

COUNTY OF MIDDLESEX DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687) AND COUNTY DRAINAGE STRUCTURES

CULVERT 3-C-31 COTTRELL ROAD OVER TENNENT BROOK CULVERT 3-C-32 COTTRELL ROAD OVER WARNES BROOK CULVERT 3-C-33 COTTRELL ROAD OVER A TRIBUTARY TO TENNENTS BROOK

TOWNSHIP OF OLD BRIDGE
MIDDLESEX COUNTY, NEW JERSEY
NOVEMBER 2021

PUBLIC UTILITIES			
UTILITY	SERVICE	CONTACT	TEL. NO.
ELECTRIC	JCP&L	HARVEY M. LOCKLEY	(732) 212-4262
TELEPHONE	VERIZON	IAN CHAN	(732) 683-5146
CABLE & FIBER OPTIC	OPTIMUM	JEFFERY POLANCO	(732) 317-7344
GAS	PUBLIC SERVICE ELECTRIC & GAS	MICHAEL MEEHAN	(732) 220-6242
WATER	OLD BRIDGE M.U.A.	MICHAEL ROY	(732) 679-8565
SEWER	OLD BRIDGE M.U.A.	MICHAEL ROY	(732) 679-8565

UNDERGROUND LOCATION SERVICE CALL: 1-800-272-1000.

NOTE: LOCATION OF UTILITIES AS SHOWN ON THESE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND IS NOT GUARANTEED AS TO EXACTNESS. THE CONTRACTOR IS TO CONTACT UTILITY COMPANIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE EXACT LOCATION AND DEPTH OF ALL UTILITIES. THE CONTRACTOR SHALL USE THE UTILITY LOCATIONS SHOWN AS AN AID IN DETERMINING EXACT LOCATIONS. CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL SUPPLYING THE TOWNSHIP ENGINEER WITH THE ONE-CALL CONFIRMATION NUMBER.

DESIGN TRAFFIC DATA COTTRELL ROAD (MC RT. 687)	
A.D.T. (2012) - 2 WAY =	13,590
A.D.T. (2022) - 2 WAY =	14,980
D.H.V. (2022) - 2 WAY =	900
D	= 52%
T	= 6%
V	= 50 MPH



KEY MAP

SCALE: 1"=500'

PROJECT LOCATION - MC RT.687, MP 0.65 TO MP 1.10

THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF 2019 (US CUSTOMARY ENGLISH UNITS) AND MIDDLESEX COUNTY SUPPLEMENTARY SPECIFICATIONS SHALL GOVERN.

NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS (2016) ARE APPLICABLE TO THIS PROJECT EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.

FREEHOLD SOIL CONSERVATION CERTIFICATION NO. 2013-0536, DATED MAY 9, 2017, VALID UNTIL DECEMBER 30, 2021
N.J.D.E.P. INDIVIDUAL PERMIT, PERMIT NO. 1209-12-0004.1 FHA130002, DATED DECEMBER 9, 2013, EXPIRES DECEMBER 8, 2023
N.J.D.E.P. GENERAL PERMIT NO. 6A, PERMIT NO. 1209-12-0004.1 FWW130001, DATED DECEMBER 9, 2013, EXPIRES DECEMBER 8, 2023
N.J.D.E.P. GENERAL PERMIT NO. 10B, PERMIT NO. 1209-12-0004.1 FWW130002, DATED DECEMBER 9, 2013, EXPIRES DECEMBER 8, 2023

INDEX OF SHEETS	
SHEET NUMBERS	DESCRIPTION
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68	WALL PLAN

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MSA

Daniel S. Frank
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE33434
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 246A27986500

APPROVALS

RONALD M. SENDNER, COUNTY ENGINEER
LICENSED PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03162200

AUTHORIZATION TO BID
MIDDLESEX COUNTY BOARD OF COUNTY COMMISSIONERS
RESOLUTION DATE

ESTIMATE-DISTRIBUTION OF QUANTITIES

PAY ITEM NO.	ITEM DESIGNATION	DESCRIPTION	UNIT	CONTRACT QUANTITY	IF AND WHERE DIRECTED	PLAN SHEET QUANTITY	CONSTRUCTION			TRAFFIC SIGNING & STRIPING			CROSS SECTIONS	STRUCTURES			
							SHEET C-1	SHEET C-2	SHEET C-3	SHEET SS-1	SHEET SS-2	SHEET SS-3		SHEET B-2	SHEET B-4	SHEET B-6	SHEET W-1
1	M	FIELD OFFICE TYPE A	UNIT	1	1												
2	M	MONUMENT	UNIT	48		48	20	8	20								
3	M	SILT FENCE	LF	3,820	3,820												
4	M	INLET FILTER TYPE 2, 2' X 4'	UNIT	36	36												
5	M	FLOATING TURBIDITY BARRIER, TYPE 2	LF	60	60												
6	M	FIBER FLOCCULENT TUBE	LF	150	150												
7	M	BREAKAWAY BARRICADE	UNIT	10	10												
8	M	DRUM	UNIT	60	60												
9	M	CONSTRUCTION SIGNS	SF	400	400												
10	M	CONSTRUCTION BARRIER CURB	LF	1,000	1,000												
11	M	PORTABLE VARIABLE MESSAGE SIGN	UNIT	2	2												
12	M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	UNIT	2	2												
13	M	TRAFFIC MARKING LINES, LATEX, 4"	LF	11,600	11,600												
14	M	TRAFFIC MARKING LINES, LATEX, 24"	LF	160	160												
15	M	TEMPORARY CRASH CUSHION, COMPRESSIVE BARRIER, TYPE 2, WIDTH NARROW	UNIT	12	12												
16	M	POLICE TRAFFIC DIRECTORS	ALLOWANCE														
17	M	FUEL PRICE ADJUSTMENT	ALLOWANCE														
18	M	ASPHALT PRICE ADJUSTMENT	ALLOWANCE														
19	P	CLEARING SITE	LS	1													
20	M	EXCAVATION, TEST PIT	CY	200	200												
21	P	EXCAVATION, UNCLASSIFIED	CY	4,403		4,403						3,315	330	354	404		
22		NO ITEM															
23	M	DISPOSAL OF REGULATED MATERIAL	TON	200	200												
24	M	I-14 SOIL AGGREGATE	CY	300	300												
25	M	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	SY	6,388	1,103	5,285	2,189	2,158	938								
26	M	DENSE-GRADED AGGREGATE BACKFILL	CY	1,632	600	1,032	251	424	357								
27	M	HMA MILLING, 3" OR LESS	SY	4,437		4,437	1,207	2,039	1,191								
28	M	NIGHTTIME MILLING	NIGHT	3	3												
29	M	NIGHTTIME PAVING	NIGHT	3	3												
30	M	HOT MIX ASPHALT PAVEMENT REPAIR	SY	400	400												
31	M	POLYMERIZED JOINT ADHESIVE	LF	4,756		4,756	1,572	1,960	1,224								
32	M	TACK COAT	GAL	1,000	1,000												
33	M	PRIME COAT	GAL	550	550												
34	M	HOT MIX ASPHALT 9.5 M 64 SURFACE COURSE	TON	1,420		1,420	511	586	323								
35	M	HOT MIX ASPHALT 19 M 64 BASE COURSE	TON	2,730	480	2,250	920	907	423								
36	M	12" HIGH DENSITY POLYETHYLENE PIPE	LF	99		99	87	12									
37	M	15" REINFORCED CONCRETE PIPE, CLASS V	LF	290		290	74	72	144								
38	M	18" REINFORCED CONCRETE PIPE, CLASS V	LF	100		100	36	36	28								
39	M	24" REINFORCED CONCRETE PIPE, CLASS V	LF	92		92	37		55								
40	M	48" REINFORCED CONCRETE PIPE, CLASS V	LF	20	20												
41	M	19" X 30" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	LF	172		172	172										
42	M	24" X 38" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	LF	119		119	119										
43	M	29" X 45" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	LF	889		889	277	443	169								
44	M	34" X 53" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	LF	246		246			246								
45	M	INLET, TYPE A	UNIT	6		6	2	1	3								
46	M	INLET, TYPE B	UNIT	7		7	3	2	2								
47	M	INLET, TYPE DOUBLE B	UNIT	2		2	1		1								
48	M	INLET, TYPE B-2	UNIT	3		3		2	1								
49	M	INLET, TYPE B-2 MODIFIED	UNIT	7		7	3	1	3								
50	M	YARD DRAIN	UNIT	3		3	2	1									
51	M	OUTLET CONTROL STRUCTURE A-2	UNIT	1		1	1										
52	M	OUTLET CONTROL STRUCTURE B-2	UNIT	1		1	1										
53	M	OUTLET CONTROL STRUCTURE C-2	UNIT	1		1	1										
54	M	OUTLET CONTROL STRUCTURE D-2	UNIT	1		1			1								
55	M	OUTLET CONTROL STRUCTURE E-2	UNIT	1		1			1								
56	M	HOT MIX ASPHALT DRIVEWAY, 6" THICK	SY	458		458		237	221								
57	M	STONE DRIVEWAY, 4" THICK	SY	347		347	212	135									
58	M	CONCRETE DRIVEWAY, REINFORCED, 6" THICK	SY	475		475	97	302	76								
59	M	CONCRETE SIDEWALK, REINFORCED, 4" THICK	SY	2,260		2,260	719	970	571								
60	M	9" X 16" CONCRETE VERTICAL CURB	LF	4,257		4,257	1,317	1,900	1,040								
61	M	NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	SY	375		375	272		103								
62	M	BEAM GUIDE RAIL	LF	165		165	70		95								
63	M	TANGENT GUIDE RAIL TERMINAL	UNIT	9		9	7		2								
64	M	APPROACH GUIDE RAIL TRANSITION TL-2	UNIT	5		5	4		1								
65	M	APPROACH GUIDE RAIL TRANSITION TL-3	UNIT	4		4	3		1								
66	M	CRASH CUSHION, COMPRESSIVE BARRIER, TYPE 3, WIDTH NARROW	UNIT	3		3	1		2								
67	M	RPM, BI-DIRECTIONAL, AMBER LENS	UNIT	31		31				11	12	8					
68	M	TRAFFIC MARKING LINES, 4"	LF	9,600		9,600				3,300	3,800	2,500					
69	M	REGULATORY AND WARNING SIGN	SF	34	0.75	33.25				16.25	17.00						
70	M	BORROW TOPSOIL	CY	428		428	134	182	112								
71	M	TOPSOIL SPREADING, 5" THICK	SY	3,038		3,038	952	1,291	795								
72	M	FERTILIZING AND SEEDING, TYPE G	SY	3,038		3,038	952	1,291	795								
73	M	STRAW MULCHING	SY	3,038		3,038	952	1,291	795								
74	M	RENO MATTRESS	SY	324		324	192		132								
75		NO ITEM															
76	P	CLEARING SITE, BRIDGE	LS	1													
77	M	MAINTENANCE OF STREAM FLOW (INCLUDING CONSTRUCTION OF TEMPORARY COFFERDAM)	LS	1													
78	M	I-9 SOIL AGGREGATE	CY	460		460						165	150	145			
79	M	PERMANENT SHEETING	SF	1,050		1,050											1,050
80	M	REINFORCEMENT STEEL, GALVANIZED	LB	31,070		31,070							9,793	10,455	9,892		930
81		NO ITEM															
82	M	CONCRETE FOOTING	CY	166		166							57	57	52		
83	M	CONCRETE WING WALL	CY	33		33							11	11	11		
84	M	EPOXY WATERPROOFING	SY	420		420							114	166	140		
85	M	19'-6" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)	LF	102		102											
86	M	12'-0" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)	LF	54		54							54				
87	M	CONCRETE BRIDGE PARAPET	LF	236		236							68	84	84		
88	M	CONCRETE BRIDGE SIDEWALK	CY	19		19							5	7	7		
89	M	MISCELLANEOUS CONCRETE	CY	8		8											8
90	M	PORTABLE TRAFFIC SIGNAL SYSTEM	LS	1													
91	M	CONCRETE WASHOUT SYSTEM	LS	1													
92	M	OIL ONLY EMERGENCY SPILL KIT, TYPE 1	UNIT	1	1												

EQDQ-1
EQDQ-2

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AND COUNTY DRAINAGE STRUCTURES**
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

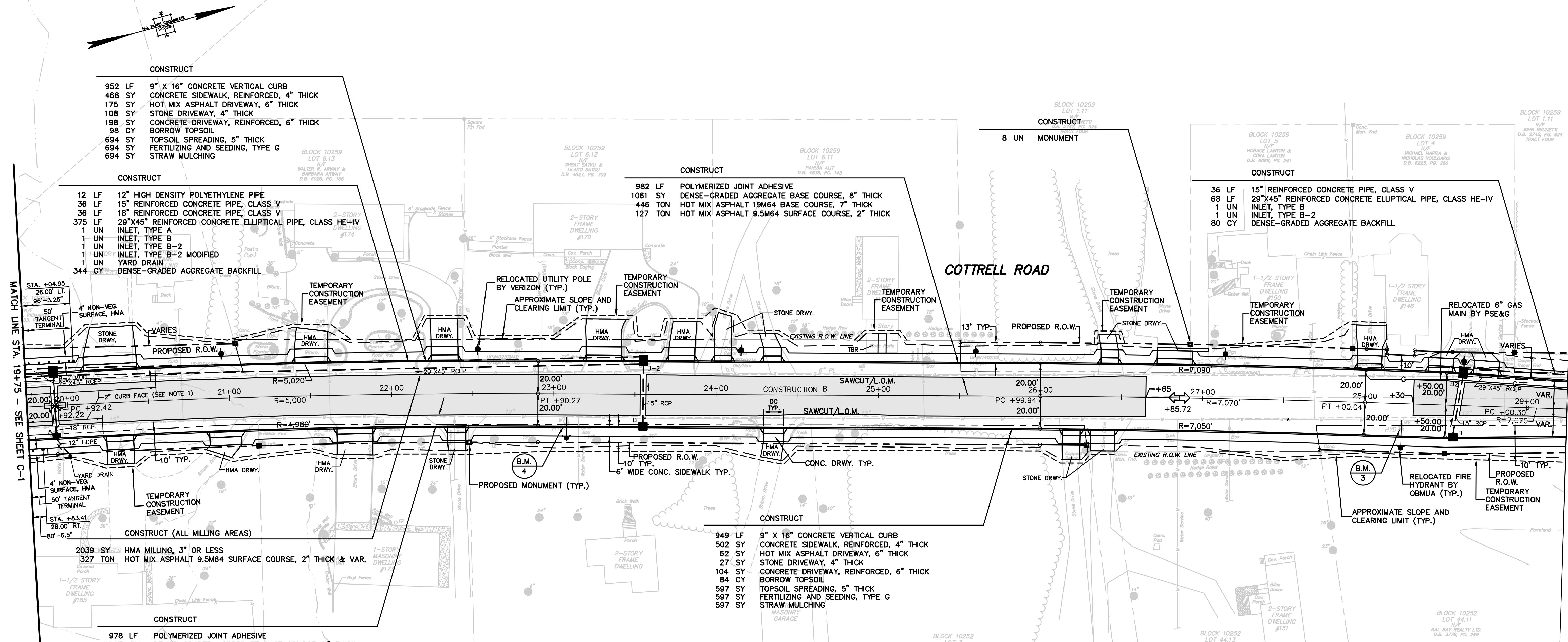
ESTIMATE - DISTRIBUTION OF QUANTITIES

Scale: N.T.S.
Sheet No.: 2 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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- CONSTRUCT**
- 952 LF 9" X 16" CONCRETE VERTICAL CURB
 - 468 SY CONCRETE SIDEWALK, REINFORCED, 4" THICK
 - 175 SY HOT MIX ASPHALT DRIVEWAY, 6" THICK
 - 108 SY STONE DRIVEWAY, 4" THICK
 - 198 SY CONCRETE DRIVEWAY, REINFORCED, 6" THICK
 - 98 CY BORROW TOPSOIL
 - 694 SY TOPSOIL SPREADING, 5" THICK
 - 694 SY FERTILIZING AND SEEDING, TYPE G
 - 694 SY STRAW MULCHING

- CONSTRUCT**
- 12 LF 12" HIGH DENSITY POLYETHYLENE PIPE
 - 36 LF 15" REINFORCED CONCRETE PIPE, CLASS V
 - 36 LF 18" REINFORCED CONCRETE PIPE, CLASS V
 - 375 LF 29"X45" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE-IV
 - 1 UN INLET, TYPE A
 - 1 UN INLET, TYPE B
 - 1 UN INLET, TYPE B-2
 - 1 UN INLET, TYPE B-2 MODIFIED
 - 1 UN YARD DRAIN
 - 344 CY DENSE-GRADED AGGREGATE BACKFILL

- CONSTRUCT**
- 982 LF POLYMERIZED JOINT ADHESIVE
 - 1061 SY DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK
 - 446 TON HOT MIX ASPHALT 19M64 BASE COURSE, 7" THICK
 - 127 TON HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK

- CONSTRUCT**
- 36 LF 15" REINFORCED CONCRETE PIPE, CLASS V
 - 68 LF 29"X45" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE-IV
 - 1 UN INLET, TYPE B
 - 1 UN INLET, TYPE B-2
 - 80 CY DENSE-GRADED AGGREGATE BACKFILL

- CONSTRUCT (ALL MILLING AREAS)**
- 2039 SY HMA MILLING, 3" OR LESS
 - 327 TON HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK & VAR.

- CONSTRUCT**
- 949 LF 9" X 16" CONCRETE VERTICAL CURB
 - 502 SY CONCRETE SIDEWALK, REINFORCED, 4" THICK
 - 62 SY HOT MIX ASPHALT DRIVEWAY, 6" THICK
 - 27 SY STONE DRIVEWAY, 4" THICK
 - 104 SY CONCRETE DRIVEWAY, REINFORCED, 6" THICK
 - 84 CY BORROW TOPSOIL
 - 597 SY TOPSOIL SPREADING, 5" THICK
 - 597 SY FERTILIZING AND SEEDING, TYPE G
 - 597 SY STRAW MULCHING

- CONSTRUCT**
- 978 LF POLYMERIZED JOINT ADHESIVE
 - 1097 SY DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK
 - 461 TON HOT MIX ASPHALT 19M64 BASE COURSE, 7" THICK
 - 132 TON HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK

- NOTES:**
- A MAXIMUM 2" CURB HEIGHT SHALL BE PROVIDED ALONG THE LENGTH OF THE TANGENT TERMINAL AND 50' IN ADVANCE OF THE TERMINAL. A 10' VERTICAL CURB TRANSITION (V.C.T.) TO THE 4" CURB HEIGHT SHALL BE PROVIDED AT THE BEGINNING AND END OF THE 2" CURB HEIGHT LIMIT. DRIVEWAYS WITH DEPRESSED CURBS WITHIN THE LIMITS SHALL HAVE A MAXIMUM CURB HEIGHT OF 1-1/2" PROVIDING A 2' V.C.T. TO THE 2" CURB HEIGHT AS REQUIRED. SEE DETAILS.
 - A MAXIMUM 2" CURB HEIGHT SHALL BE PROVIDED BEGINNING AT A POINT 10' FROM THE END OF THE BRIDGE CURB/SIDEWALK AND ENDING AT A POINT 50' IN ADVANCE OF THE QUADQUARD NOSE. A 10' VERTICAL CURB TRANSITION (V.C.T.) TO THE 4" CURB HEIGHT SHALL BE PROVIDED AT THE BEGINNING AND END OF THE 2" CURB HEIGHT LIMIT. (NO TRANSITIONS ON THE BRIDGE CURB/SIDEWALK) DRIVEWAYS WITH DEPRESSED CURBS WITHIN THE LIMITS SHALL HAVE A MAXIMUM CURB HEIGHT OF 1-1/2" PROVIDING A 2' V.C.T. TO THE 2" CURB HEIGHT AS REQUIRED. SEE DETAILS.
 - WHEN THE BOTTOM OF THE 9" X 16" CURB SPANNING INLET, TYPE B-2 MODIFIED IS IN CONFLICT WITH THE INLETS TOP SLAB, DOWEL THE CURB INTO THE TOP SLAB (SEE DETAIL CD 607-1.2).
 - NO UTILITY POLE (UP) SHALL BE LOCATED WITHIN 25' OF THE END OF A TANGENT GUIDE RAIL TERMINAL OR IN BACK OF THE ENTIRE 50' LENGTH OF THE TANGENT GUIDE RAIL TERMINAL.
 - PROPOSED STORM PIPE TRENCH WIDTHS SHOWN ARE APPROXIMATE, ACTUAL TRENCH WIDTH MAY VARY BASED ON FIELD CONDITIONS.

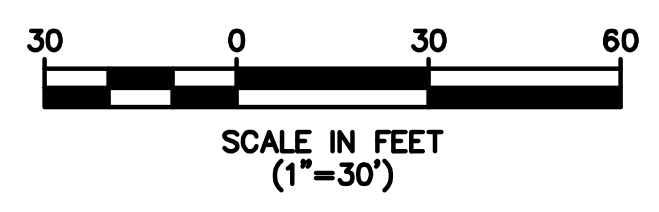
RIGHT-OF-WAY MONUMENT (RM) TABLE

RM#	STATION	OFFSET	NORTHING	EASTING
RM#21	21+04.51	33.33' L	575977.4158	549360.5481
RM#22	21+17.36	30.00' R	575975.4339	549425.1422
RM#23	22+47.52	30.00' R	576100.9314	549456.5556
RM#24	26+28.82	30.00' R	576468.4044	549556.8796
RM#25	26+91.75	33.00' L	576546.1053	549513.3682
RM#26	27+91.31	33.00' L	576642.0462	549541.6709
RM#27	28+91.29	33.90' L	576738.0074	549569.8980
RM#28	28+50.21	30.00' R	576680.1106	549619.0848

PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
2	MONUMENT	8 UNIT
25	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	2,158 SY
26	DENSE-GRADED AGGREGATE BACKFILL	424 CY
27	HMA MILLING, 3" OR LESS	2,039 SY
31	POLYMERIZED JOINT ADHESIVE	1,960 LF
34	HOT MIX ASPHALT 9.5 M 64 SURFACE COURSE	586 TON
35	HOT MIX ASPHALT 19 M 64 BASE COURSE	907 TON
36	12" HIGH DENSITY POLYETHYLENE PIPE	12 LF
37	15" REINFORCED CONCRETE PIPE, CLASS V	72 LF
38	18" REINFORCED CONCRETE PIPE, CLASS V	36 LF
43	29" X 45" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE-IV	443 LF
45	INLET, TYPE A	1 UNIT
46	INLET, TYPE B	2 UNIT
48	INLET, TYPE B-2	2 UNIT
49	INLET, TYPE B-2 MODIFIED	1 UNIT
50	YARD DRAIN	1 UNIT
56	HOT MIX ASPHALT DRIVEWAY, 6" THICK	237 SY
57	STONE DRIVEWAY, 4" THICK	135 SY
58	CONCRETE DRIVEWAY, REINFORCED, 6" THICK	302 SY
59	CONCRETE SIDEWALK, REINFORCED, 4" THICK	970 SY
60	9" X 16" CONCRETE VERTICAL CURB	1,900 LF
70	BORROW TOPSOIL	182 CY
71	TOPSOIL SPREADING, 5" THICK	1,291 SY
72	FERTILIZING AND SEEDING, TYPE G	1,291 SY
73	STRAW MULCHING	1,291 SY

BENCH MARK NO. 4
FIRE HYDRANT, TOP NUT, ELEV. 46.84
COTTRELL RD. CONSTRUCTION B.L. STA. 23+08, 18.8' RT.

BENCH MARK NO. 3
FIRE HYDRANT, TOP NUT, ELEV. 51.87
COTTRELL RD. CONSTRUCTION B.L. STA. 28+37, 14.5' RT.



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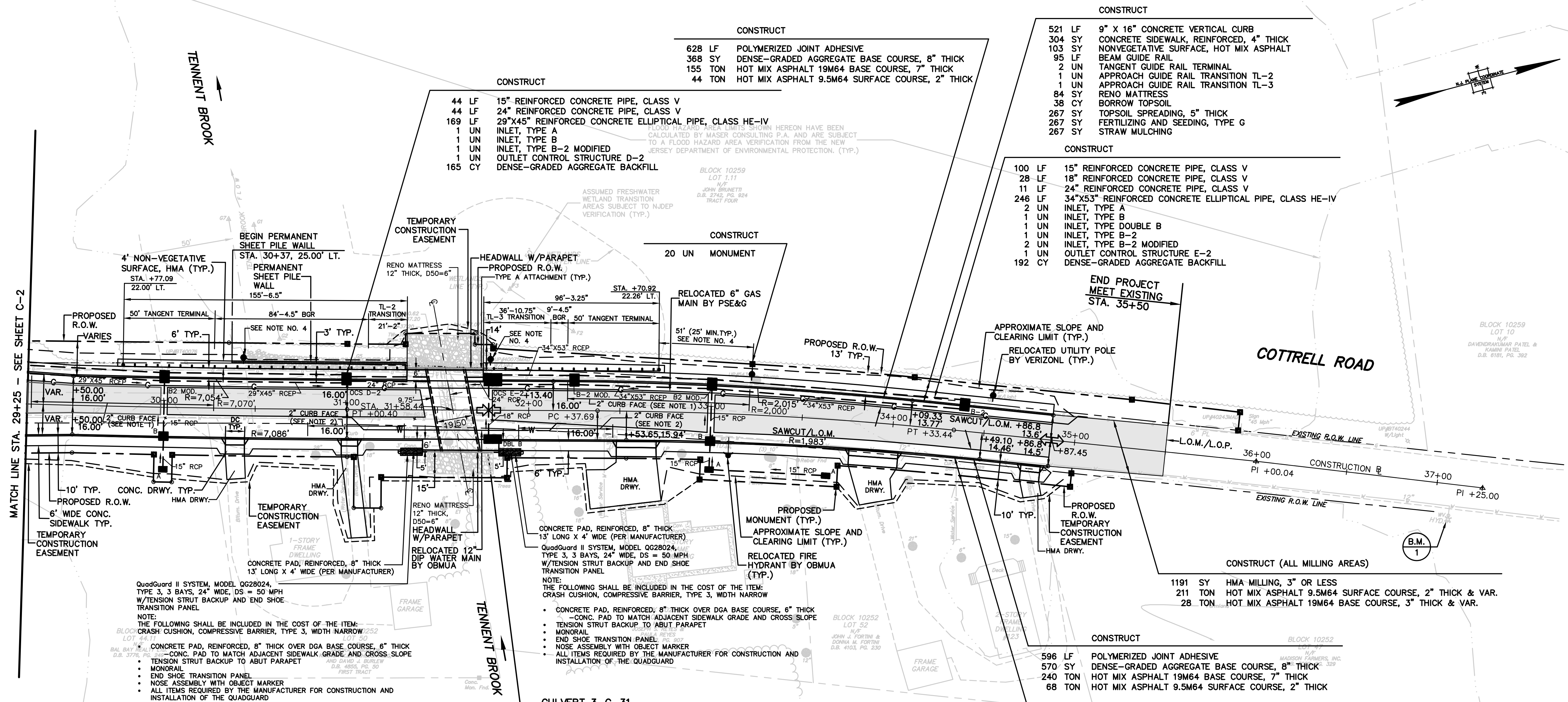
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AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CONSTRUCTION PLANS

Scale: 1"=30'
Sheet No.: 7 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



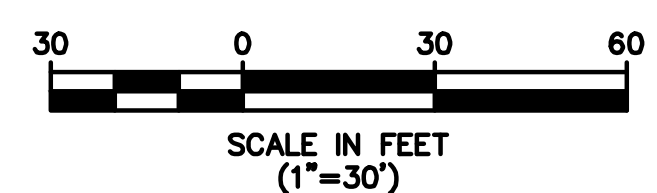
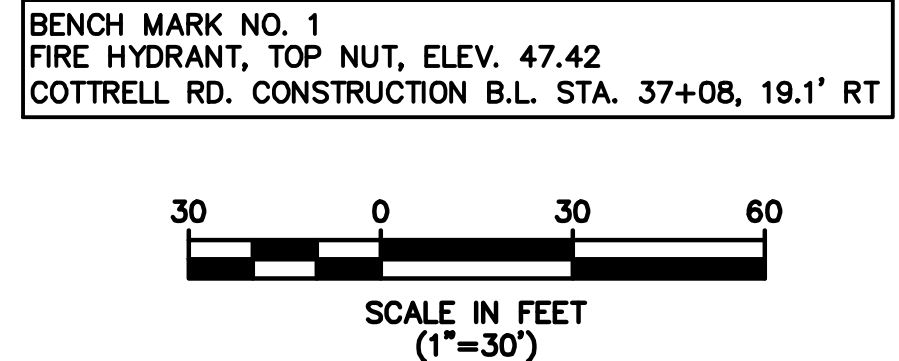
PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
2	MONUMENT	20 UNIT
25	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	938 SY
26	DENSE-GRADED AGGREGATE BACKFILL	357 CY
27	HMA MILLING, 3" OR LESS	1,191 SY
31	POLYMERIZED JOINT ADHESIVE	1,224 LF
34	HOT MIX ASPHALT 9.5 M 64 SURFACE COURSE	323 TON
35	HOT MIX ASPHALT 19 M 64 BASE COURSE	423 TON
37	15" REINFORCED CONCRETE PIPE, CLASS V	144 LF
38	18" REINFORCED CONCRETE PIPE, CLASS V	28 LF
39	24" REINFORCED CONCRETE PIPE, CLASS V	55 LF
43	29" X 45" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	169 LF
44	34" X 53" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE - IV	246 LF
45	INLET, TYPE A	3 UNIT
46	INLET, TYPE B	2 UNIT
47	INLET, TYPE DOUBLE B	1 UNIT
48	INLET, TYPE B-2	1 UNIT
49	INLET, TYPE B-2 MODIFIED	3 UNIT
54	OUTLET CONTROL STRUCTURE D-2	1 UNIT
55	OUTLET CONTROL STRUCTURE E-2	1 UNIT
56	HOT MIX ASPHALT DRIVEWAY, 6" THICK	221 SY
58	CONCRETE DRIVEWAY, REINFORCED, 6" THICK	76 SY
59	CONCRETE SIDEWALK, REINFORCED, 4" THICK	571 SY
60	9" X 16" CONCRETE VERTICAL CURB	1,040 LF
61	NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	103 SY
62	BEAM GUIDE RAIL	95 LF
63	TANGENT GUIDE RAIL TERMINAL	2 UNIT
64	APPROACH GUIDE RAIL TRANSITION TL-2	1 UNIT
65	APPROACH GUIDE RAIL TRANSITION TL-3	1 UNIT
66	CRASH CUSHION, COMPRESSIVE BARRIER, TYPE 3, WIDTH NARROW	2 UNIT
70	BORROW TOPSOIL	112 CY
71	TOPSOIL SPREADING, 5" THICK	795 SY
72	FERTILIZING AND SEEDING, TYPE G	795 SY
73	STRAW MULCHING	795 SY
74	RENO MATTRESS	132 SY

RM#	STATION	OFFSET	NORTHING	EASTING
RM#29	29+95.02	26.00' R	576820.3384	549656.8701
RM#30	30+04.98	26.00' R	576829.9461	549659.6438
RM#31	31+04.28	26.00' R	576925.8931	549686.5418
RM#32	31+19.28	37.00' R	576937.4617	549701.1077
RM#33	31+88.28	37.00' R	577004.0198	549719.3018
RM#34	31+88.28	26.00' R	577006.9203	549708.6911
RM#35	31+00.40	36.00' L	576938.4972	549625.7124
RM#36	31+32.28	36.00' L	576969.2504	549634.1191
RM#37	31+80.28	33.89' L	577014.9950	549648.8122
RM#38	32+94.93	25.61' R	577108.9759	549737.0234
RM#39	32+94.91	36.81' R	577105.7495	549747.5395
RM#40	33+71.50	36.58' R	577177.2499	549770.7780
RM#41	34+71.27	25.01' R	577180.8286	549759.7670
RM#42	33+21.43	27.84' L	577150.1850	549693.8839
RM#43	34+09.49	26.77' L	577234.2556	549723.8787
RM#44	35+00.00	24.46' R	577300.8952	549803.9968
RM#45	35+00.00	16.96' R	577303.5680	549796.9963
RM#46	35+28.82	26.62' L	577346.0397	549766.5570
RM#47	35+88.51	25.82' L	577401.5123	549788.5938
RM#48	35+88.48	15.82' L	577397.9228	549797.9273

CULVERT 3-C-31
PROPOSED 19.5' X 3.5'
3-SIDED CULVERT

NOTES:

- A MAXIMUM 2" CURB HEIGHT SHALL BE PROVIDED ALONG THE LENGTH OF THE TANGENT TERMINAL AND 50' IN ADVANCE OF THE TERMINAL. A 10' VERTICAL CURB TRANSITION (V.C.T.) TO THE 4" CURB HEIGHT SHALL BE PROVIDED AT THE BEGINNING AND END OF THE 2" CURB HEIGHT LIMIT. DRIVEWAYS WITH DEPRESSED CURBS WITHIN THE LIMITS SHALL HAVE A MAXIMUM CURB HEIGHT OF 1-1/2" PROVIDING A 2' V.C.T. TO THE 2" CURB HEIGHT AS REQUIRED. SEE DETAILS.
- A MAXIMUM 2" CURB HEIGHT SHALL BE PROVIDED BEGINNING AT A POINT 10' FROM THE END OF THE BRIDGE CURB/SIDEWALK AND ENDING AT A POINT 50' IN ADVANCE OF THE QUADGUARD NOSE. A 10' VERTICAL CURB TRANSITION (V.C.T.) TO THE 4" CURB HEIGHT SHALL BE PROVIDED AT THE BEGINNING AND END OF THE 2" CURB HEIGHT LIMIT. (NO TRANSITIONS ON THE BRIDGE CURB/SIDEWALK) DRIVEWAYS WITH DEPRESSED CURBS WITHIN THE LIMITS SHALL HAVE A MAXIMUM CURB HEIGHT OF 1-1/2" PROVIDING A 2' V.C.T. TO THE 2" CURB HEIGHT AS REQUIRED. SEE DETAILS.
- WHEN THE BOTTOM OF THE 9" X 16" CURB SPANNING INLET, TYPE B-2 MODIFIED IS IN CONFLICT WITH THE INLETS TOP SLAB, DOWEL THE CURB INTO THE TOP SLAB (SEE DETAIL CD 607-1.2).
- NO UTILITY POLE (UP) SHALL BE LOCATED WITHIN 25' OF THE END OF A TANGENT GUIDE RAIL TERMINAL OR IN BACK OF THE ENTIRE 50' LENGTH OF THE TANGENT GUIDE RAIL TERMINAL.
- PROPOSED STORM PIPE TRENCH WIDTHS SHOWN ARE APPROXIMATE, ACTUAL TRENCH WIDTH MAY VARY BASED ON FIELD CONDITIONS



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N.J. C.O.A. #246A2798500

County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

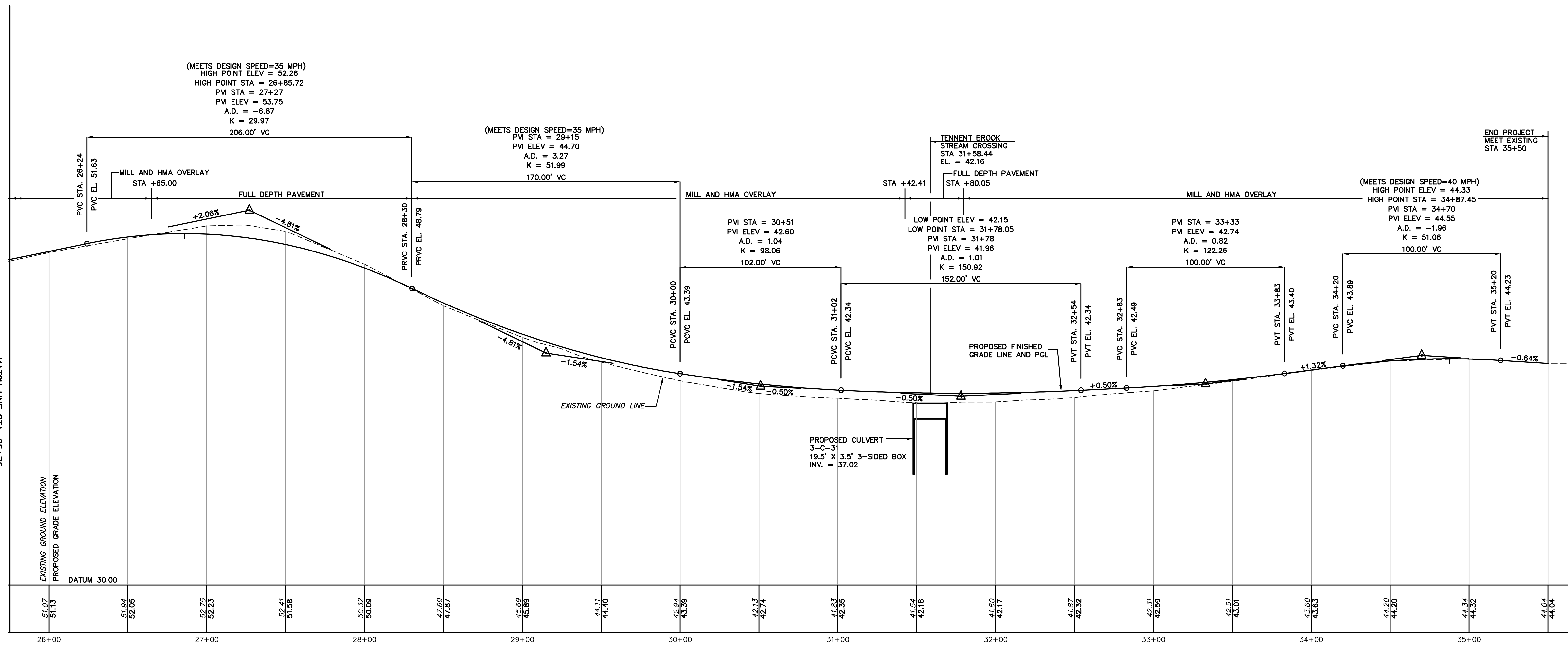
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CONSTRUCTION PLANS

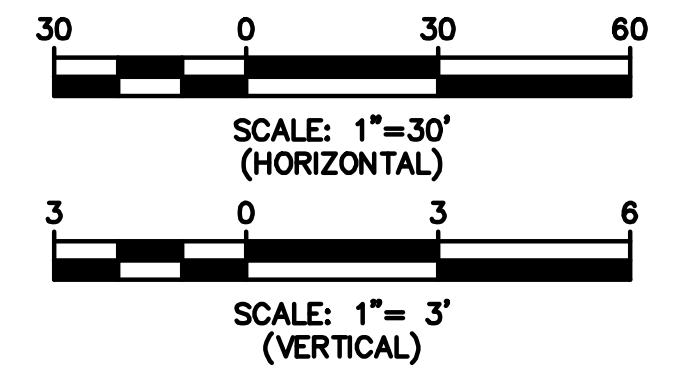
Scale: 1"=30'
Sheet No.: 8 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

MATCH LINE STA. 25+75
SEE SHEET P-2



**COTTRELL ROAD
(MC RT. 687)**
 DESIGN SPEED = 50 MPH MAX AND VARIES (AS NOTED)



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 NJ, C.O.A. #: 24GA27986500

County of Middlesex
 Department of Transportation
 Office of Engineering
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

PROFILES

Scale: 1"=30' H, 1"=3' V
 Sheet No.: 11 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622

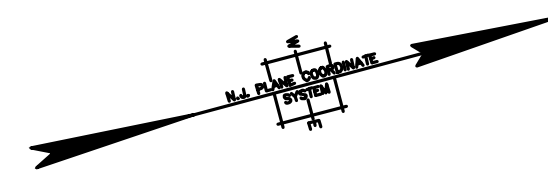
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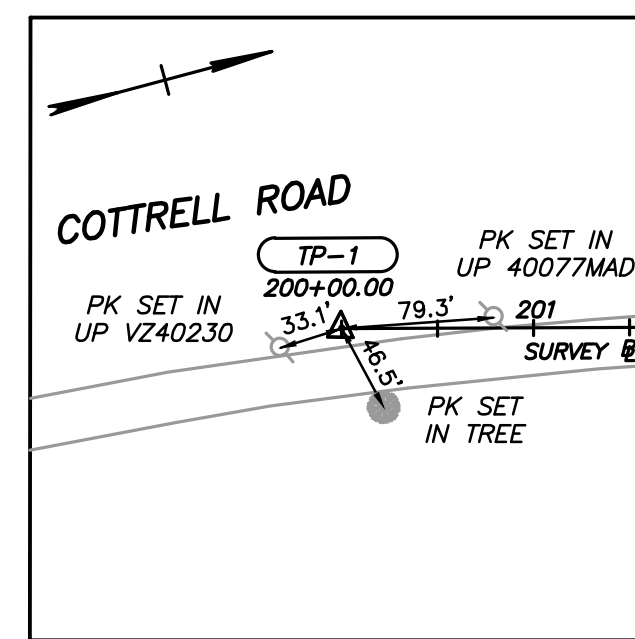
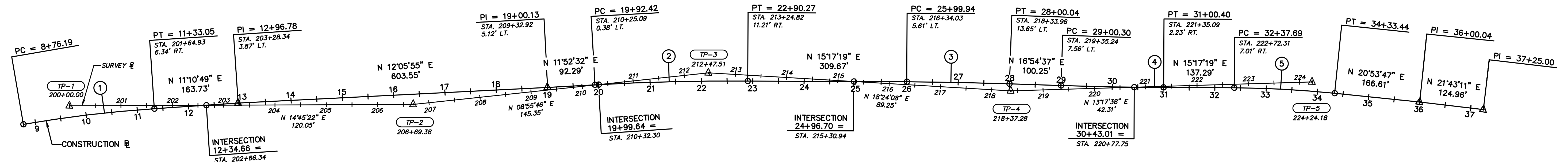
SURVEY BASELINE DATA			
COTTRELL ROAD (MC RT. 687)			
POINT	STATION	COORDINATE	
		NORTH	EAST
TP-1	200+00.00	574861.8448	549143.3762
TP-2	206+69.38	575508.9462	549313.8702
TP-3	212+47.51	576080.0752	549403.6074
TP-4	218+37.28	576639.6805	549589.7861
TP-5	224+24.18	577210.8546	549724.7410

CONSTRUCTION BASELINE CURVE DATA						
CURVE NUMBER	DELTA	RADIUS	LENGTH	TANGENT	COORDINATE OF CENTER POINT	
					NORTH	EAST
COTTRELL ROAD (MC RT. 687)						
1	05°53'13"	2500.00'	256.86'	128.55'	574534.7834	551644.0684
2	03°24'47"	5000.00'	297.86'	148.97'	575860.4014	554261.6954
3	01°37'18"	7070.00'	200.10'	100.06'	574584.3557	556340.0913
4	01°37'18"	7070.00'	200.10'	100.06'	578793.2442	542840.6502
5	05°36'28"	2000.00'	195.75'	97.95'	576534.0742	551625.8594

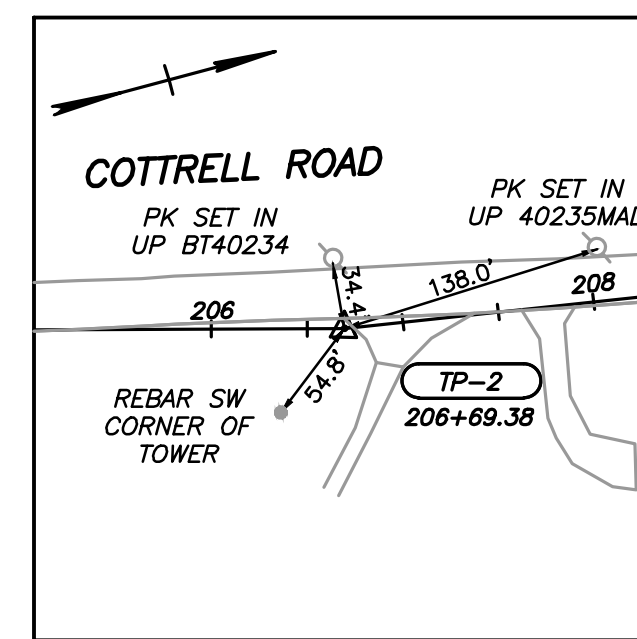
CONSTRUCTION BASELINE ALIGNMENT DATA			
POINT	STATION	COORDINATE	
		NORTH	EAST
COTTRELL ROAD (MC RT. 687)			
PC	8+76.19	574765.4191	549154.7297
PT	11+33.05	575019.5219	549191.5129
PI	12+96.78	575180.1407	549223.2586
PC	19+92.42	575860.4014	549368.7106
PT	22+90.27	576149.8858	549438.6486
PC	25+99.94	576448.5954	549520.3031
PT	28+00.04	576640.8403	549575.7900
PC	29+00.30	576736.7597	549604.9515
PT	31+00.40	576929.0046	549660.4384
PC	32+37.69	577061.4404	549696.6407
PT	34+33.44	577247.4350	549757.4065
PI	36+00.04	577403.0830	549816.8317
PI	37+25.00	577519.1674	549863.0736



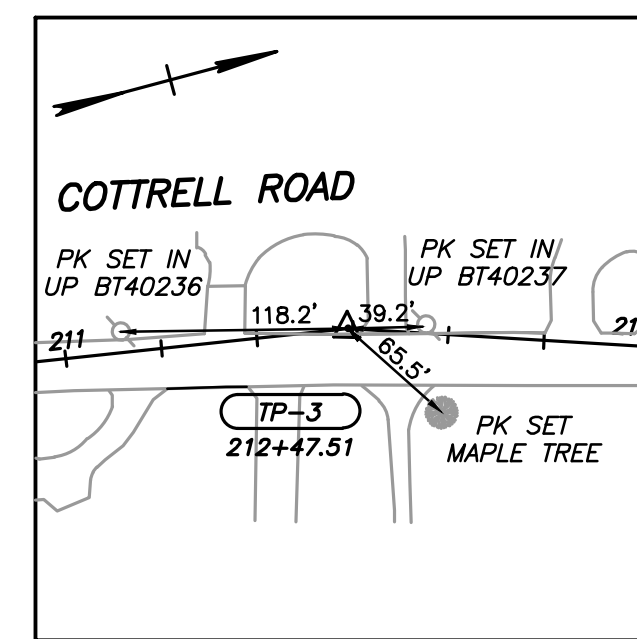
COTTRELL ROAD



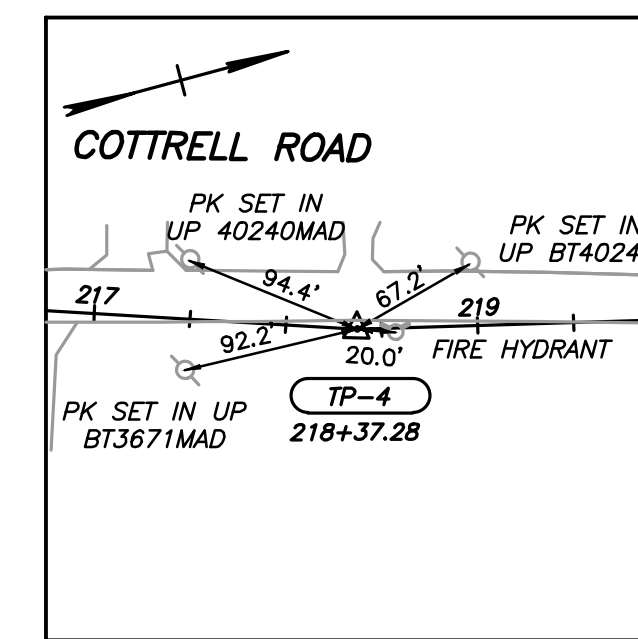
TP-1
CAPPED REBAR SET
STA. 200+00.00
N.T.S.



