Piles: 19
No. Test Piles: 1



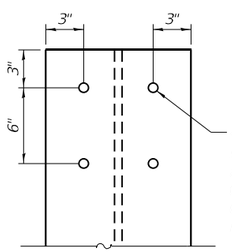
FOOTING PLAN



SEC. A-A



SEC. B-B



4-¾" ∅ x 4" Granular or solid flux filled headed studs automatically end welded, typ. each flange, each pile. Cost included with Furnishing Piles.

SEISMIC PILE DETAIL

* Splicing of reinforcement will not be allowed in this region

MODEL: Default
FILE NAME: S:\2021\21IL033 - PTB 199-38 D9 - QEI - Various Hwys\WO-5 - OIL-3 BR Replace 002-0037\CADD\CADD Sheets\0020037-78610-019-Pier.dgn
1/16/2023 4:45:17 PM

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USER NAME = smaxwell	DESIGNED - RPW	REVISED -	
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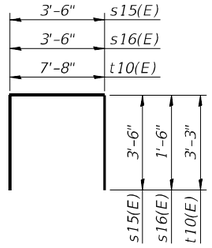
PLOT DATE =	CHECKED - MDC	REVISED -	

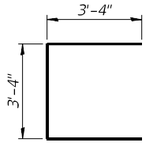
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER
STRUCTURE NO. 002-0037
SHEET 19 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	36
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



BARS s15(E), s16(E) & t10(E)

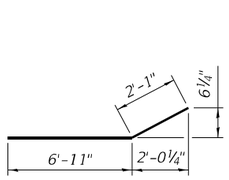


BAR w11(E)

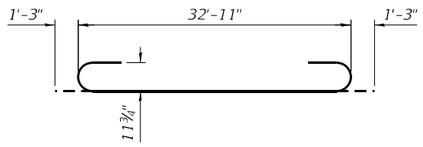
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	14	#6	12'-6"	
h11(E)	16	#6	19'-8"	
h12(E)	8	#5	26'-6"	
n10(E)	62	#7	7'-10"	
n11(E)	62	#7	9'-10"	
n12(E)	24	#9	9'-3"	
n13(E)	24	#9	12'-3"	
p10(E)	14	#9	26'-6"	
p11(E)	7	#10	22'-6"	
p12(E)	14	#10	9'-0"	
s10(E)	46	#6	15'-8"	
s11(E)	2	#6	14'-8"	
s12(E)	2	#6	14'-11"	
s13(E)	2	#6	15'-2"	
s14(E)	2	#6	15'-5"	
s15(E)	48	#7	10'-6"	
s16(E)	48	#7	6'-6"	
s17(E)	130	#4	4'-5"	
** sp10(E)	3	#6	19'-9"	
t10(E)	96	#6	13'-2"	
u10(E)	14	#6	12'-6"	
u11(E)	12	#6	16'-6"	
u12(E)	10	#5	13'-0"	
v10(E)	14	#7	3'-6"	
v11(E)	14	#7	1'-6"	
v12(E)	24	#9	13'-5"	
v13(E)	24	#9	10'-5"	
w10(E)	31	#9	35'-5"	
w11(E)	32	#6	10'-0"	
Cofferdam Excavation		Cu. Yd.	161	
Concrete Structures		Cu. Yd.	97.8	
Cofferdam (Type 2) (Location - 1)		Each	1	
Reinforcement Bars, Epoxy Coated		Pound	20,350	
Furnishing Steel Piles HP14x117		Foot	760	
Driving Piles		Foot	760	
Test Pile Steel HP14x117		Foot	1	
Pile Shoes		Each	20	

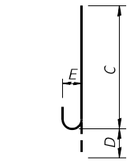
** Length is height of spiral.



BAR p12(E)



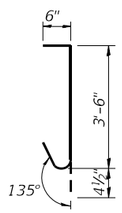
BAR w10(E)



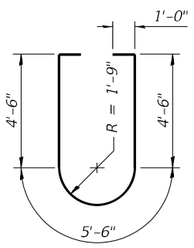
BARS n10(E) THRU n13(E), v12(E) & v13(E)

C, D, & E DIMENSIONS

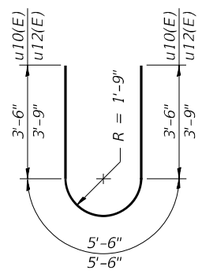
Bar	C	D	E
n10(E)	7'-0"	10"	7"
n11(E)	9'-0"	10"	7"
n12(E)	8'-0"	1'-3"	11¾"
n13(E)	11'-0"	1'-3"	11¾"
v12(E)	12'-2"	1'-3"	11¾"
v13(E)	9'-2"	1'-3"	11¾"



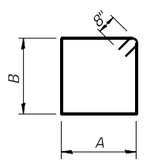
BAR s17(E)



BAR u11(E)



BAR u10(E) & u12(E)

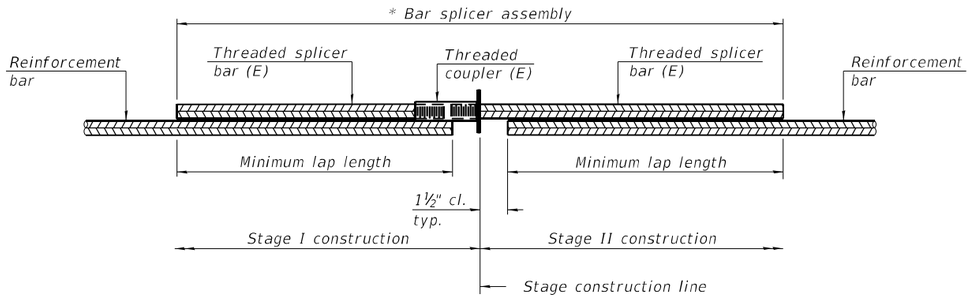


BARS s10(E) THRU s14(E)

A & B DIMENSIONS

Bar	A	B
s10(E)	3'-6"	3'-8"
s11(E)	3'-6"	3'-1¾"
s12(E)	3'-6"	3'-3¾"
s13(E)	3'-6"	3'-4¾"
s14(E)	3'-6"	3'-6½"

Note:
For additional details, see sheet 19 of 24.