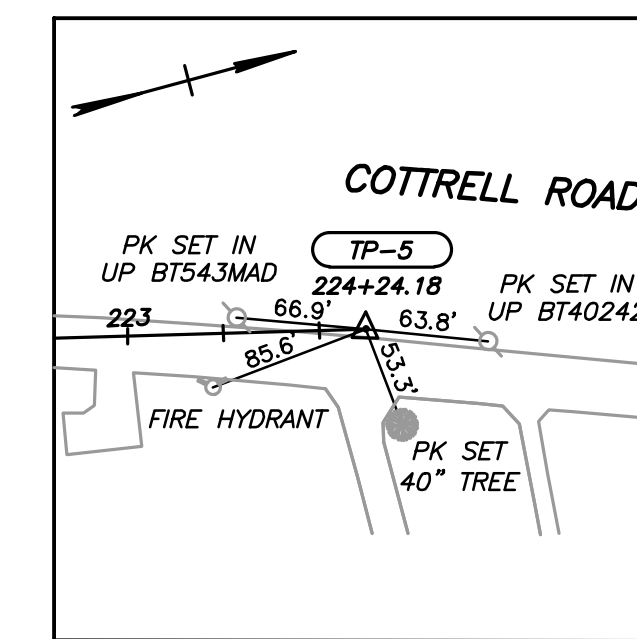
TP-2
CAPPED REBAR SET
STA. 206+69.38
N.T.S.



TP-3
CAPPED REBAR SET
STA. 212+47.51
N.T.S.

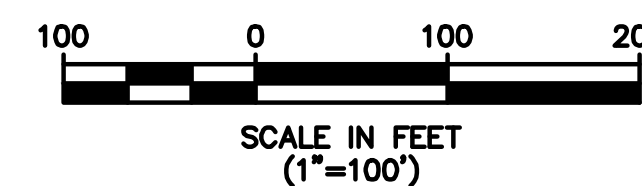


TP-4
CAPPED REBAR SET
STA. 218+37.28
N.T.S.



TP-5
CAPPED REBAR SET
STA. 224+24.18
N.T.S.

DATUM REFERENCE
HORIZONTAL DATUM: NAD 1983
VERTICAL DATUM: NAVD 1988



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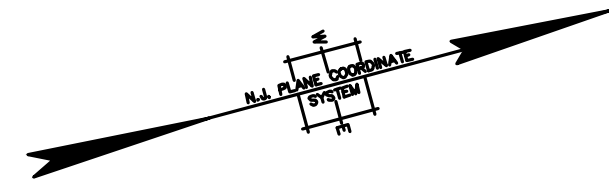
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

TIES

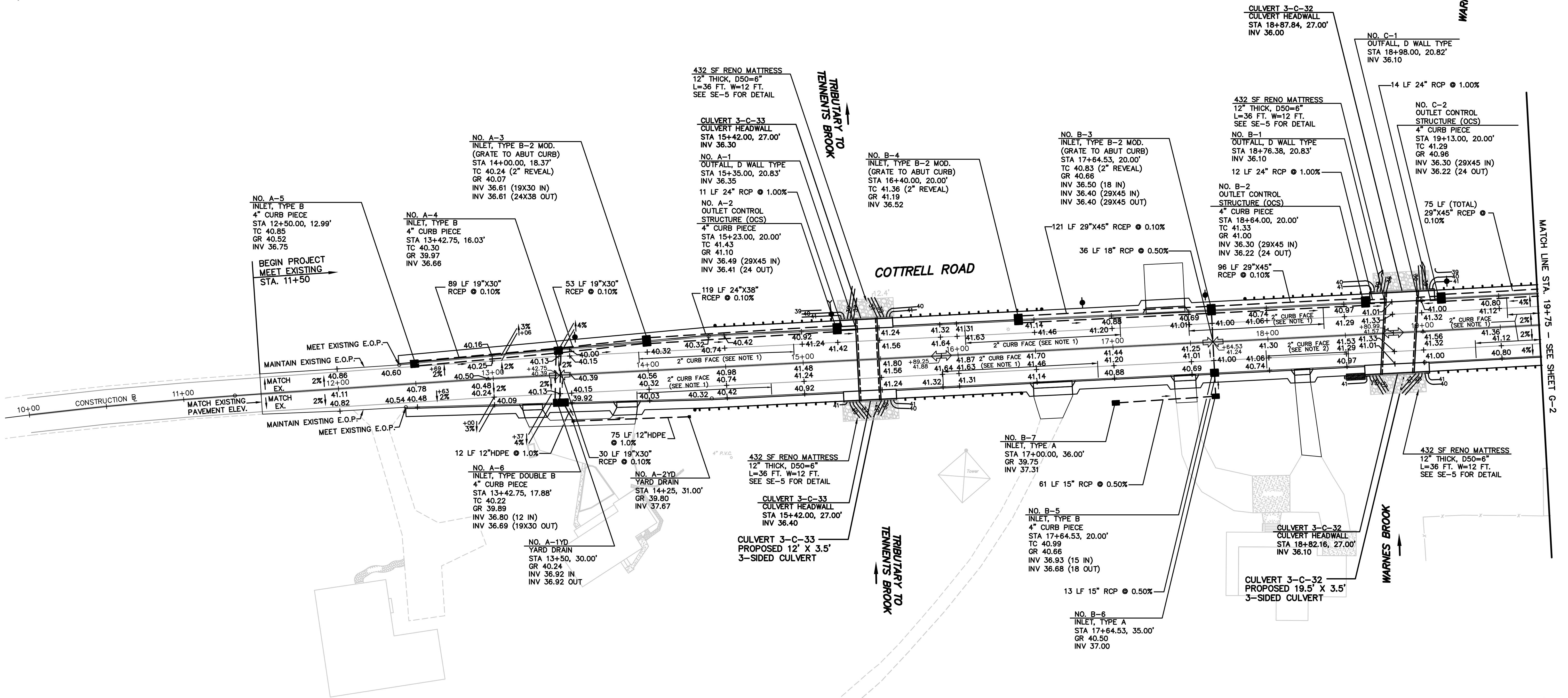
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Sheet No.: 12 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

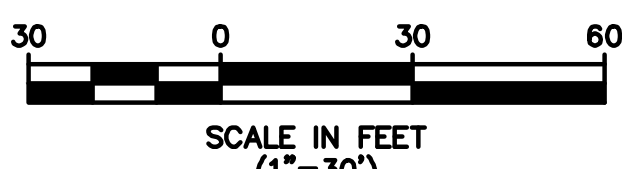
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



WARNES BROOK



- NOTES:
1. A MAXIMUM 2" CURB HEIGHT SHALL BE PROVIDED ALONG THE LENGTH OF THE TANGENT TERMINAL AND 50' IN ADVANCE OF THE TERMINAL. A 10' VERTICAL CURB TRANSITION (V.C.T.) TO THE 4" CURB HEIGHT SHALL BE PROVIDED AT THE BEGINNING AND END OF THE 2" CURB HEIGHT LIMIT. DRIVEWAYS WITH DEPRESSED CURBS WITHIN THE LIMITS SHALL HAVE A MAXIMUM CURB HEIGHT OF 1-1/2" PROVIDING A 2' V.C.T. TO THE 2" CURB HEIGHT AS REQUIRED. SEE DETAILS.
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 3. WHEN THE BOTTOM OF THE 9" X 16" CURB SPANNING INLET, TYPE B-2 MODIFIED IS IN CONFLICT WITH THE INLETS TOP SLAB, DOWEL THE CURB INTO THE TOP SLAB (SEE DETAIL CD 607-1.2).
 4. ALL GRADES SHOWN ARE FINISHED PAVEMENT ELEVATIONS/BOTTOM OF CURB (BC).



2011/10/20 10:25:00 AM C:\projects\middlesex\oldbridge\cortrell\cortrell.dwg (1) 1:1

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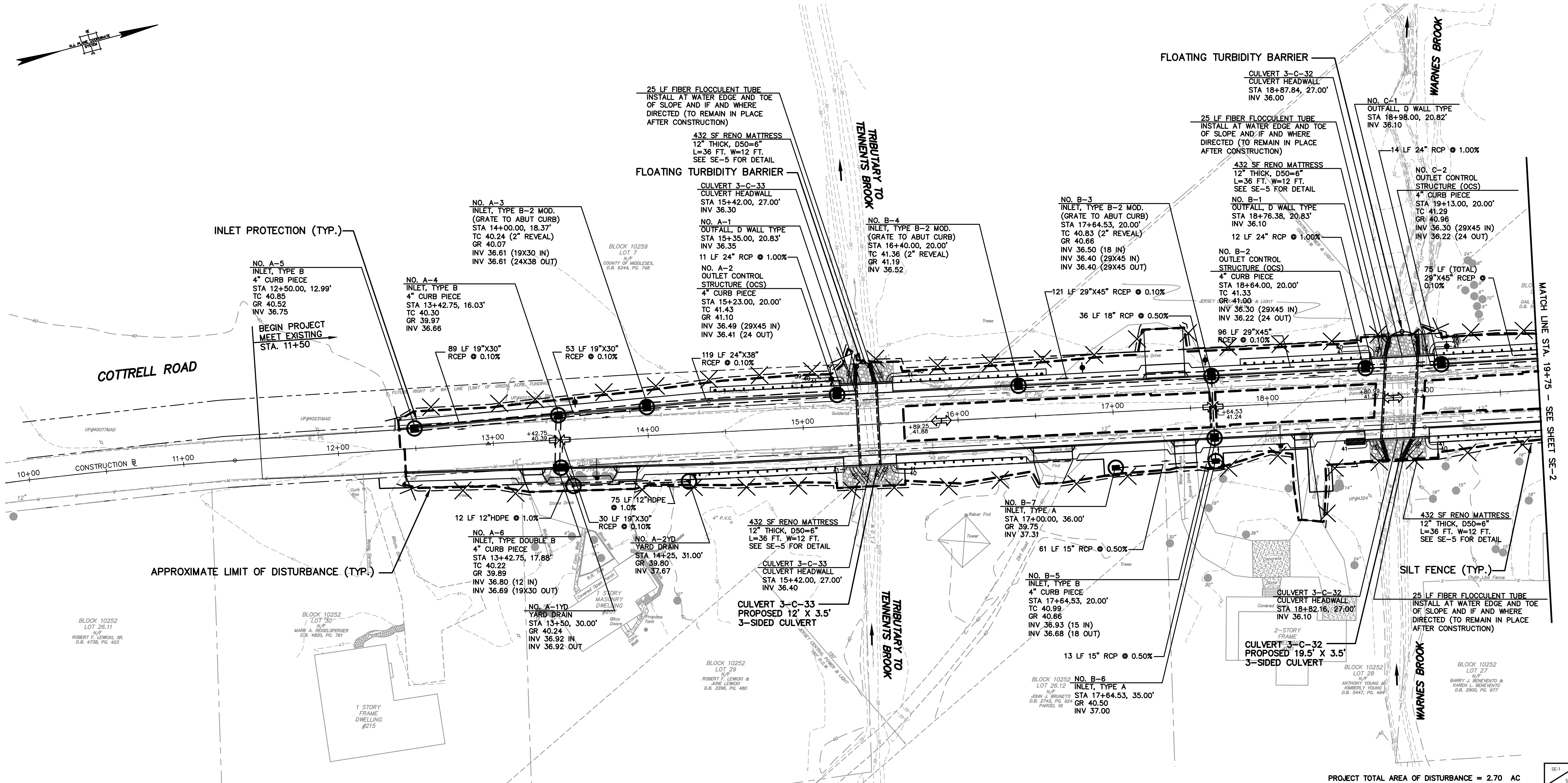
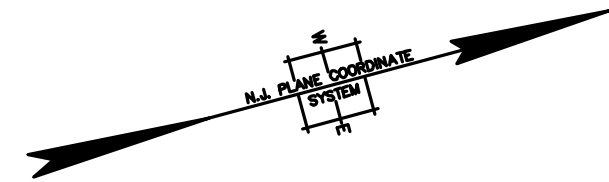
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

GRADES

Scale: 1"=30'
 Sheet No.: 13 of 68
 Date: November 8, 2021
 Project No.: 11000297G

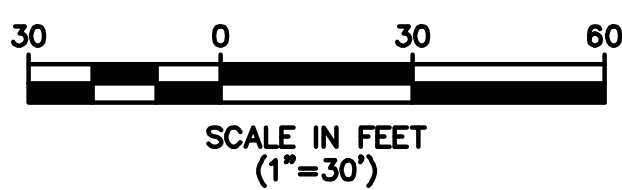
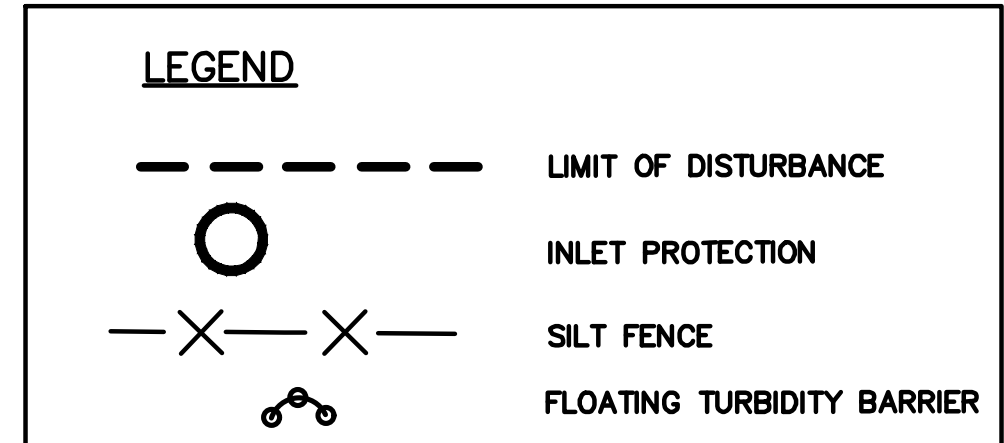
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 County Engineer
 N.J. P.E. No. GE31622

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INLET PROTECTION (TYP.)

APPROXIMATE LIMIT OF DISTURBANCE (TYP.)



PROJECT TOTAL AREA OF DISTURBANCE = 2.70 AC

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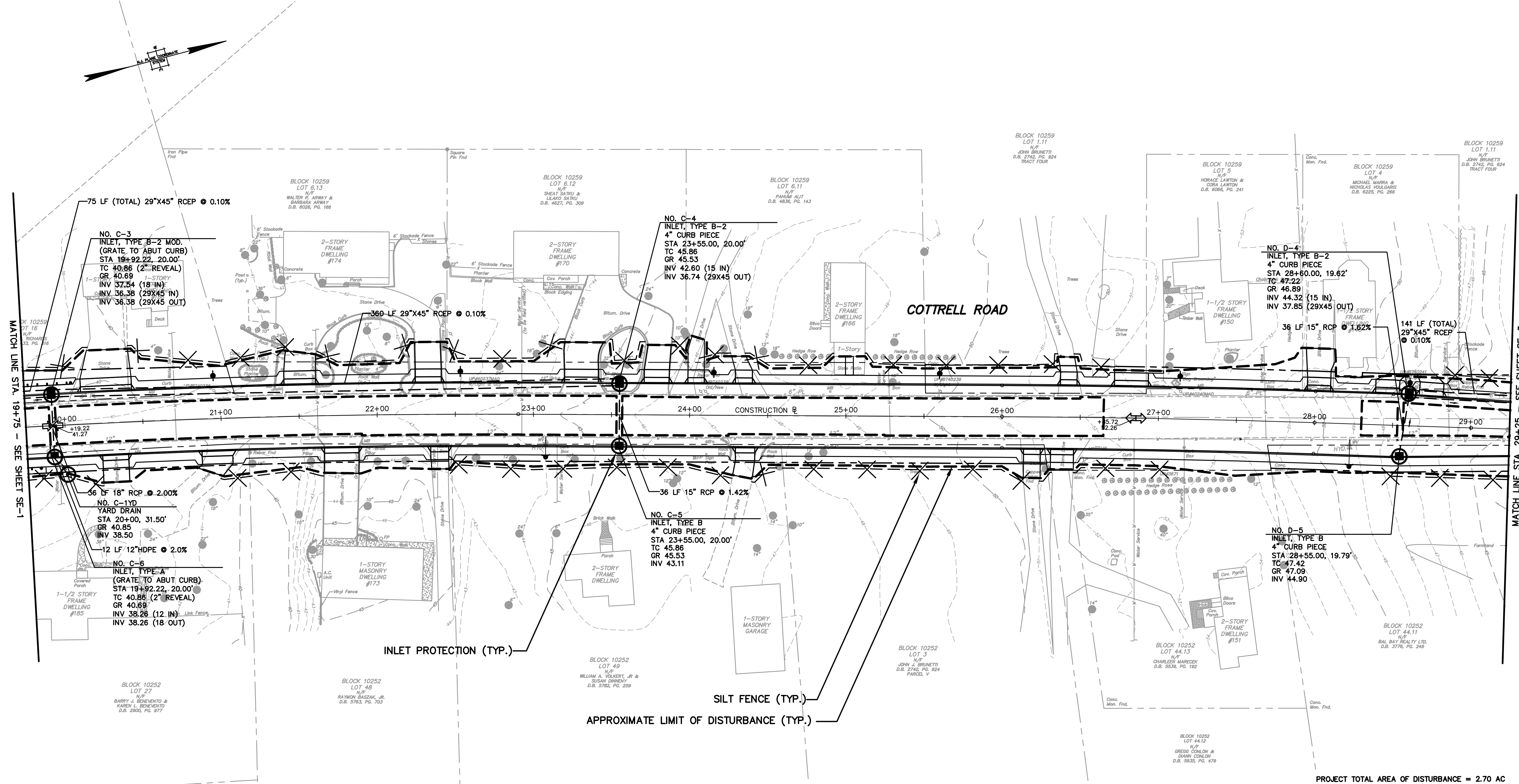
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AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

SOIL EROSION AND SEDIMENT CONTROL PLAN

Scale: 1"=30'
Sheet No.: 16 of 68
Date: November 8, 2021
Project No.: 11000297G

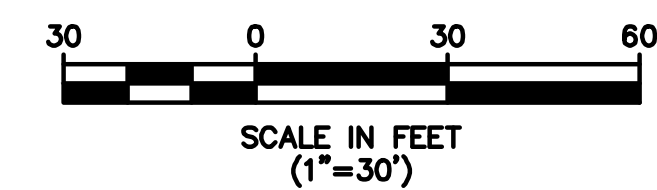
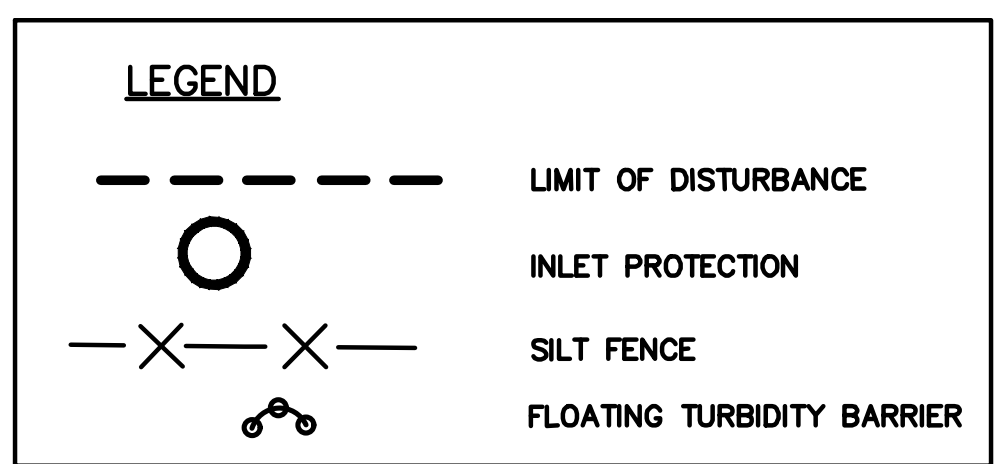
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N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



MATCH LINE STA. 19+75 - SEE SHEET SE-1

MATCH LINE STA. 29+00 - SEE SHEET SE-3



PROJECT TOTAL AREA OF DISTURBANCE = 2.70 AC

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		<p>IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687) AND COUNTY DRAINAGE STRUCTURES 3-C-31, 3-C-32, AND 3-C-33 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY</p>
<p>REV DATE DRAWN BY DESCRIPTION</p>	<p>MSA Daniel S. Frank NEW JERSEY LICENSED PROFESSIONAL ENGINEER LICENSE NUMBER: GE33434 COLLIERS ENGINEERING & DESIGN, INC. N.J. C.O.A. #: 246A27986500</p>	<p>SOIL EROSION AND SEDIMENT CONTROL PLAN</p> <p>Scale: 1"=30' Sheet No.: 17 of 68 Date: November 8, 2021 Project No.: 11000297G</p> <p>Ronald M. Sendner County Engineer N.J. P.E. No. GE31622</p>

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

FREEHOLD SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED SEVENTY-TWO (72) HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
2. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL OF NEW JERSEY.
3. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
4. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
5. IN THAT N.J.S.A 4:24-39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR EROSION CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
6. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN THIRTY (30) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING, IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER. THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 1/2 TONS PER ACRE, ACCORDING TO STATE STANDARD FOR STABILIZATION WITH MULCH ONLY.
7. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF 1 1/2 TO 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.
8. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
9. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION CONTINUES (I.E. SLOPES GREATER THAN 3:1).
10. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF ONE INCH TO TWO-INCH (1" – 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
11. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
12. PERMANENT VEGETATION IS TO BE SEEDDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
13. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
14. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE COVERED WITH A MINIMUM OF TWELVE (12) INCHES OF SOIL HAVING A PH OF 5 OR MORE PRIOR TO SEEDBED PREPARATION. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF TWENTY-FOUR (24) INCHES OF SOIL HAVING A PH OF 5 OR MORE.
15. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
16. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
17. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
18. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
19. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
20. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

MITIGATION NOTES FOR ACIDIC SOIL

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEARDY STOCKPILED HIGH ACID PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID PRODUCING SOIL MATERIAL TO BE EXPOSED MORE THAN 30 DAYS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GROBLE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID PRODUCING SOIL.
5. HIGH ACID PRODUCING SOILS WITH A PH OF 4 OR LESS, OR CONTAINING IRON SULFIDE, (INCLUDING BORROW FROM CUTS) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT A RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5 OR MORE EXCEPT AS FOLLOWS:
 - A. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A PH OF 5 OR MORE.
 - B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES AND OTHERS TO PREVENT POTENTIAL LATERAL LEACHAGE DAMAGES.
 6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
 7. NON VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SILT FENCE, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID PRODUCING SOILS FROM AROUND OR OFF THE SITE.
 8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE, MONITORING SHOULD CONTINUE FOR APPROXIMATELY 6 TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.
 9. MONITORING OF AREAS WHERE HIGH ACID PRODUCING SOIL HAS BEEN PLACED OR BURIED SHOULD BE PERFORMED FOR AT LEAST 2 YEARS OR LONGER IF PROBLEMS OCCUR, TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE.

TEMPORARY SEEDING SPECIFICATIONS

- A. SELECT MIXTURE FROM THOSE LISTED BELOW OR AN APPROVED EQUAL AS SPECIFIED IN TABLE 7-2 OF THE STANDARD AND APPLY AS NOTED BELOW.

TEMPORARY SEEDING	
MIX #1 - PERENNIAL RYE GRASS	100 LBS/ACRE
MIX #2 - SPRING OATS	86 LBS/ACRE
- B. SITE PREPARATION, SEEDBED PREPARATION, SEEDING AND MULCHING ARE TO BE AS SPECIFIED FOR PERMANENT SEEDING.

PERMANENT SEEDING SPECIFICATIONS

1. SITE PREPARATION
 - A. INSTALL EROSION CONTROL MEASURES AND FACILITIES SUCH AS SILT FENCE, DIVERSIONS, SEDIMENT BASINS, CHANNEL STABILIZATION, ETC. SEE STANDARDS 11 THROUGH 42.
 - B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR MULCH APPLICATION, MULCH ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
2. SEEDBED PREPARATION
 - A. APPLY A UNIFORM 5 INCHES (UNSETTLED) OF TOPSOIL IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING OVER ALL DISTURBED AREAS. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12 INCHES OF SOIL HAVING PH OF 5.0 OR MORE IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOIL.
 - B. TOPSOIL SHOULD BE HANDLED ONLY WHEN DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
 - C. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE IN ACCORDANCE WITH THE TABLE BELOW AND THE RESULTS OF SOIL TESTING. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. THE TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES.

SOIL TEXTURE	TONS/ACRE	LBS/1,000 SQ. FT.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45
 - D. IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.)
 - E. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF APPROXIMATELY 4 INCHES. THE FINAL HARROWING OR DISC OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEEDBED IS PREPARED.
 - F. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION AND OTHER DEBRIS SUCH AS WIRE, TREE ROOTS, PIECES OF CONCRETE, CLOOS LUMPS OR OTHER UNSUITABLE MATERIAL.
3. SEEDING
 - A. SELECT AN APPROVED MIXTURE FROM THOSE LISTED BELOW OR AN APPROVED EQUAL AS SPECIFIED IN TABLE 4-3 OF THE STANDARD AND APPLY AS NOTED BELOW WITHIN THE DATES SPECIFIED IN THE STANDARD.

LOCATION	ACCEPTABLE SEED MIXES	
LAWN	MIX #15 - HARD FESCUE	120 LBS/ACRE
	PERENNIAL RYE GRASS	30 LBS/ACRE
	KENTUCKY BLUE GRASS (BLEND)	40 LBS/ACRE
MIX #16 - TALL FESCUE	PERENNIAL RYE GRASS (BLEND)	20 LBS/ACRE
	KENTUCKY BLUE GRASS (BLEND)	20 LBS/ACRE
	STORMWATER BASIN	MIX #10 - TALL FESCUE (TURF-TYPE)
	STRONG CREEPING RED FESCUE	20 LBS/ACRE
	PERENNIAL RYE GRASS	20 LBS/ACRE
	PLUS CROWNVERTCH	25 LBS/ACRE
	FLATPEA	25 LBS/ACRE
MIX #13 - REED CANARY GRASS	KENTUCKY BLUE GRASS	60 LBS/ACRE
	TALL FESCUE (TURF-TYPE)	40 LBS/ACRE
	B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. SEEDING FOR DRILLED, HYDROSEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.	
 - C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND ANCHORED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER. FOLLOWING SEEDING, (ALSO SEE SECTION 4 MULCHING BELOW) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
 - D. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD, WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.
4. MULCHING
 - A. MULCHING IS REQUIRED ON ALL SEEDING.
 - B. STRAW OR HAY - UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER PLACEMENT USING PEG AND TWINE, MULCH NETTING, MECHANICAL CRUMPER OR LIQUID MULCH BINDERS IN ACCORDANCE WITH THE STANDARD.
 - C. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

STABILIZATION WITH MULCH ONLY

1. SITE PREPARATION
 - A. INSTALL EROSION CONTROL MEASURES AND FACILITIES SUCH AS SILT FENCE, DIVERSIONS, SEDIMENT BASINS, CHANNEL STABILIZATION, ETC. SEE STANDARDS 11 THROUGH 42.
 - B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR MULCH APPLICATION, MULCH ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
2. MULCHING
 - A. MULCHING IS REQUIRED ON ALL SEEDING.
 - B. STRAW OR HAY - UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 2 TO 2 1/2 TONS PER ACRE (90 TO 115 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER PLACEMENT USING PEG AND TWINE, MULCH NETTING, MECHANICAL CRUMPER OR LIQUID MULCH BINDERS IN ACCORDANCE WITH THE STANDARD.
 - C. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

SPPP REQUIRED INSPECTIONS AND REPORTS

1. ROUTINE INSPECTIONS
 - a. THE PERMITTEE SHALL CONDUCT AND DOCUMENT ROUTINE INSPECTIONS OF THE FACILITY TO IDENTIFY AREAS CONTRIBUTING TO THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT AND EVALUATE WHETHER THE STORMWATER POLLUTION PREVENTION PLAN (SPPP) IDENTIFIED UNDER E1 OF THE 603-CONSTRUCTION ACTIVITY STORMWATER (COP) PART I NARRATIVE REQUIREMENTS, INCLUDING THIS SOIL EROSION AND SEDIMENT CONTROL PLAN IS BEING PROPERLY IMPLEMENTED AND MAINTAINED, OR WHETHER ADDITIONAL MEASURES ARE NEEDED TO IMPLEMENT THE SPPP. (ROUTINE INSPECTIONS MINIMUM WEEKLY.)

ONCE INSTALLATION OF ANY REQUIRED OR OPTIONAL EROSION CONTROL DEVICE OR MEASURE HAS BEEN IMPLEMENTED, ROUTINE INSPECTIONS, MINIMUM WEEKLY, OF EACH MEASURE SHALL BE PERFORMED BY THE CONTRACTOR'S INSPECTION PERSONNEL AND THE RESULTS RECORDED TO INVENTORY AND REPORT THE CONDITION OF EACH MEASURE TO ASSIST IN MAINTAINING THE EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER.

THESE REPORT FORMS SHALL BECOME AN INTEGRAL PART OF THE SPPP AND SHALL BE MADE READILY ACCESSIBLE TO GOVERNMENTAL INSPECTION OFFICIALS, THE OPERATOR'S ENGINEER, AND THE OPERATOR FOR REVIEW UPON REQUEST DURING VISITS TO THE PROJECT SITE. IN ADDITION, COPIES OF THE REPORTS SHALL BE PROVIDED TO ANY OF THESE PERSONS, UPON REQUEST, VIA MAIL OR FACSIMILE TRANSMISSION.

OTHER RECORD-KEEPING REQUIREMENTS

THE CONTRACTOR SHALL KEEP THE FOLLOWING RECORDS RELATED TO CONSTRUCTION ACTIVITIES AT THE SITE:

 - DATES WHEN MAJOR GRADING ACTIVITIES OCCUR AND THE AREAS WHICH WERE GRADED
 - DATES AND DETAILS CONCERNING THE INSTALLATION OF STRUCTURAL CONTROLS
 - DATES WHEN CONSTRUCTION ACTIVITIES CEASE IN AN AREA
 - DATES WHEN AN AREA IS STABILIZED, EITHER TEMPORARILY OR PERMANENTLY
 - DATES OF RAINFALL AND THE AMOUNT OF RAINFALL
 - DATES AND DESCRIPTIONS OF THE CHARACTER AND AMOUNT OF ANY SPILLS OF HAZARDOUS MATERIALS
 - RECORDS OF REPORTS FILED WITH REGULATORY AGENCIES IF REPORTABLE QUANTITIES OF HAZARDOUS MATERIALS SPILLED
2. ANNUAL REPORTS AND CERTIFICATIONS
 - a. THE PERMITTEE SHALL PREPARE AN ANNUAL REPORT SUMMARIZING EACH INSPECTION PERFORMED UNDER 1.A., ABOVE. THIS REPORT SHALL BE ACCOMPANIED BY AN ANNUAL CERTIFICATION, ON A FORM PROVIDED BY THE NJDEP THAT THE FACILITY IS IN COMPLIANCE WITH ITS SPPP AND THIS PERMIT, EXCEPT THAT IF THERE ARE ANY INCIDENTS OF NONCOMPLIANCE, THOSE INCIDENTS SHALL BE IDENTIFIED IN THE CERTIFICATION. IF THERE ARE INCIDENTS OF NONCOMPLIANCE, THE REPORT SHALL IDENTIFY THE STEPS BEING TAKEN TO REMEDY THE NONCOMPLIANCE AND TO PREVENT SUCH INCIDENTS FROM RECURRING. THE REPORT AND CERTIFICATION SHALL BE SIGNED AND DATED BY THE PERMITTEE IN ACCORDANCE WITH N.J.A.C. 7:14A-4.9, AND SHALL BE MAINTAINED FOR A PERIOD OF AT LEAST FIVE YEARS ALONG WITH COPIES OF ALL INSPECTION REPORTS AND RECORD KEEPING. THIS PERIOD MAY BE EXTENDED BY WRITTEN REQUEST FROM THE DEPARTMENT AT ANY TIME (SEE N.J.A.C. 7:14A-6.6).
3. REPORTS OF NONCOMPLIANCE
 - a. ALL INSTANCES OF NONCOMPLIANCE NOT REPORTED UNDER N.J.A.C. 7:14A-6.10 SHALL BE REPORTED TO THE DEPARTMENT ANNUALLY.

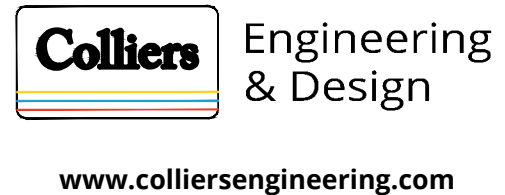
CONSTRUCTION SITE WASTE CONTROL COMPONENT OF THE STORMWATER POLLUTION PREVENTION PLAN (SPPP)

1. THE CONSTRUCTION SITE WASTE CONTROL COMPONENT OF THE SPPP CONSISTS OF THE REQUIREMENTS IN 3. AND 4. BELOW. THESE REQUIREMENTS BECAME OPERATIVE ON MARCH 3, 2004 AND APPLY TO CONSTRUCTION ACTIVITIES THAT COMMENCE ON OR AFTER MARCH 3, 2004. ANY NEW CONSTRUCTION ACTIVITY FOR WHICH AN RFA IS SUBMITTED ON OR AFTER MARCH 3, 2004 OR WHICH RECEIVE AUTOMATIC RENEWAL OF AUTHORIZATION UNDER THIS PERMIT AFTER MARCH 3, 2004 ALSO SHALL COMPLY WITH THESE REQUIREMENTS.
2. MATERIAL MANAGEMENT TO PREVENT OR REDUCE WASTE - ANY PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, CLEANING SOLVENTS AND ACIDS, DETERGENTS, CHEMICAL ADDITIVES, AND CONCRETE CURING COMPOUNDS SHALL BE STORED IN CONTAINERS IN A DRY COVERED AREA, MANUFACTURER'S RECOMMENDED APPLICATION RATES, USES, AND METHODS SHALL BE STRICTLY FOLLOWED TO THE EXTENT NECESSARY TO PREVENT OR MINIMIZE THE PRESENCE OF WASTE FROM SUCH MATERIALS IN THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. (THE PRECEDING SENTENCE DOES NOT APPLY TO ANY MANUFACTURER'S RECOMMENDATIONS ABOUT FERTILIZER OR OTHER MATERIAL THAT CONFLICT WITH THE EROSION AND SEDIMENT CONTROL COMPONENT OF THE FACILITY'S SPPP.)
3. WASTE HANDLING - THE FOLLOWING REQUIREMENTS APPLY ONLY TO CONSTRUCTION SITE WASTE THAT HAS THE POTENTIAL TO BE TRANSPORTED BY THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. THE HANDLING AT THE CONSTRUCTION SITE OF WASTE BUILDING MATERIAL AND RUBBLE AND OTHER CONSTRUCTION SITE WASTES, INCLUDING LITTER AND HAZARDOUS AND SANITARY WASTES, SHALL CONFORM WITH THE STATE SOLID WASTE MANAGEMENT ACT, N.J.S.A. 13:15-1 ET SEQ., AND ITS IMPLEMENTING RULES AT N.J.A.C. 7:26, 7:26A, AND 7:26G; THE NEW JERSEY PESTICIDE CONTROL CODE AT N.J.A.C. 7:30; THE STATE UTILITY STATUTE (N.J.S.A. 13:1E-99.3); AND OSHA REQUIREMENTS FOR SANITATION AT 29 C.F.R. 1926 (EXCEPT WHERE SUCH PERFORMANCE IS NOT RELEVANT TO THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT). CONSTRUCTION SITES SHALL HAVE ONE OR MORE DESIGNATED WASTE COLLECTION AREAS ONSITE OR ADJACENT TO THE SITE, AND AN ADEQUATE NUMBER OF CONTAINERS (WITH LIDS OR COVERS) FOR WASTE. WASTE SHALL BE COLLECTED FROM SUCH CONTAINERS BEFORE THEY OVERFLOW, AND SPILLS AT SUCH CONTAINERS SHALL BE CLEANED UP IMMEDIATELY.
 - a. CONSTRUCTION SITE WASTES INCLUDE BUT ARE NOT LIMITED TO:
 - i. "CONSTRUCTION AND DEMOLITION WASTE," AS DEFINED IN N.J.A.C. 7:26-1.4 AS FOLLOWS: "WASTE BUILDING MATERIAL AND RUBBLE RESULTING FROM CONSTRUCTION, REMODELING, REPAIR, AND DEMOLITION OPERATIONS ON HOUSES, COMMERCIAL BUILDINGS, PAVEMENTS AND OTHER STRUCTURES. THE FOLLOWING MATERIALS MAY BE FOUND IN CONSTRUCTION AND DEMOLITION WASTE: TREATED AND UNTREATED WOOD SCRAP; TREE PARTS, TREE STUMPS AND BRUSH; CONCRETE, ASPHALT, BRICKS, BLOCKS AND OTHER MASONRY; PLASTER AND WALLBOARD; ROOFING MATERIALS; CORRUGATED CARDBOARD AND MISCELLANEOUS PAPER; FERROUS AND NON-FERROUS METAL; NON-ASBESTOS BUILDING INSULATION; CARPETS AND PADDING; GLASS (WINDOW AND DOOR); AND OTHER MISCELLANEOUS MATERIALS; BUT SHALL NOT INCLUDE OTHER SOLID WASTE TYPES."
 - ii. ANY WASTE BUILDING MATERIAL AND RUBBLE RESULTING FROM SUCH OPERATIONS THAT IS HAZARDOUS FOR PURPOSES OF N.J.A.C. 7:26G (THE HAZARDOUS WASTE RULES).
 - iii. DISCARDED (INCLUDING SPILLED) PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, PAINT CHIPS AND SANDBLASTING GRITS, CLEANING SOLVENTS, ACIDS FOR CLEANING MASONRY SURFACES, DETERGENTS, CHEMICAL ADDITIVES USED FOR SOIL STABILIZATION (E.G., CALCIUM CHLORIDE), AND CONCRETE CURING COMPOUNDS.
 - iv. OTHER "LITTER," AS DEFINED AT N.J.S.A. 13:1E-215.D AS FOLLOWS: "ANY USED OR UNCOMPOSED SUBSTANCE OR WASTE MATERIAL WHICH HAS BEEN DISCARDED WHETHER MADE OF ALUMINUM, GLASS, PLASTIC, RUBBER, PAPER, OR OTHER NATURAL OR SYNTHETIC MATERIAL, OR ANY COMBINATION THEREOF, INCLUDING, BUT NOT LIMITED TO, ANY BOTTLE, JAR OR CAN, ANY TOP, CAP OR DETACHABLE TAB OF ANY BOTTLE, JAR OR CAN, ANY UNLIGHTED CIGARETTE, CIGAR, MATCH OR ANY FLAMING OR GLOWING MATERIAL OR ANY GARBAGE, TRASH, REFUSE, DEBRIS, RUBBISH, GRASS CLIPPINGS OR OTHER LAWN OR GARDEN WASTE, NEWSPAPERS, MAGAZINES, GLASS, METAL, PLASTIC OR PAPER CONTAINERS OR OTHER PACKAGING OR CONSTRUCTION MATERIAL, BUT DOES NOT INCLUDE THE WASTE OF THE PRIMARY PROCESSES OF MINING OR OTHER EXTRACTION PROCESSES, LOGGING, SAWMILLING, FARMING OR MANUFACTURING."
 - v. SANITARY SEWAGE AND SEPTAGE.
 - vi. CONTAMINATED SOILS ENCOUNTERED OR DISCOVERED DURING EARTHMOVING ACTIVITIES OR DURING THE CLEANUP OF A LEAK OR DISCHARGE OF A HAZARDOUS SUBSTANCE.
 - b. CONCRETE TRUCK WASHOUT - CONCRETE TRUCK WASHOUT ONSITE IS PROHIBITED OUTSIDE DESIGNATED AREAS. DESIGNATED WASHOUT AREAS SHALL BE LINED AND BERMED TO PREVENT DISCHARGES TO SURFACE AND GROUND WATER. HARDENED CONCRETE FROM CONCRETE TRUCK WASHOUT SHALL BE REMOVED AND PROPERLY DISPOSED OF.
 - c. SANITARY SEWAGE/SEPTAGE DISPOSAL - DISCHARGES OF RAW SANITARY SEWAGE OR SEPTAGE ONSITE ARE STRICTLY PROHIBITED. ADEQUATE FACILITIES WITH PROPER DISPOSAL SHALL BE PROVIDED AND MAINTAINED ONSITE OR ADJACENT TO THE SITE FOR ALL WORKERS AND OTHER SANITARY NEEDS.
 - d. SPILLS; DISCHARGES OF HAZARDOUS SUBSTANCES; FEDERALLY REPORTABLE RELEASES.
 - i. SPILL KITS SHALL BE AVAILABLE ONSITE OR ADJACENT TO THE SITE FOR ANY MATERIALS THAT ARE LISTED IN 2. ABOVE AND USED OR APPLIED ONSITE. ALL SPILLS OF SUCH MATERIAL SHALL BE CONTAINED AND CLEANED UP IMMEDIATELY. CLEANED UP MATERIALS SHALL BE PROPERLY DISPOSED OF.
 - ii. DISCHARGES OF HAZARDOUS SUBSTANCES (AS DEFINED IN N.J.A.C. 7:1E-1.6) IN CONSTRUCTION SITE WASTES ARE SUBJECT TO THE PROVISIONS OF THE SPILL COMPENSATION AND CONTROL ACT, N.J.S.A. 58:10-23.11 FOR PURPOSES OF DEPARTMENT RULES GOVERNING THE DISPOSITION OF OTHER HAZARDOUS SUBSTANCES AT N.J.A.C. 7:1E. NO DISCHARGE OF HAZARDOUS SUBSTANCES RESULTING FROM AN ONSITE SPILL SHALL BE DEEMED TO BE "PURSUANT TO AND IN COMPLIANCE WITH [THIS] PERMIT" WITHIN THE MEANING OF THE SPILL COMPENSATION AND CONTROL ACT AT N.J.S.A. 58:10-23.11C.
 - iii. RELEASES IN EXCESS OF REPORTABLE QUANTITIES (RQ) ESTABLISHED UNDER 40 C.F.R. 110, 117, AND 302 THAT OCCUR WITHIN A 24-HR PERIOD MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER (800 424-8802).

CONSTRUCTION SCHEDULE

1. INSTALL SOIL EROSION AND SEDIMENT CONTROL DEVICES. (2 WEEKS)
2. CLEAR SITE AND ESTABLISH ROUGH GRADES AS NECESSARY TO CONSTRUCT ROADWAY AND CULVERTS. (2 MONTHS)
3. INSTALL DRAINAGE SYSTEM AND ALL OTHER UTILITIES. (2 MONTHS)
4. INSTALL INLET AND CONDUIT OUTLET PROTECTION. (1 WEEK)
5. CONSTRUCT CURB, SIDEWALK AND PLACE ROAD SUB-BASE. (2 MONTHS)
6. ESTABLISH FINISHED GRADE AND ESTABLISH PERMANENT VEGETATIVE COVER. (1 MONTH)
7. REMOVE INLET PROTECTION AND SILT FENCE AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED. (1 WEEK)
8. INSTALL FINAL PAVING AND SIGNING AND STRIPING. (2 WEEKS)

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NJ, C.O.A. #: 246A2798500

County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

SOIL EROSION AND SEDIMENT CONTROL PLAN

Scale: 1"=30'
Sheet No.: 19 of 68
Date: November 8, 2021
Project No.: 11000297G

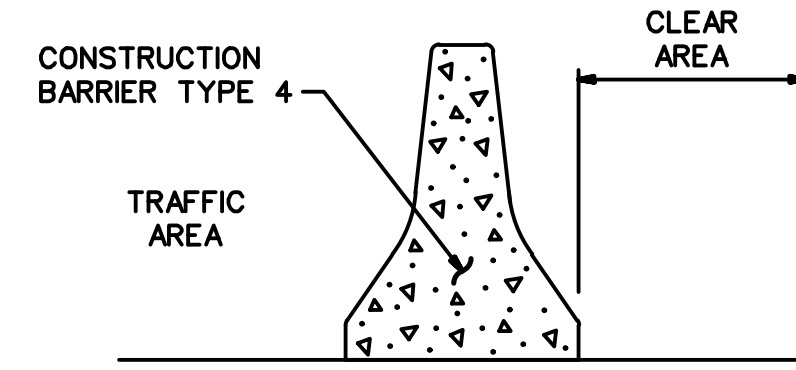
Ronald M. Sender
County Engineer
N.J. P.E. No. GE31622

REV	DATE	DRAWN BY	DESCRIPTION

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

LEGEND

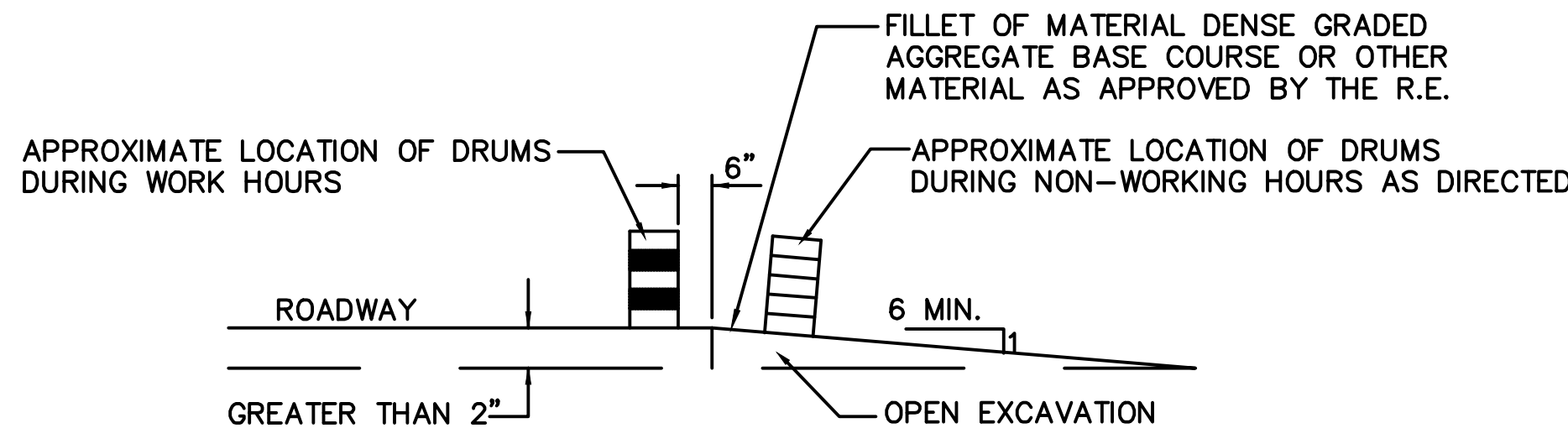
- BREAKAWAY BARRICADES
- BREAKAWAY BARRICADES WITH SIGN (LIGHT STOCK 0.024")
- CONSTRUCTION SIGNS
- DRUMS
- CONE
- PRECAST CONCRETE CURB CONSTRUCTION BARRIER (TYPE SPECIFIED)
- DIRECTION OF TRAFFIC FLOW
- FLAGGER
- ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE SHOWING CAUTION MODE
- ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE SHOWING ARROW PATTERN (LEFT, RIGHT, BOTH)
- TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING CAUTION MODE
- TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING ARROW PATTERN (LEFT, RIGHT, BOTH)
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM
- TEMPORARY CRASH CUSHION, (ALL OTHER APPROVED)
- BUFFER ZONE
- WORK AREA
- PAINT STRIPING TRUCK OR OTHER OPERATING VEHICLE



- NOTES:**
- CHANGES TO THE PROPOSED JOINT CLASS AT ANY LOCATION MUST BE APPROVED BY THE DEPT.
 - NO ROADWAY DROP OFFS, OBSTRUCTIONS, STORAGE OF MATERIALS OR WORK WILL BE PERMITTED IN THE CLEAR AREA UNLESS APPROVED BY THE R.E.

STAGE	LOCATION	JOINT CLASS
1A	STA. 15+15 LT. TO STA. 16+35 LT.	B
1B	STA. 15+22 LT. TO STA. 15+62 LT.	B
1B	STA. 14+29 RT. TO STA. 15+69 LT.	B
1C-4A	STA. 14+92 LT. TO STA. 16+12 LT.	B
1C-4B	STA. 14+72 RT. TO STA. 15+92 RT.	B
2A	STA. 17+82 RT. TO STA. 19+22 RT.	B
2B	STA. 18+65 RT. TO STA. 19+05 RT.	B
2B	STA. 18+54 LT. TO STA. 19+74 LT.	B
2C	STA. 17+70 RT. TO STA. 19+10 LT.	B
2C	STA. 18+70 LT. TO STA. 19+10 LT.	B
2D-5A	STA. 18+36 LT. TO STA. 19+56 LT.	B
2D-5B	STA. 18+14 RT. TO STA. 19+34 RT.	B
3A	STA. 30+46 LT. TO STA. 31+86 LT.	B
3B	STA. 31+28 RT. TO STA. 33+08 LT.	B
3B	STA. 31+40 RT. TO STA. 31+80 RT.	B
3C-7A	STA. 31+05 LT. TO STA. 32+25 LT.	B
3C-7B	STA. 30+91 RT. TO STA. 32+11 RT.	B

JOINT CLASS	CLEAR AREA
A	20 INCHES
B	16 INCHES
C	11 INCHES



NOTE:
ESCAPE RAMPS MUST BE CONSTRUCTED AND MAINTAINED DURING NON-WORKING HOURS WHERE A VERTICAL DROP OF GREATER THAN 2" EXISTS ADJACENT TO A TRAVELED LANE.

ESCAPE RAMP DETAIL

N.T.S.

CONSTRUCTION BARRIER, TYPE 4
JOINT CLASS AND CLEAR AREA
N.T.S.

GENERAL NOTES:

- ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED, AT DIRECTION OF THE ENGINEER, TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY.
- THE APPROXIMATE LOCATIONS OF THE ILLUMINATED FLASHING ARROW BOARDS ARE SHOWN ON THE TRAFFIC CONTROL PLANS. THESE LOCATIONS MAY BE MODIFIED TO ADJUST FOR VISIBILITY DUE TO HORIZONTAL OR VERTICAL CURVATURE OF THE ROADWAY OR TO POSITION AT A SAFER LOCATION. ILLUMINATED FLASHING ARROW BOARDS ARE TO BE USED FOR TEMPORARY LANE CLOSINGS AND AT LOCATIONS SHOWN ON THE TRAFFIC CONTROL PLANS.
- PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
- RAMPS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-1F SIGN (ROAD WORK AHEAD) AS A MINIMUM.
- ALL EXISTING ROAD SIGNS, PAVEMENT MARKINGS AND/OR FLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED, OR RELOCATED AS DIRECTED BY THE RE.
- CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON EITHER THE EXISTING, TEMPORARY, OR PROPOSED TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
- MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - PART VI "STANDARDS AND GUIDES FOR TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS", UNLESS OTHERWISE NOTED IN THE PLANS.
- CONSTRUCTION SIGN W99-2 (GIVE US A BRAKE) SHALL BE LOCATED 200 FEET IN ADVANCE OF PROJECT LIMITS.
- A W1-6 (ARROW) SIGN MOUNTED ON A BREAKAWAY BARRICADE AND CENTERED ON THE CLOSED WIDTH SHALL BE LOCATED 100 FEET BEYOND EACH INTERSECTION OR MAIN ACCESS POINT WITHIN THE AREA OF A LANE OR SHOULDER CLOSURE.
- CONSTRUCTION SIGNS R11-4 (ROAD CLOSED TO THRU TRAFFIC) SHALL BE PLACED AT THE INTERSECTING STREETS WHICH ARE CLOSED TO TRAFFIC BECAUSE OF CONSTRUCTION.
- CONSTRUCTION SIGNS W8-9A (SYMBOL FOR UNEVEN PAVEMENT) AND W8-14A (GROOVED PAVEMENT) SHALL BE USED WHEN SUCH PAVEMENT CONDITIONS EXIST. THE PLACEMENT OF THESE SIGNS SHALL BE AS DIRECTED BY THE RE.
- MOVING WORK AREAS IN A LANE CLOSURE REQUIRE A TRAILER MOUNTED ILLUMINATED FLASHING ARROW TO REMAIN AT THE END OF THE TAPER, THE TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION THAT SHALL MOVE WITH THE WORK AREAS TO KEEP A 70 FOOT MIN. AND 150 FOOT MAX. BUFFER IN ADVANCE OF EACH WORK AREA.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR THE SAFE ACCESS OF CONSTRUCTION VEHICLES THROUGHOUT THE WORK SITE WHERE SPACE CONSTRAINTS PREVENT THE USE OF LANE CLOSURES. THE PLAN SHALL BE SUBMITTED TO THE RE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON AT LEAST 6H : 1V SLOPE BEFORE THE END OF EACH WORK DAY. OTHER EXCAVATED AREA WITHIN THE CLEAR
- WHERE REQUIRED THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN CROSSING LOCATIONS AND TYPE AS DIRECTED
- BITUMINOUS CONCRETE PLACED DURING THE VARIOUS CONSTRUCTION STAGES SHALL BE TRANSITIONED ON A MINIMUM 20H : 1V SLOPE TO MEET THE ADJACENT EXISTING GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF THE STAGE CONSTRUCTION AREAS UNLESS OTHERWISE NOTED ON THE STAGE CONSTRUCTION PLANS.
- THE PLACEMENT AND OR RELOCATION OF PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHALL BE DONE DURING APPROVED OFF-PEAK HOURS WHEN TRAFFIC MAY BE REDUCED TO ONE LANE IN EACH DIRECTION.
- CONSTRUCTION ZONE SPEED LIMIT WILL BE DETERMINED BY THE RESIDENT ENGINEER AT THE TIME OF CONSTRUCTION.
- THE SPEED LIMIT, R2-1 (BLACK ON WHITE) WITH ADDED WORK ZONE PLATE (BLACK ON ORANGE) SIGNS SHALL BE LOCATED THROUGH WORK AREAS AS DIRECTED BY THE RESIDENT ENGINEER.
- THE REDUCED SPEED AHEAD SIGN, W3-5(S) (BLACK ON ORANGE) SHALL BE LOCATED IN ADVANCE OF SPEED LIMIT R2-1 SIGNS WHICH REDUCE THE NORMAL POSTED SPEED LIMIT THROUGH THE CONSTRUCTION ZONE.
- TRAFFIC FINES DOUBLED IN WORK AREA R(NJ)5-17(S), 4 FEET BY 2.5 FEET SIGN SHALL BE LOCATED 500 FEET AFTER THE FIRST ADVANCE WARNING SIGN, (W20 SERIES) AT EACH WORK AREA LOCATED WITHIN URBAN AREAS. THIS SIGN SHALL ALSO BE USED ON PROJECTS REQUIRING MOVING OPERATIONS IN WHICH CASE THE SIGN SHALL BE MOUNTED ON A SLOW MOVING CONSTRUCTION VEHICLE.
- THE FINAL HMA SURFACE PAVEMENT SHALL NOT BE CONSTRUCTED UNTIL THE FINAL STAGE OF THE PROJECT UNLESS OTHERWISE DIRECTED BY THE RE OR INDICATED ON THE PLANS. MANHOLES AND INLETS SHALL BE SET TO FINISHED GRADE AND TEMPORARY PAVEMENT RAMPS ARE TO BE CONSTRUCTED AROUND THEM WITH A MINIMUM 20H : 1V SLOPE IN ALL DIRECTIONS USING HOT MIX ASPHALT PAVEMENT. THIS TEMPORARY MATERIAL WILL BE REMOVED IMMEDIATELY PRIOR TO THE PLACING THE SURFACE COURSE.
- TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
- CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE RE.

RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS				RECOMMENDED SPACING ALONG TANGENTS	
REGULATORY APPROACH SPEED OF TRAFFIC IN MILES/HOUR	MINIMUM TAPER RATIO IN LENGTH PER FOOT OF WIDTH	MINIMUM TAPER LENGTH L-FOR LANE WIDTHS 10 FT 11 FT 12 FT	MAXIMUM DEVICE (B) SPACING IN FEET	MAXIMUM DEVICE (D) SPACING IN FEET	
25	10.5:1	105 115 125	25	50	
30	15.0:1	150 165 180	30	60	
35	20.5:1	205 225 245	35	70	
40	27.0:1	270 295 320	40	80	
45	45:1	450 495 540	45	90	
50	50:1	500 550 600	50	100	
55	55:1	550 605 660	55	110	

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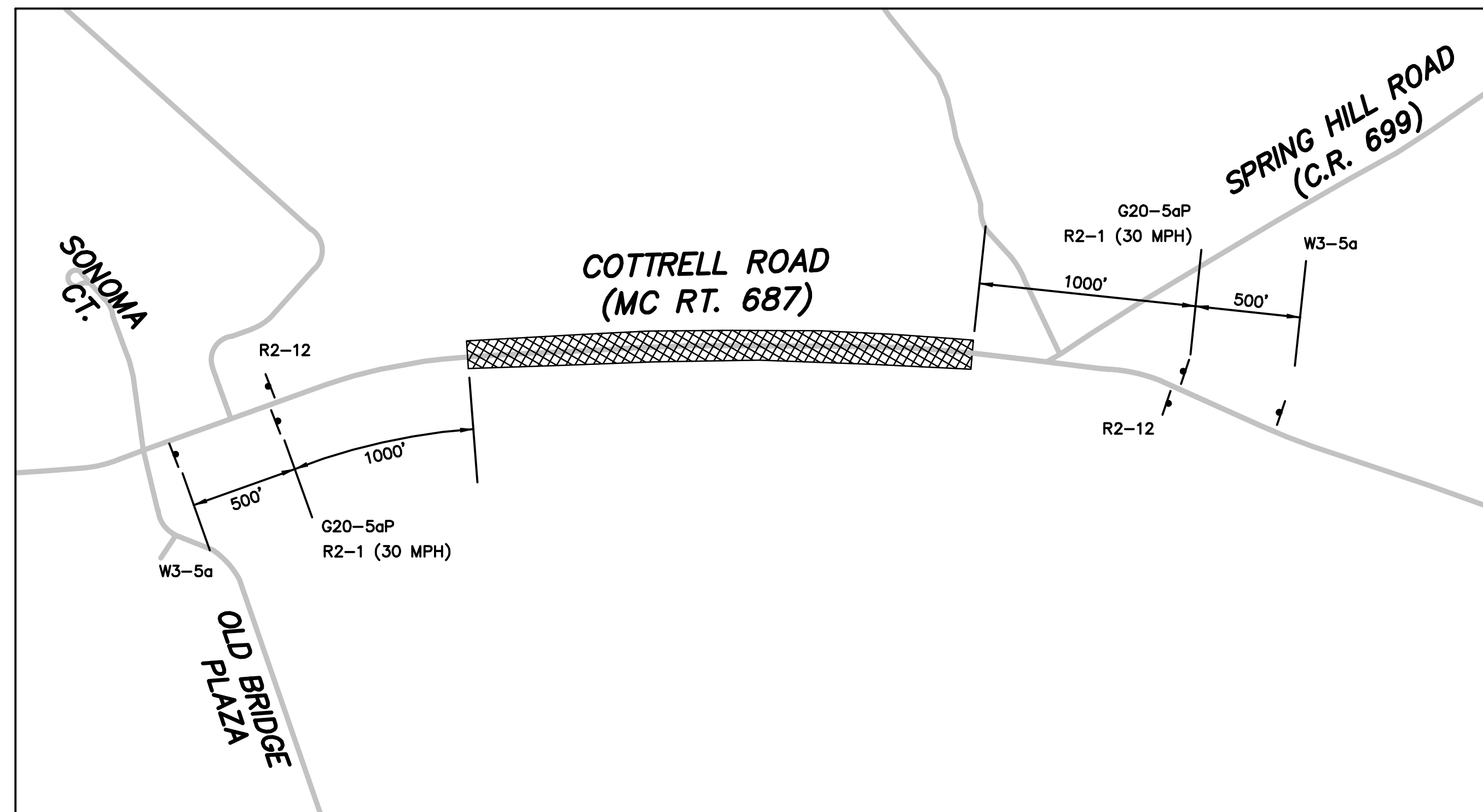
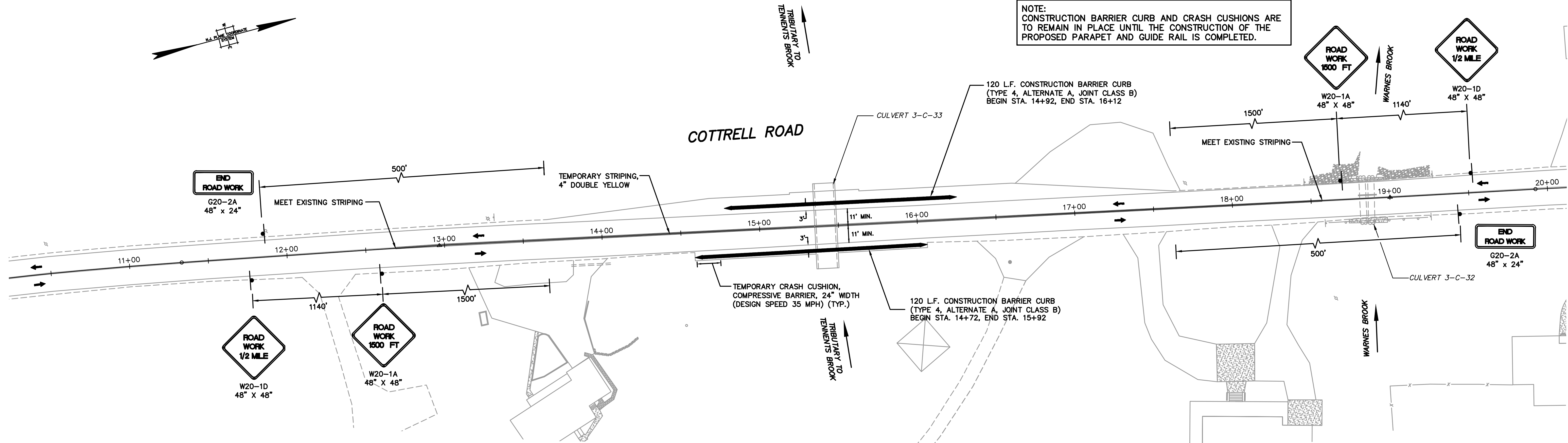
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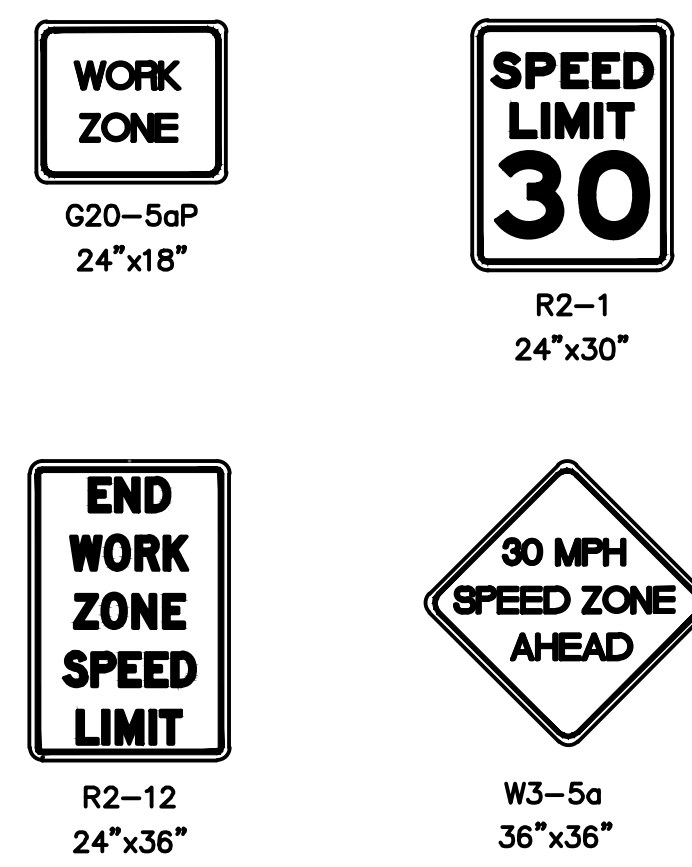
MSA
Daniel S. Frank
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE33434
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 246A27986500

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Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

TRAFFIC CONTROL, STAGING AND PEDESTRIAN PLANS
Scale: N.T.S.
Sheet No.: 21 of 68
Date: November 8, 2021
Project No.: 11000297G
Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



SIGN LEGEND



NOTES:

- FOR GENERAL NOTES AND LEGEND ON TRAFFIC CONTROL DEVICES, SEE SHEET NO. TC-1.
- CONTRACTOR TO NOTIFY (IN WRITING) THE FOLLOWING AGENCIES 28 DAYS PRIOR TO START OF CONSTRUCTION:
 - MIDDLESEX COUNTY ENGINEER
 - OLD BRIDGE TOWNSHIP
- ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIME.

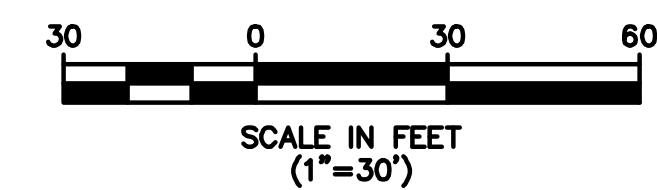
STAGE 1C:

- PRIOR TO THIS STAGE, INSTALL THE ADVANCE WARNING SIGNS AND ANY OTHER TRAFFIC CONTROL DEVICES AS SHOWN ON THIS PLAN.

INCLUDES REMOVAL OF EXISTING STRIPING IN CONFLICT WITH TEMPORARY STRIPING AND REMOVAL OF RPM'S WITHIN PROJECT LIMITS. ALL EXISTING STRIPING REQUIRING REMOVAL, OUTSIDE OF THE PROPOSED MILLING/NEW PAVEMENT LIMITS, SHALL BE REMOVED BY THE HYDRO-BLASTING METHOD ONLY. USE HMA PATCH TO FILL RPM HOLES. INSTALL TEMPORARY STRIPING.

NOTES:

- SPEED LIMIT REDUCTION SIGNS FOR WORK ZONE SHALL REMAIN FOR DURATION OF PROJECT.



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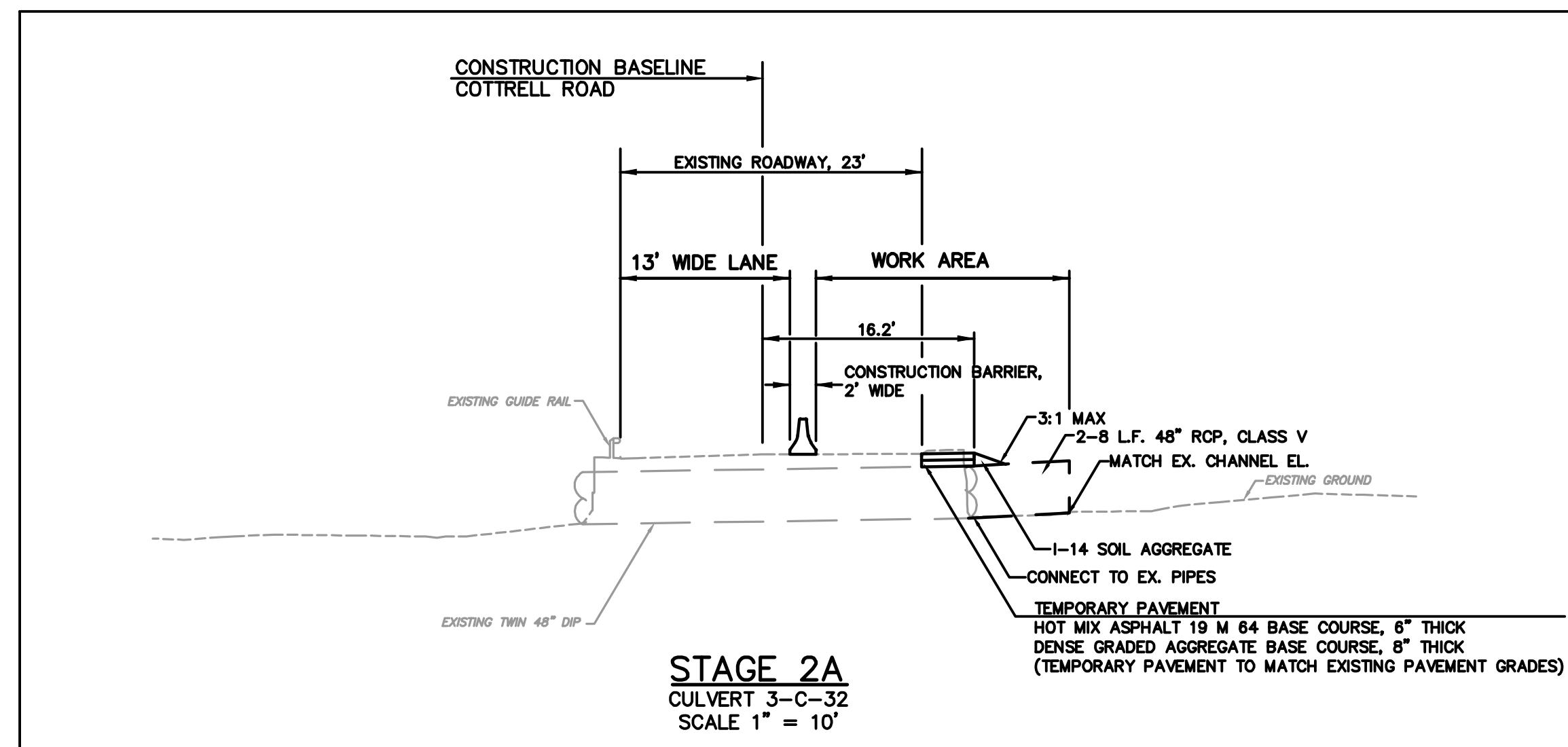
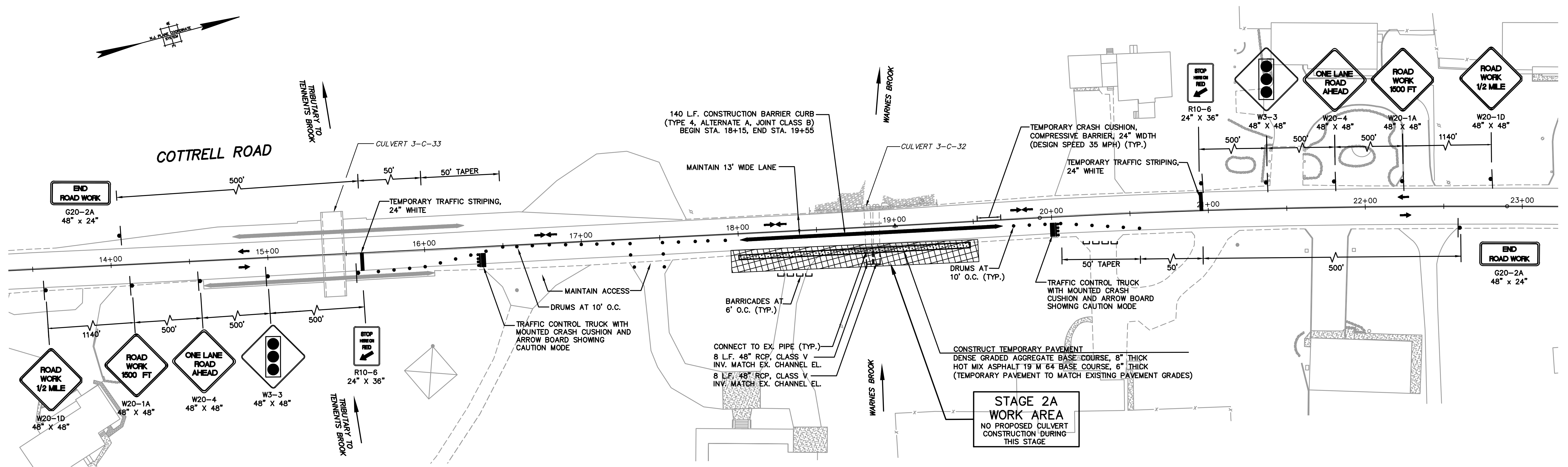
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

TRAFFIC CONTROL, STAGING
AND PEDESTRIAN PLANS

Scale: 1"=30'
Sheet No.: 24 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



NOTES:

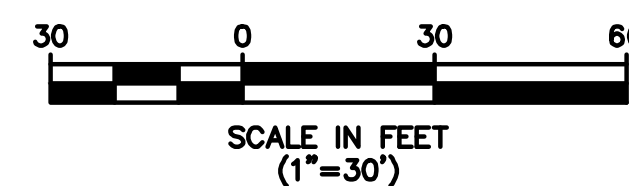
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 - MIDDLESEX COUNTY ENGINEER
 - OLD BRIDGE TOWNSHIP
- ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIME.
- SEE STAGE 1C FOR WORK ZONE SPEED REDUCTION SIGNING

NOTE:

THE CONTRACTOR SHALL PROVIDE A PORTABLE TRAFFIC SIGNAL SYSTEM INCLUDING DRIVEWAY SIGNALIZATION TO MAINTAIN TRAFFIC THROUGH THE WORK ZONE. THE CONTRACTOR SHALL PROVIDE A PORTABLE TRAFFIC SIGNAL LAYOUT PLAN AND TIMING FOR EACH STAGE OF WORK AND OBTAIN ALL NECESSARY APPROVALS FOR THE PORTABLE TRAFFIC SIGNAL SYSTEM.

STAGE 2A:

- PRIOR TO THIS STAGE, INSTALL THE ADVANCE WARNING SIGNS AND ANY OTHER TRAFFIC CONTROL DEVICES AS SHOWN ON THIS PLAN.
 - INCLUDES INSTALLING PORTABLE TEMPORARY TRAFFIC SIGNALS. THE PORTABLE SIGNAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE PERIODICALLY CHECKED TO ENSURE THAT IT IS OPERATING PROPERLY.
- CONSTRUCT EXCAVATION, DRAINAGE, DENSE GRADED AGGREGATE BASE COURSE, AND HOT MIX ASPHALT BASE COURSE.
- NO PROPOSED CULVERT CONSTRUCTION DURING STAGE 2A.



STAGE 2A

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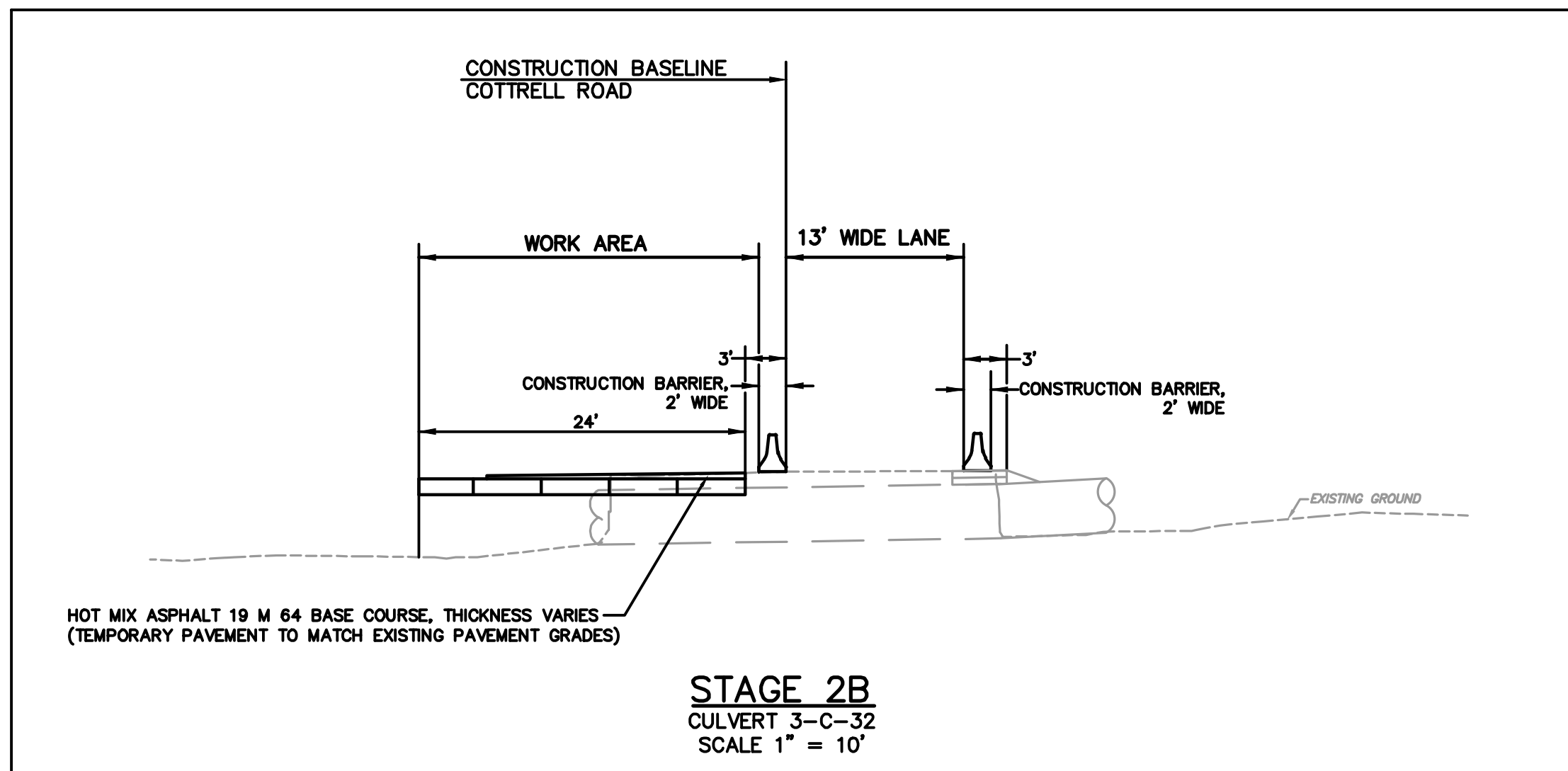
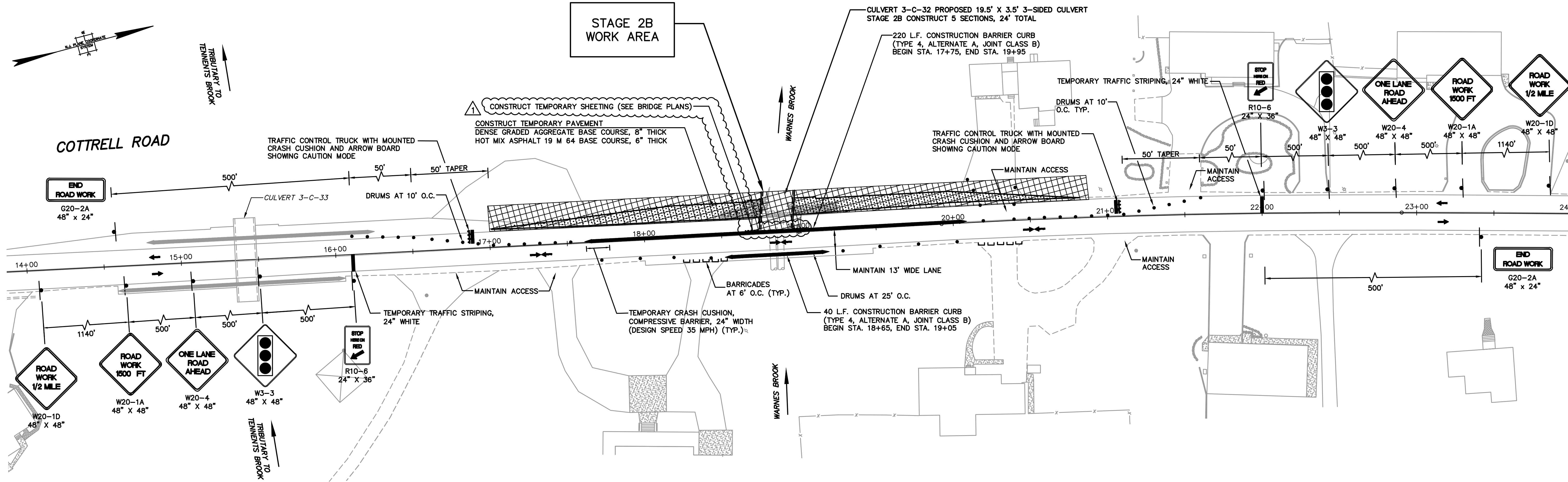
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

TRAFFIC CONTROL, STAGING
AND PEDESTRIAN PLANS

Scale: 1"=30'
Sheet No.: 25 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



NOTES:

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 - OLD BRIDGE TOWNSHIP
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- SEE STAGE 1C FOR WORK ZONE SPEED REDUCTION SIGNING

NOTE:

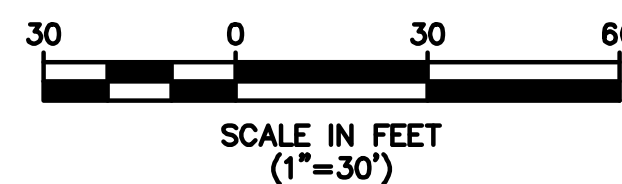
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STAGE 2B:

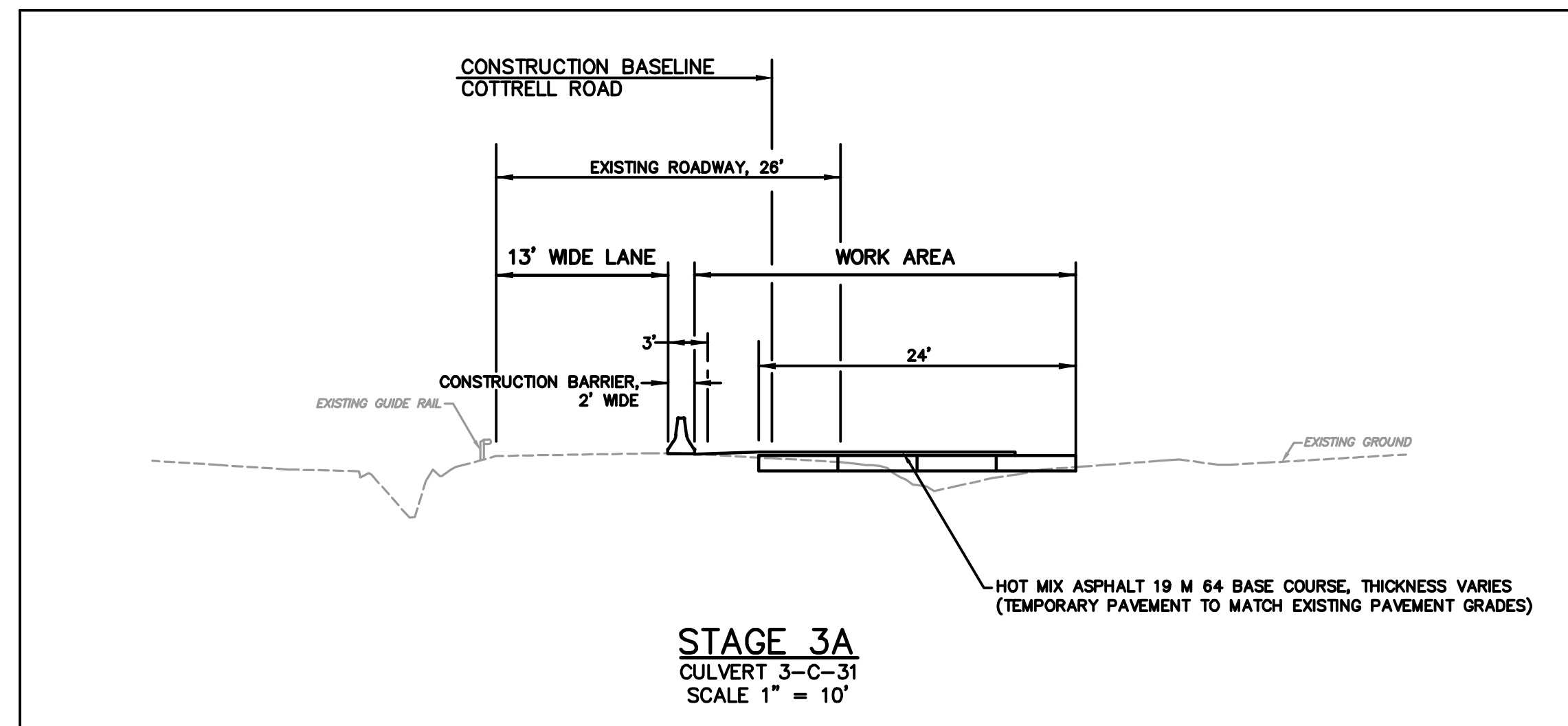
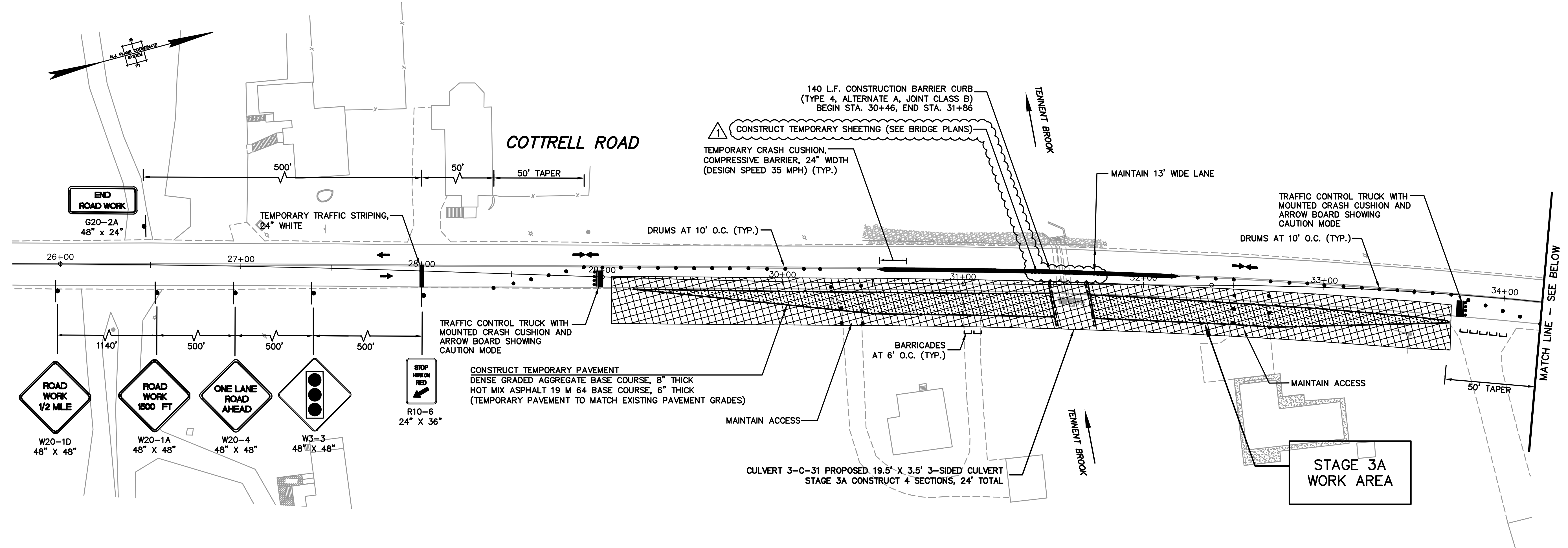
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- CONSTRUCT EXCAVATION, CULVERT, DRAINAGE, DENSE GRADED AGGREGATE BASE COURSE, AND HOT MIX ASPHALT BASE COURSE.