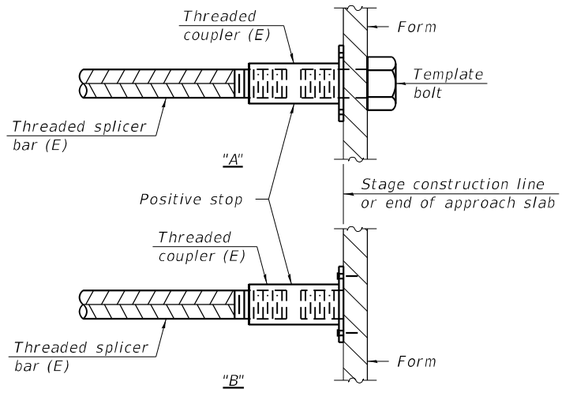
STANDARD BAR SPLICER ASSEMBLY PLAN

(All components shall be provided from one supplier)

Threaded splicer bar length = min. lap length + 1½" + thread length

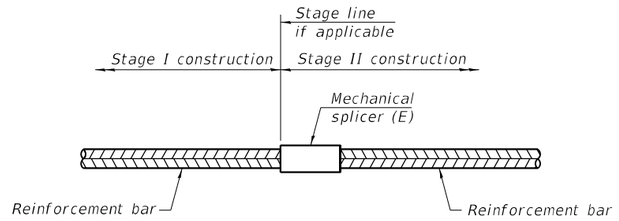
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length



INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Pier	#6	28
Pier	#7	124
Pier	#9	48

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.

BSD-1 1-1-2020

QUIGG ENGINEERING INC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 002-0037
SHEET 21 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	38
		CONTRACT NO. 78610		
		ILLINOIS	FED. AID PROJECT	

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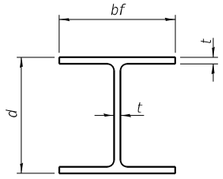
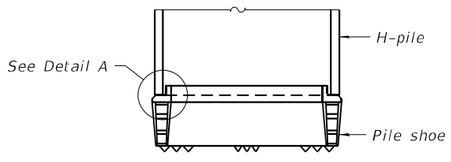


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	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"



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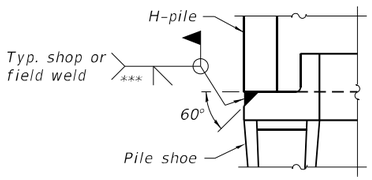
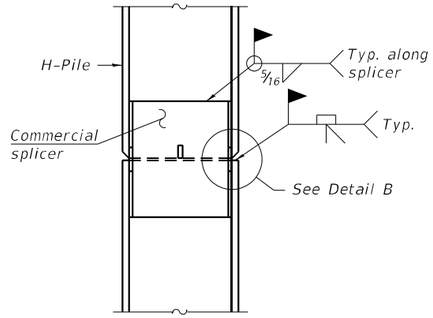


DETAIL A

SHOE ATTACHMENT

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



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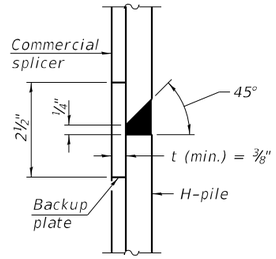
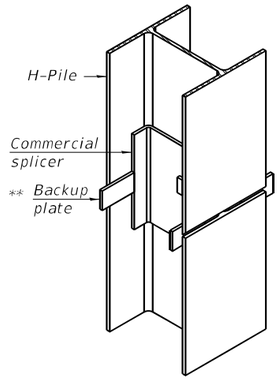
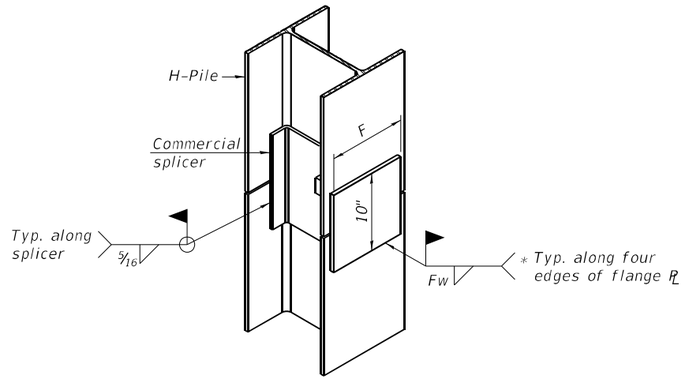


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



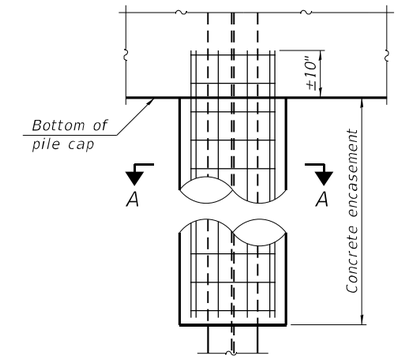
ISOMETRIC VIEW

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.).



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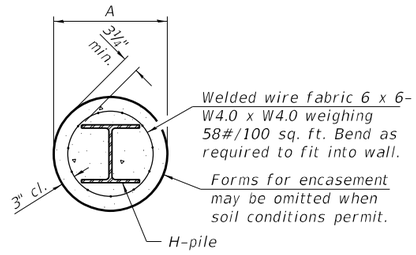
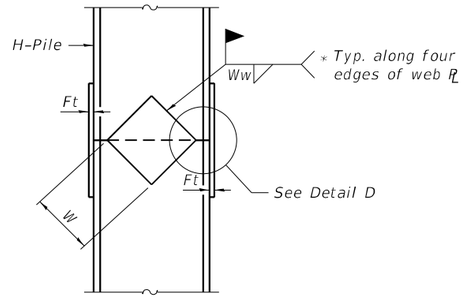


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT

(when specified)



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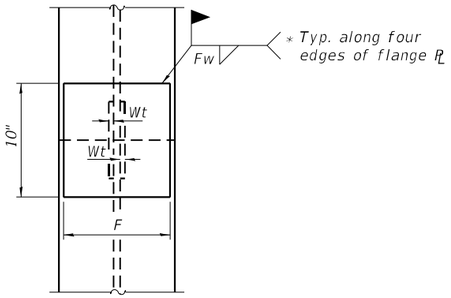
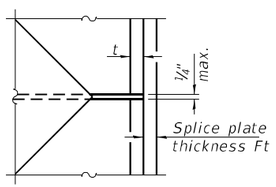


END VIEW



DETAIL D

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"	11/16"	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"	13/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	3/8"	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"

WELDED PLATE FIELD SPLICE

F-HP 1-1-2020

QUIGG ENGINEERING INC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 002-0037
SHEET 22 OF 24 SHEETS

S.B.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	39
		CONTRACT NO. 78610		
	ILLINOIS FED. AID PROJECT			

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ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation Boring Log
Sheet 1 of 2

Old IL Rte 3 Over Miller Creek
Route: Old IL Rte 3 Structure Number: 002-0010 Date: 10/3/2017
Section 133-B Bored By: R Moberly
County: Alexander Location: 1 mile North Thebes Checked By: A Hayes

Boring No 1-S
Station 1175+69
Offset 6' Lt CL
Ground Surface 346.5 Ft

Surf Wat Elev: 318.7
Ground Water Elevation
when Drilling 282.1
At Completion
At: Hrs:

DEPTH	BLOWS	Qu tsf	W%	DEPTH	BLOWS	Qu tsf	W%
Asphalt over Concrete 345.5				Soft, very moist to wet, brown Silty Clay Loam A-4	WH	0.3B	28
				319.5	1		
Stiff, moist, grey and brown, Silty Clay to Clay A-6	1			Medium, very moist, grey, Silty Clay Loam A-4	WH		
	3	1.7B	24		1	0.8B	27
	3				2		
5.0	1			317.0			
	2	1.6B	24	Soft, very moist, grey Silty Clay Loam A-4	WH		
	2			30.0	WH	0.4B	29
				314.5	WH		
	1			Medium, very moist, grey Clay A7-6	WH		
	2	1.2B	23		WH	0.6B	46
	3			312.0	WH		
337.0				Soft, very moist, grey, Silty Clay Loam A-6	WH		
Medium, moist to very moist, grey and brown, Clay A7-6 w/ Silt seams 10.0	1			35.0	WH	0.4B	35
	2	0.8S	32		1		
	2			309.5			
				Medium, very moist, grey, Silty Clay Loam A-6 with 6" rotten wood layer	WH		
	WH				WH	0.7B	30
	1	0.8S	34		WH		
	2			306.5			
332.0				40.0	WH		
Soft, very moist, grey, Silty Clay Loam A-4 15.0	WH			Stiff, moist, grey, Clay A7-6	1	1.6B	31
	1	0.3B	27		3		
	1						
329.5				302.0			
Medium, moist to very moist, grey Silty Clay Loam A-6	1						
	2	0.9S	23				
	3						
327.0							
Medium, moist to very moist, grey Silty Clay Loam A-4 20.0	1			Very stiff, moist, reddish grey Clay A7-6 45.0	2		
	2	0.7B	22		4	2.3B	30
	2				6		
324.5							
Very soft, very moist to wet, grey, Silty Clay Loam A-4	WH						
	WH	0.1B	31				
	WH						
322.0				297.0			
25.0	WH			50.0	1		

N-Std Pentr Test: 2" OD Sampler,140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2

Route: Old IL Rte 3
Section: 133-B
County: Alexander
Date: 10/3/2017

Boring No: 1-S
Station: 1175+69
Offset: 6' Lt CL
Ground Surface: 346.5 Ft

DEPTH	BLOWS	Qu tsf	W%	DEPTH	BLOWS	Qu tsf	W%
Stiff, moist, reddish grey, Clay A7-6	4	1.9B	26	270.5			
	4			Hard, dry, grey, Limestone Cored 76.0 to 77.6 feet 100% Rec; 100% RQD 269.0			
				Mechanical problems at 77.6 ft Bore hole abandoned			
55.0	2			80.0			
	4	1.5B	36				
	5			Bottom of hole = 77.6 feet			
				Free water observed at 64.5 feet			
				Elevation referenced to BM #3 at NE hub; Elevation = 347.2 ft			
287.0				Borehole advanced with hollow stem auger (8" O.D, 3.25" I.D.)			
Very stiff, moist, grey Clay to Clay Loam w/ gravel A7-6 60.0	4			85.0			
	8	2.9B	25	To convert "N" values to "N60" multiply by 1.25			
	12						
282.0							
Dense, very moist, brown Sand and gravel w/ some Clay binder 65.0	10			90.0			
	18						
	18						
278.5							
Hard, dry, grey, Clay Shale							
70.0	7			95.0			
	100/11"						
275.5							
Hard, dry, grey, Limestone							
Cored 71.0 to 76.0 feet							
100% Recovery; 70% RQD							
75.0				100.0			

N-Std Pentr Test: 2" OD Sampler,140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation Boring Log

Old IL Rte 3 Over Miller Creek

Sheet 1 of 2

Route: Old IL Rte 3 Structure Number: 002-0010 Date: 10/4/2017

Section 133-B Bored By: R Moberly

County: Alexander Location: 1 mile North Thebes Checked By: A Hayes

Boring No 2-S
Station 1177+42
Offset 6' Rt CL
Ground Surface 346.3 Ft

Surf Wat Elev: 318.7
Ground Water Elevation
when Drilling 290.8
At Completion
At: Hrs:

	DEPTH	BLOWS	Qu tsf	W%
Asphalt over concrete				
345.3				
Stiff, moist, brown, Silt Loam to Silty Clay Loam A-4				
		1		
		4	1.1S	20
		4		
	5.0	1		
		3	1.1S	22
		3		
339.3				
Medium, moist to very moist, grey, Silty Clay Loam A-6		1		
		2	0.8B	26
		2		
	10.0	1		
		2	0.8B	26
		2		
		1		
		3	0.9B	24
		3		
331.8				
Stiff, moist, grey, Silty Clay Loam A-6	15.0	1		
		4	1.8B	22
		4		
329.3				
Stiff, moist, grey, Clay A7-6		1		
		2	1.2B	34
		2		
	20.0	2		
325.8		2		
Soft, very moist, grey, Silty Clay Loam A-6		3	0.3B	32
		WH		
		WH	0.3B	31
		WH		
321.8				
	25.0	WH		

	DEPTH	BLOWS	Qu tsf	W%
Very soft, very moist to wet, grey, Silty Clay Loam A-4		WH	0.2B	31
		WH		
		WH	0.2B	32
316.8		WH		
Medium, very moist, grey, Silty Clay Loam A-4 with Silt seams	30.0	WH		
		1	0.8S	31
		2		
314.3				
Soft, very moist, grey, Silty Clay to Silty Clay Loam A-6		WH		
		WH	0.4B	39
		WH		
311.8				
Soft, very moist to wet, grey, Silty Clay Loam A-6	35.0	WH		
		WH	0.3B	30
		WH		
309.3				
Very soft, very moist to wet, grey, Silty Clay Loam A-6		WH		
		WH	0.2B	32
		WH		
306.8				
Soft, very moist, grey, Clay to Silty Clay A-6	40.0	WH		
		WH	0.4B	41
		WH		
301.8				
Very stiff, moist, reddish brown, Clay A7-6	45.0	2		
		4	2.5B	29
		5		
296.8				
	50.0	1		

N-Std Pentr Test: 2" OD Sampler,140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Sheet 2 of 2