STAGE 2B



HAMILTON OFFICE 1000 Waterview Drive Suite 201 Hamilton, NJ 08691 Phone: 609.587.8200 Fax: 609.587.8260	Colliers Engineering & Design www.colliersengineering.com Doing Business as MASER	County of Middlesex Department of Transportation Office of Engineering 75 Bayard St., New Brunswick, NJ 08901
		IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687) AND COUNTY DRAINAGE STRUCTURES 3-C-31, 3-C-32, AND 3-C-33 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY
Daniel S. Frank NEW JERSEY LICENSED PROFESSIONAL ENGINEER LICENSE NUMBER: GE33434 COLLIER'S ENGINEERING & DESIGN, INC. N.J. C.O.A. #: 24GA27985500		Ronald M. Sendner County Engineer N.J. P.E. No. GE31622
1 1/18/22 dl REVISED PER NJDOT COMMENTS		Scale: 1"=30' Sheet No.: 26 of 68 Date: November 8, 2021 Project No.: 11000297G

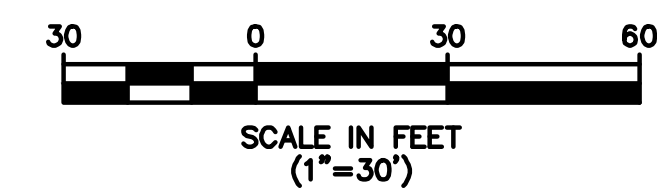
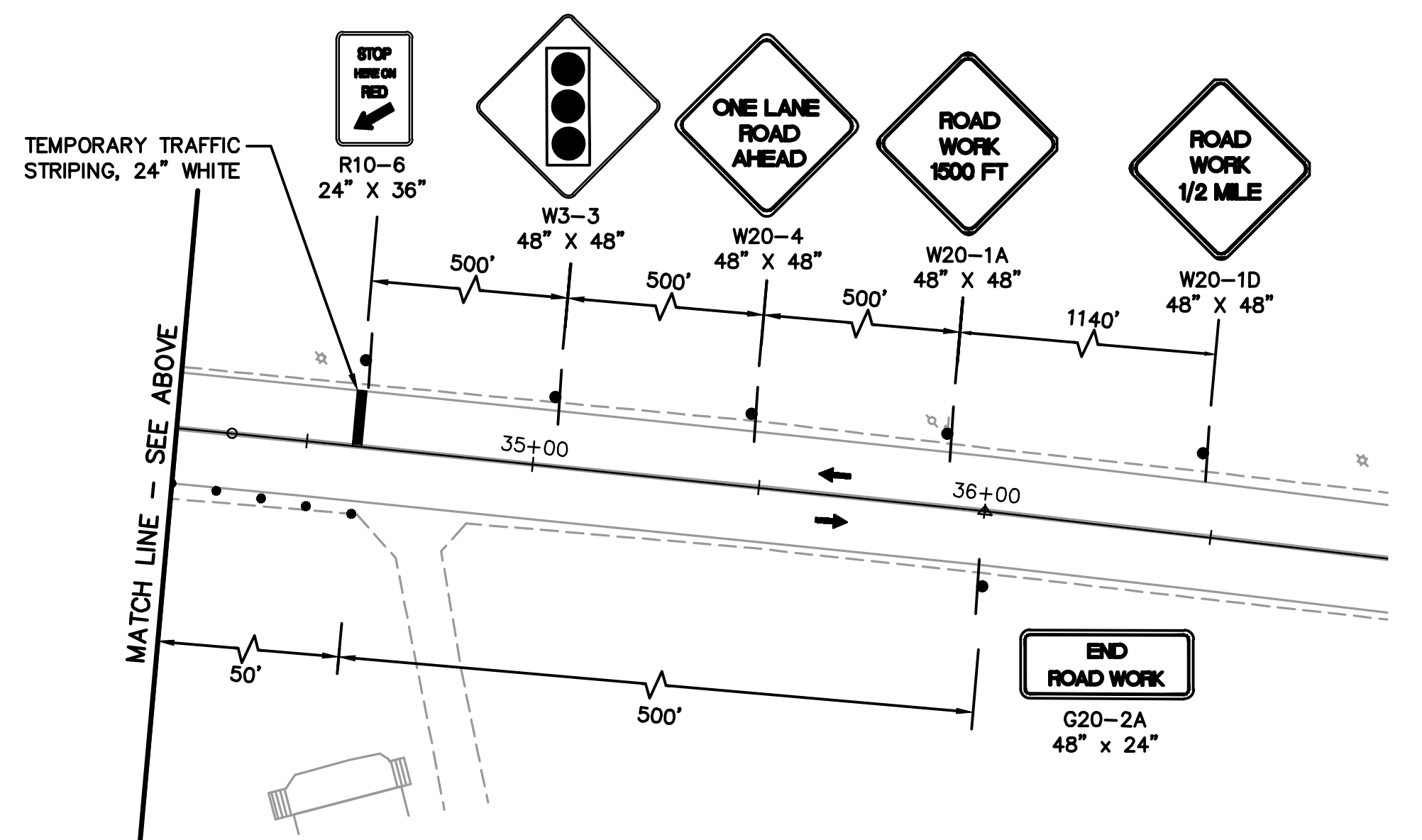


- NOTES:**
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 - MIDDLESEX COUNTY ENGINEER
 - OLD BRIDGE TOWNSHIP
 - ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIME.
 - SEE STAGE 1C FOR WORK ZONE SPEED REDUCTION SIGNING.
- STAGE 3A:**
- PRIOR TO THIS STAGE, INSTALL THE ADVANCE WARNING SIGNS AND ANY OTHER TRAFFIC CONTROL DEVICES AS SHOWN ON THIS PLAN.

INCLUDES INSTALLING PORTABLE TEMPORARY TRAFFIC SIGNALS. THE PORTABLE SIGNAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE PERIODICALLY CHECKED TO ENSURE THAT IT IS OPERATING PROPERLY.
 - CONSTRUCT EXCAVATION, CULVERT, DRAINAGE, DENSE GRADED AGGREGATE BASE COURSE, AND HOT MIX ASPHALT BASE COURSE.

NOTE:

THE CONTRACTOR SHALL PROVIDE A PORTABLE TRAFFIC SIGNAL SYSTEM INCLUDING DRIVEWAY SIGNALIZATION TO MAINTAIN TRAFFIC THROUGH THE WORK ZONE. THE CONTRACTOR SHALL PROVIDE A PORTABLE TRAFFIC SIGNAL LAYOUT PLAN AND TIMING FOR EACH STAGE OF WORK AND OBTAIN ALL NECESSARY APPROVALS FOR THE PORTABLE TRAFFIC SIGNAL SYSTEM.



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Phone: 609.587.8200 Fax: 609.587.8260

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1	1/18/22	dl	REVISED PER NJDOT COMMENTS

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Daniel S. Frank
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE33434
COLLIERS ENGINEERING & DESIGN, INC.
NJ, C.O.A. #: 24GA27986500

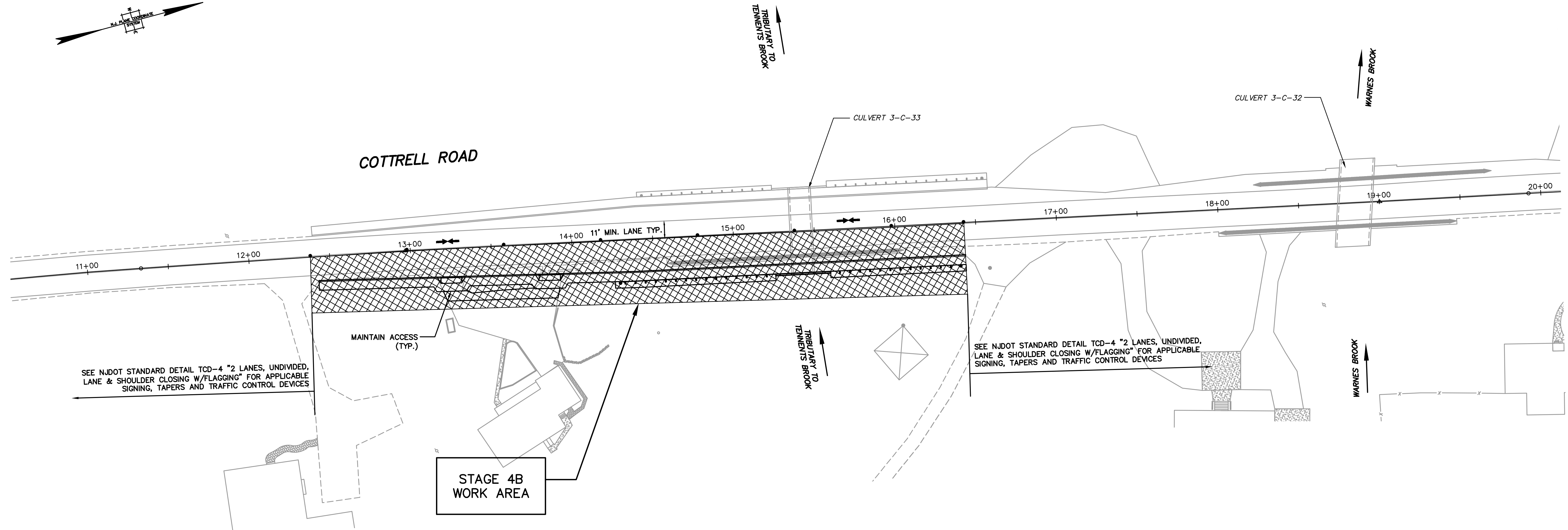
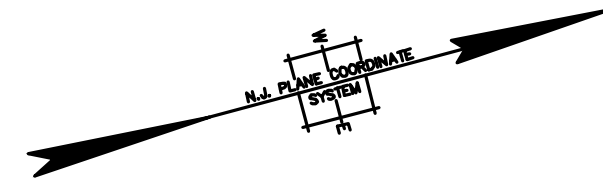
County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

TRAFFIC CONTROL, STAGING
AND PEDESTRIAN PLANS

Scale: 1"=30'
Sheet No.: 29 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



SEE NJDOT STANDARD DETAIL TCD-4 "2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING" FOR APPLICABLE SIGNING, TAPERS AND TRAFFIC CONTROL DEVICES

MAINTAIN ACCESS (TYP.)

STAGE 4B
WORK AREA

SEE NJDOT STANDARD DETAIL TCD-4 "2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING" FOR APPLICABLE SIGNING, TAPERS AND TRAFFIC CONTROL DEVICES

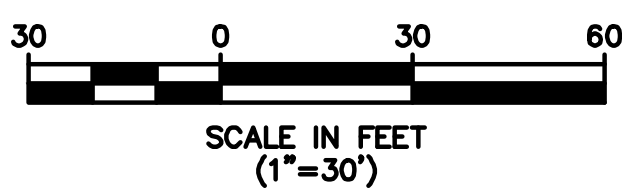
NOTES:

- FOR GENERAL NOTES AND LEGEND ON TRAFFIC CONTROL DEVICES, SEE SHEET NO. TC-1.
- CONTRACTOR TO NOTIFY (IN WRITING) THE FOLLOWING AGENCIES 28 DAYS PRIOR TO START OF CONSTRUCTION:
 - MIDDLESEX COUNTY ENGINEER
 - OLD BRIDGE TOWNSHIP
- ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIME.
- DURING THE CONSTRUCTION OF ANY STORM SEWER CROSSING FLAGGERS WILL BE REQUIRED TO MAINTAIN TRAFFIC FLOW. FLAGGERS SHALL BE USED AT ALL TIMES WHEN TWO, 11-FOOT MINIMUM LANES CANNOT BE MAINTAINED. SEE NJDOT STANDARD DETAIL TCD-4 "2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING" FOR APPLICABLE SIGNAGE, TAPERS, AND TRAFFIC CONTROL DEVICES.

STAGE 4B:

- NJDOT STANDARD DETAIL TCD-4 "2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING" SHALL BE USED. INSTALL ALL THE ADVANCE WARNING SIGNS AND ANY OTHER TRAFFIC CONTROL DEVICES REQUIRED FOR THE WORK AREA.
- CONSTRUCT EXCAVATION, DRAINAGE, PARAPET, CURB, SIDEWALK, BEAM GUIDE RAIL AND/OR QUADGAUD AS APPLICABLE, DENSE GRADED AGGREGATE BASE COURSE, AND HOT MIX ASPHALT BASE COURSE.
- EXISTING STRIPING TO BE MAINTAINED DURING NON-WORKING HOURS BY USE OF TEMPORARY STRIPING.

STAGE 4B



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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

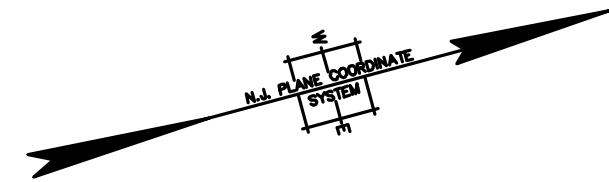
TRAFFIC CONTROL, STAGING
 AND PEDESTRIAN PLANS

Scale: 1"=30'
 Sheet No.: 33 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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WARNES BROOK

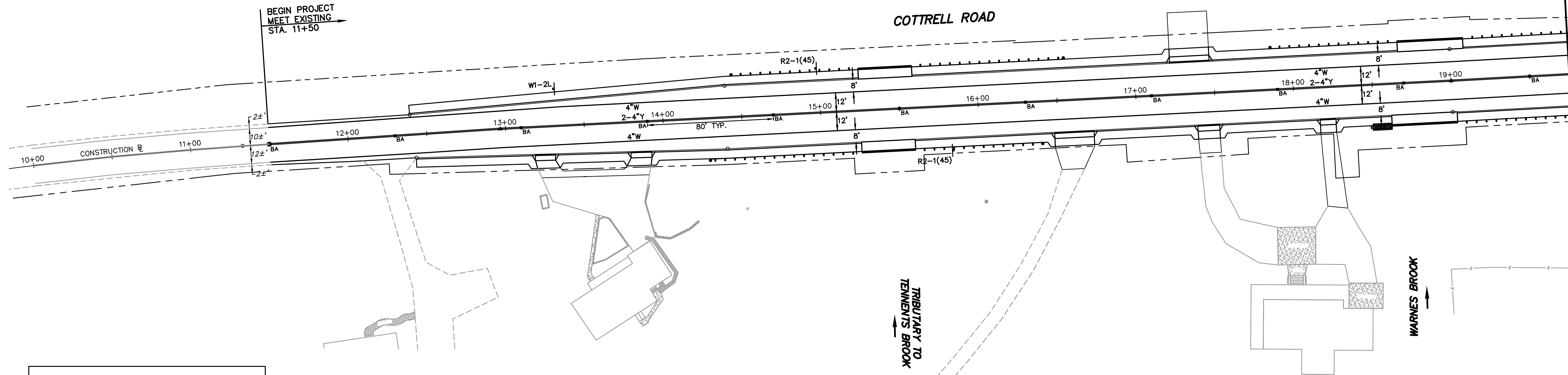
TRIBUTARY TO TENNENTS BROOK

COTTRELL ROAD

TRIBUTARY TO TENNENTS BROOK

WARNES BROOK

MATCH LINE STA. 19+75 - SEE SHEET SS-2



PAVEMENT MARKING LEGEND

UNLESS OTHERWISE SHOWN, PAVEMENT MARKINGS SHALL CONFORM TO THE FOLLOWING:

- STOP LINE - 24" WIDE WHITE LINE
- CENTER LINE - 2-4" WIDE YELLOW LINES
- DASHED LANE LINE - 4" WIDE WHITE LINE, 10' LONG AT 30' INTERVALS
- LANE EXTENSION GUIDE LANES - 4" WIDE WHITE LINE, 2' LONG AT 4' INTERVALS
- SOLID LANE LINE-EXCLUSIVE MOVEMENT - 8" WIDE WHITE LINE
- SOLID LANE LINE- ALL OTHERS - 4" WIDE WHITE LINE
- CROSSWALK LINES - 8" WIDE YELLOW LINES
- MEDIAN CROSS HATCH LINES - 24" WIDE WHITE LINES AT 45° SPACED 12' O.C.
- GORE CROSS HATCH LINES - 24" WIDE WHITE LINES AT 45° SPACED 12' O.C.
- ISLAND CHANNELIZATION LINE - 8" WIDE WHITE LINE
- RIGHT SHOULDER LINE - 4" WIDE WHITE LINE
- LEFT SHOULDER LINE - 4" WIDE YELLOW LINE

- NOTES:**
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
 - NEAREST CROSSWALK LINE IS TO BE LOCATED A MINIMUM OF 4' FROM STOP LINE
 - EXISTING STRIPING THAT DOES NOT CONFORM TO THIS PLAN SHALL BE REMOVED BY THE GRINDING METHOD.
 - ALL CONFLICTING SIGNS, TREES AND OTHER OBSTRUCTIONS SHALL BE REMOVED AS PART OF THIS CONSTRUCTION.
 - W = WHITE STRIPE
Y = YELLOW STRIPE

RPM LEGEND

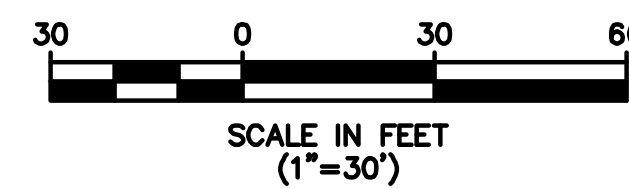
BA ■ RPM, BI-DIRECTIONAL AMBER LENS

SIGN LEGEND

Sign	Width (in)	Height (in)	Area (sf)	QTY.	Total Area (sf)
R2-1	24	30	5.00	2	10.00
W1-2(L)	30	30	6.25	1	6.25
TOTAL:					16.25

NOTES:

- RAISED PAVEMENT MARKERS (RPM) TO BE PROVIDED AS SHOWN ON THIS PLAN AND CONSTRUCTED IN ACCORDANCE WITH NJDOT CONSTRUCTION DETAILS CD-610-1, 2, & 3.
- EXISTING RAISED PAVEMENT MARKERS (RPM) IN CONFLICT WITH PROPOSED IMPROVEMENTS TO BE REMOVED. FILL THE HOLE WITH HMA PATCH. THE COST OF THE REMOVAL OF THE RPM AND HMA SHALL BE INCLUDED IN THE COST OF THE RPM ITEMS.



PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
67	RPM, BI-DIRECTIONAL, AMBER LENS	11 UNIT
68	TRAFFIC MARKING LINES, 4"	3,300 LF
69	REGULATORY AND WARNING SIGN	16.25 SF

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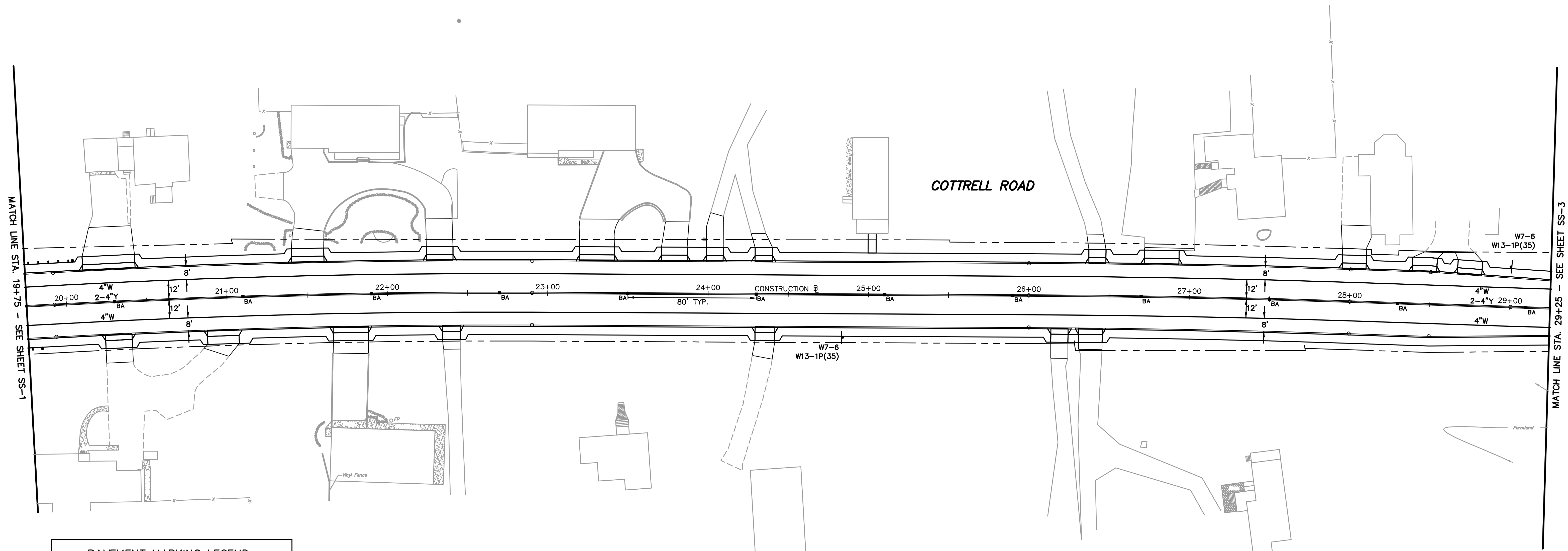
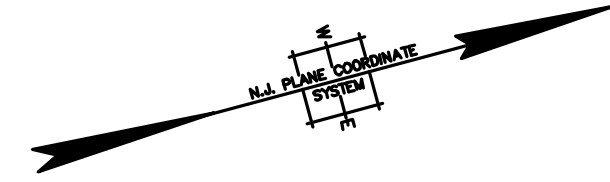
County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

SIGNING AND STRIPING PLANS

Scale: 1"=30'
Sheet No.: 42 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



MATCH LINE STA. 19+75 - SEE SHEET SS-1

MATCH LINE STA. 29+25 - SEE SHEET SS-3

PAVEMENT MARKING LEGEND

UNLESS OTHERWISE SHOWN, PAVEMENT MARKINGS SHALL CONFORM TO THE FOLLOWING:

STOP LINE	-24" WIDE WHITE LINE
CENTER LINE	-2-4" WIDE YELLOW LINES
DASHED LANE LINE	-4" WIDE WHITE LINE, 10' LONG AT 30' INTERVALS
LANE EXTENSION GUIDE LANES	-4" WIDE WHITE LINE, 2' LONG AT 4' INTERVALS
SOLID LANE LINE-EXCLUSIVE MOVEMENT	-8" WIDE WHITE LINE
SOLID LANE LINE- ALL OTHERS	-4" WIDE WHITE LINE
CROSSWALK LINES	-8" WIDE WHITE LINES
MEDIAN CROSS HATCH LINES	-24" WIDE YELLOW LINES AT 45° SPACED 12' O.C.
GORE CROSS HATCH LINES	-24" WIDE WHITE LINES AT 45° SPACED 12' O.C.
ISLAND CHANNELIZATION LINE	-8" WIDE WHITE LINE
RIGHT SHOULDER LINE	-4" WIDE WHITE LINE
LEFT SHOULDER LINE	-4" WIDE YELLOW LINE

NOTES:
 1) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
 2) NEAREST CROSSWALK LINE IS TO BE LOCATED A MINIMUM OF 4' FROM STOP LINE
 3) EXISTING STRIPING THAT DOES NOT CONFORM TO THIS PLAN SHALL BE REMOVED BY THE GRINDING METHOD.
 4) ALL CONFLICTING SIGNS, TREES AND OTHER OBSTRUCTIONS SHALL BE REMOVED AS PART OF THIS CONSTRUCTION.
 5) W = WHITE STRIPE
 Y = YELLOW STRIPE

RPM LEGEND

BA ■ RPM, BI-DIRECTIONAL AMBER LENS

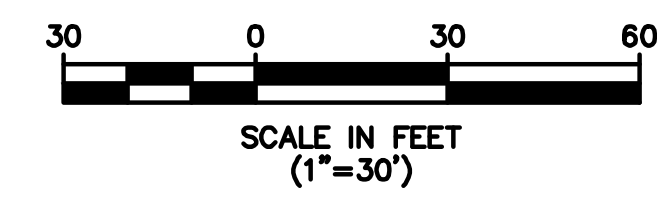
SIGN LEGEND

W7-6	HILL BLOCKS VIEW	30" X 30"
W13-1P	ADVISORY SPEED (35)	18" X 18"

Sign	Width (in)	Height (in)	Area (sf)	QTY.	Total
W7-6	30	30	6.25	2	12.50
W13-1P	18	18	2.25	2	4.50
TOTAL:					17.00

- NOTES:**
1. RAISED PAVEMENT MARKERS (RPM) TO BE PROVIDED AS SHOWN ON THIS PLAN AND CONSTRUCTED IN ACCORDANCE WITH NJDOT CONSTRUCTION DETAILS CD-610-1, 2, & 3.
 2. EXISTING RAISED PAVEMENT MARKERS (RPM) IN CONFLICT WITH PROPOSED IMPROVEMENTS TO BE REMOVED. FILL THE HOLE WITH HMA PATCH. THE COST OF THE REMOVAL OF THE RPM AND HMA SHALL BE INCLUDED IN THE COST OF THE RPM ITEMS.

PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
67	RPM, BI-DIRECTIONAL, AMBER LENS	12 UNIT
68	TRAFFIC MARKING LINES, 4"	3,800 LF
69	REGULATORY AND WARNING SIGN	17.00 SF



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 NJ, C.O.A. #24GA27986500

County of Middlesex
 Department of Transportation
 Office of Engineering
 75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

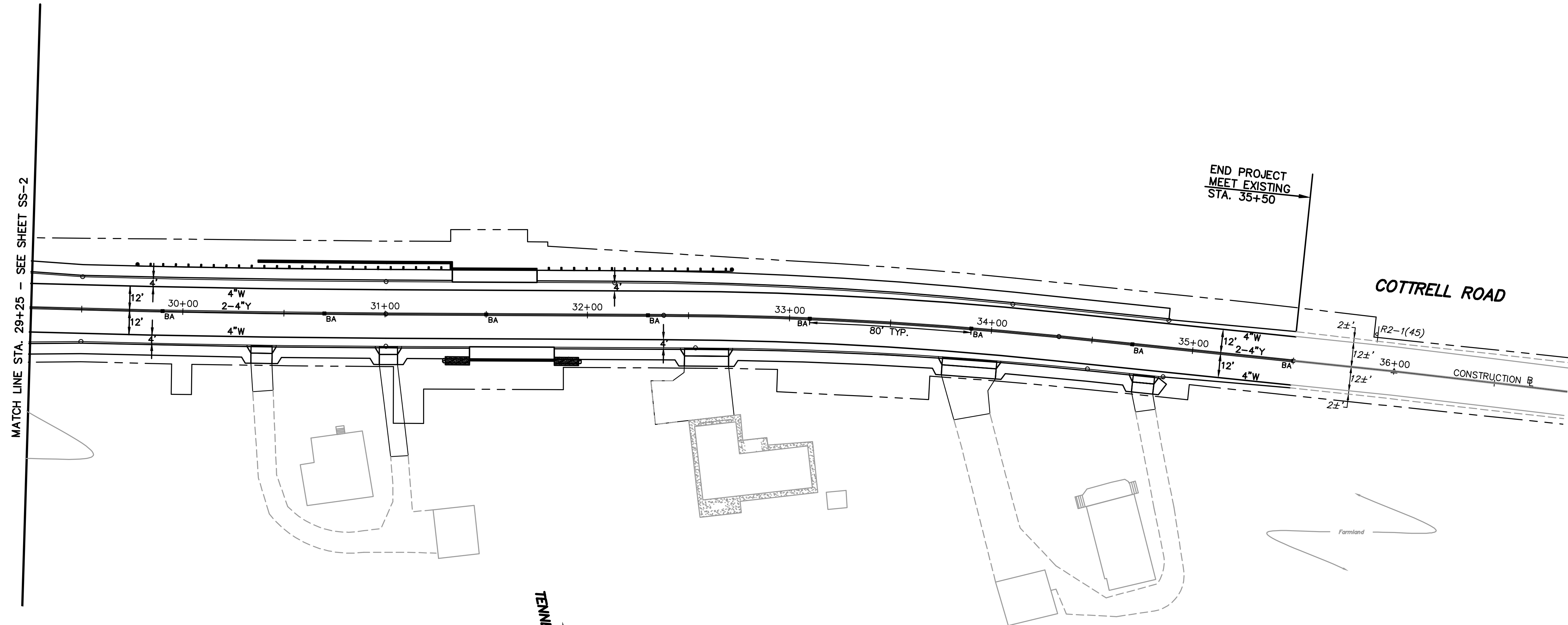
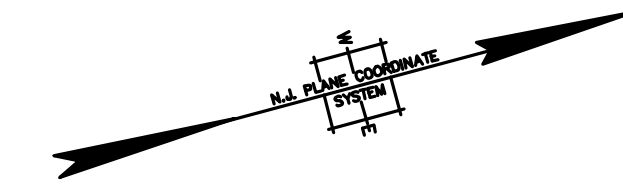
SIGNING AND STRIPING PLANS

Scale: 1"=30'
 Sheet No.: 43 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TENNENT BROOK



PAVEMENT MARKING LEGEND

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RPM LEGEND

BA ■ RPM, BI-DIRECTIONAL AMBER LENS

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PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
67	RPM, BI-DIRECTIONAL, AMBER LENS	8 UNIT
68	TRAFFIC STRIPES, LONG-LIFE, THERMOPLASTIC 4"	2,500 LF

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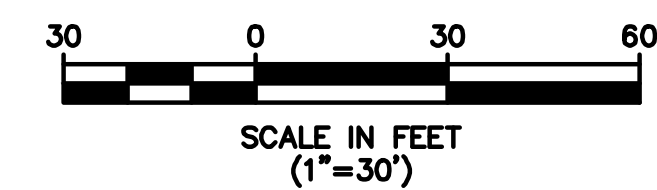
MSA
 Daniel S. Frank
 NEW JERSEY LICENSED PROFESSIONAL ENGINEER
 LICENSE NUMBER: GE33434
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 NJ, C.O.A. #: 24GA27986500

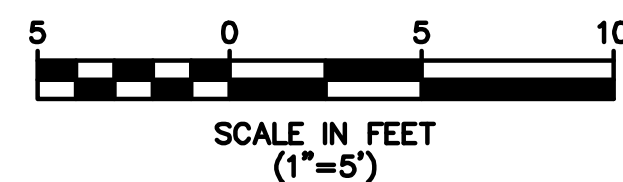
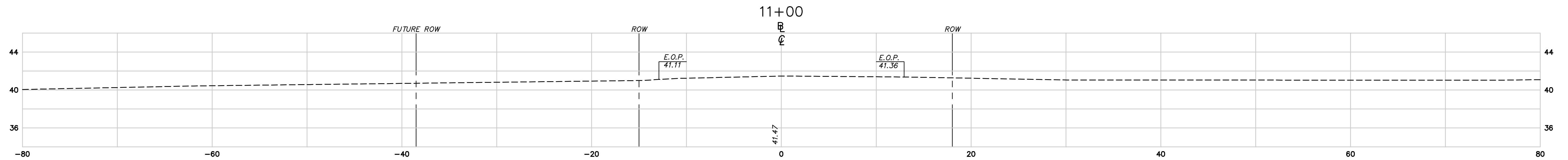
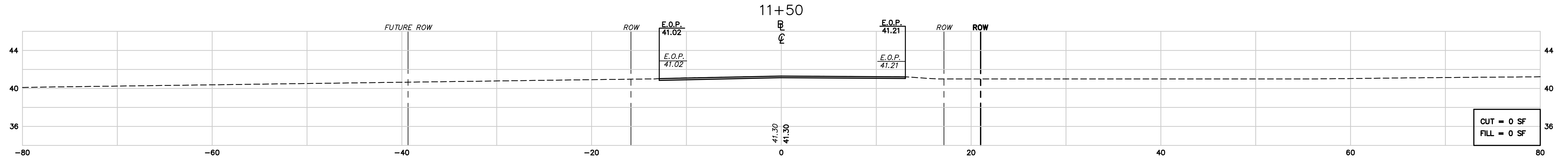
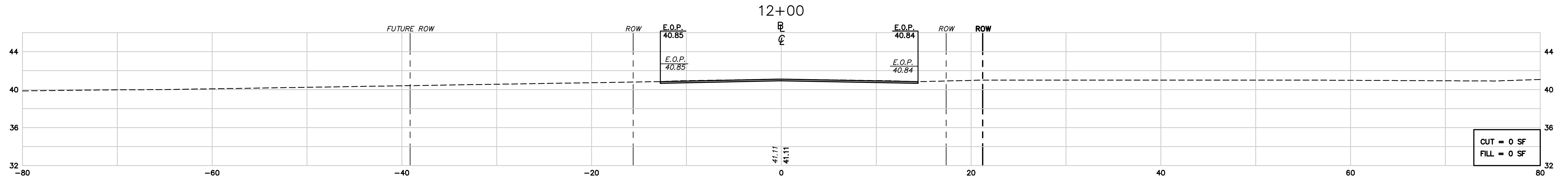
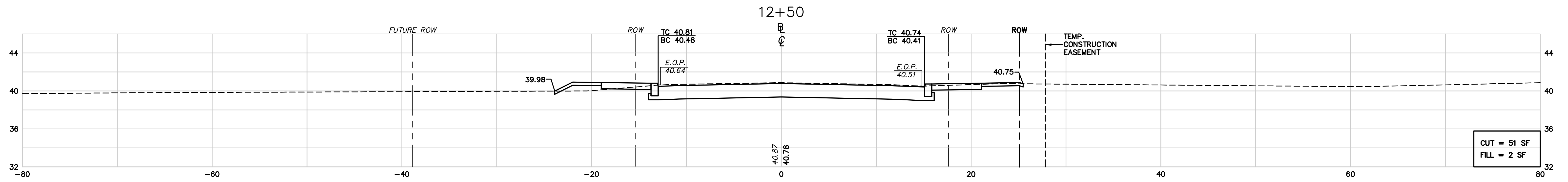
County of Middlesex
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 75 Bayard St., New Brunswick, NJ 08901
 IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

SIGNING AND STRIPING PLANS

Scale: 1"=30'
 Sheet No.: 44 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622





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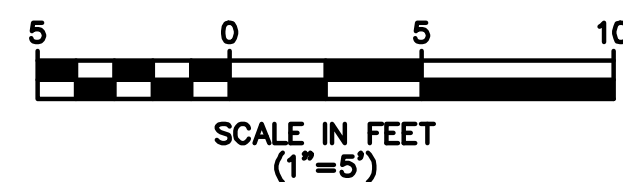
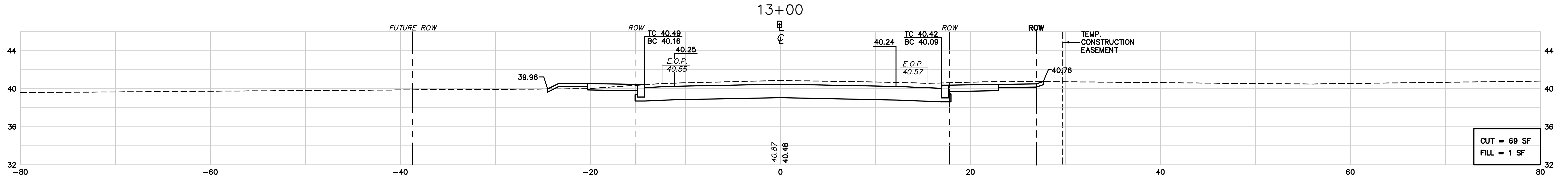
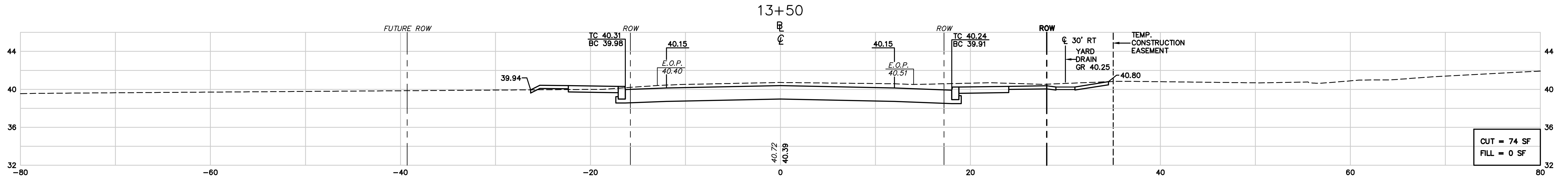
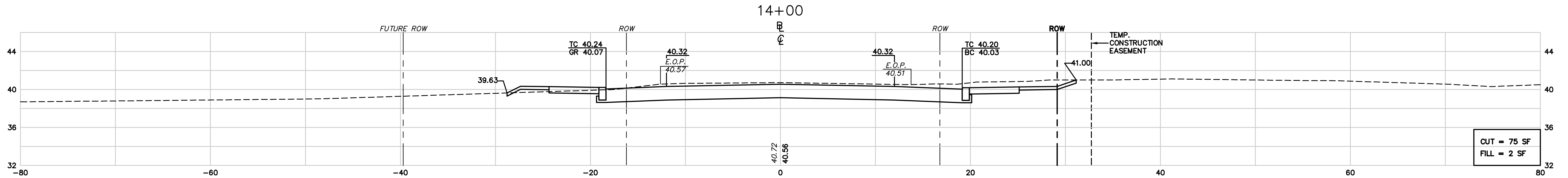
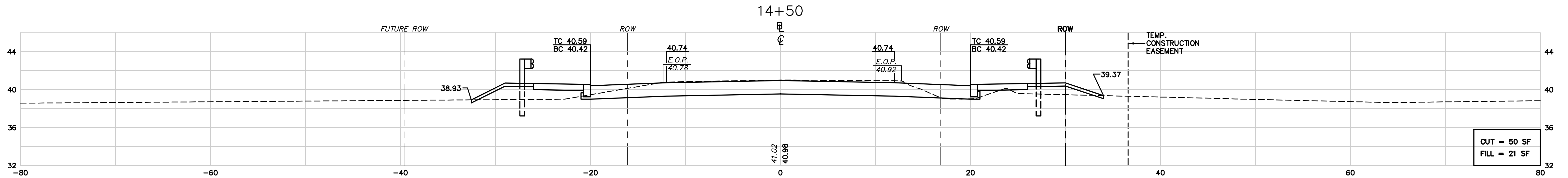
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 11+00 TO STA. 12+50

Scale: 1"=5'
Sheet No.: 45 of 68
Date: November 8, 2021
Project No.: 11000297G

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N.J. P.E. No. GE31622

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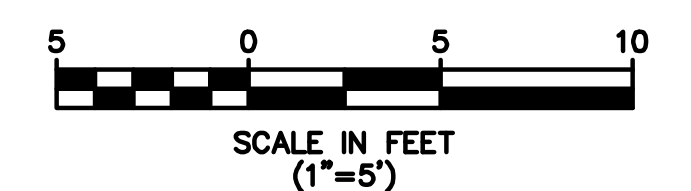
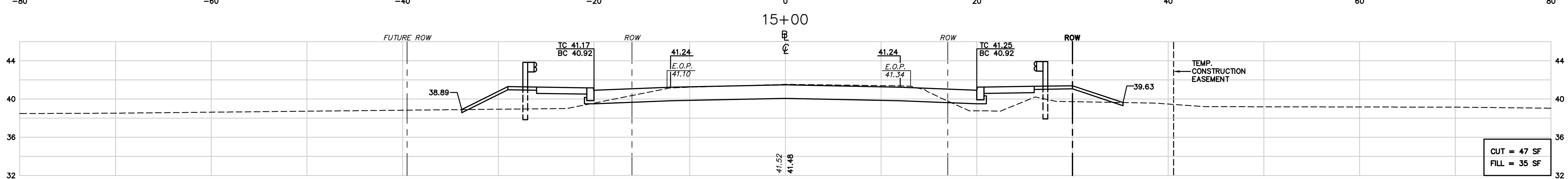
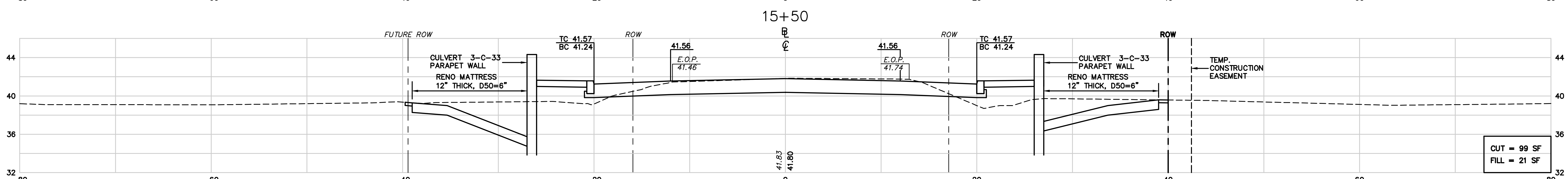
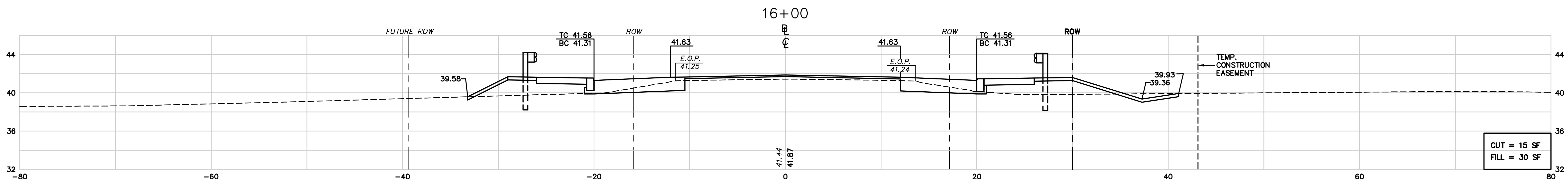
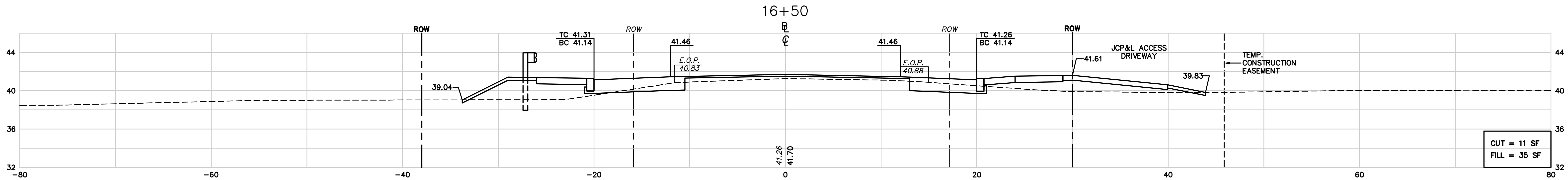
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 13+00 TO STA. 14+50

Scale: 1"=5'
Sheet No.: 46 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sender
County Engineer
N.J. P.E. No. GE31622

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TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

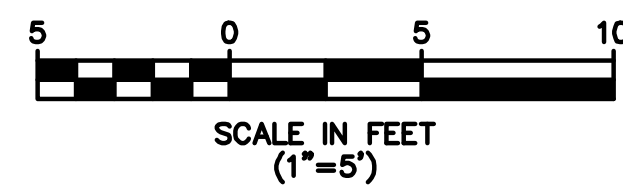
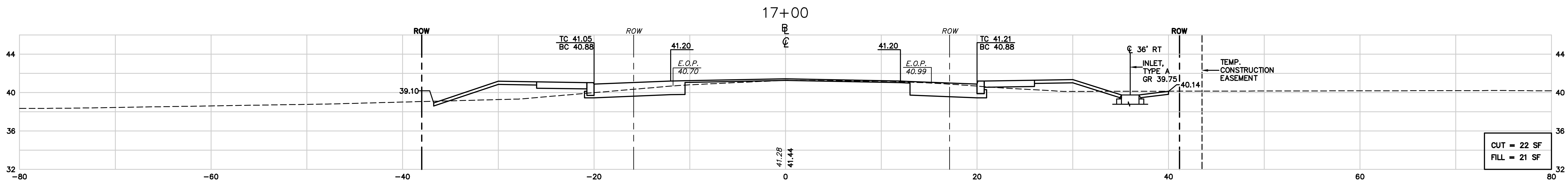
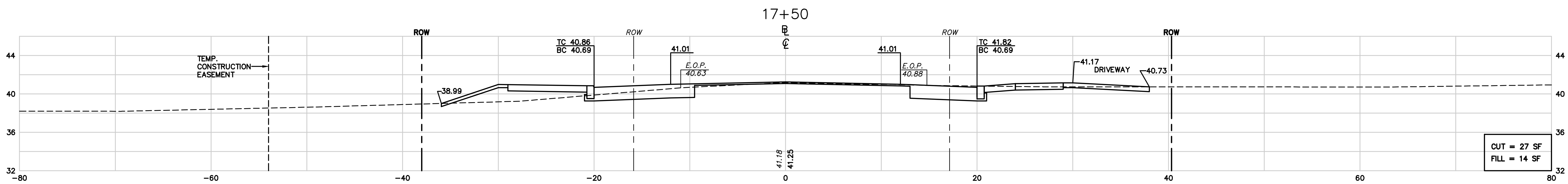
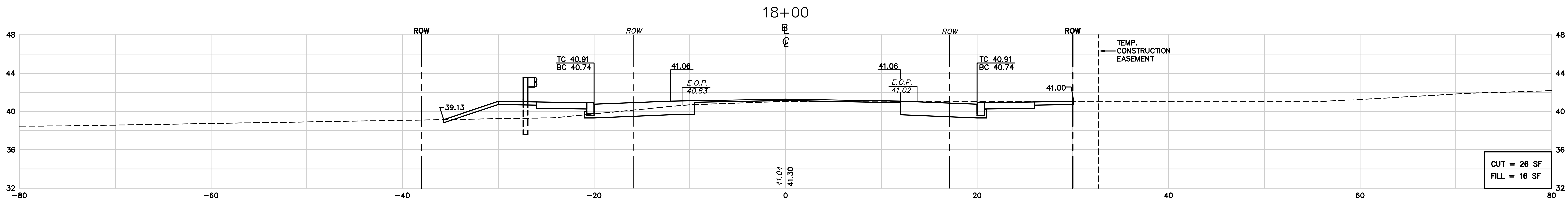
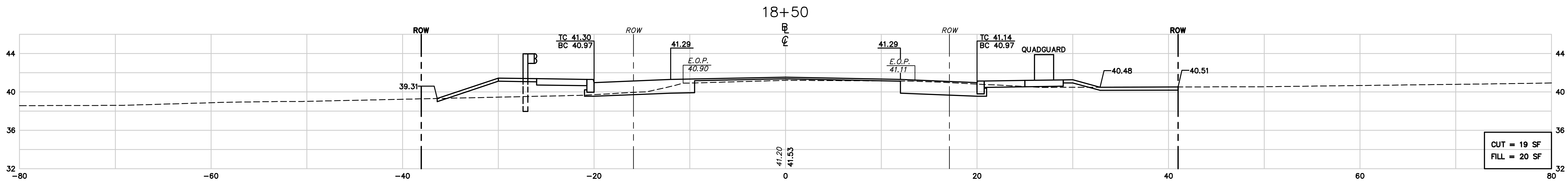
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 15+00 TO STA. 16+50

Scale: 1"=5'
Sheet No.: 47 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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COLLIERS ENGINEERING & DESIGN, INC.
NJ, C.O.A. #: 24GA27986500

County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

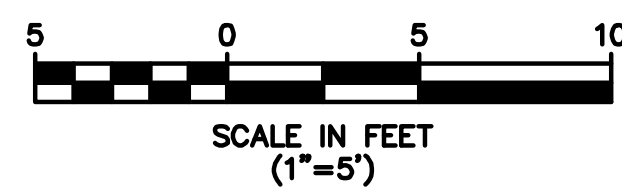
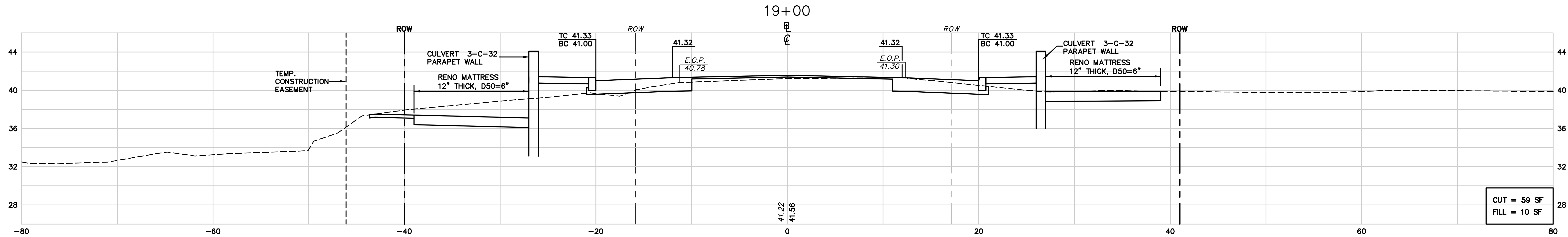
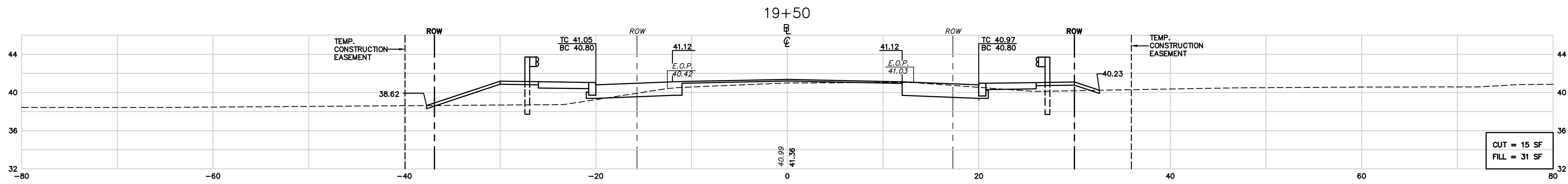
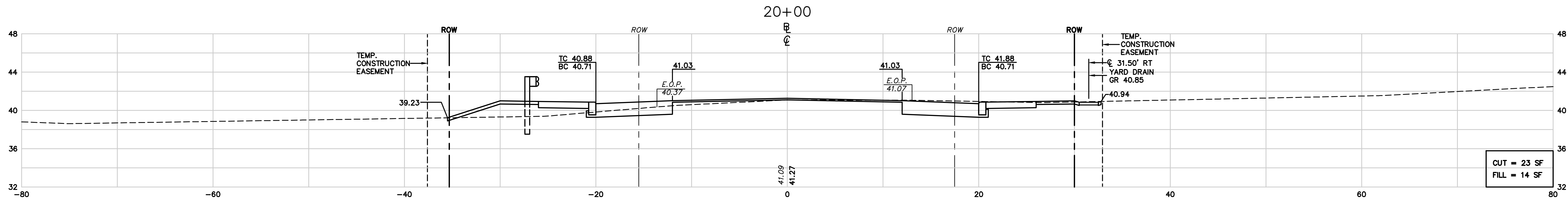
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 17+00 TO STA. 18+50

Scale: 1"=5'
Sheet No.: 48 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

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Department of Transportation
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

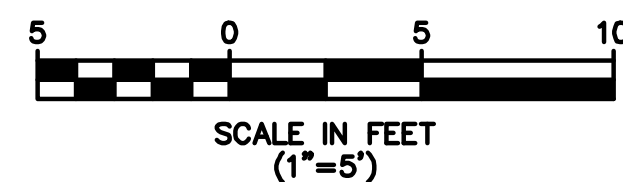
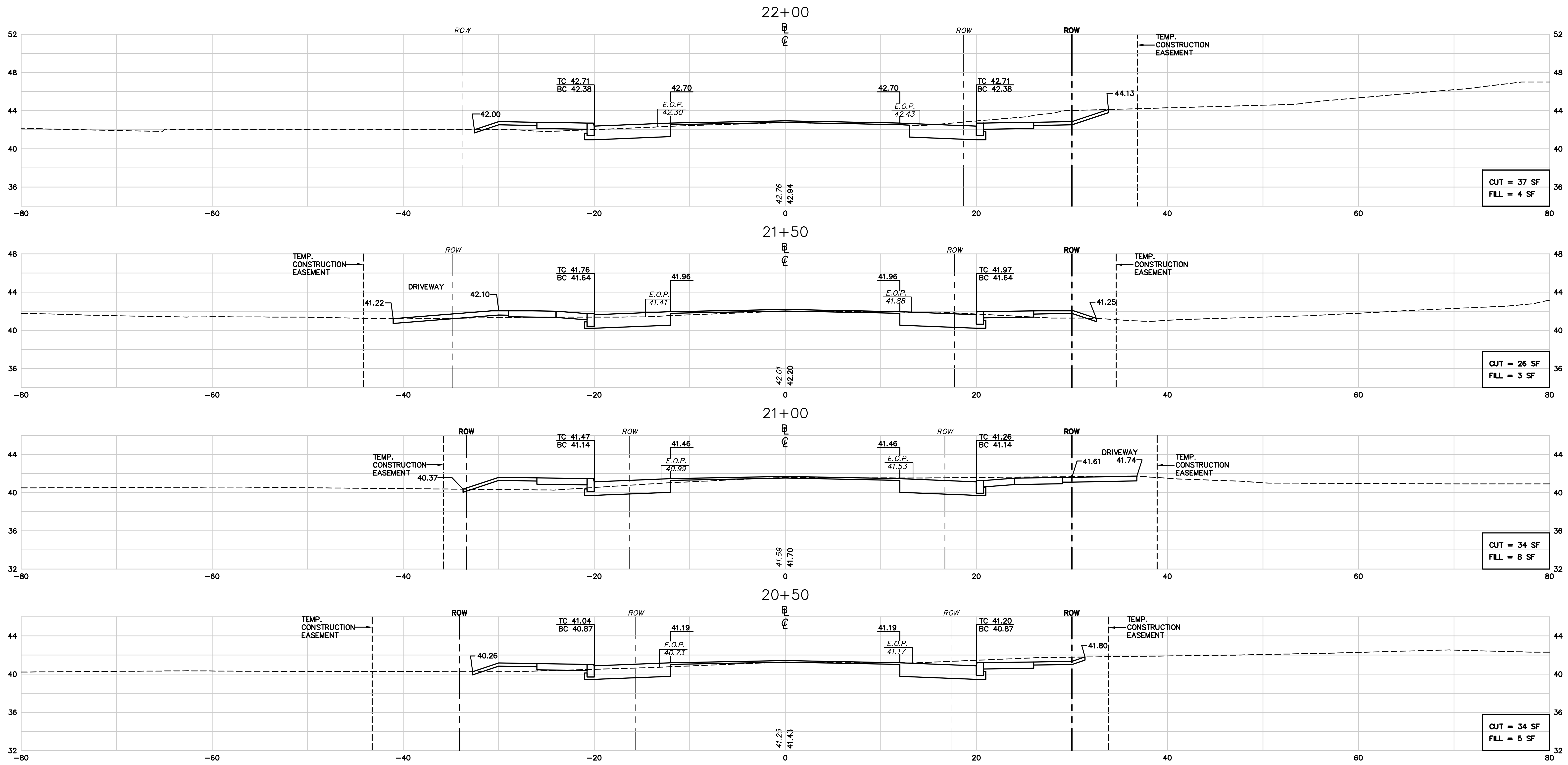
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 19+00 TO STA. 20+00

Scale: 1"=5'
Sheet No.: 49 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
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N.J. P.E. No. GE31622

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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

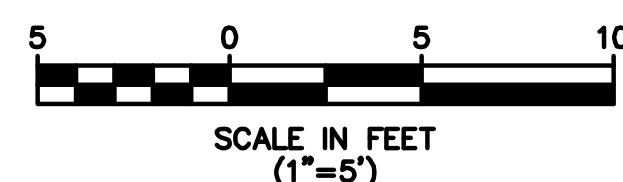
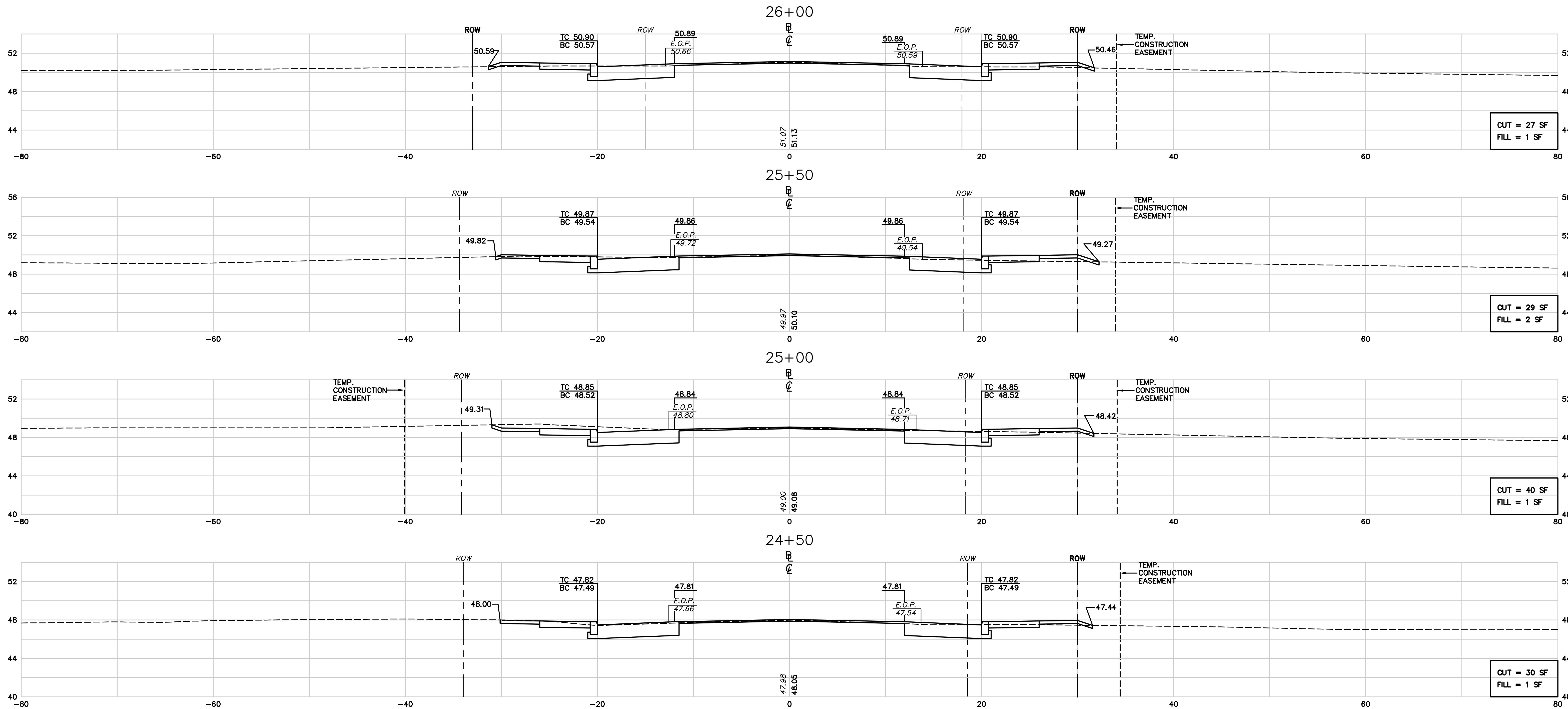
CROSS SECTIONS
 COTTRELL ROAD (MC RT. 687)
 STA. 20+50 TO STA. 22+00

Scale: 1"=5'
 Sheet No.: 50 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622

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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
 AND COUNTY DRAINAGE STRUCTURES
 3-C-31, 3-C-32, AND 3-C-33
 TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

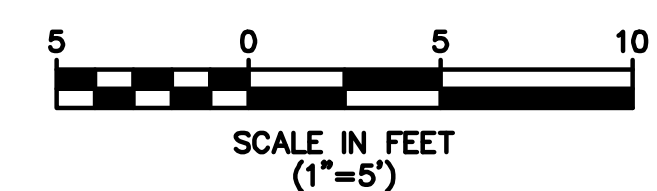
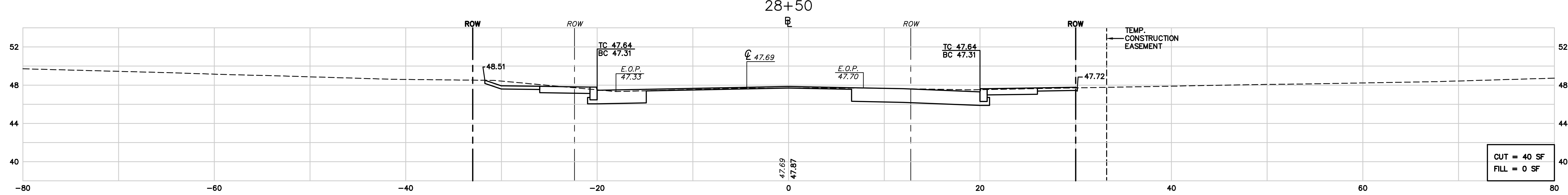
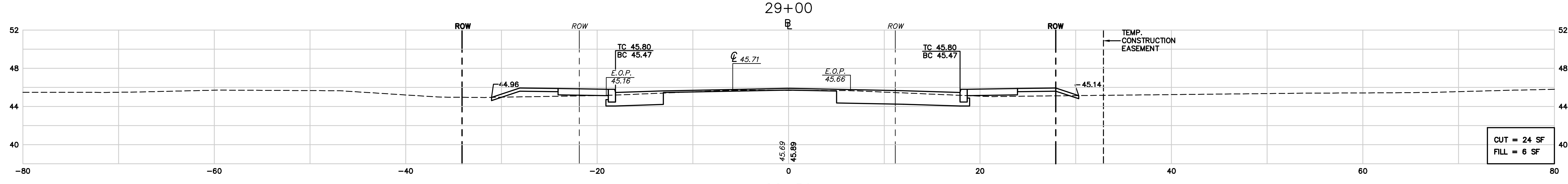
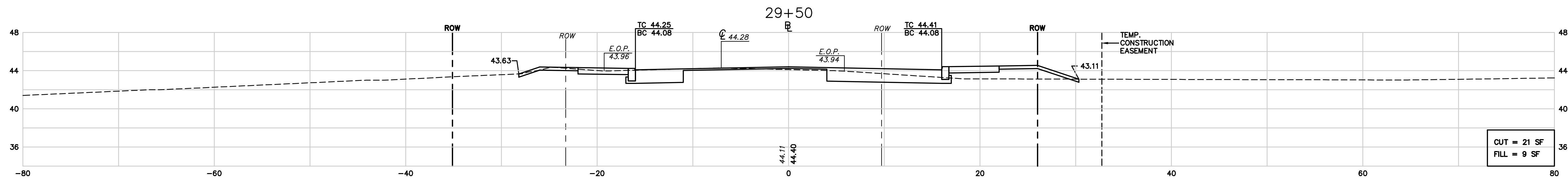
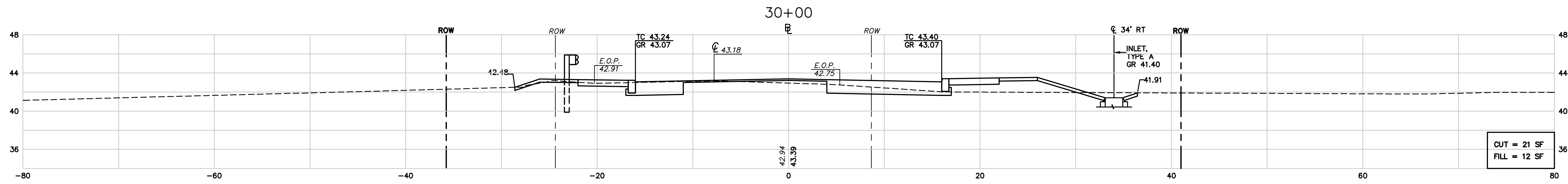
CROSS SECTIONS
 COTTRELL ROAD (MC RT. 687)
 STA. 24+50 TO STA. 26+00

Scale: 1"=5'
 Sheet No.: 52 of 68
 Date: November 8, 2021
 Project No.: 11000297G

Ronald M. Sendner
 County Engineer
 N.J. P.E. No. GE31622

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AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

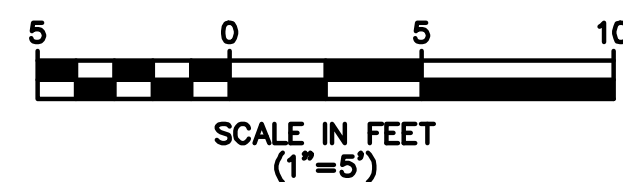
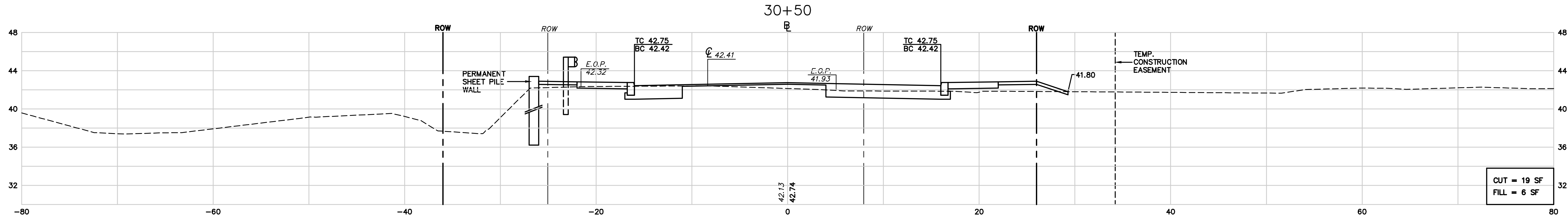
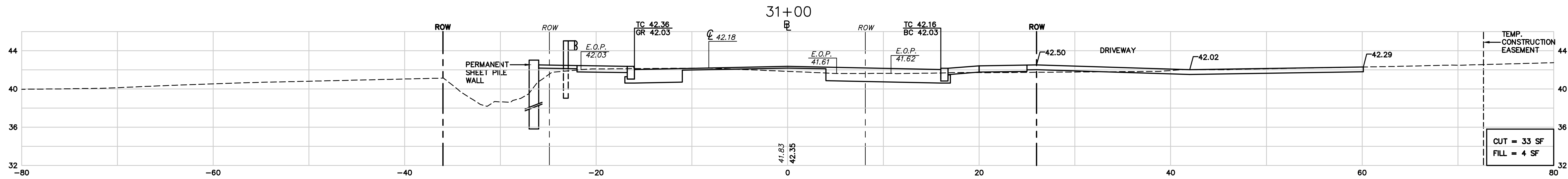
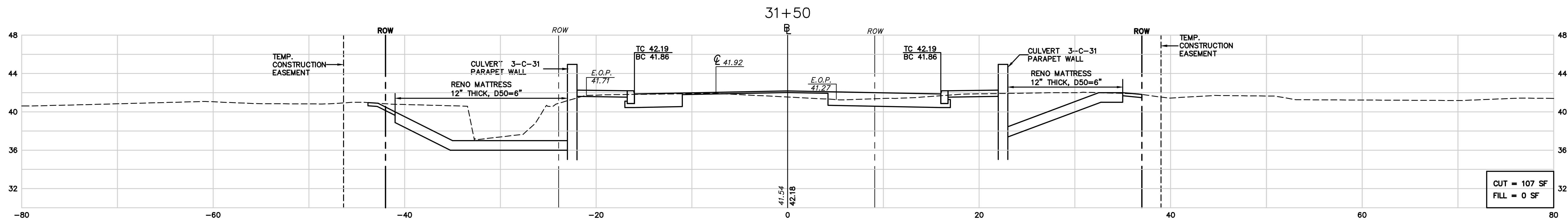
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 28+50 TO STA. 30+00

Scale: 1"=5'
Sheet No.: 54 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

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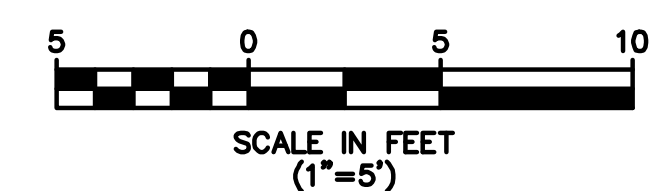
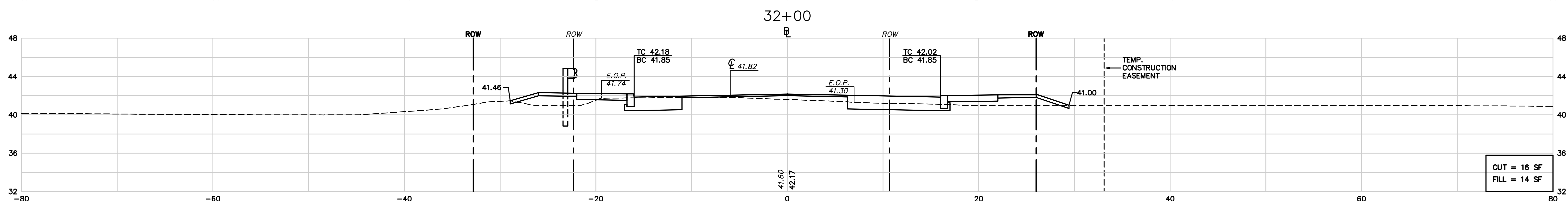
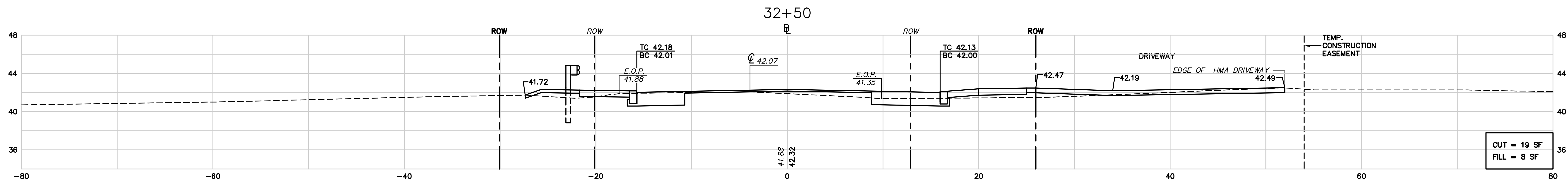
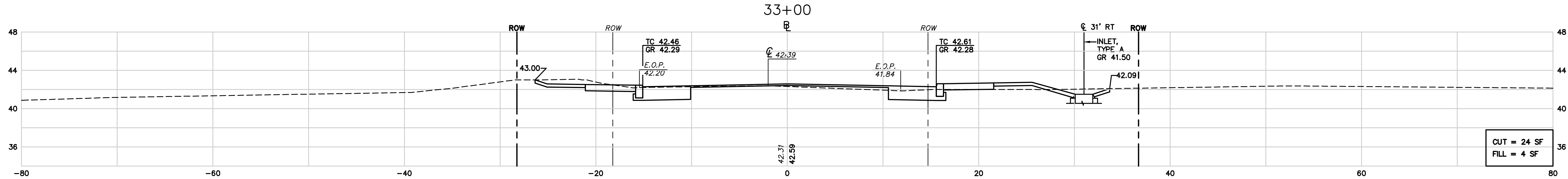
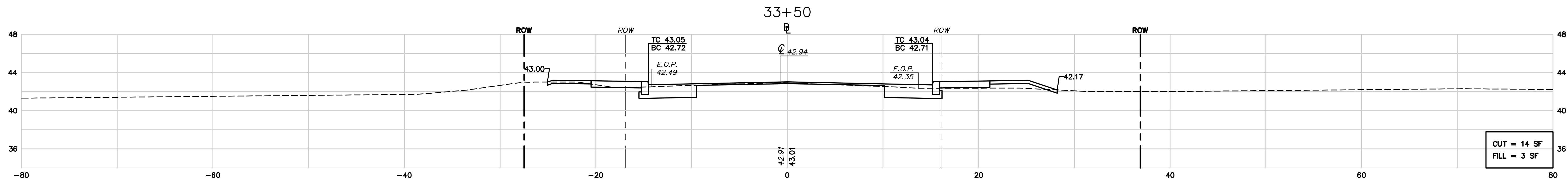
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 30+50 TO STA. 31+50

Scale: 1"=5'
Sheet No.: 55 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sender
County Engineer
N.J. P.E. No. GE31622

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County of Middlesex
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

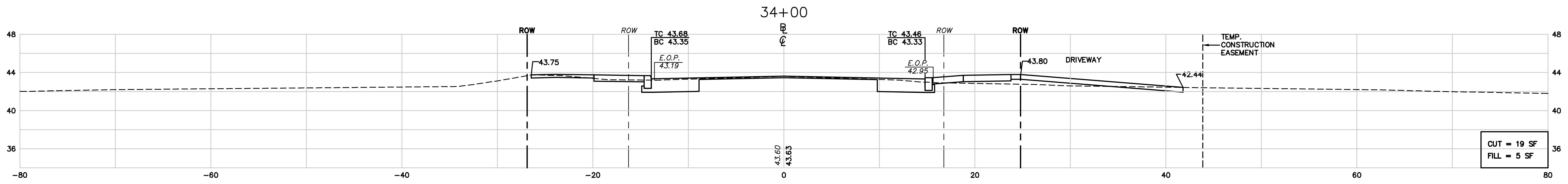
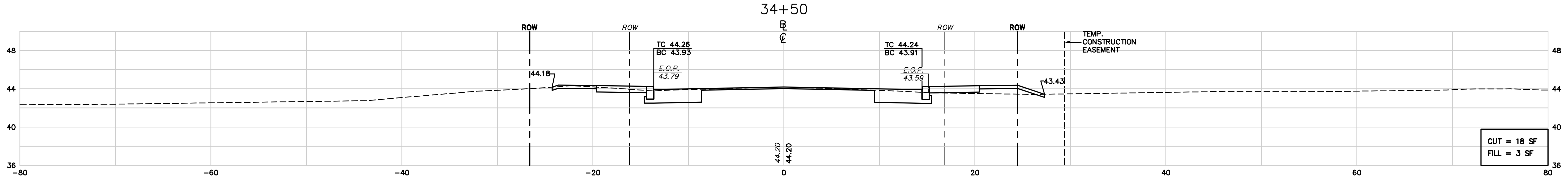
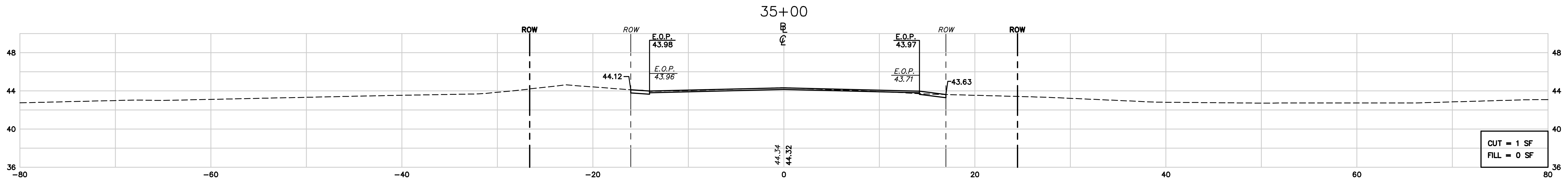
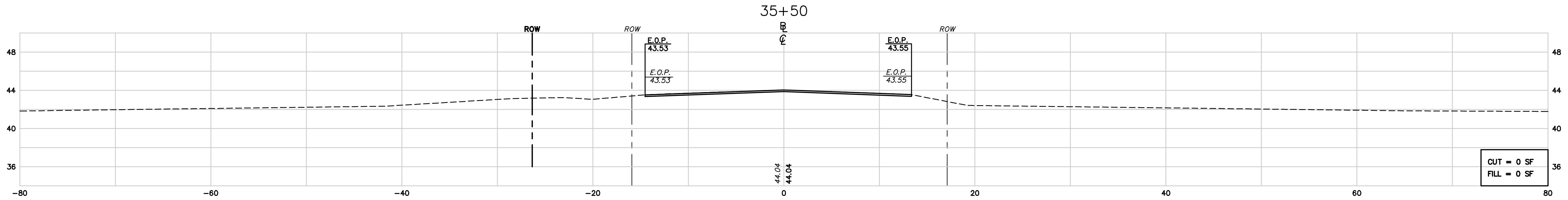
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 32+00 TO STA. 33+50

Scale: 1"=5'
Sheet No.: 56 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

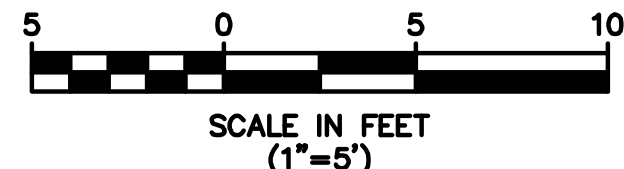
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EARTHWORK SUMMARY - ROADWAY	
EXCAVATION	Cubic Yards (C.Y.)
Cottrell Road ROADWAY EXCAVATION FROM CROSS SECTIONS	3,315
ROADWAY EXCAVATION FROM PLAN SHEETS	0
TOTAL EXCAVATION, UNCLASSIFIED	3,315
ROADWAY EXCAVATION, UNCLASSIFIED ADJUSTMENT FOR 10% SHRINKAGE	332
TOTAL ROADWAY EXCAVATION, UNCLASSIFIED AVAILABLE FOR EMBANKMENT	2,984
Cottrell Road EMBANKMENT FROM CROSS SECTIONS	738
TOTAL EMBANKMENT REQUIRED	738
NET EXCESS EXCAVATION USABLE FOR EMBANKMENT	2,245

Note: Existing pavement removed may be useable for embankment in accordance with the Specifications.