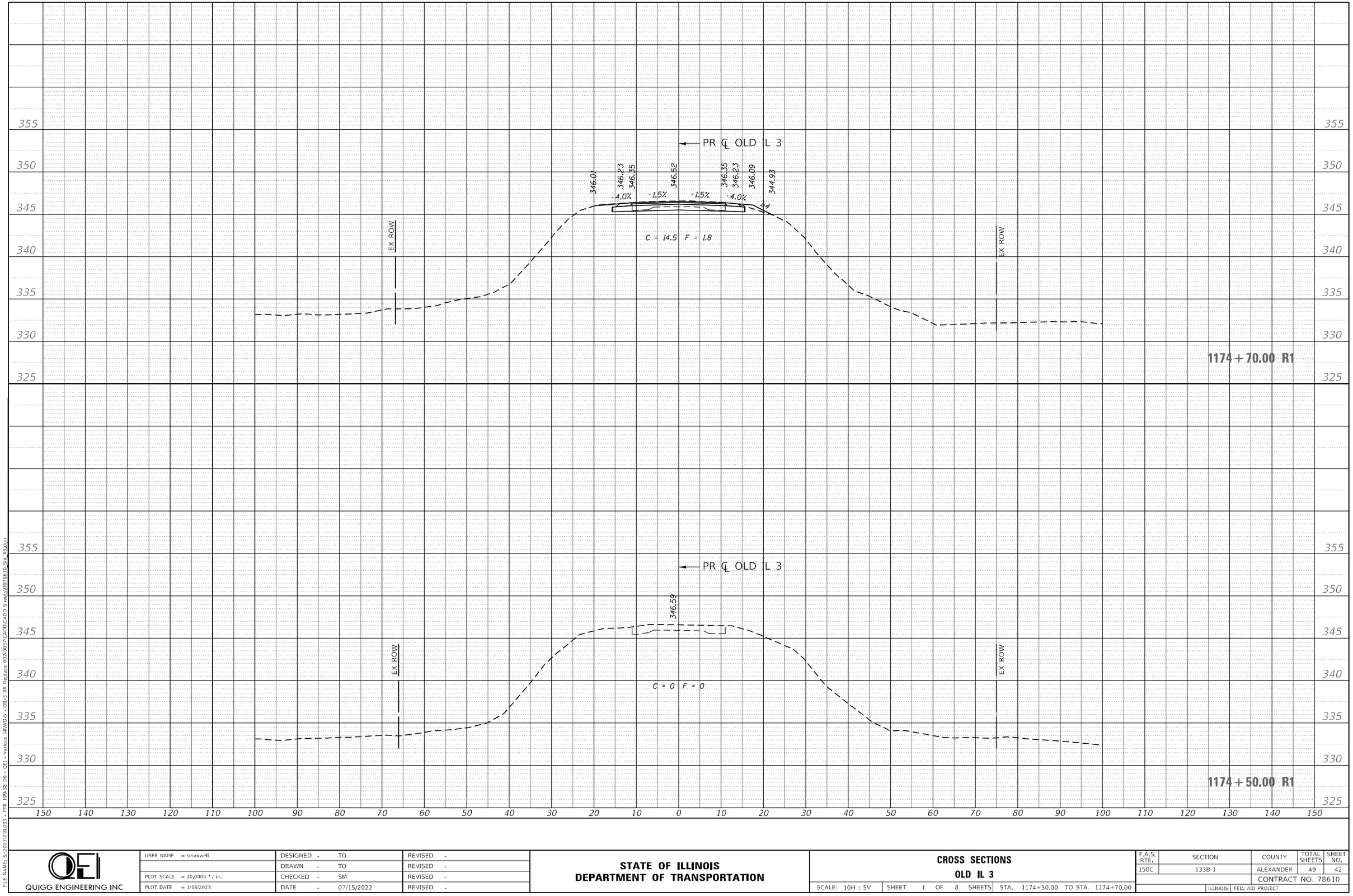
Route: Old IL Rte 3
Section: 133-B
County: Alexander
Date: 10/4/2017

Boring No: 2-S
Station: 1177+42
Offset: 6' Rt CL
Ground Surface: 346.3 Ft

	DEPTH	BLOWS	Qu tsf	W%
Stiff, moist, reddish brown, Clay A7-6		3	1.5B	35
		5		
	55.0	1		
290.8		5	1.9B	28
Stiff, moist, reddish brown, Clay A7-6 and broken Limestone gravel		14		
286.8				
Very stiff, moist, grey, Clay A7-6 and broken Limestone gravel	60.0	6		
		14	3.5P	24
		8		
Washed 3.5 feet of Sand and Gravel blow-in 281.8				
Very dense, wet, brown, Coarse-grained Sand and Gravel	65.0	35		
		33		
		29		
277.3				
Hard, dry, grey, Clay Shale	70.0	6		
		100/5"		
275.3				
Hard, dry, grey, Limestone				
Cored 71.0 to 76.0 feet				
100% Recovery; 15% RQD				
	75.0			

	DEPTH	BLOWS	Qu tsf	W%
270.3				
Hard, dry, grey, Limestone				
Cored 76.0 to 81.0 feet				
100% Recovery: 92% RQD				
	80.0			
265.3				
Bottom of hole = 81.0 feet				
Free water observed at 55.5 feet				
Washout procedures used from 61.0 to 64.5 feet	85.0			
Elevation referenced to BM #3 at NE hub; Elevation = 347.2 ft				
Borehole advanced with hollow stem auger (8" O.D, 3.25" I.D.)				
To convert "N" values to "N60" multiply by 1.25				
	90.0			
	95.0			
	100.0			

N-Std Pentr Test: 2" OD Sampler,140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)



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SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.O.W. CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
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PLOTTED
GRADES CHECKED
BM. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

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PLOT SCALE = 20.0000 ' / in.	CHECKED - SM	REVISED -	
PLOT DATE = 1/16/2023	DATE - 07/15/2022	REVISED -	