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AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
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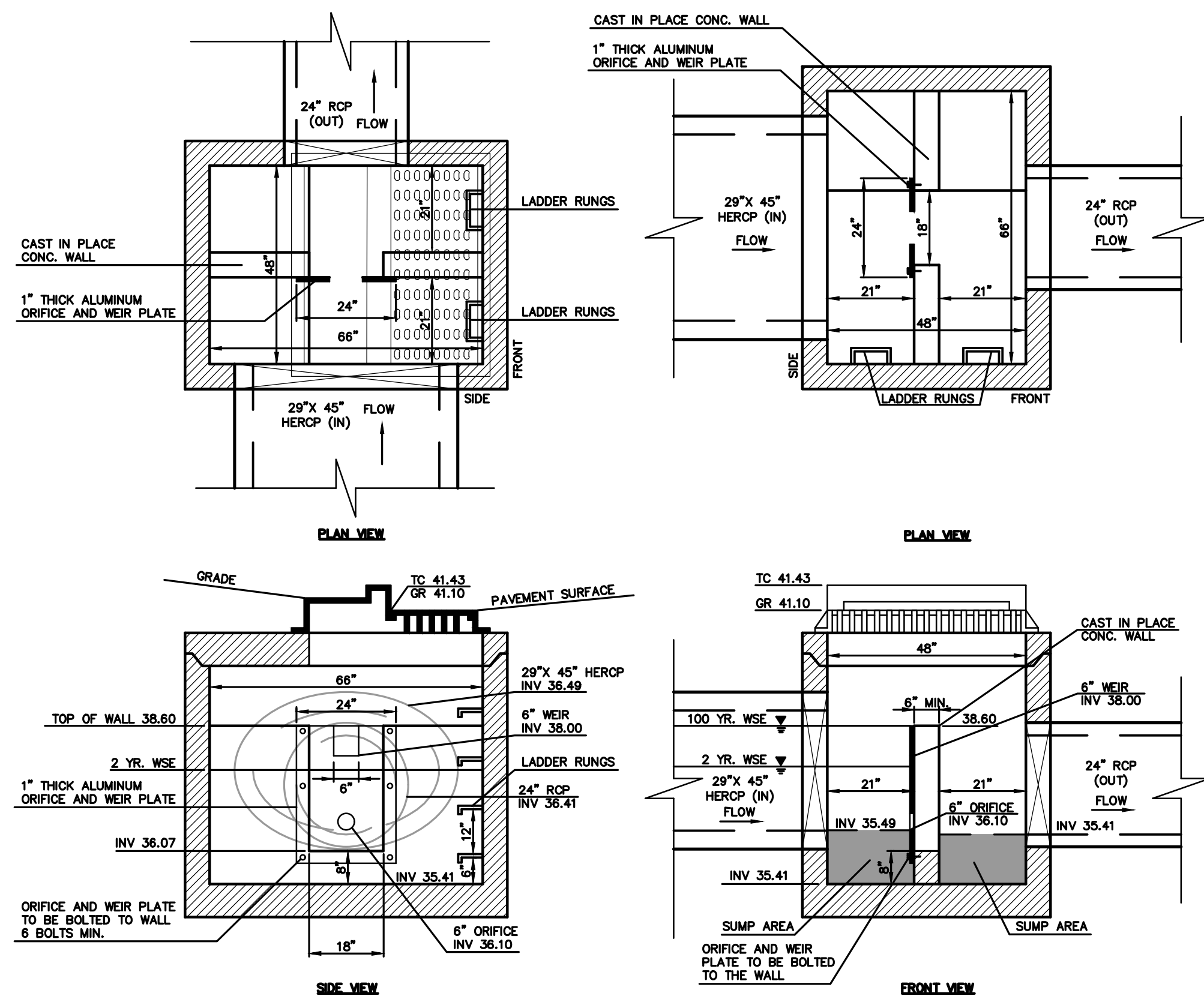
CROSS SECTIONS
COTTRELL ROAD (MC RT. 687)
STA. 34+00 TO STA. 35+50

Scale: 1"=5'
Sheet No.: 57 of 68
Date: November 8, 2021
Project No.: 11000297G

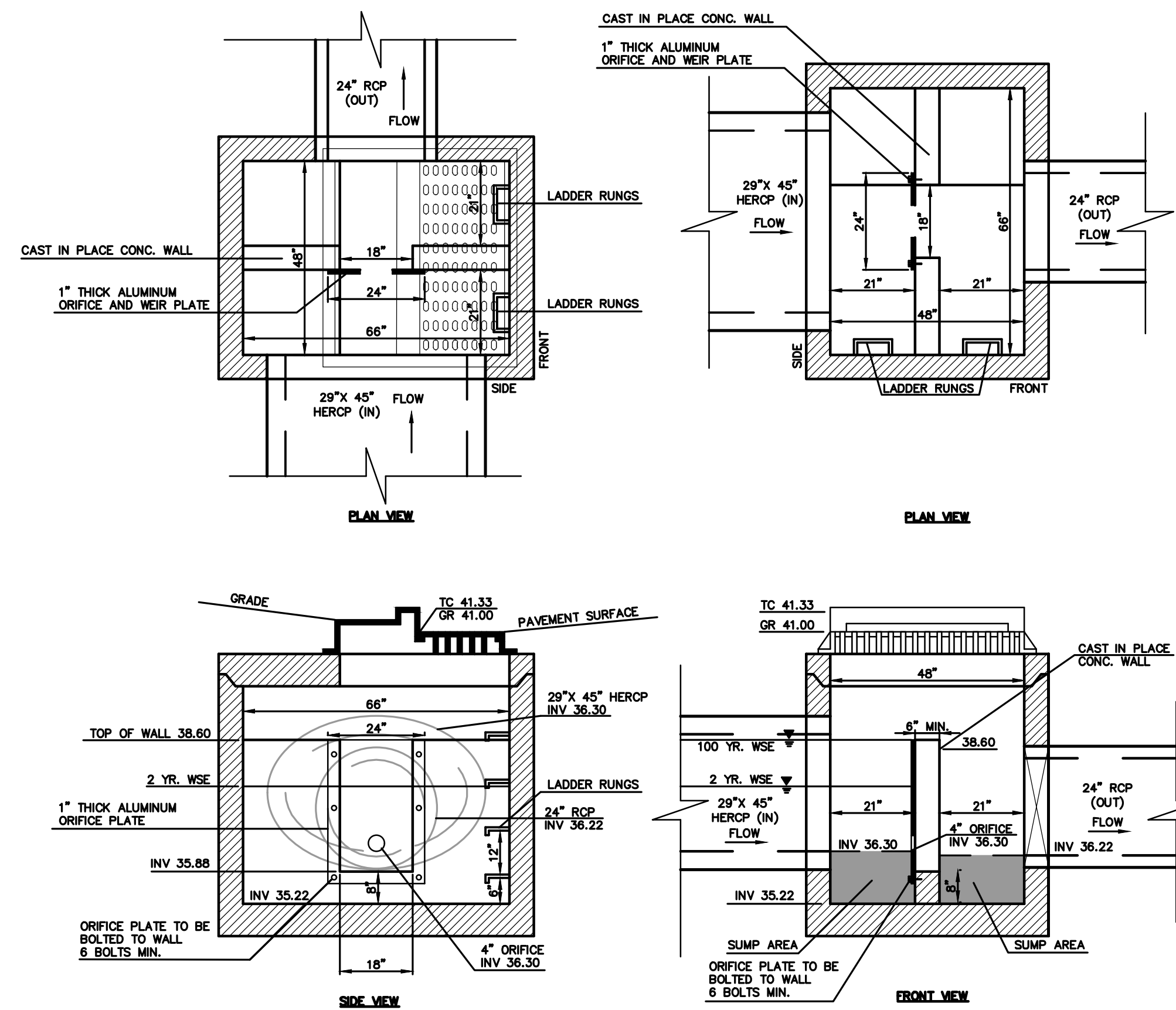
Ronald M. Sendner
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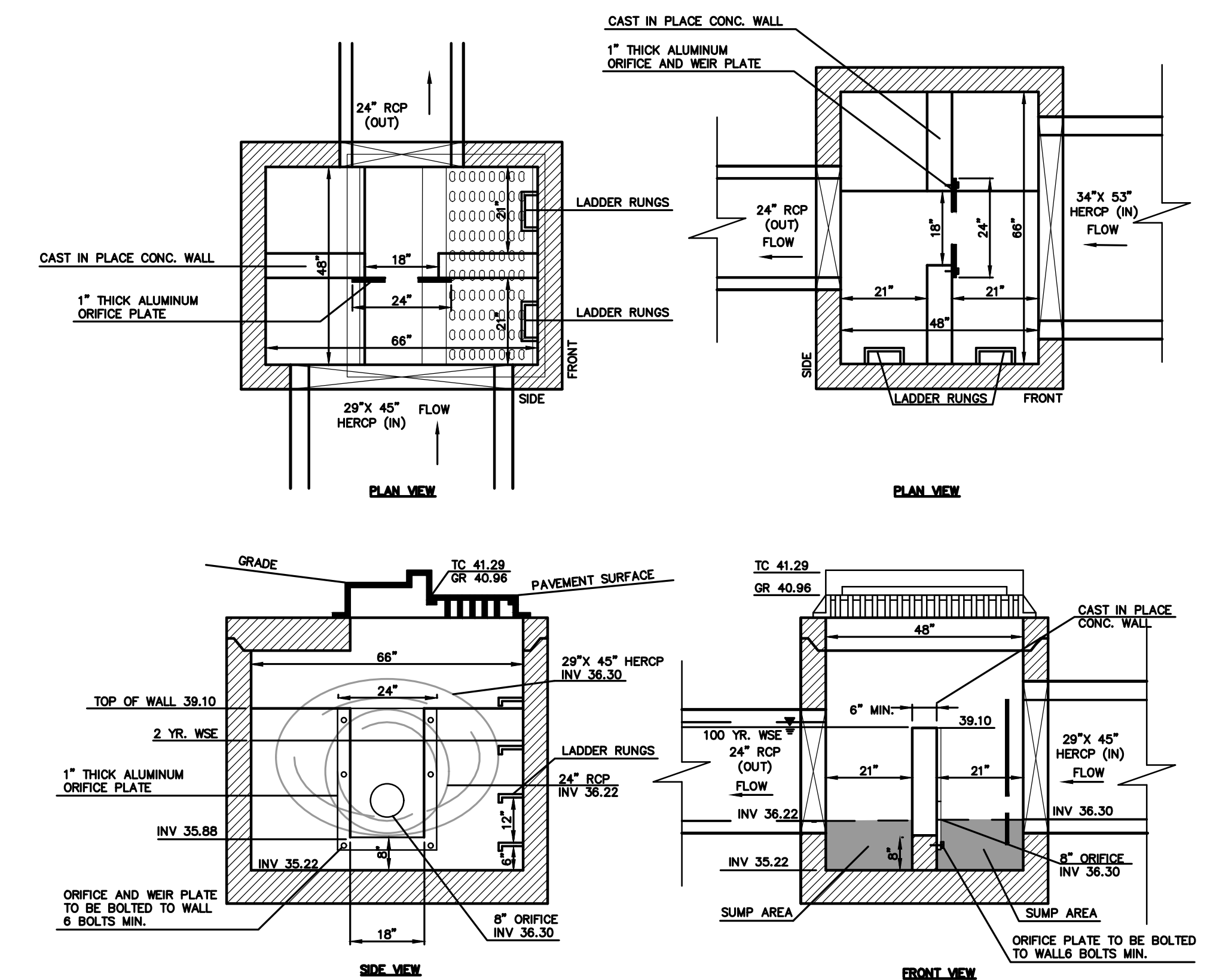
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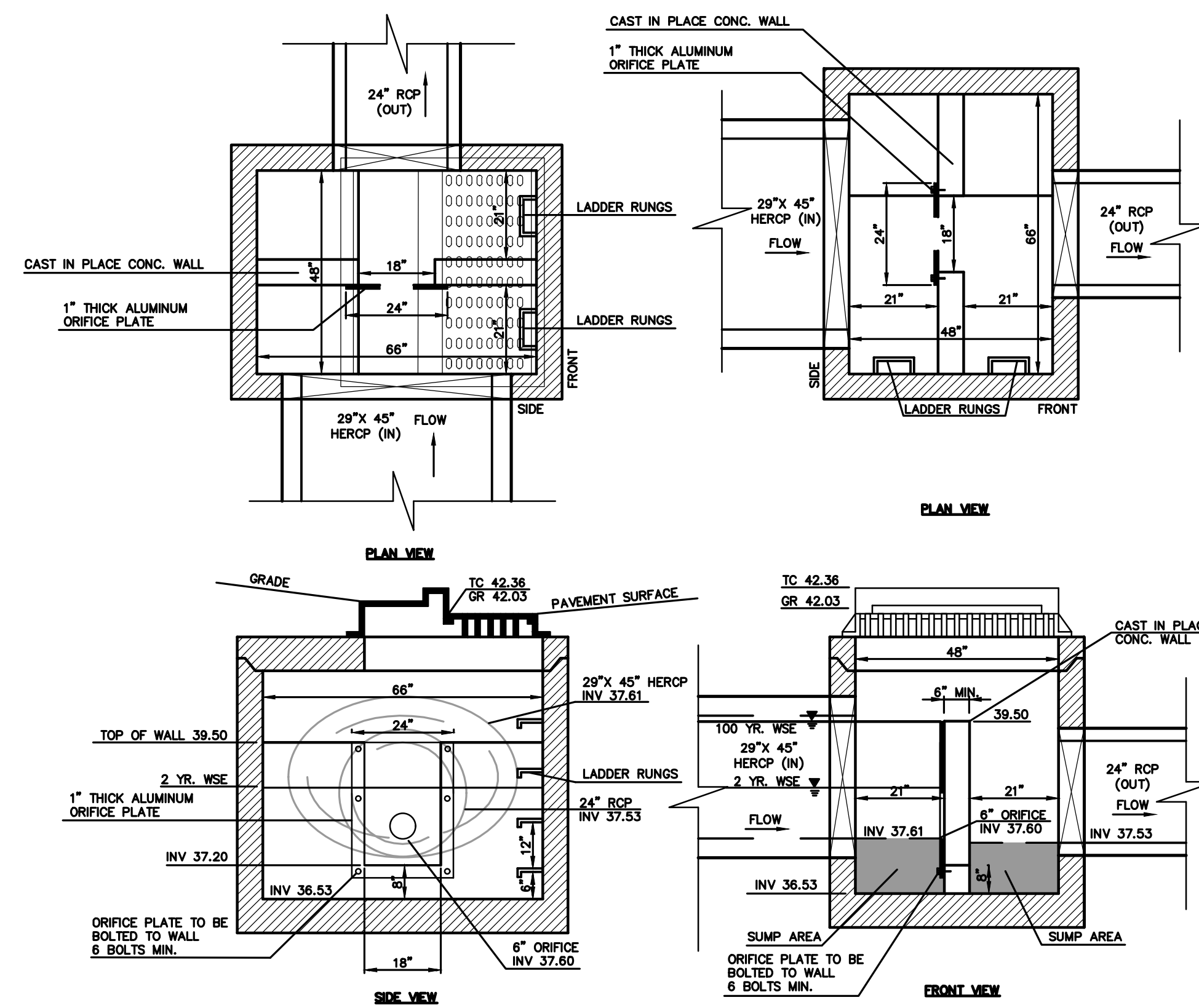
OUTLET CONTROL STRUCTURE No. A-2
STA. 15+23.00, 20.00' L
N.T.S.



OUTLET CONTROL STRUCTURE No. B-2
STA. 18+64.00, 20.00' L
N.T.S.



OUTLET CONTROL STRUCTURE No. C-2
STA. 19+13.00, 20.00' L
N.T.S.



OUTLET CONTROL STRUCTURE No. D-2
STA. 31+00.00, 16.00' L
N.T.S.

NOTES:

- OUTLET CONTROL STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NJDOT STANDARD ROADWAY CONSTRUCTION DETAILS, CD 602-1, INLET GENERAL DETAILS, GENERAL NOTES.
- OUTLET CONTROL STRUCTURES No. A-2, No. B-2, No. C-2, AND No. D-2 SHALL BE OF THE SAME CONSTRUCTION AND DIMENSIONS AS NJDOT INLET TYPE B2 (SEE NJDOT STANDARD ROADWAY CONSTRUCTION DETAIL CD 602-3.5), EXCEPT AS OTHERWISE INDICATED.
- OUTLET CONTROL STRUCTURE No. E-2 SHALL BE OF THE SAME CONSTRUCTION AND DIMENSIONS AS NJDOT INLET TYPE B2 (SEE NJDOT STANDARD ROADWAY CONSTRUCTION DETAIL CD 602-3.5) AND INLET TYPE DOUBLE B (SEE SHEET 60, CD-2 OF THIS PLAN SET), EXCEPT AS OTHERWISE INDICATED.
- FOUNDATIONS AND INVERTS TO BE CONSTRUCTED IN TWO STAGES. TOP SURFACE OF STAGE 1 TO BE LEFT ROUGH.

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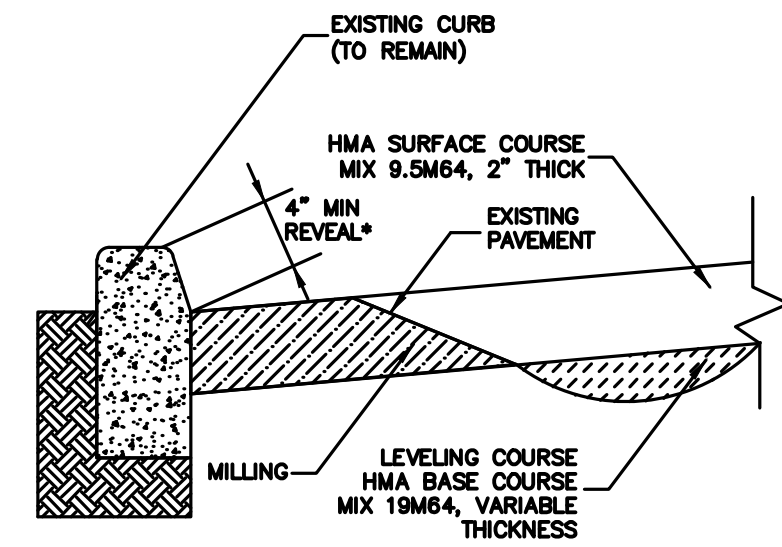
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75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
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3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CONSTRUCTION DETAILS

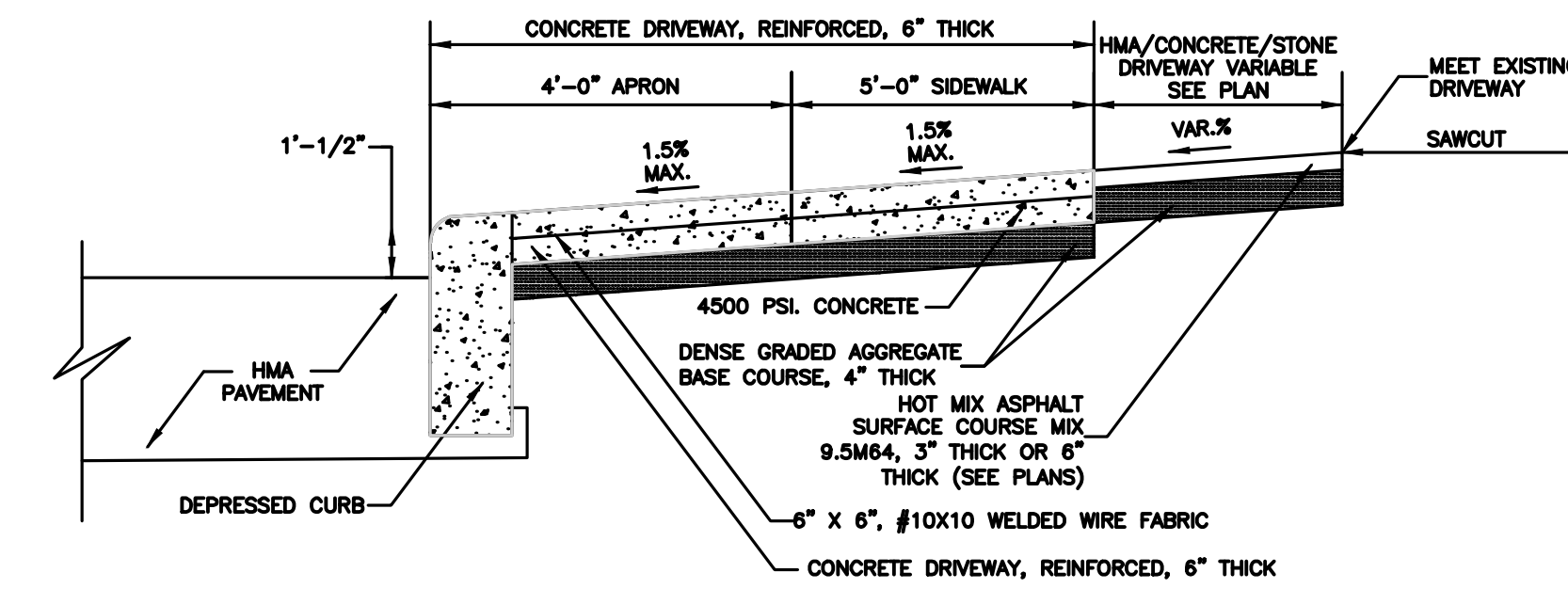
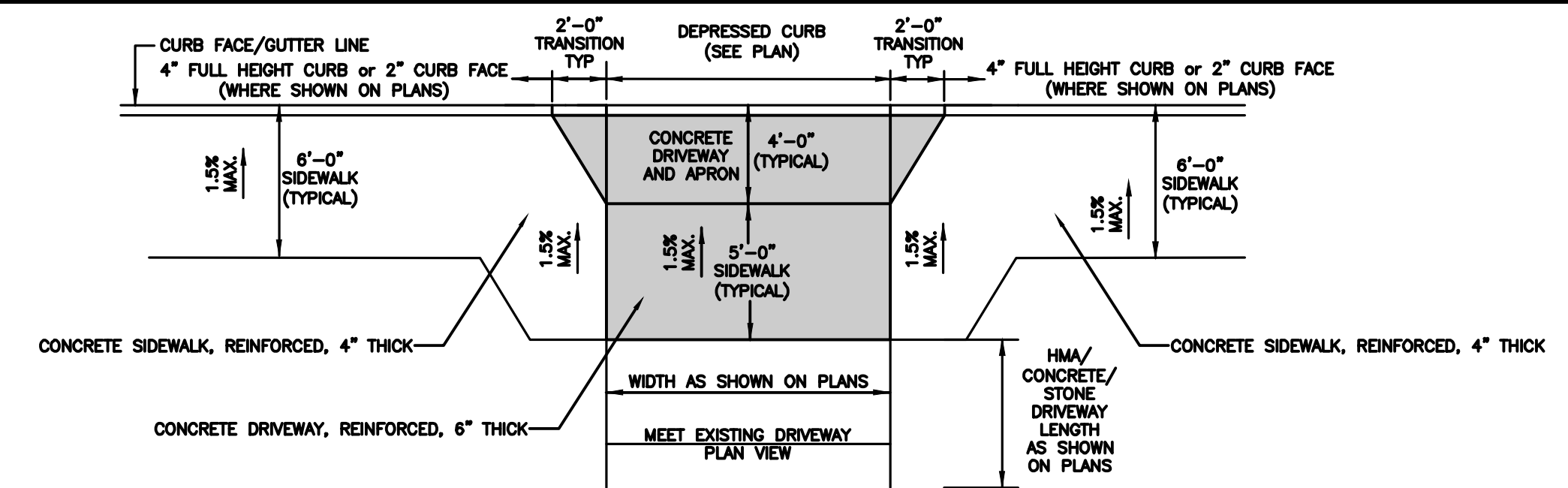
Scale: N.T.S.
Sheet No.: 58 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



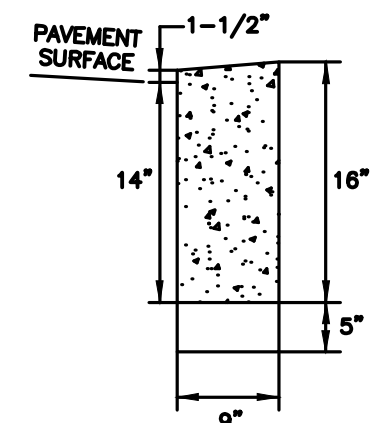
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MILLING AND RESURFACING DETAIL
N.T.S.

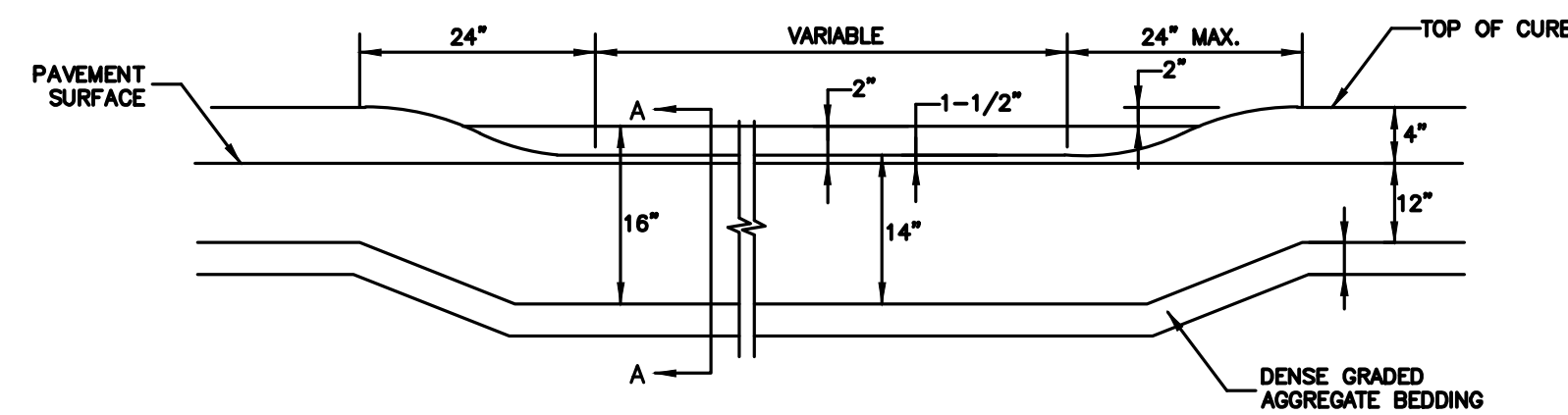


CONCRETE DRIVEWAY, REINFORCED, 6\"/>

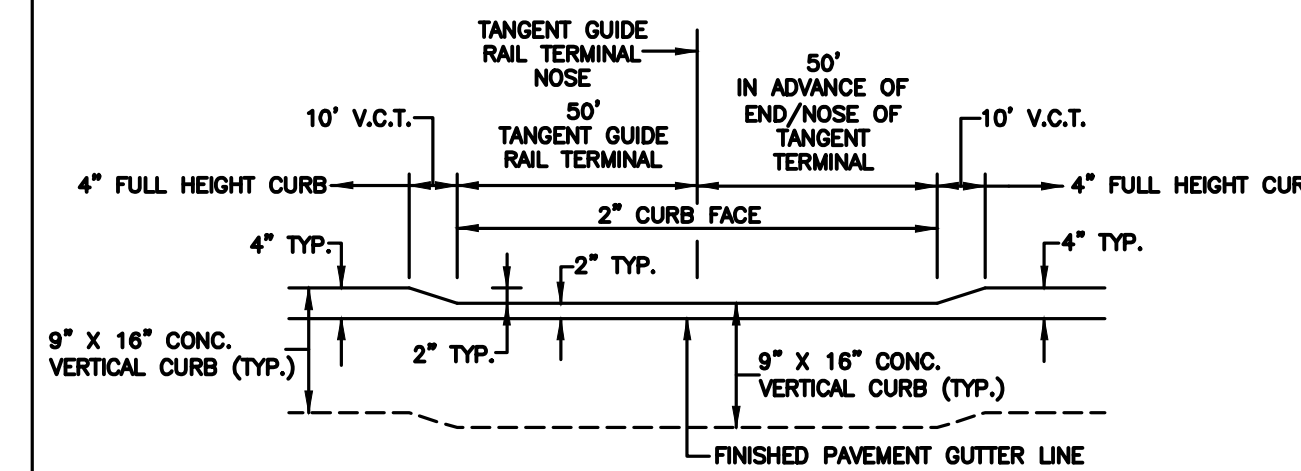
- NOTES:**
1. LENGTH AND WIDTH OF DRIVEWAY SHALL BE SHOWN ON THE PLAN OR AS DIRECTED.
 2. MAINTAIN EXISTING DIRECTION OF STORM WATER FLOW ON THE DRIVEWAY.
 3. PROVIDE TEMPORARY ACCESS DURING DRIVEWAY CONSTRUCTION.
 4. DEPRESSED CURB SHALL BE CONSTRUCTED AS PER DEPRESSED CURB DETAIL.
 5. THE COST OF THE DENSE-GRADED AGGREGATE BASE COURSE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE DRIVEWAY, REINFORCED, 6\"/>



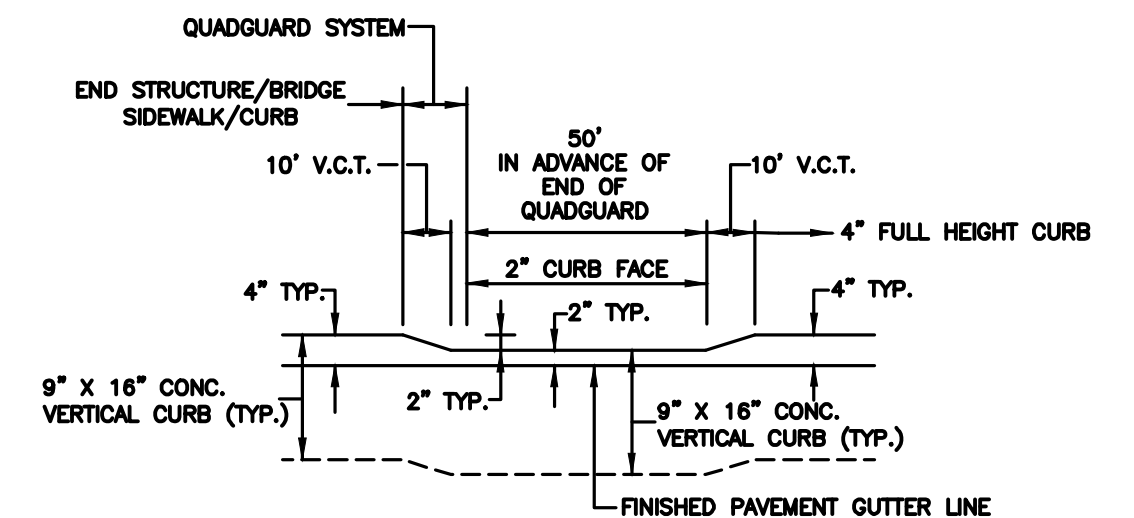
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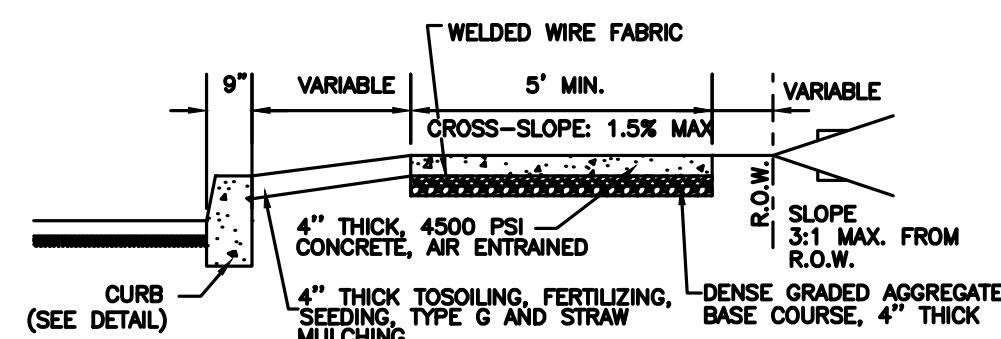
DEPRESSED CURB DETAIL
N.T.S.



CURB HEIGHT TRANSITIONS DETAIL AT TANGENT GUIDE RAIL TERMINAL
N.T.S.



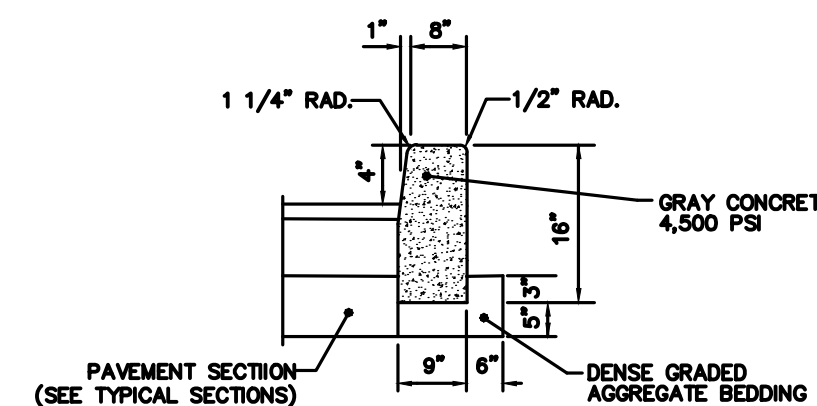
CURB HEIGHT TRANSITIONS DETAIL AT QUADGUARD
N.T.S.



CONCRETE SIDEWALK, REINFORCED, 4\"/>

SIDEWALK NOTES:

1. TRANSVERSE EXPANSION JOINTS, 1/2\"/>
2. SIDEWALK WIDTH SHALL BE 5'-0\"/>
3. TYPE OF SEEDING SHALL MEET FREEHOLD SOIL CONSERVATION DISTRICT REQUIREMENTS.
4. THE COST OF THE EXPANSION JOINT, JOINT FILLER, WELDED STEEL, WIRE FABRIC AND DENSE GRADED AGGREGATE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE SIDEWALK, REINFORCED, 4\"/>



9\"/>

CURB NOTES:

1. TRANSVERSE EXPANSION JOINTS, 1/2\"/>
2. CURB SHALL BE INSTALLED ON TOP OF 6\"/>
3. THE COST OF EXPANSION JOINTS IN THE CURB AND DENSE GRADED AGGREGATE BEDDING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CURB.

HAMILTON OFFICE 1000 Waterview Drive Suite 201 Hamilton, NJ 08691 Phone: 609.587.8200 Fax: 609.587.8260			
REV	DATE	DRAWN BY	DESCRIPTION

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Daniel S. Frank
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N.J. C.O.A. #: 24GA27986500

County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

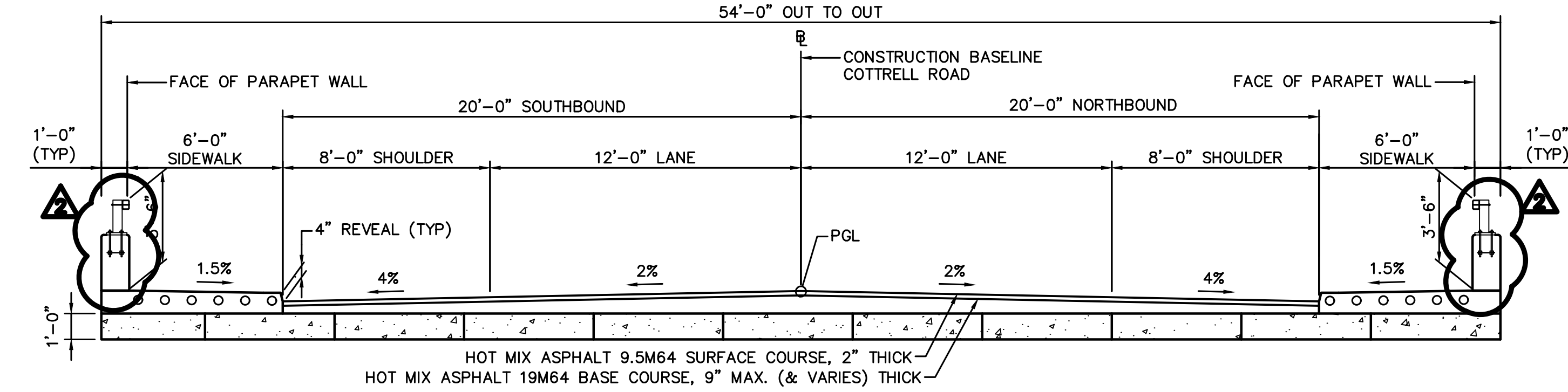
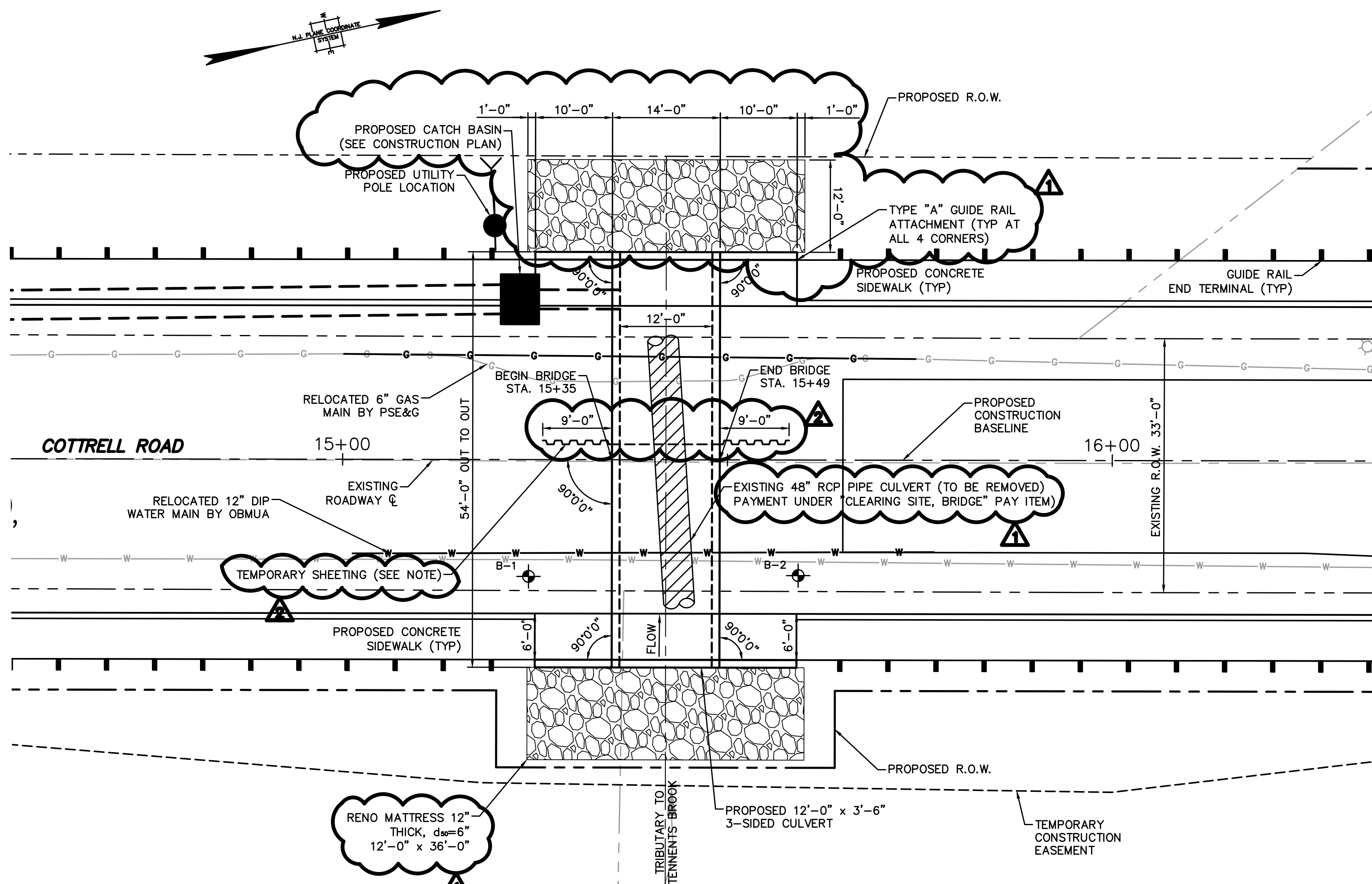
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CONSTRUCTION DETAILS

Scale: N.T.S.
Sheet No.: 60 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



BRIDGE SECTION
SCALE: 1"=4'-0"

- GENERAL NOTES:**
- DESIGN SPECIFICATIONS:** THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, WITH INTERIMS AS MODIFIED BY SECTION 3 OF THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES SIXTH EDITION, 2016.
 - CONSTRUCTION SPECIFICATIONS:** 2019 ENGLISH NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH SUPPLEMENTARY SPECIFICATIONS AS MODIFIED BY THE SPECIAL PROVISIONS.
 - DESIGN LOADS:** (A) LIVE LOADS: AASHTO LRFD HL-93 VEHICULAR LIVE LOADING OR NJDOT PERMIT VEHICLE, WHICHEVER GOVERNS. (B) DEAD LOADS: INCLUDES 25 POUNDS PER SQUARE FOOT, PROVISION FOR FUTURE 2" WEARING SURFACE.
 - CAST-IN-PLACE CONCRETE:** (A) DESIGN STRESSES:
CLASS A:
DESIGN COMPRESSIVE STRENGTH ... 4,000 PSI
(B) CLASSES OF CONCRETE FOR STRUCTURAL ITEMS
REINFORCED FOOTINGS A
ABUTMENTS AND WINGWALLS A
DECKS, SIDEWALKS, PARAPETS, CURBS A
ALL EXPOSED OUTSIDE CONCRETE CORNERS SHALL HAVE 1/4" CHAMFER.
 - PRECAST CONCRETE:** A. PRECAST CONCRETE IN CULVERTS AND WINGWALLS SHALL BE CLASS P WITH DESIGN STRENGTH OF 5,500 PSI MIN AT 28 DAYS, IN ACCORDANCE WITH THE STANDARD NJDOT SPECIFICATIONS.
B. THE PRECAST UNITS SHALL BE PULLED AGAINST THE PRIOR INSTALLED SECTION SUCH THAT AN ADEQUATE SEAL IS OBTAINED BETWEEN THE TWO CONNECTING UNITS AND THE RUBBER GASKET.
C. PRIOR TO BACKFILLING, A 2 FOOT WIDE STRIP OF FILTER FABRIC SHALL BE PLACED OVER THE TOP AND SIDE TRANSVERSE JOINTS.
D. TO PROVIDE CONTINUITY AND CONCRETE SHEAR TRANSFER BETWEEN THE PRECAST CULVERT SECTIONS, A LONGITUDINAL TIE ROD OR PRESTRESSING STRAND SHALL BE PLACED IN POSITION THROUGH A 1 1/2 INCH DIAMETER HOLE.
E. FOUR (4) LONGITUDINAL TIES, ONE IN EACH CORNER OF THE PRECAST SECTION, SHALL BE PROVIDED.
F. LONGITUDINAL TIES THAT ARE USED TO TIE THE PRECAST UNITS TOGETHER SHALL BE 3/4 INCH DIAMETER HIGH TENSILE STRENGTH STEEL BARS CONFORMING TO AASHTO M 275 (ASTM A 722) TYPE I OR 1/2 INCH 7 WIRE GRADE 270 KSI STRANDS CONFORMING TO AASHTO M 203 (ASTM A 416) OR EQUIVALENT.
G. NO SPLICES ARE PERMITTED IN THE STRANDS. BARS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
H. END ANCHORAGES (NUTS, WASHERS AND ANCHOR PLATES) SHALL BE COMPATIBLE WITH THE TIE ROD SYSTEM AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
I. THE ANCHORAGES AND END FITTINGS FOR THE 1/2 INCH 7 WIRE STRAND AND THE CORROSION PROTECTION METHOD SHALL BE DETAILED BY THE PRECAST MANUFACTURER AND SHALL COMPLY WITH NJDOT STANDARDS.
J. EACH TIE ROD SHALL BE STRESSED TO A TENSION OF 30 KIPS.
K. AFTER TENSIONING, THE EXPOSED ENDS OF THE TIES SHALL BE REMOVED SO THAT NO PART OF THE TIES, OR OF THE END FITTINGS, EXTEND BEYOND A POINT 1 INCH INSIDE THE ANCHORAGE POCKET.
L. ALL HARDWARE ASSOCIATED WITH THE END ANCHORAGE SYSTEMS SHALL BE GALVANIZED. AFTER TENSIONING HAS BEEN COMPLETED THE EXPOSED PARTS OF THE END FITTINGS SHALL BE COATED WITH TWO COATS OF BITUMINOUS PAINT.
M. IF HAND HOLES ARE USED FOR THE INSTALLATION OF LONGITUDINAL TIES, THEY SHALL BE SPACED APPROPRIATELY.
 - STEEL REINFORCEMENT:** REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60. ALL REINFORCING BARS SHALL BE HOT DIPPED GALVANIZED, UNLESS OTHERWISE NOTED.
 - FOUNDATIONS:** EXISTING SOILS:
INTERNAL FRICTION ANGLE = 32'
MINIMUM FACTOR OF SAFETY:
OVERTURNING = 2.0
SLIDING = 1.5
MAX. ALLOWABLE BEARING PRESSURE = 3,000 PSF AT BOTTOM OF FOOTING ELEVATION.
 - STREAM DIVERSION SYSTEM:** THIS WORK SHALL INCLUDE MAINTENANCE OF ADEQUATE DRAINAGE/CHANNEL FLOW DURING ALL PHASES OF CONSTRUCTION INCLUDING CONSTRUCTION OF COFFERDAMS, AS NECESSARY. THIS WORK SHALL ALSO INCLUDE PROVISIONS FOR BYPASS PUMPING, HIGH DRAINAGE/CHANNEL FLOWS, THE CLEARING AND RESTORING OF THE AREAS SUBJECTED TO STORM WATER RUNOFF DURING CONSTRUCTION. CONSTRUCTION OF COFFERDAMS SHALL BE IN ACCORDANCE WITH SECTION 501.03 OF THE STANDARD NJDOT SPECIFICATIONS.
 - BACKFILL:** A. PLACE BACKFILL MATERIAL IN 8" LIFTS OR LESS. WHEN PLACING BACKFILL, ENSURE THAT THE DIFFERENCE BETWEEN THE HEIGHTS OF THE BACKFILL ON THE OPPOSITE SIDES OF THE STRUCTURE DOES NOT EXCEED 12". USE MECHANICAL TAMPERS TO COMPACT THE BACKFILL ADJACENT TO EACH SIDE OF THE UNITS AND OVER THE TOP OF THE UNITS UNTIL THEY ARE COVERED. DO NOT OPERATE HEAVY EQUIPMENT (WEIGHING IN EXCESS OF 12 TONS) OVER THE STRUCTURE UNTIL A DEPTH OF BACKFILL HAS BEEN PLACED THAT WILL SUPPORT THE EQUIPMENT.
B. GRADING BEHIND WALL SHALL BE SLOPED TO ADEQUATELY DRAIN THE SURFACE RUNOFF TO THE SURROUNDING AREAS.
C. IT IS ASSUMED THAT BACKFILL SHALL BE APPROXIMATELY 6" BELOW THE TOP OF PROPOSED CONCRETE.

- REFERENCE NOTES:**
- SEE SHEET B-2 FOR BRIDGE PAY ITEMS.
 - SEE CONSTRUCTION PLANS FOR GUIDE RAIL LIMITS AND ALL AUXILIARY ROADWAY ITEMS.

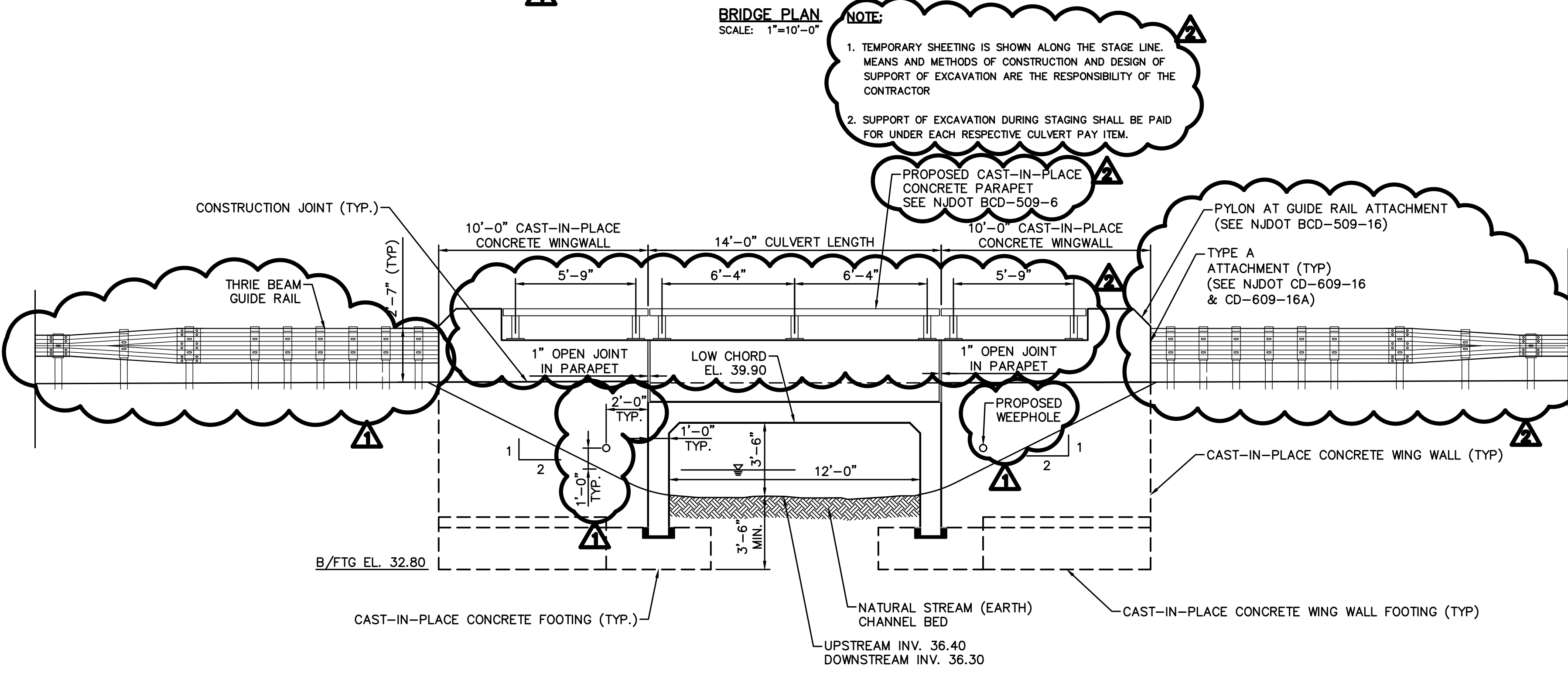


HYDRAULIC AND HYDROLOGIC DATA*

DRAINAGE AREA (SQ.MI)	0.02
DESIGN DISCHARGE (C.F.S)	1153
DESIGN WATER SURFACE ELEVATION (FT)	41.2
ENERGY LINE ELEVATION (FT)	41.38
FREQUENCY	100 YR.

*HYDRAULIC DATA FOR THE TRIBUTARY TO TENNANTS BROOK (CULVERT 3-C-33) IS DICTATED BY THE WARNES BROOK (CULVERT 3-C-32). THE FLOODPLAIN FOR WARNES BROOK INCLUDES CULVERT 3-C-33.

- NOTE:**
- TEMPORARY SHEETING IS SHOWN ALONG THE STAGE LINE. MEANS AND METHODS OF CONSTRUCTION AND DESIGN OF SUPPORT OF EXCAVATION ARE THE RESPONSIBILITY OF THE CONTRACTOR
 - SUPPORT OF EXCAVATION DURING STAGING SHALL BE PAID FOR UNDER EACH RESPECTIVE CULVERT PAY ITEM.



BRIDGE ELEVATION
SCALE: 1"=4'-0"

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Hamilton, NJ 08691
Phone: 609.587.8200 Fax: 609.587.8260

REV	DATE	DRAWN BY	DESCRIPTION
2	1/18/22	CJG	REVISED PER NJDOT COMMENTS
1	1/4/22	CJG	REVISED PER PSE COMMENTS

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Nabil M. Ghanem
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County of Middlesex
Department of Transportation
Office of Engineering
75 Bayard St., New Brunswick, NJ 08901

IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

3-C-33 BRIDGE PLAN, ELEVATION AND SECTION

Scale: AS NOTED
Sheet No.: 61 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

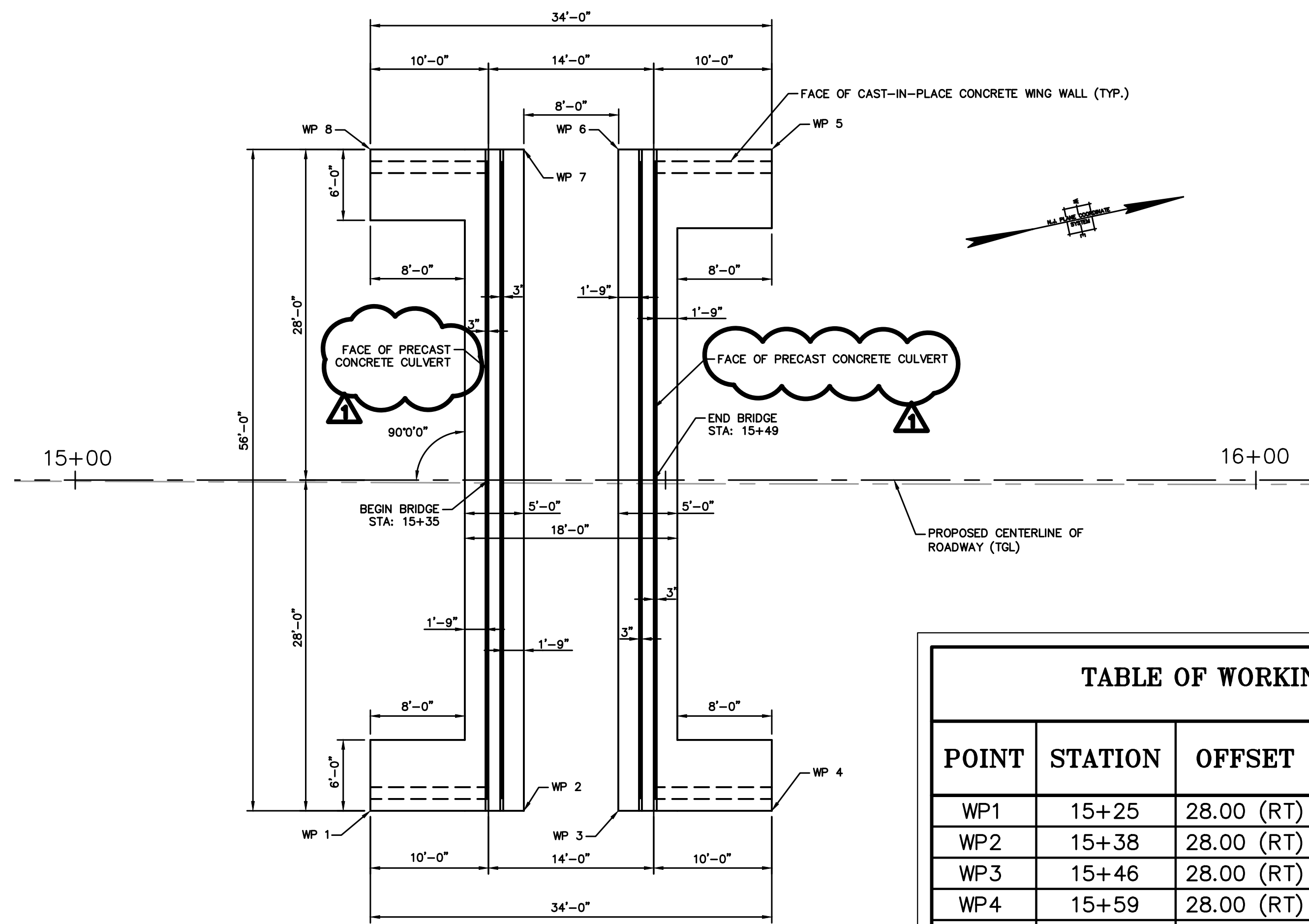
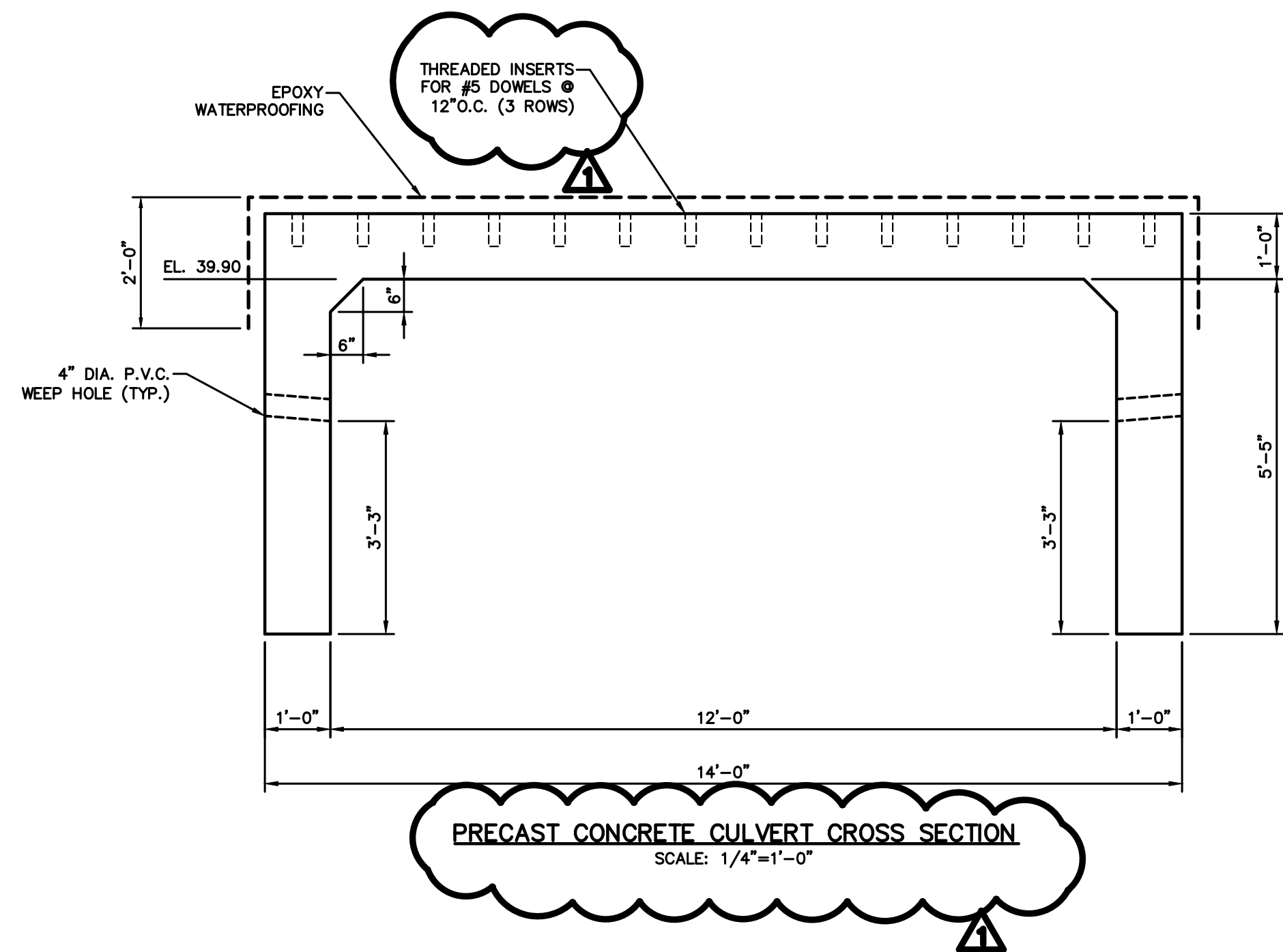
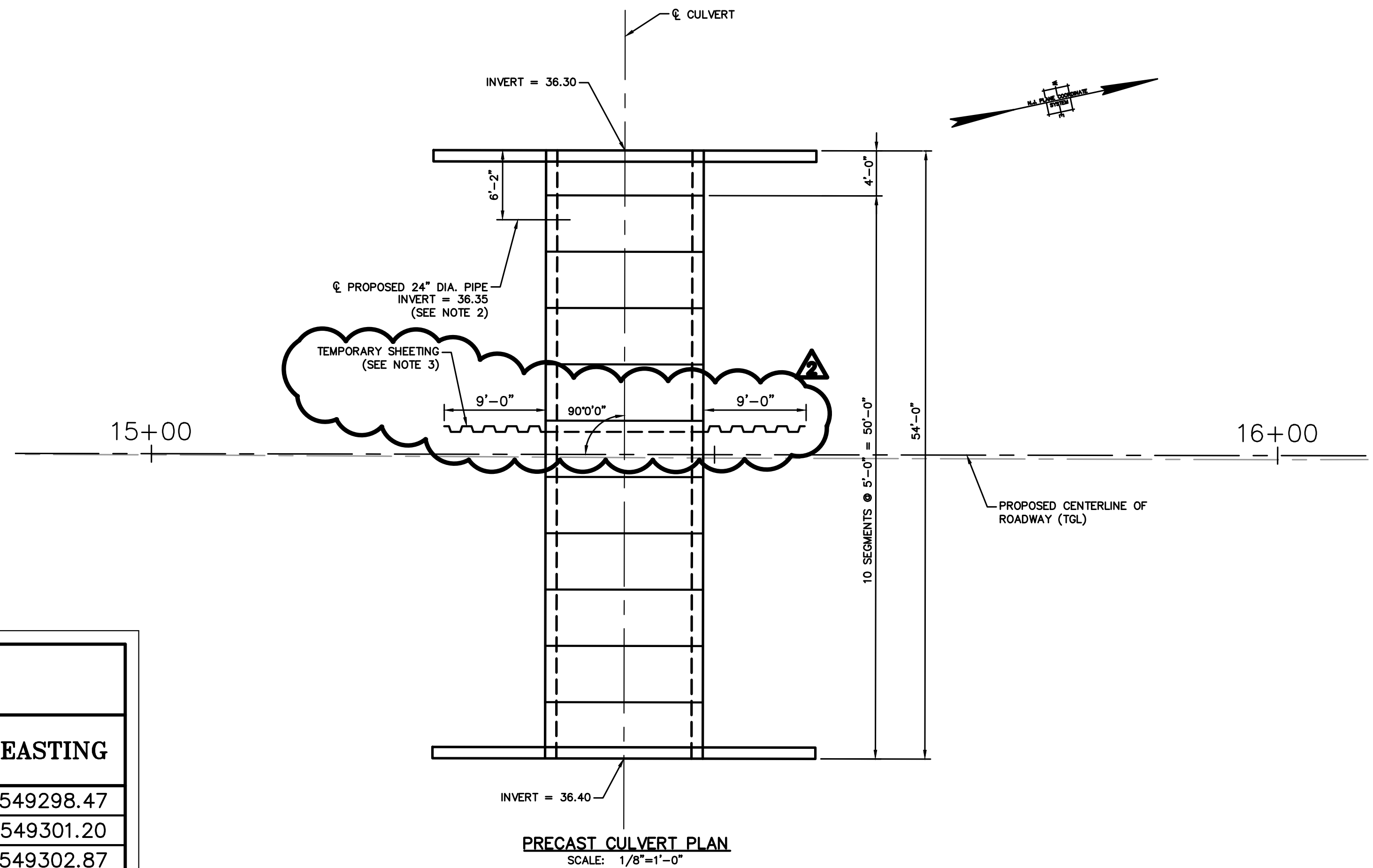


TABLE OF WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
WP1	15+25	28.00 (RT)	575397.42	549298.47
WP2	15+38	28.00 (RT)	575410.13	549301.20
WP3	15+46	28.00 (RT)	575417.96	549302.87
WP4	15+59	28.00 (RT)	575430.67	549305.60
WP5	15+59	28.00 (LT)	575442.40	549250.84
WP6	15+46	28.00 (LT)	575429.69	549248.12
WP7	15+38	28.00 (LT)	575421.87	549246.44
WP8	15+25	28.00 (LT)	575409.61	549243.71



BRIDGE ITEMS		
PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
21	EXCAVATION, UNCLASSIFIED	330 CY
78	1-9 SOIL AGGREGATE	165 CY
80	REINFORCEMENT STEEL, GALVANIZED	9,793 LB
82	CONCRETE FOOTING	57 CY
83	CONCRETE WING WALL	11 CY
84	EPOXY WATERPROOFING	114 SY
86	12'-0" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)	54 LF
87	CONCRETE BRIDGE PARAPET	68 LF
88	CONCRETE BRIDGE SIDEWALK	5 CY

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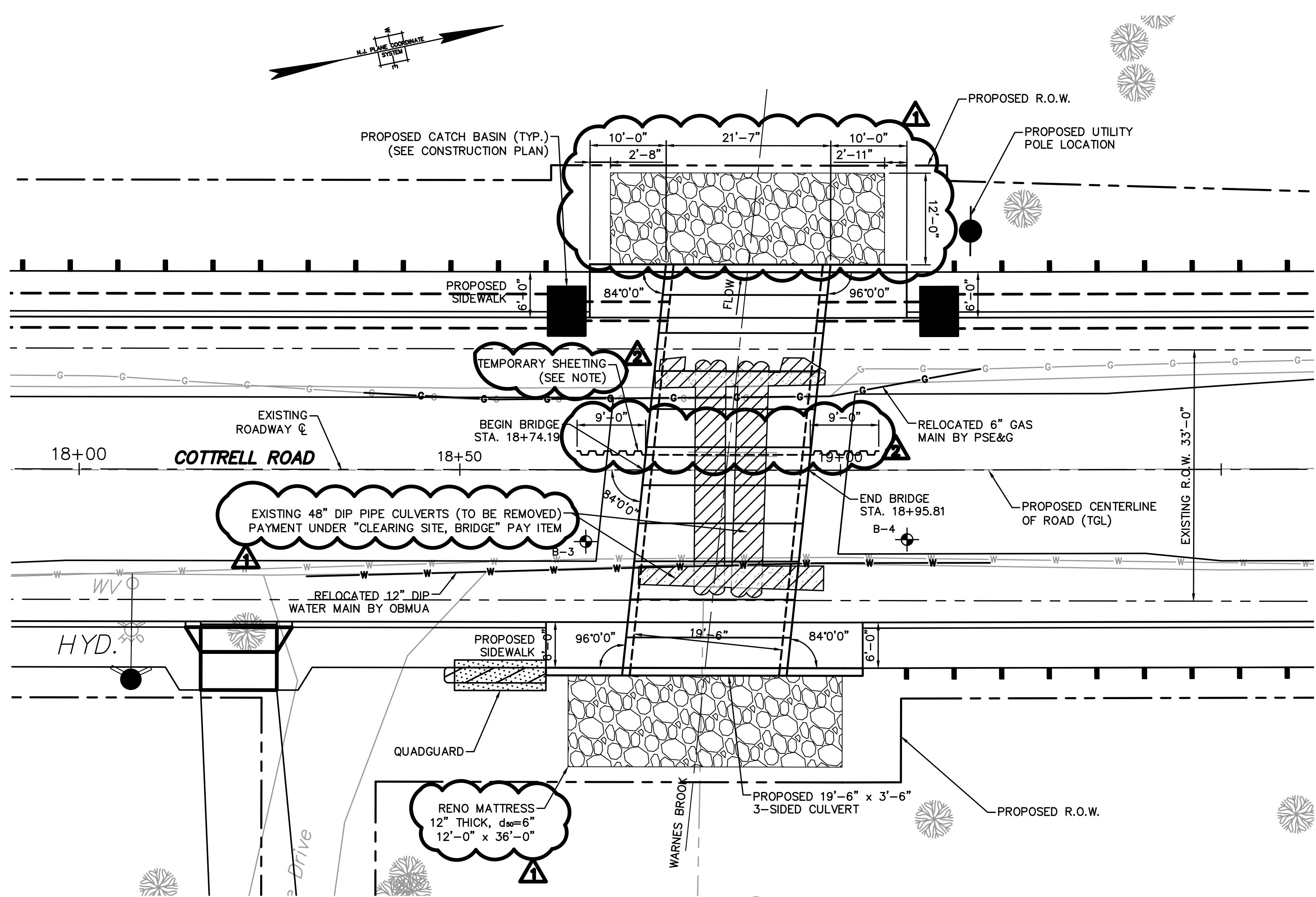
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

3-C-33 BRIDGE FOUNDATION PLAN & CULVERT DETAILS

Scale: AS NOTED
Sheet No.: 62 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

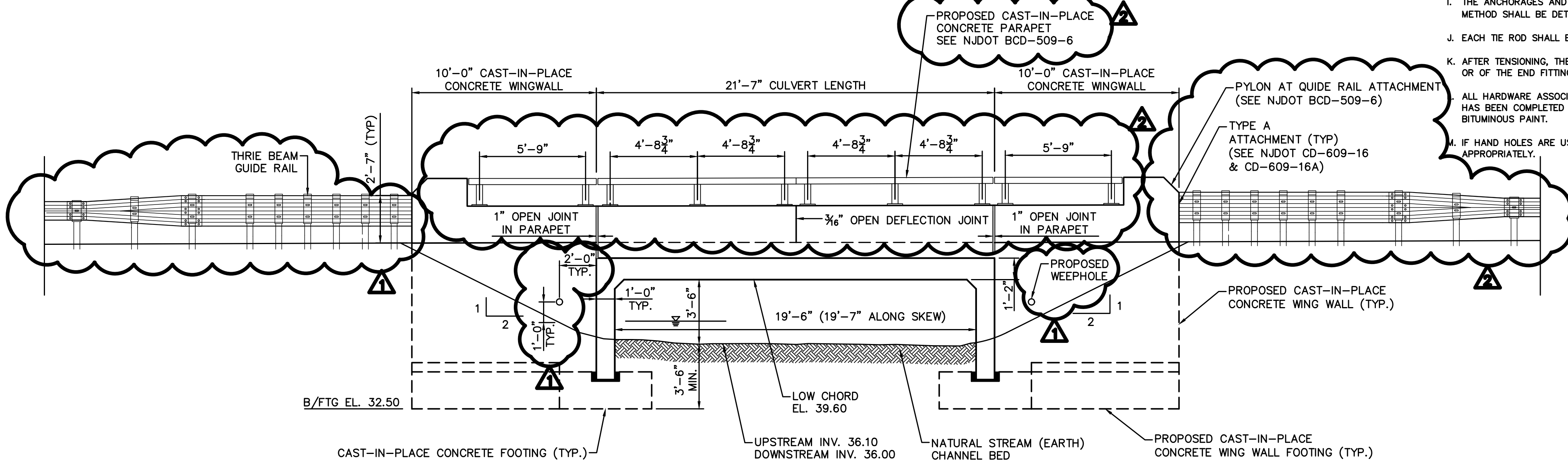
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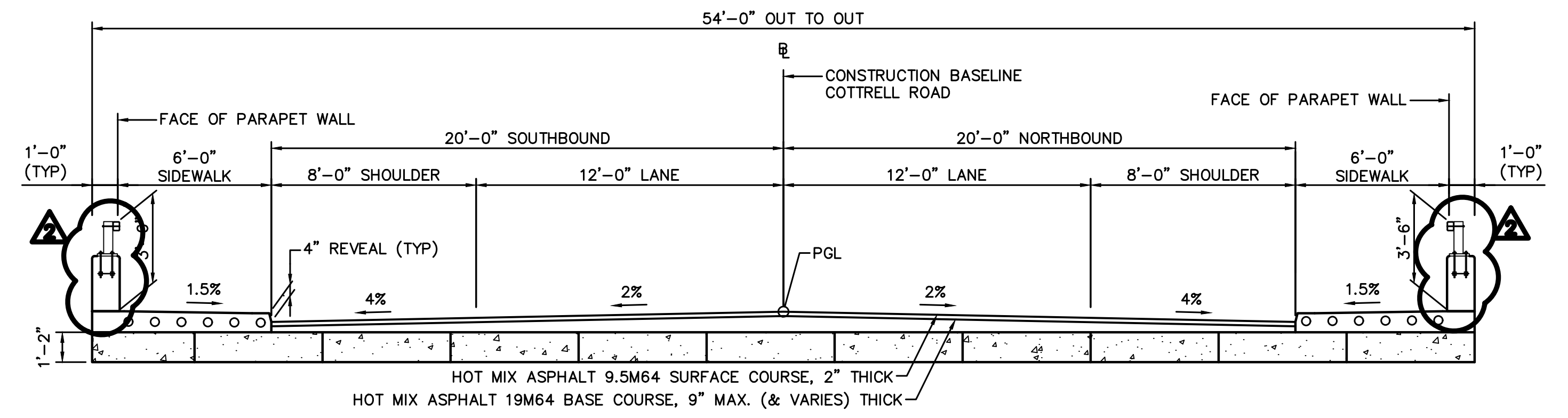
BRIDGE PLAN
SCALE: 1"=10'-0"

NOTE:

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BRIDGE ELEVATION (WEST)
SCALE: 1"=4'-0"



BRIDGE SECTION
SCALE: 1"=4'-0"

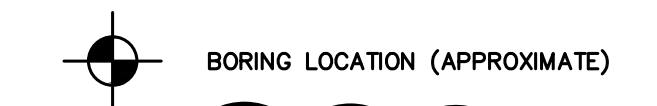
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REFERENCE NOTES:

- SEE SHEET B-4 FOR BRIDGE PAY ITEMS.
- SEE CONSTRUCTION PLANS FOR GUIDE RAIL LIMITS AND ALL AUXILIARY ROADWAY ITEMS.

LEGEND:



HYDRAULIC AND HYDROLOGIC DATA

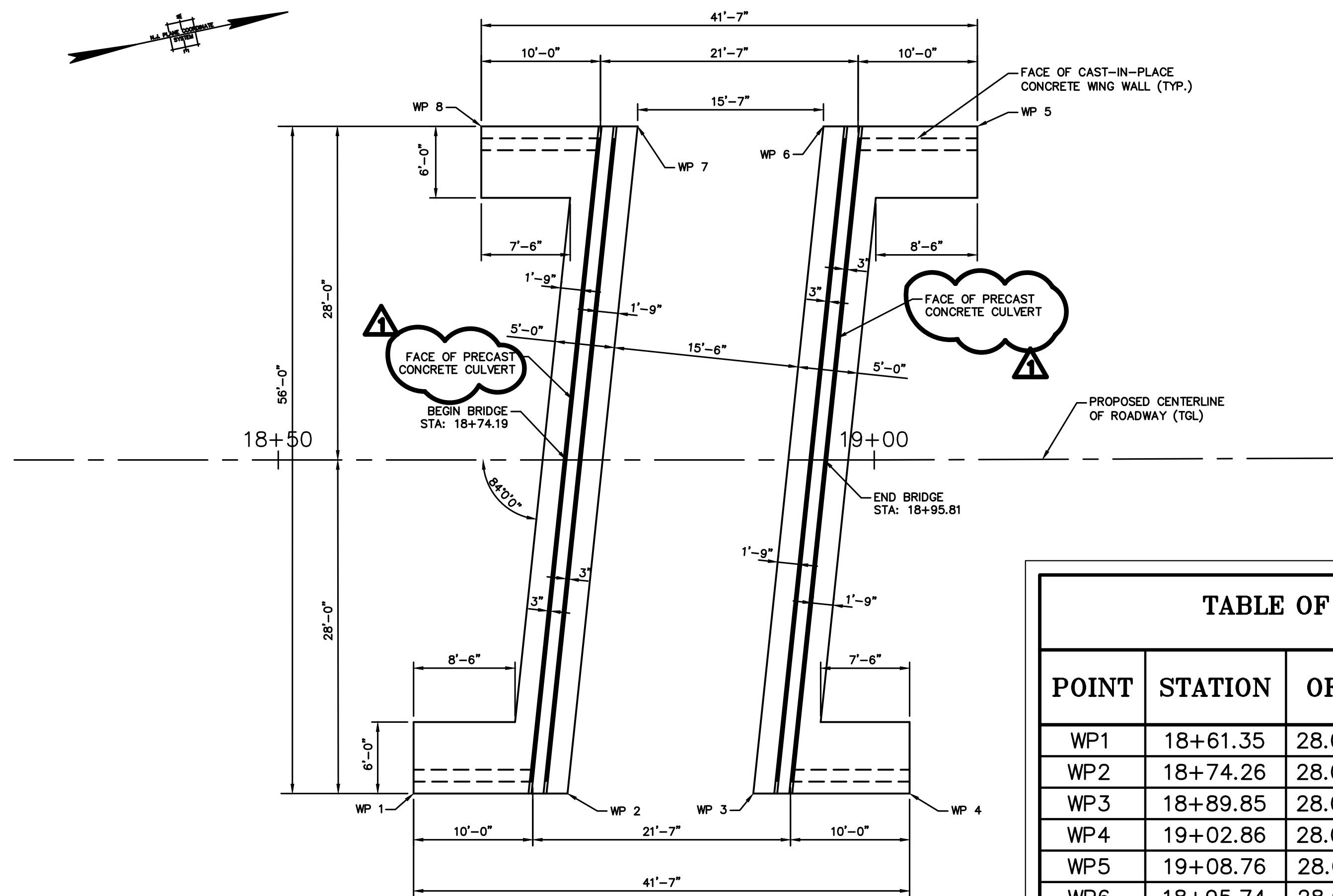
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DESIGN WATER SURFACE ELEVATION (FT)	41.2
ENERGY LINE ELEVATION (FT)	41.38
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY
3-C-32 BRIDGE PLAN, ELEVATION AND SECTION
Scale: AS NOTED
Sheet No.: 63 of 68
Date: November 8, 2021
Project No.: 11000297G
Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

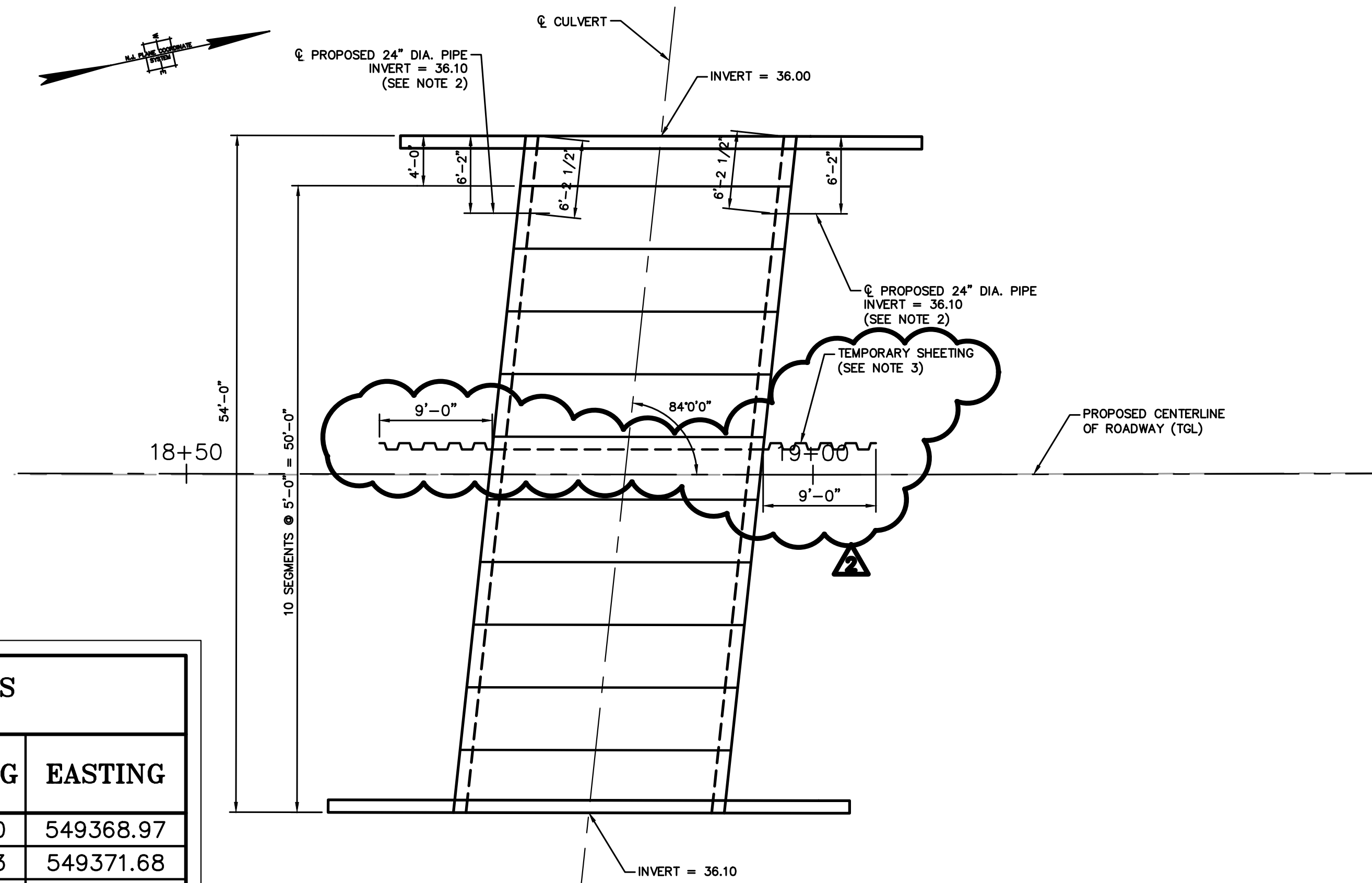


BRIDGE PLAN
SCALE: 1"=10'-0"

NOTE:

- POURING OF CAST-IN-PLACE CONCRETE FOOTING TO COINCIDE WITH STAGED CONSTRUCTION OF CULVERT.

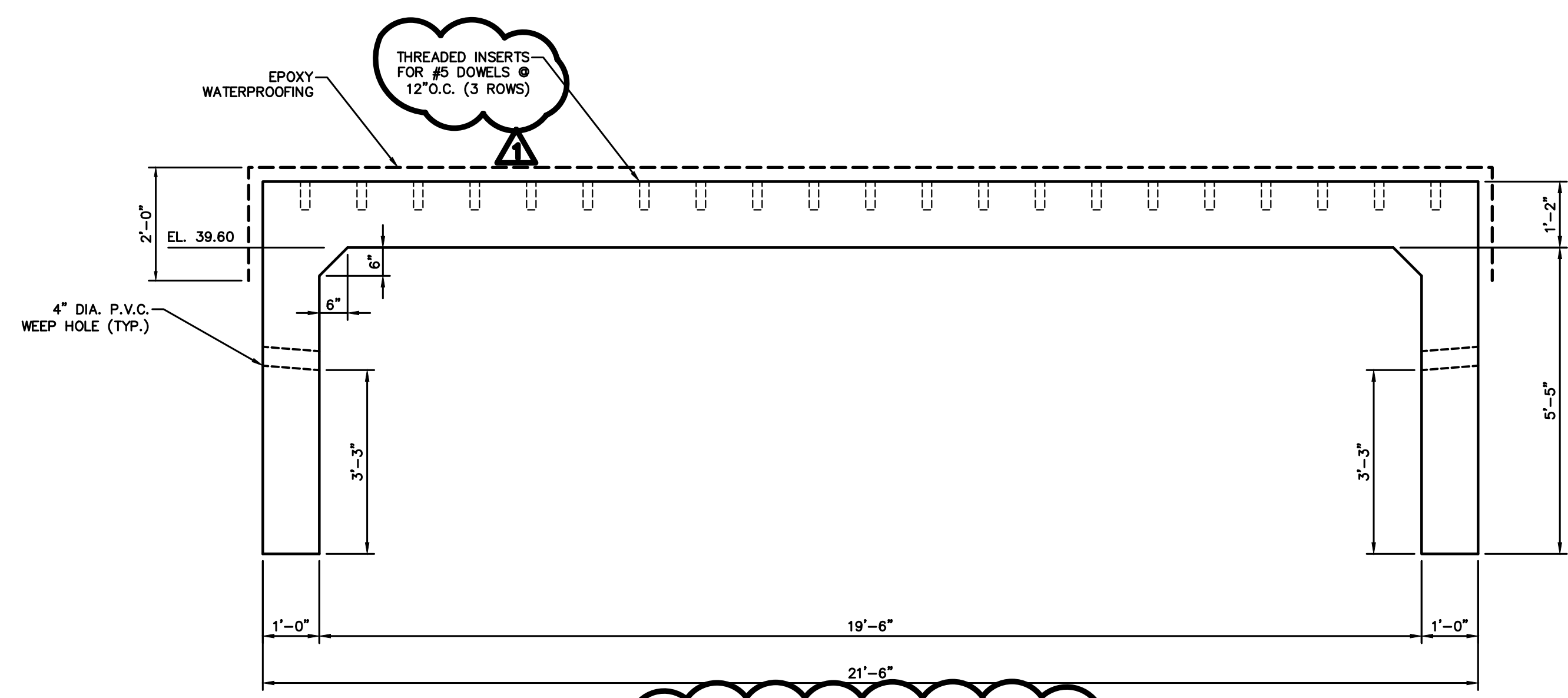
TABLE OF WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
WP1	18+61.35	28.00 (RT)	575726.30	549368.97
WP2	18+74.26	28.00 (RT)	575738.93	549371.68
WP3	18+89.85	28.00 (RT)	575754.17	549374.94
WP4	19+02.86	28.00 (RT)	575767.00	549377.69
WP5	19+08.76	28.00 (LT)	575784.28	549324.13
WP6	18+95.74	28.00 (LT)	575771.66	549321.42
WP7	18+80.15	28.00 (LT)	575756.42	549318.15
WP8	18+67.03	28.00 (LT)	575743.59	549315.40



PRECAST CULVERT PLAN
SCALE: 1/8"=1'-0"

NOTES:

- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CULVERT OPENINGS PRIOR TO THE PROCUREMENT OF THE CULVERT.
- INVERTS SHOWN ARE AT PIPE CONNECTIONS TO THE CULVERT.
- TEMPORARY SHEETING IS SHOWN ALONG THE STAGE LINE. MEANS AND METHODS OF CONSTRUCTION AND DESIGN OF SUPPORT OF EXCAVATION ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- TEMPORARY SHEETING (SUPPORT OF EXCAVATION) SHALL BE PAID FOR UNDER "19'-6" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)" ITEM.