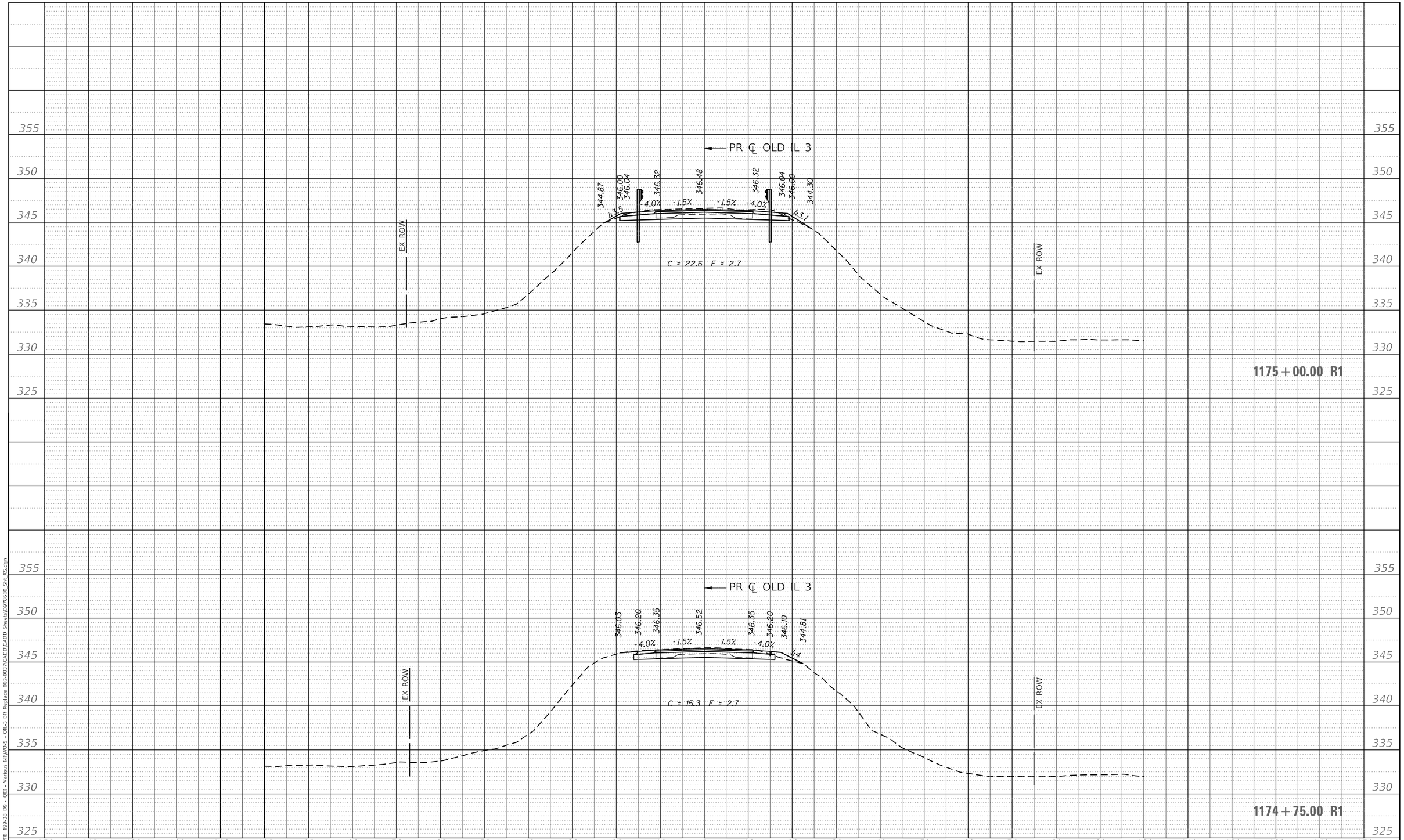
QUIGG ENGINEERING INC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 1 OF 8 SHEETS | STA. 1174+50.00 TO STA. 1174+70.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	42
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - TO	REVISED -	
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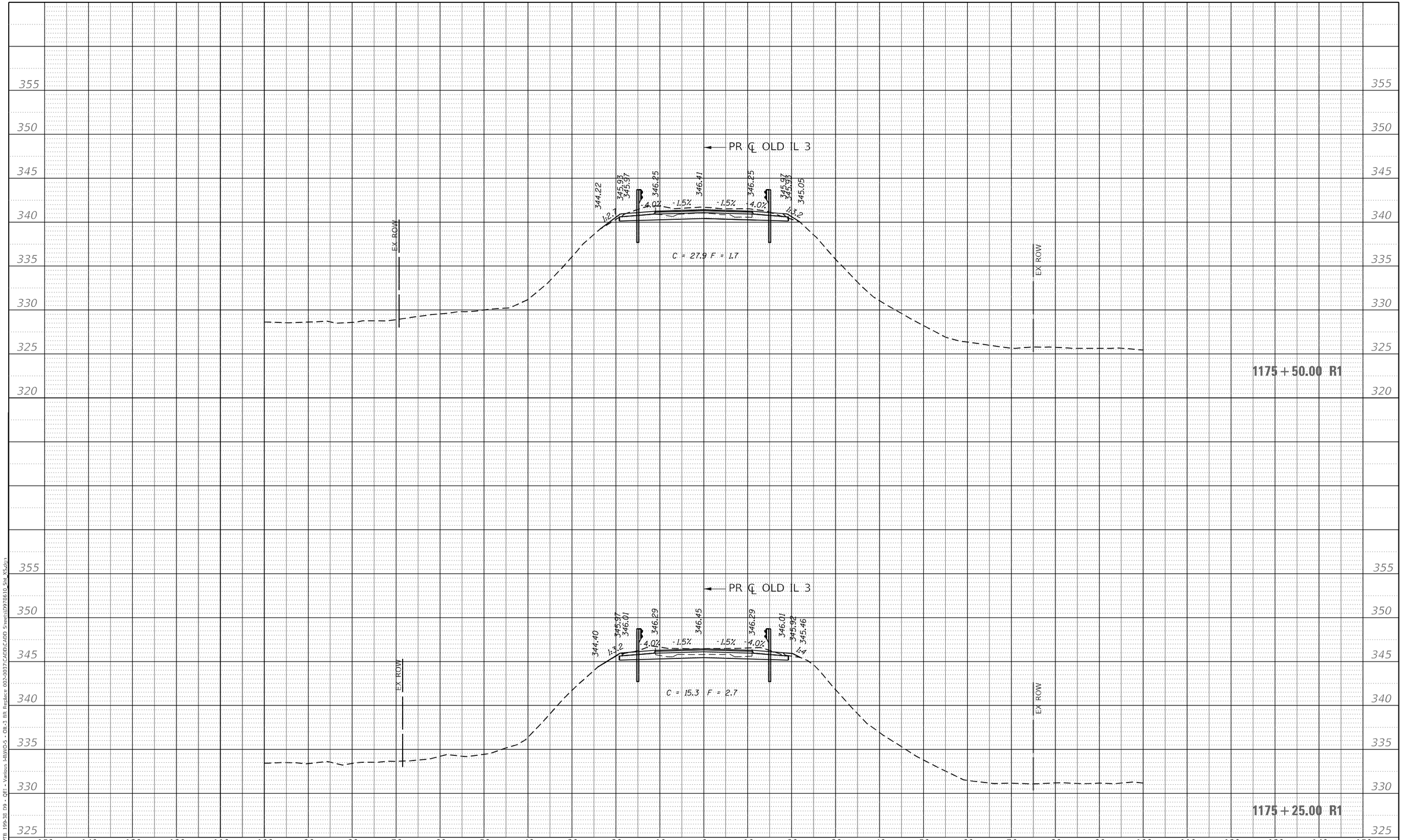
PLOT DATE = 1/16/2023	DATE - 07/15/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 2 OF 8 SHEETS | STA. 1174+75.00 TO STA. 1175+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	43
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - TO	REVISED -	
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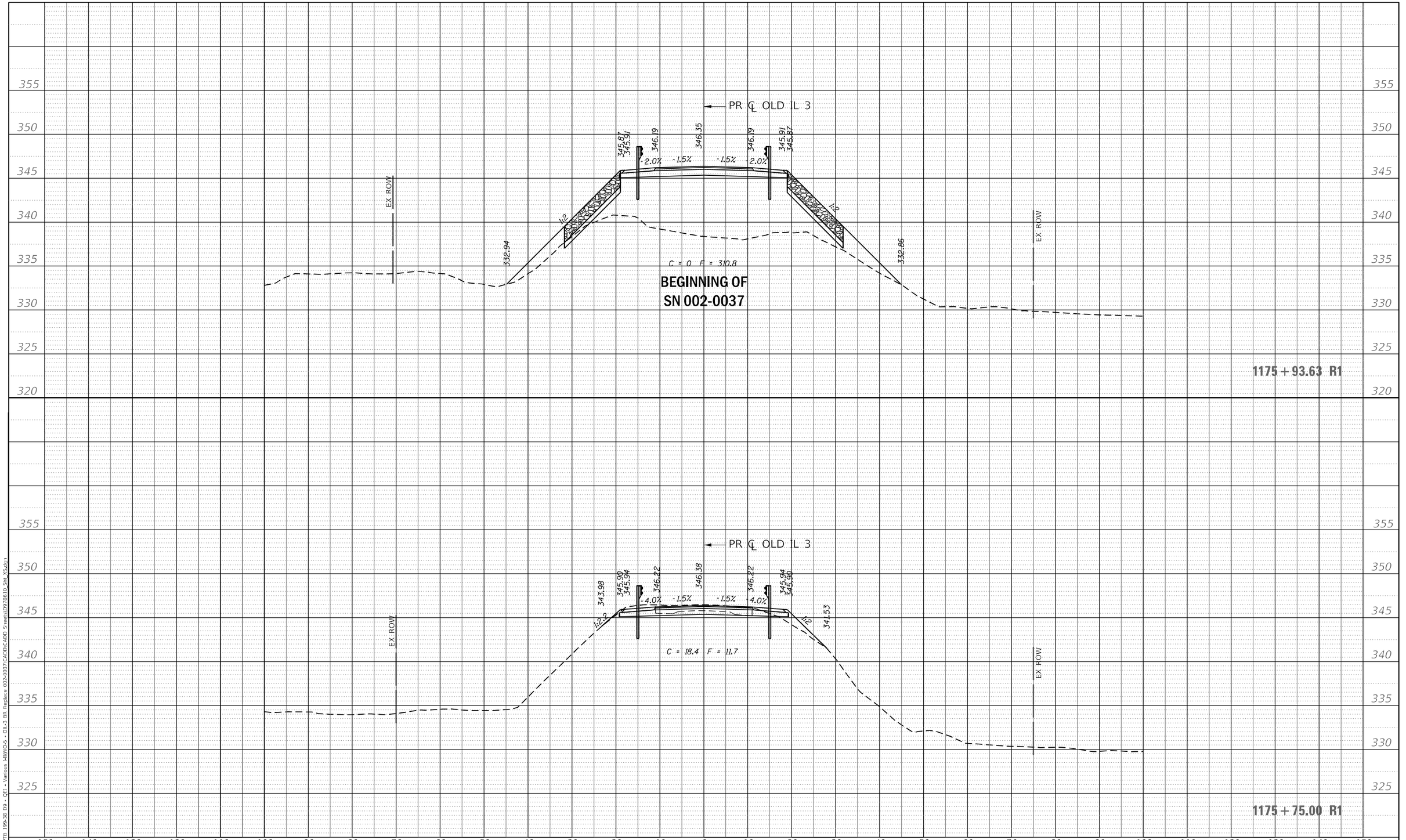
PLOT DATE = 1/16/2023	DATE - 07/15/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 3 OF 8 SHEETS | STA. 1175+25.00 TO STA. 1175+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	44
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - TO	REVISED -	
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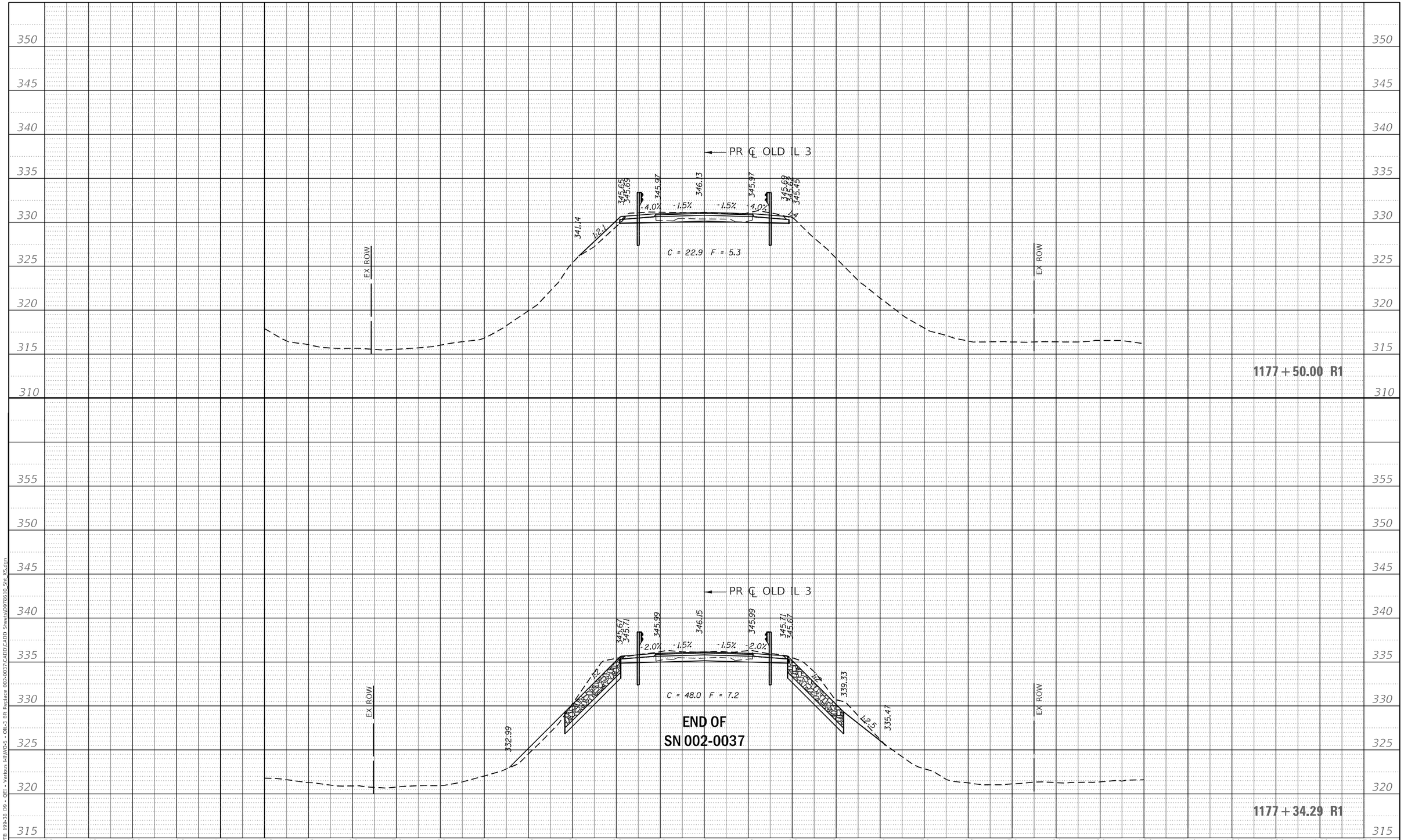
PLOT DATE = 1/16/2023	DATE - 07/15/2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 4 OF 8 SHEETS | STA. 1175+75.00 TO STA. 1175+93.63

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	45
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

USER NAME = smaxwell	DESIGNED - TO	REVISED -	
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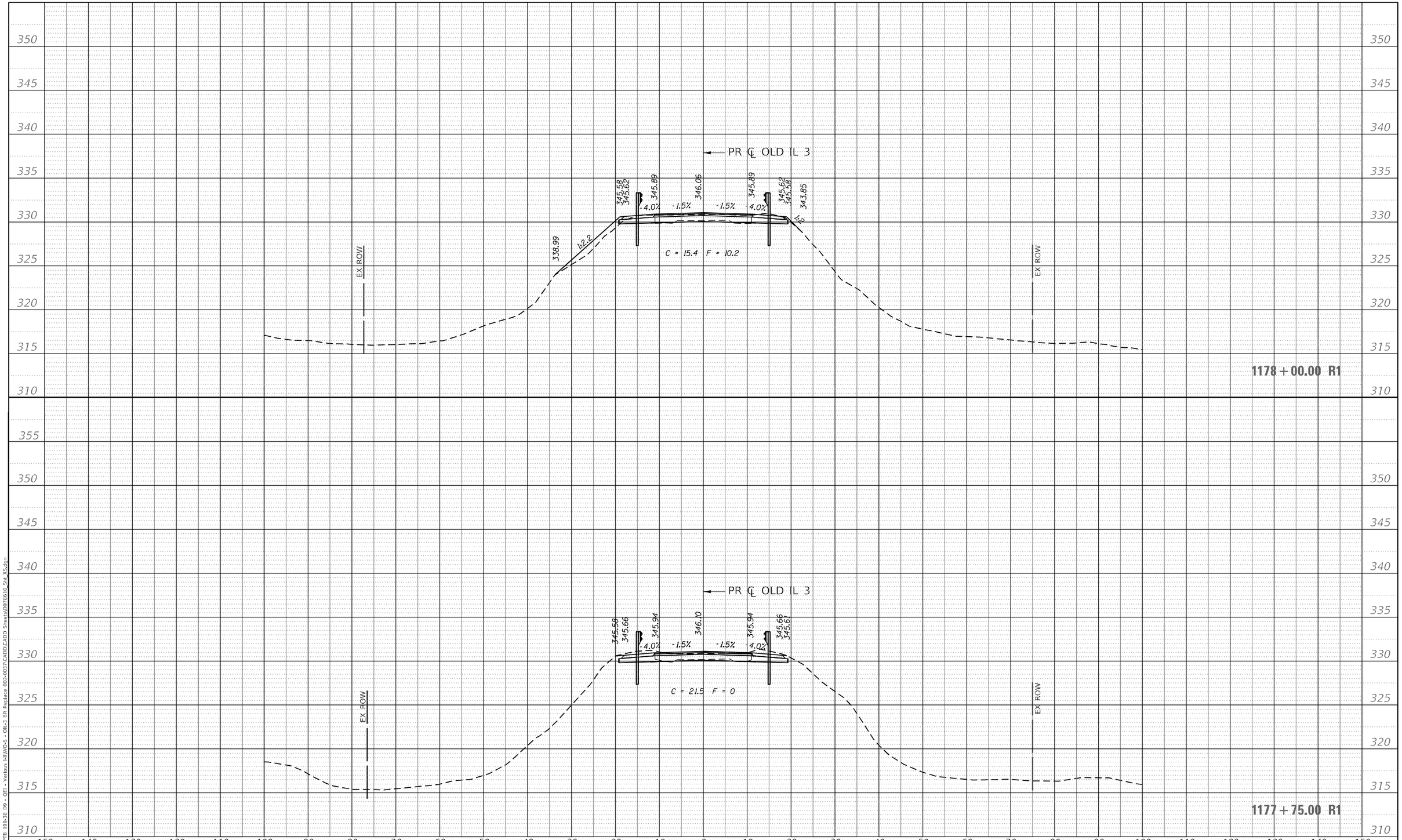
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 5 OF 8 SHEETS | STA. 1177+34.29 TO STA. 1177+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	46
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC	USER NAME = smaxwell	DESIGNED - TO	REVISED -
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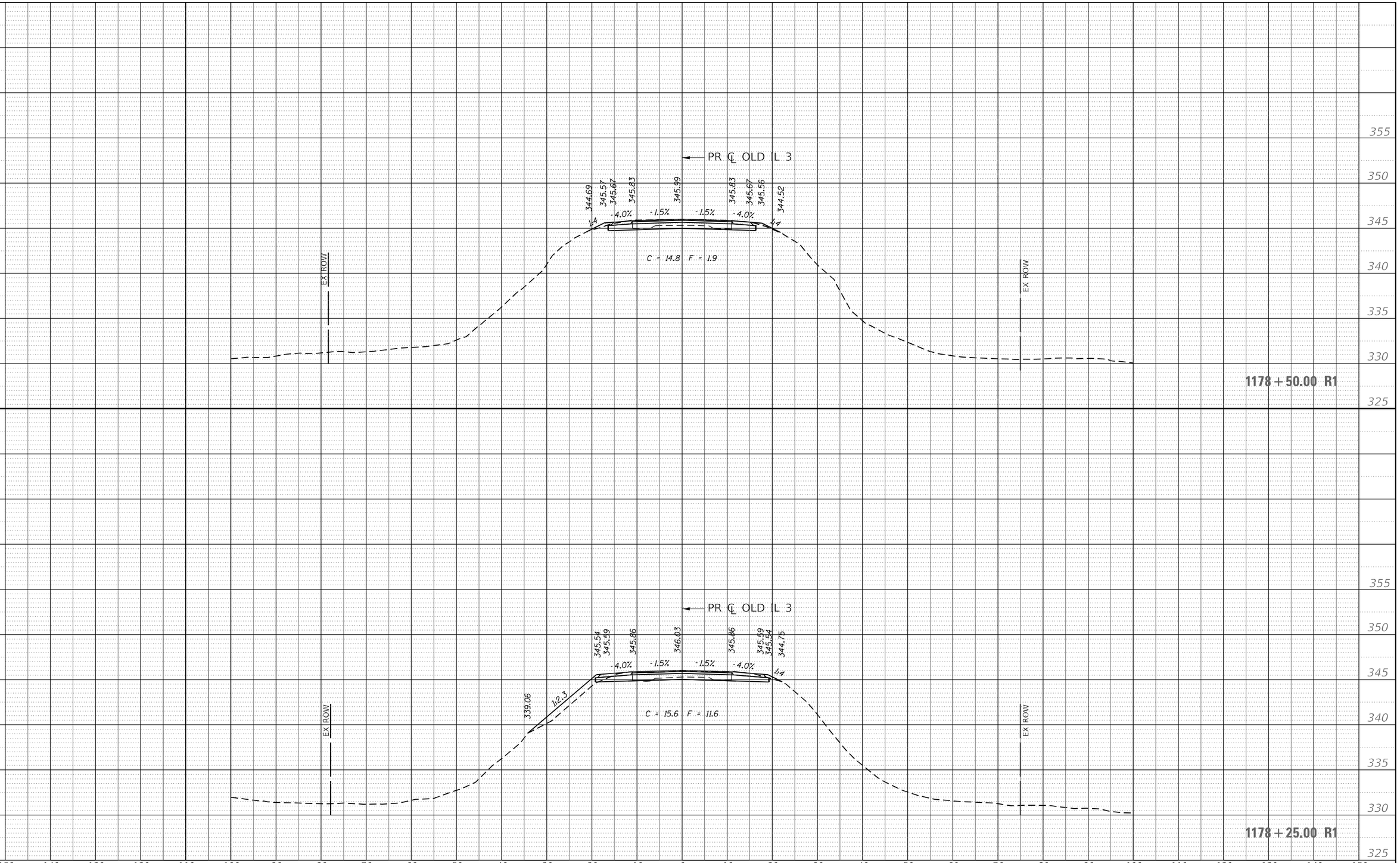
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 6 OF 8 SHEETS | STA. 1177+75.00 TO STA. 1178+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	47
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

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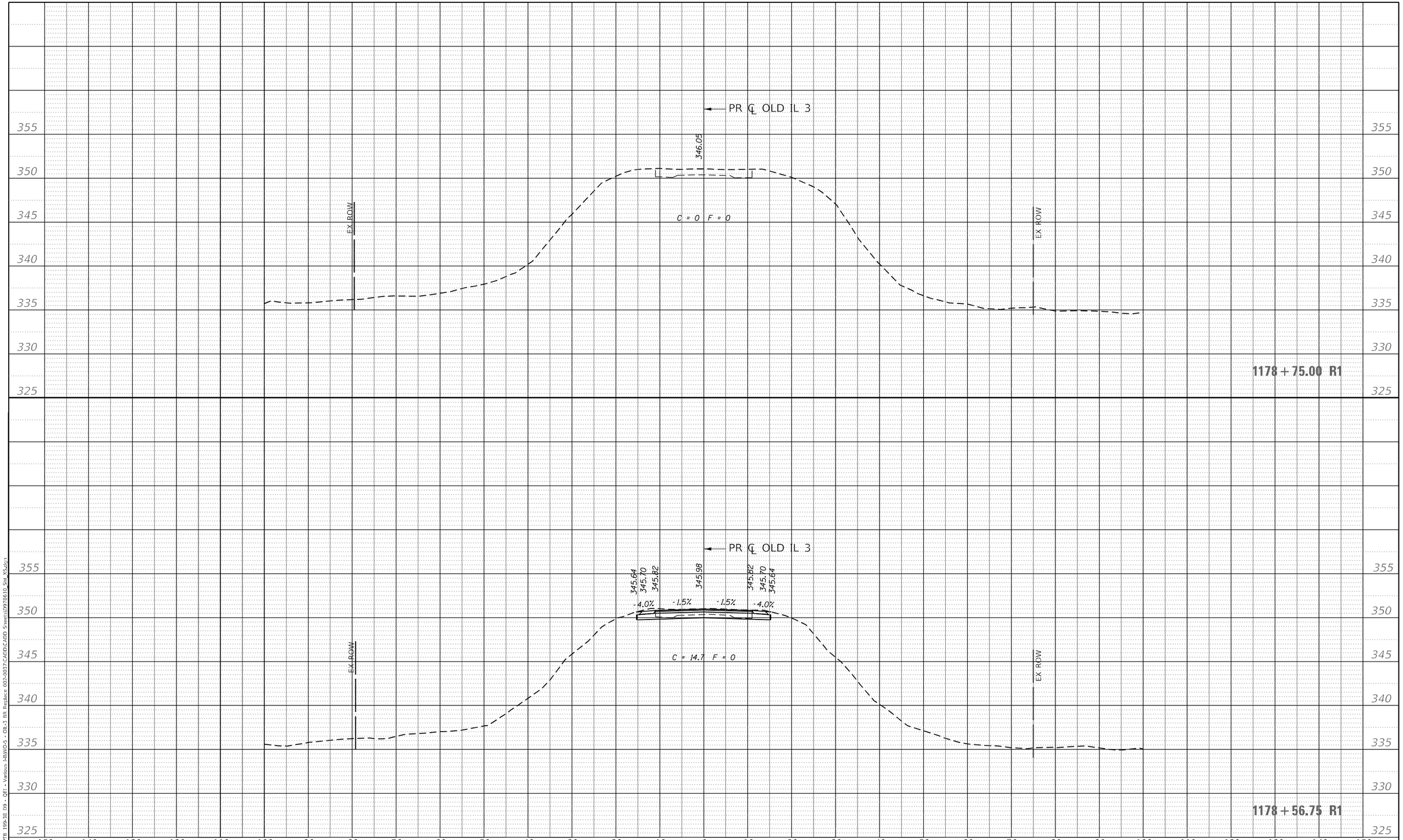
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 7 OF 8 SHEETS | STA. 1178+25.00 TO STA. 1178+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	48
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		



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QUIGG ENGINEERING INC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
OLD IL 3

SCALE: 10H : 5V | SHEET 8 OF 8 SHEETS | STA. 1178+60.00 TO STA. 1178+75.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
150C	133B-1	ALEXANDER	49	49
		CONTRACT NO. 78610		
	ILLINOIS	FED. AID PROJECT		