PRECAST CONCRETE CULVERT CROSS SECTION
SCALE: 1/4"=1'-0"

BRIDGE ITEMS		
PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
21	EXCAVATION, UNCLASSIFIED	354 CY
78	1-9 SOIL AGGREGATE	150 CY
80	REINFORCEMENT STEEL, GALVANIZED	10,455 LB
82	CONCRETE FOOTING	57 CY
83	CONCRETE WING WALL	11 CY
84	EPOXY WATERPROOFING	166 SY
85	19'-6" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)	55 LF
87	CONCRETE BRIDGE PARAPET	84 LF
88	CONCRETE BRIDGE SIDEWALK	7 CY

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REV	DATE	DRAWN BY	DESCRIPTION

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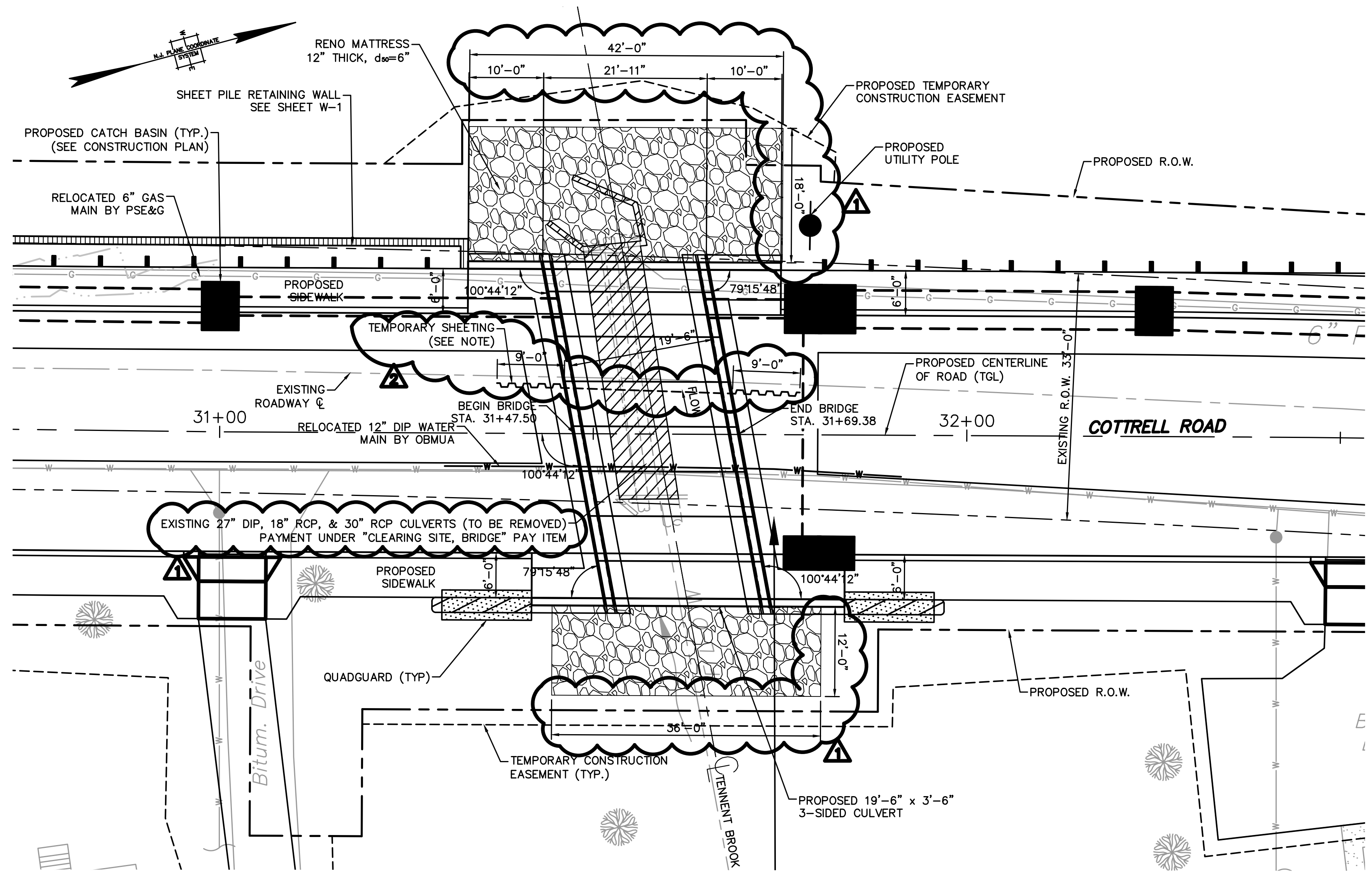
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IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

3-C-32 BRIDGE FOUNDATION PLAN & CULVERT DETAILS

Scale: AS NOTED
Sheet No.: 64 of 68
Date: November 8, 2021
Project No.: 11000297G

Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622

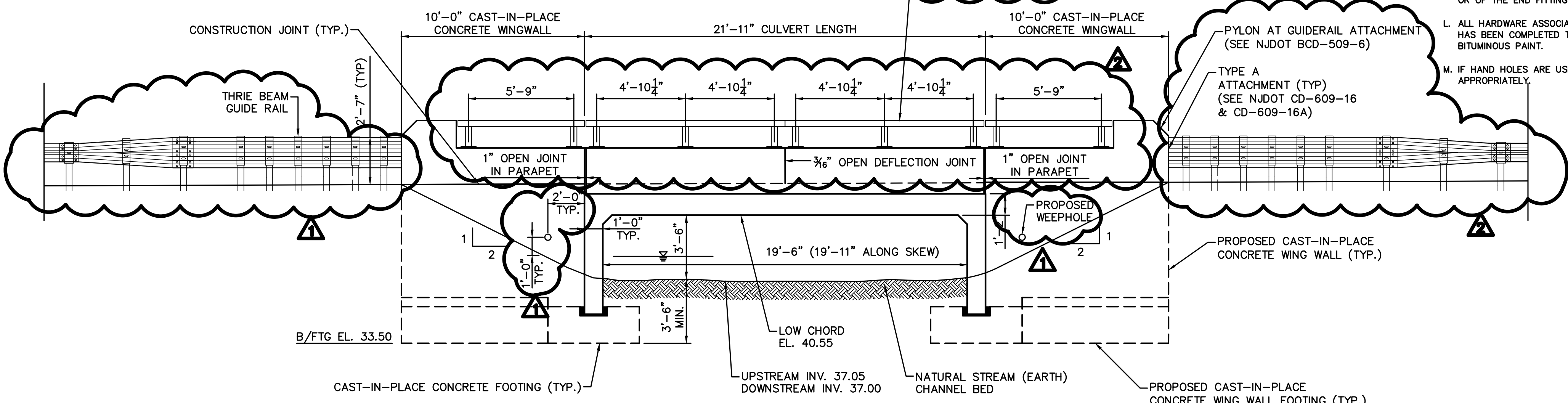


BRIDGE PLAN
SCALE: 1"=10'-0"

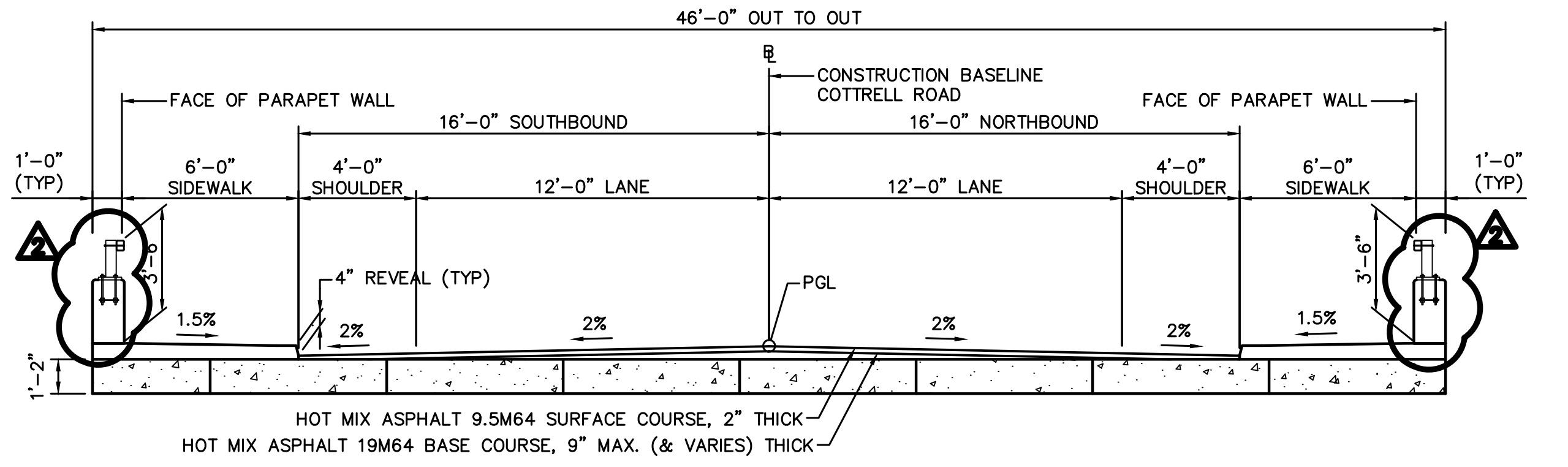
NOTE:

- TEMPORARY SHEETING IS SHOWN ALONG THE STAGE LINE. MEANS AND METHODS OF CONSTRUCTION AND DESIGN OF SUPPORT OF EXCAVATION ARE THE RESPONSIBILITY OF THE CONTRACTOR
- SUPPORT FOR EXCAVATION DURING STAGING SHALL BE PAID FOR UNDER EACH RESPECTIVE CULVERT PAY ITEM

PROPOSED CAST-IN-PLACE CONCRETE PARAPET
SEE NJDOT BCD 509-6



BRIDGE ELEVATION (WEST)
SCALE: 1"=4'-0"



BRIDGE SECTION
SCALE: 1"=4'-0"

GENERAL NOTES:

- DESIGN SPECIFICATIONS:**
THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, WITH INTERIMS AS MODIFIED BY SECTION 3 OF THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES SIXTH EDITION, 2016.
- CONSTRUCTION SPECIFICATIONS:**
2019 ENGLISH NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH SUPPLEMENTARY SPECIFICATIONS AS MODIFIED BY THE SPECIAL PROVISIONS.
- DESIGN LOADS:**
(A) LIVE LOADS: AASHTO LRFD HL-93 VEHICULAR LIVE LOADING OR NJDOT PERMIT VEHICLE, WHICHEVER GOVERNS.
(B) DEAD LOADS: INCLUDES 25 POUNDS PER SQUARE FOOT, PROVISION FOR FUTURE 2" WEARING SURFACE.
- CAST-IN-PLACE CONCRETE:**
(A) DESIGN STRESSES:
CLASS A:
DESIGN COMPRESSIVE STRENGTH ... 4,000 PSI
(B) CLASSES OF CONCRETE FOR STRUCTURAL ITEMS
REINFORCED FOOTINGS A
ABUTMENTS AND WINGWALLS A
DECKS, SIDEWALKS, PARAPETS, CURBS A
ALL EXPOSED OUTSIDE CONCRETE CORNERS SHALL HAVE 3/4" CHAMFER.
- PRECAST CONCRETE:**
A. PRECAST CONCRETE IN CULVERTS AND WINGWALLS SHALL BE CLASS P WITH DESIGN STRENGTH OF 5,500 PSI MIN AT 28 DAYS, IN ACCORDANCE WITH THE STANDARD NJDOT SPECIFICATIONS.
B. THE PRECAST UNITS SHALL BE PULLED AGAINST THE PRIOR INSTALLED SECTION SUCH THAT AN ADEQUATE SEAL IS OBTAINED BETWEEN THE TWO CONNECTING UNITS AND THE RUBBER GASKET.
C. PRIOR TO BACKFILLING, A 2 FOOT WIDE STRIP OF FILTER FABRIC SHALL BE PLACED OVER THE TOP AND SIDE TRANSVERSE JOINTS.
D. TO PROVIDE CONTINUITY AND CONCRETE SHEAR TRANSFER BETWEEN THE PRECAST CULVERT SECTIONS, A LONGITUDINAL TIE ROD OR PRESTRESSING STRAND SHALL BE PLACED IN POSITION THROUGH A 1 1/2 INCH DIAMETER HOLE.
E. FOUR (4) LONGITUDINAL TIES, ONE IN EACH CORNER OF THE PRECAST SECTION, SHALL BE PROVIDED.
F. LONGITUDINAL TIES THAT ARE USED TO TIE THE PRECAST UNITS TOGETHER SHALL BE 3/4 INCH DIAMETER HIGH TENSILE STRENGTH STEEL BARS CONFORMING TO AASHTO M 275 (ASTM A 722) TYPE I OR 1/2 INCH 7 WIRE GRADE 270 KSI STRANDS CONFORMING TO AASHTO M 203 (ASTM A 416) OR EQUIVALENT.
G. NO SPLICES ARE PERMITTED IN THE STRANDS. BARS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
H. END ANCHORAGES (NUTS, WASHERS AND ANCHOR PLATES) SHALL BE COMPATIBLE WITH THE TIE ROD SYSTEM AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
I. THE ANCHORAGES AND END FITTINGS FOR THE 1/2 INCH 7 WIRE STRAND AND THE CORROSION PROTECTION METHOD SHALL BE DETAILED BY THE PRECAST MANUFACTURER AND SHALL COMPLY WITH NJDOT STANDARDS.
J. EACH TIE ROD SHALL BE STRESSED TO A TENSION OF 30 KIPS.
K. AFTER TENSIONING, THE EXPOSED ENDS OF THE TIES SHALL BE REMOVED SO THAT NO PART OF THE TIES, OR OF THE END FITTINGS, EXTEND BEYOND A POINT 1 INCH INSIDE THE ANCHORAGE POCKET.
L. ALL HARDWARE ASSOCIATED WITH THE END ANCHORAGE SYSTEMS SHALL BE GALVANIZED. AFTER TENSIONING HAS BEEN COMPLETED THE EXPOSED PARTS OF THE END FITTINGS SHALL BE COATED WITH TWO COATS OF BITUMINOUS PAINT.
M. IF HAND HOLES ARE USED FOR THE INSTALLATION OF LONGITUDINAL TIES, THEY SHALL BE SPACED APPROPRIATELY.

- STEEL REINFORCEMENT:**
REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60. ALL REINFORCING BARS SHALL BE HOT DIPPED GALVANIZED, UNLESS OTHERWISE NOTED.
- FOUNDATIONS:**
EXISTING SOILS:
INTERNAL FRICTION ANGLE = 32°
MINIMUM FACTOR OF SAFETY:
OVERTURNING = 2.0
SLIDING = 1.5
MAX. ALLOWABLE BEARING PRESSURE = 3,000 PSF AT BOTTOM OF FOOTING ELEVATION.
- STREAM DIVERSION SYSTEM:**
THIS WORK SHALL INCLUDE MAINTENANCE OF ADEQUATE DRAINAGE/CHANNEL FLOW DURING ALL PHASES OF CONSTRUCTION INCLUDING CONSTRUCTION OF COFFERDAMS, AS NECESSARY. THIS WORK SHALL ALSO INCLUDE PROVISIONS FOR BYPASS PUMPING, HIGH DRAINAGE/CHANNEL FLOWS, THE CLEARING AND RESTORING OF THE AREAS SUBJECTED TO STORM WATER RUNOFF DURING CONSTRUCTION. CONSTRUCTION OF COFFERDAMS SHALL BE IN ACCORDANCE WITH SECTION 501.03 OF THE STANDARD NJDOT SPECIFICATIONS.
- BACKFILL:**
A. PLACE BACKFILL MATERIAL IN 8" LIFTS OR LESS. WHEN PLACING BACKFILL, ENSURE THAT THE DIFFERENCE BETWEEN THE HEIGHTS OF THE BACKFILL ON THE OPPOSITE SIDES OF THE STRUCTURE DOES NOT EXCEED 12". USE MECHANICAL TAMPERS TO COMPACT THE BACKFILL ADJACENT TO EACH SIDE OF THE UNITS AND OVER THE TOP OF THE UNITS UNTIL THEY ARE COVERED. DO NOT OPERATE HEAVY EQUIPMENT (WEIGHING IN EXCESS OF 12 TONS) OVER THE STRUCTURE UNTIL A DEPTH OF BACKFILL HAS BEEN PLACED THAT WILL SUPPORT THE EQUIPMENT.
B. GRADING BEHIND WALL SHALL BE SLOPED TO ADEQUATELY DRAIN THE SURFACE RUNOFF TO THE SURROUNDING AREAS.
C. IT IS ASSUMED THAT BACKFILL SHALL BE APPROXIMATELY 6" BELOW THE TOP OF PROPOSED CONCRETE.

REFERENCE NOTES:

- SEE SHEET B-6 FOR BRIDGE PAY ITEMS.
- SEE CONSTRUCTION PLANS FOR GUIDE RAIL LIMITS AND ALL AUXILIARY ROADWAY ITEMS.

LEGEND:

BORING LOCATION (APPROXIMATE)

HYDRAULIC AND HYDROLOGIC DATA	
DRAINAGE AREA (SQ.MI)	0.39
DESIGN DISCHARGE (C.F.S)	715
DESIGN WATER SURFACE ELEVATION (FT)	43.0
ENERGY LINE ELEVATION (FT)	43.04
FREQUENCY	100 YR.

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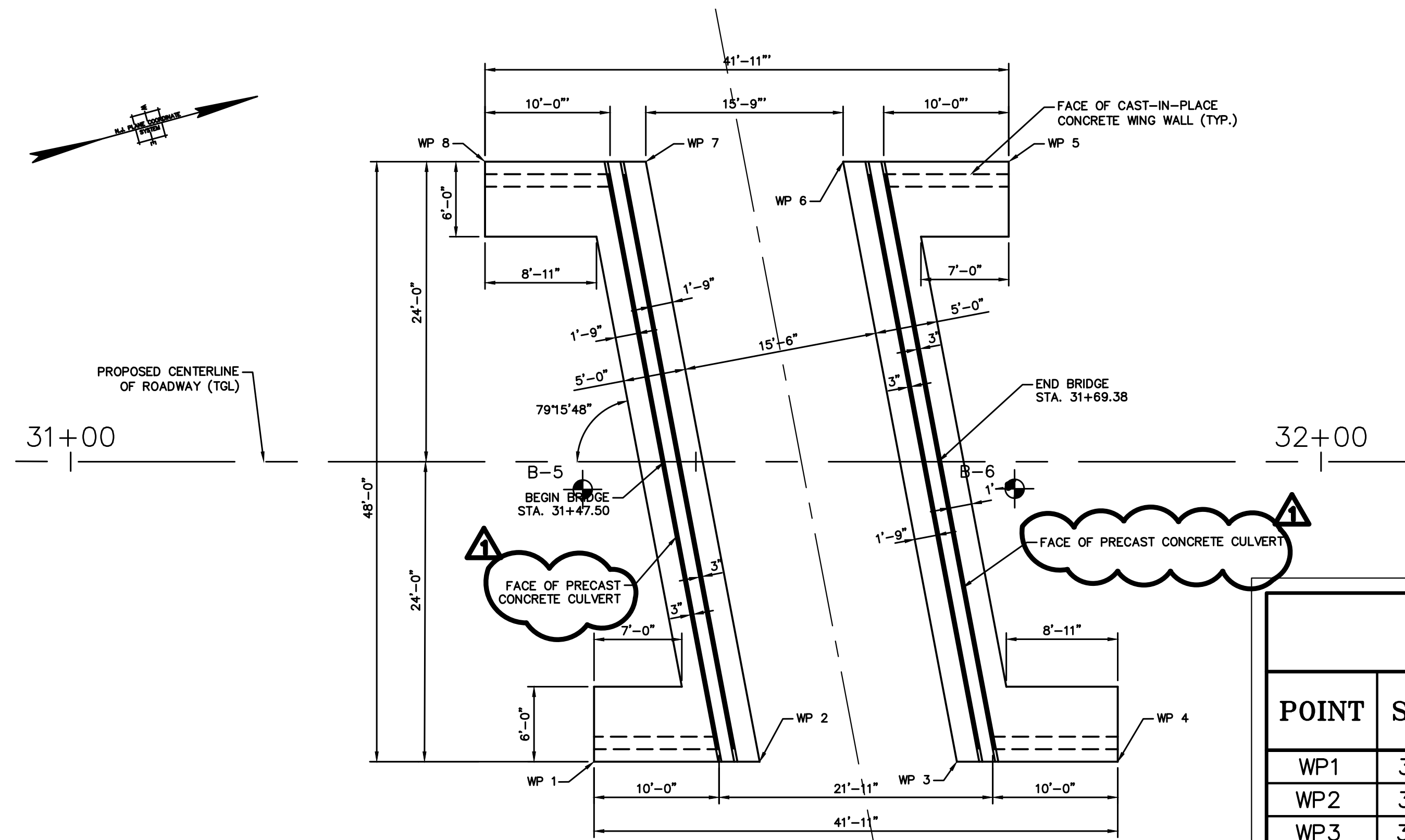
IMPROVEMENTS TO COTTRELL ROAD (MC RT. 687)
AND COUNTY DRAINAGE STRUCTURES
3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

3-C-31 BRIDGE PLAN, ELEVATION AND SECTION

Scale: AS NOTED
Sheet No.: 65 of 68
Date: November 8, 2021
Project No.: 11000297G

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County Engineer
N.J. P.E. No. GE31622

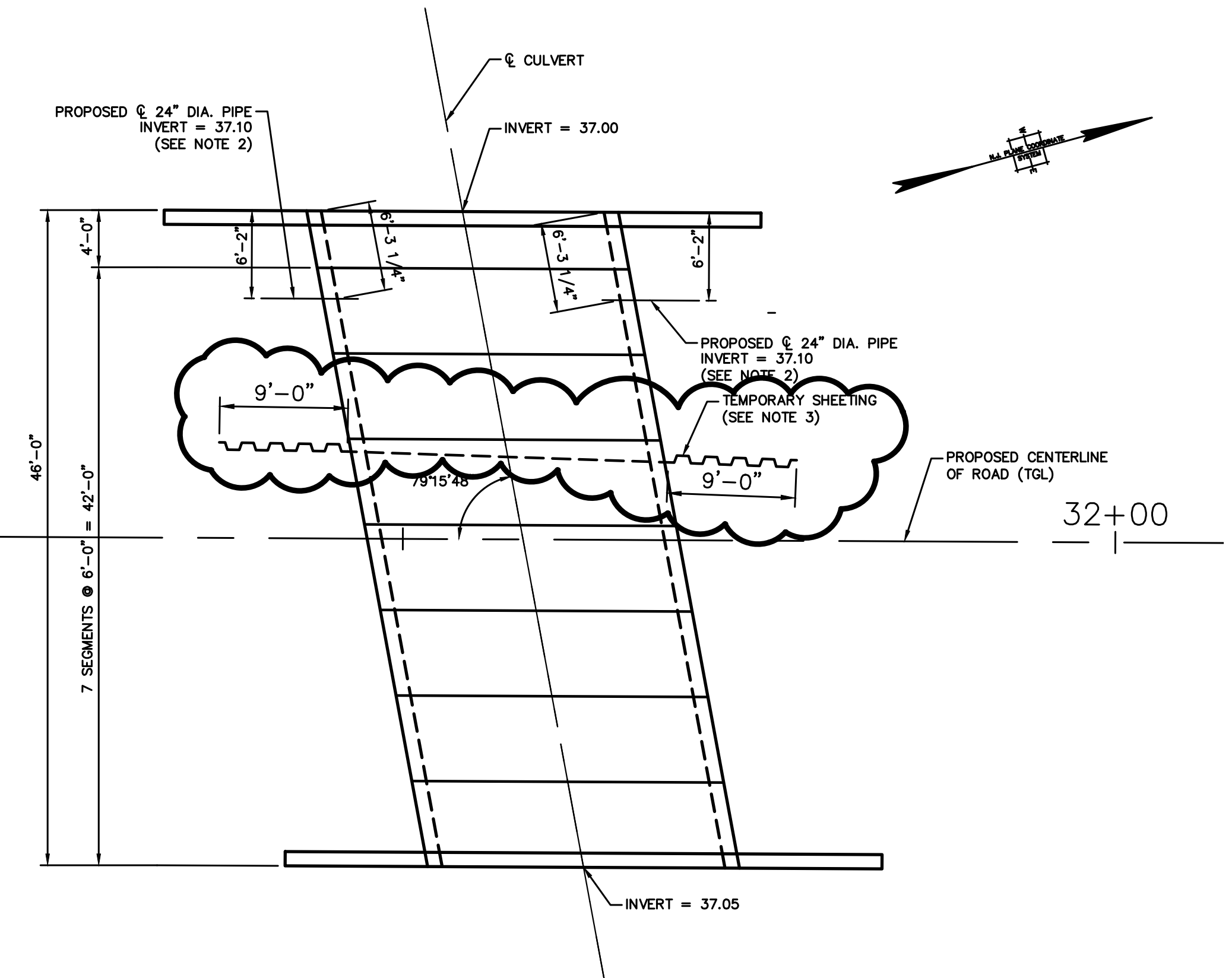
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



FOUNDATION PLAN
SCALE: 1/8"=1'-0"

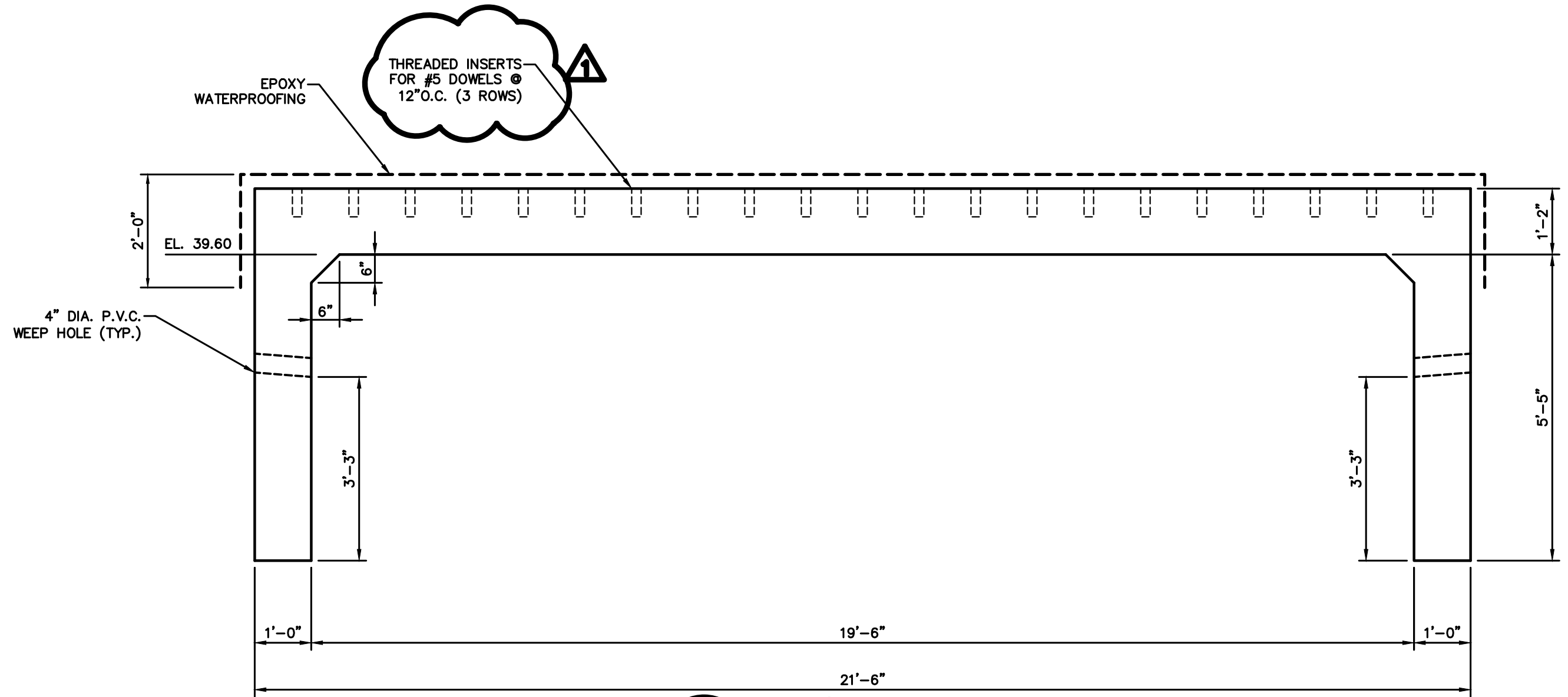
NOTE:
1. POURING OF CAST-IN-PLACE CONCRETE FOOTING TO COINCIDE WITH STAGED CONSTRUCTION OF CULVERT.

TABLE OF WORKING POINTS				
POINT	STATION	OFFSET	NORTHING	EASTING
WP1	31+41.86	24.00 (RT)	576962.67	549694.52
WP2	31+55.10	24.00 (RT)	576975.44	549698.01
WP3	31+70.88	24.00 (RT)	576990.66	549702.17
WP4	31+83.74	24.00 (RT)	577003.07	549705.57
WP5	31+75.02	24.00 (LT)	577007.31	549656.96
WP6	31+61.77	24.00 (LT)	576994.54	549653.47
WP7	31+46.00	24.00 (LT)	576979.32	549649.31
WP8	31+33.13	24.00 (LT)	576966.91	549645.92



PRECAST CULVERT PLAN
SCALE: 1/8"=1'-0"

- NOTES:**
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CULVERT OPENINGS PRIOR TO THE PROCUREMENT OF THE CULVERT.
 - INVERTS SHOWN ARE AT PIPE CONNECTIONS TO THE CULVERT.
 - TEMPORARY SHEETING IS SHOWN ALONG THE STAGE LINE. MEANS AND METHODS OF CONSTRUCTION AND DESIGN OF SUPPORT OF EXCAVATION ARE THE RESPONSIBILITY OF THE CONTRACTOR.
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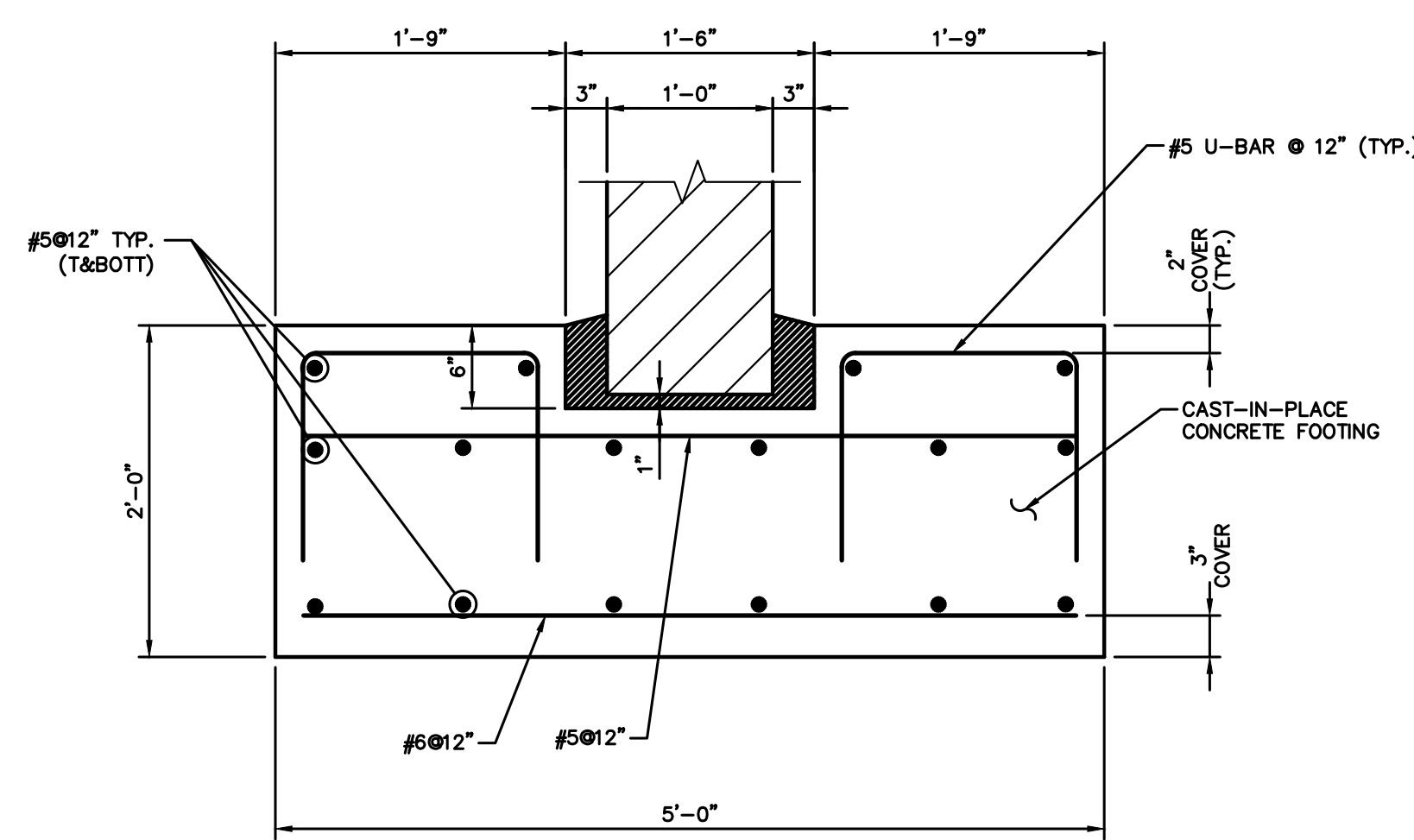
PRECAST CONCRETE CULVERT CROSS SECTION
SCALE: 1/4"=1'-0"

BRIDGE ITEMS		
PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
21	EXCAVATION, UNCLASSIFIED	404 CY
78	1-9 SOIL AGGREGATE	145 CY
80	REINFORCEMENT STEEL, GALVANIZED	9,892 LB
82	CONCRETE FOOTING	52 CY
83	CONCRETE WING WALL	11 CY
84	EPOXY WATERPROOFING	140 SY
85	19'-6" X 3'-6" REINFORCED CONCRETE 3-SIDED FRAME, PRECAST (INSIDE DIMENSION)	47 LF
87	CONCRETE BRIDGE PARAPET	84 LF
88	CONCRETE BRIDGE SIDEWALK	7 CY

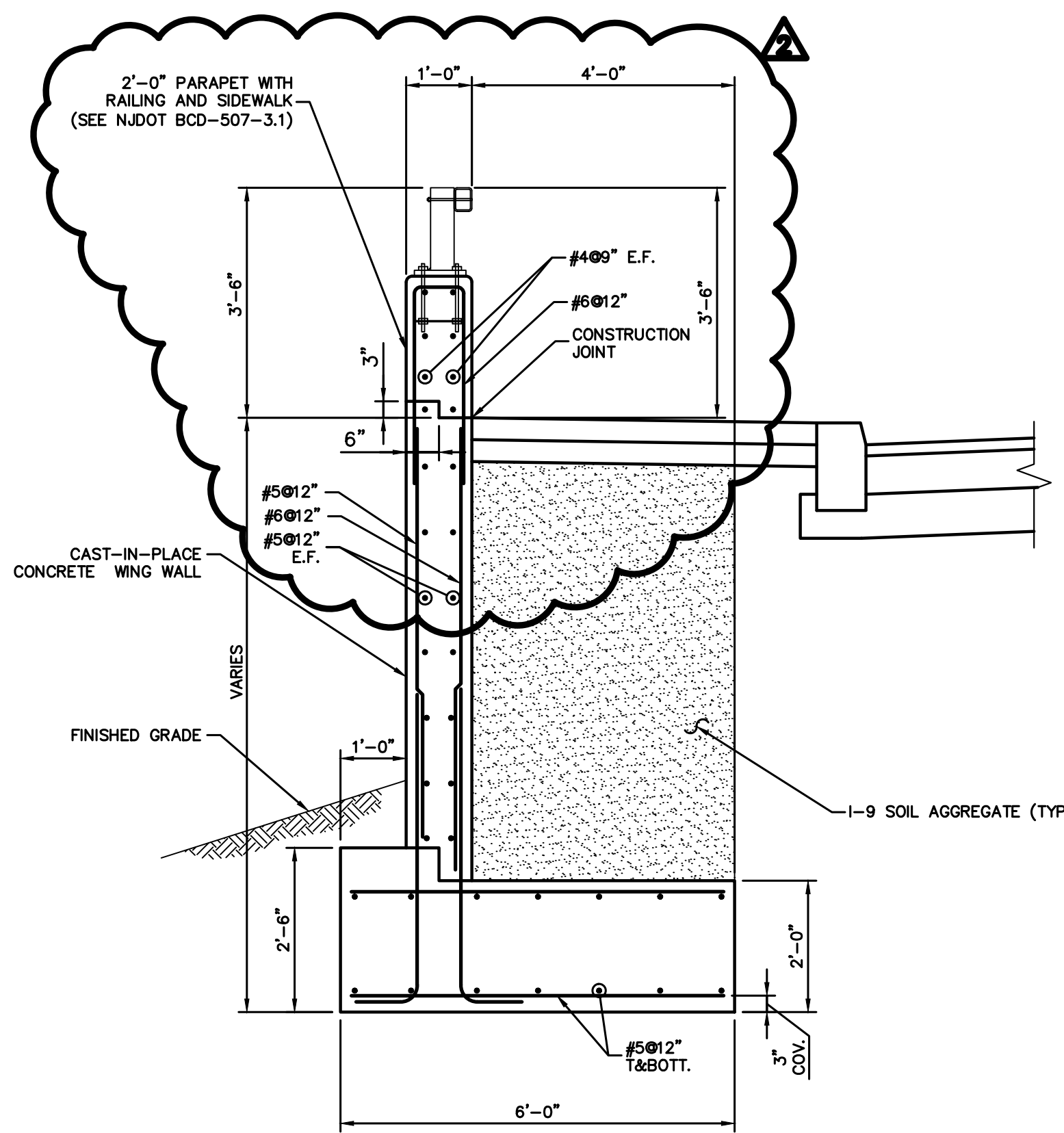
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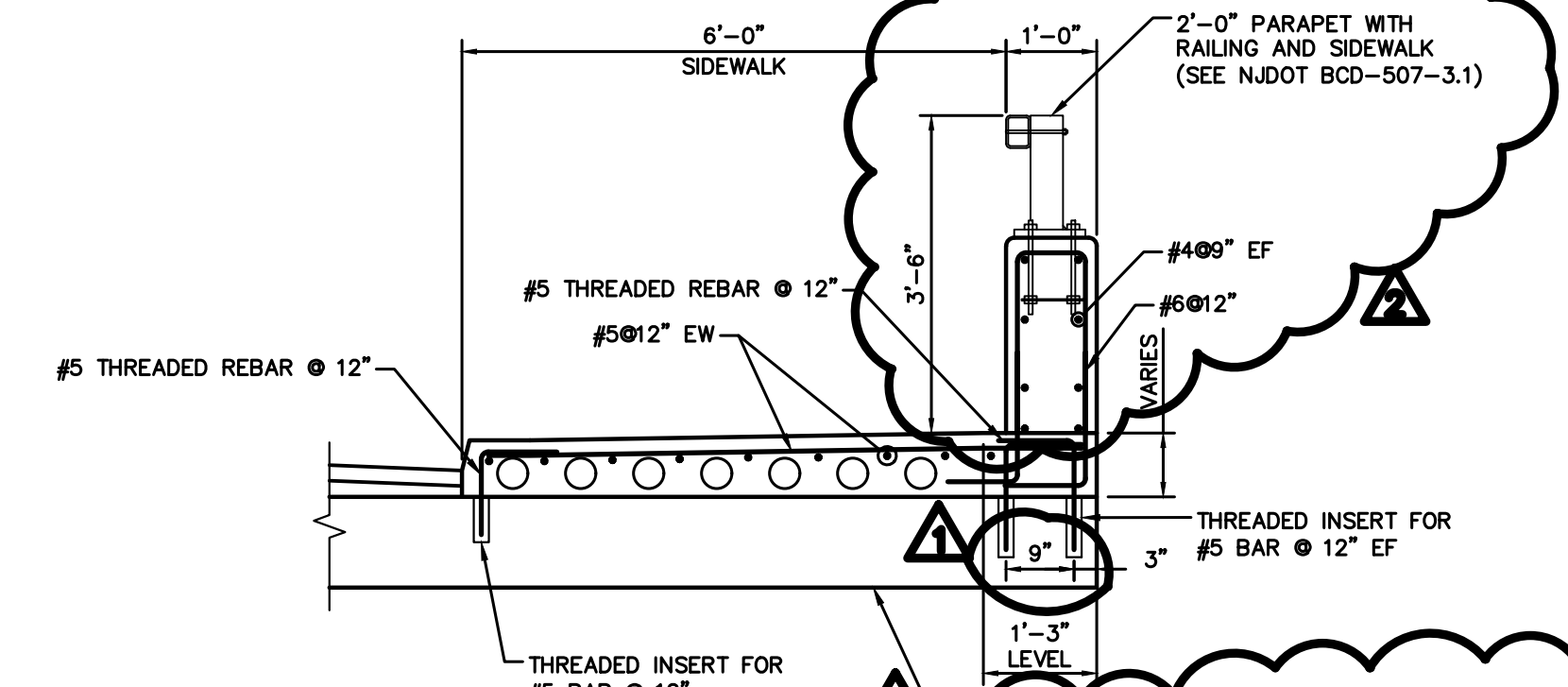
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3-C-31, 3-C-32, AND 3-C-33
TOWNSHIP OF OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY
3-C-31 BRIDGE FOUNDATION PLAN &
CULVERT DETAILS
Scale: AS NOTED
Sheet No.: 66 of 68
Date: November 8, 2021
Project No.: 11000297G
Ronald M. Sendner
County Engineer
N.J. P.E. No. GE31622



TYPICAL FOOTING SECTION
SCALE: 1"=1'-0"

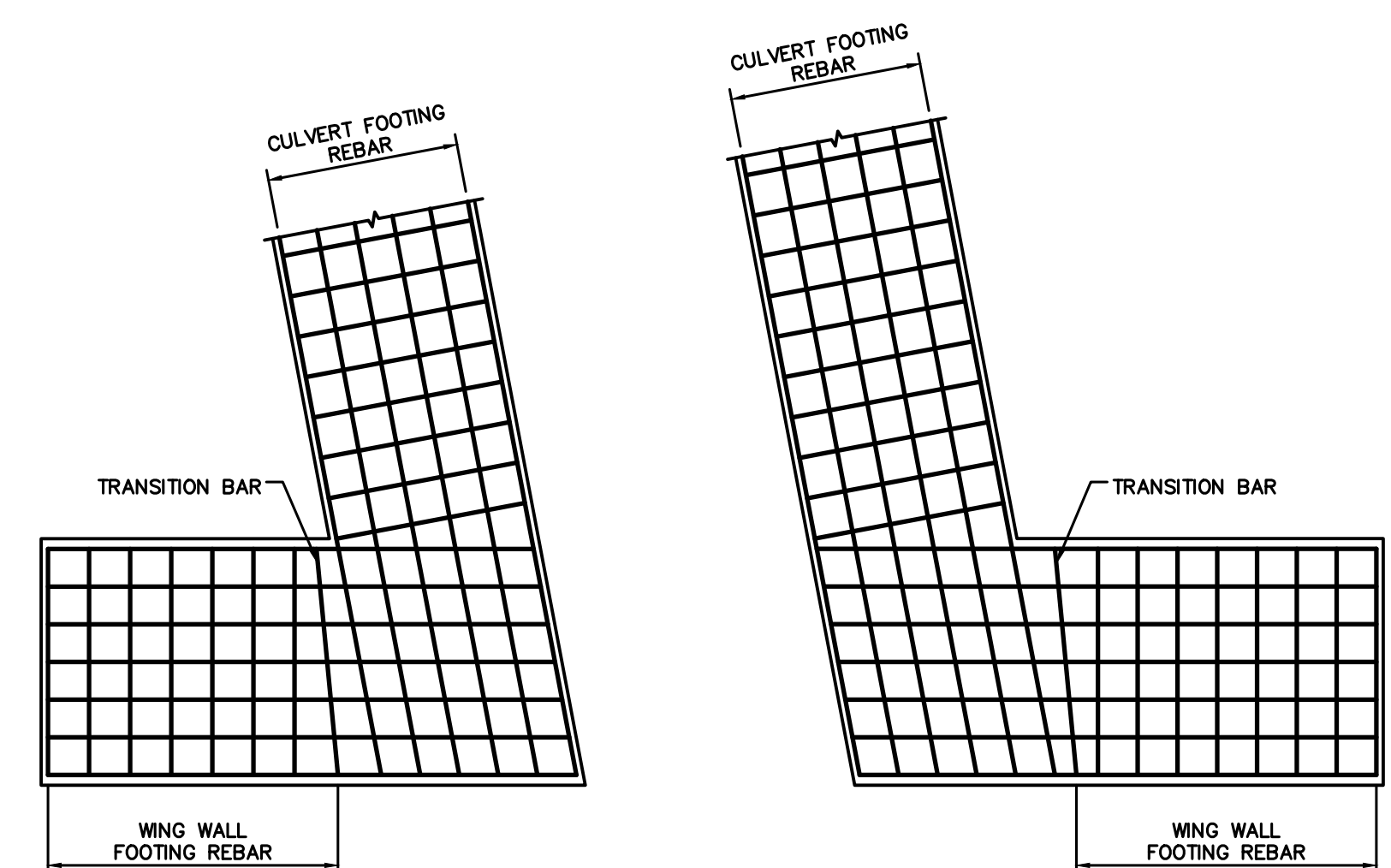


TYPICAL WINGWALL SECTION
SCALE: 1/2"=1'-0"

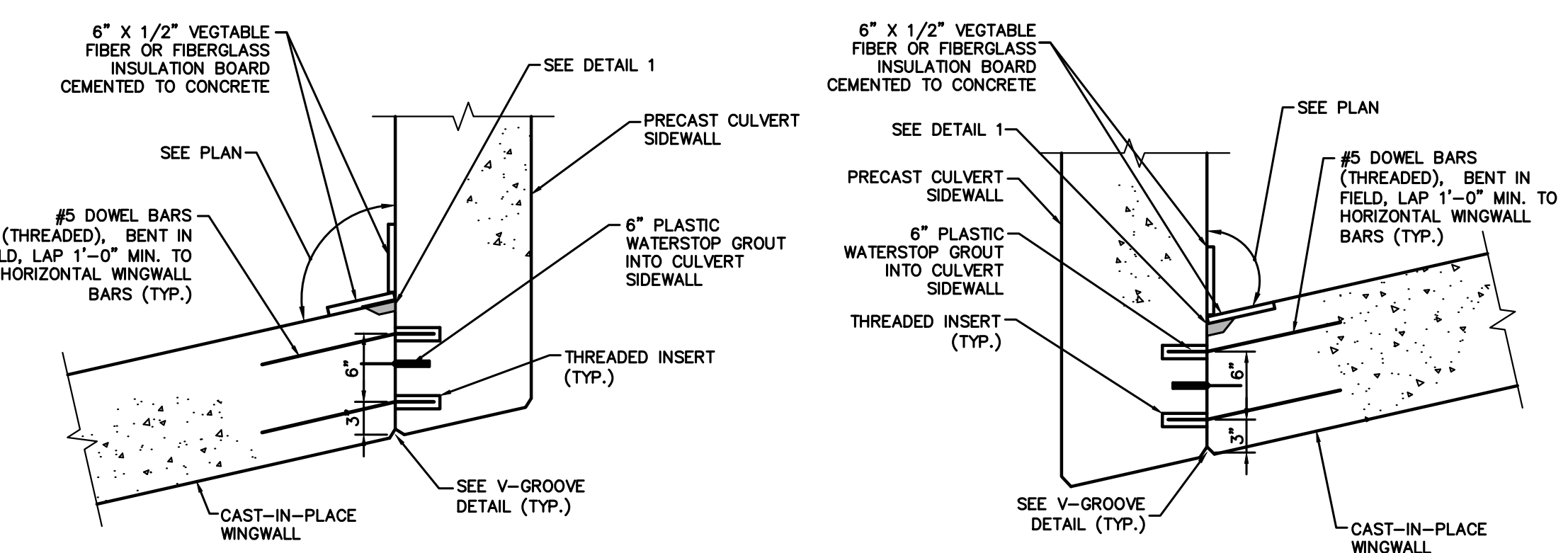


TYPICAL HEADWALL SECTION
SCALE: 1/2"=1'-0"

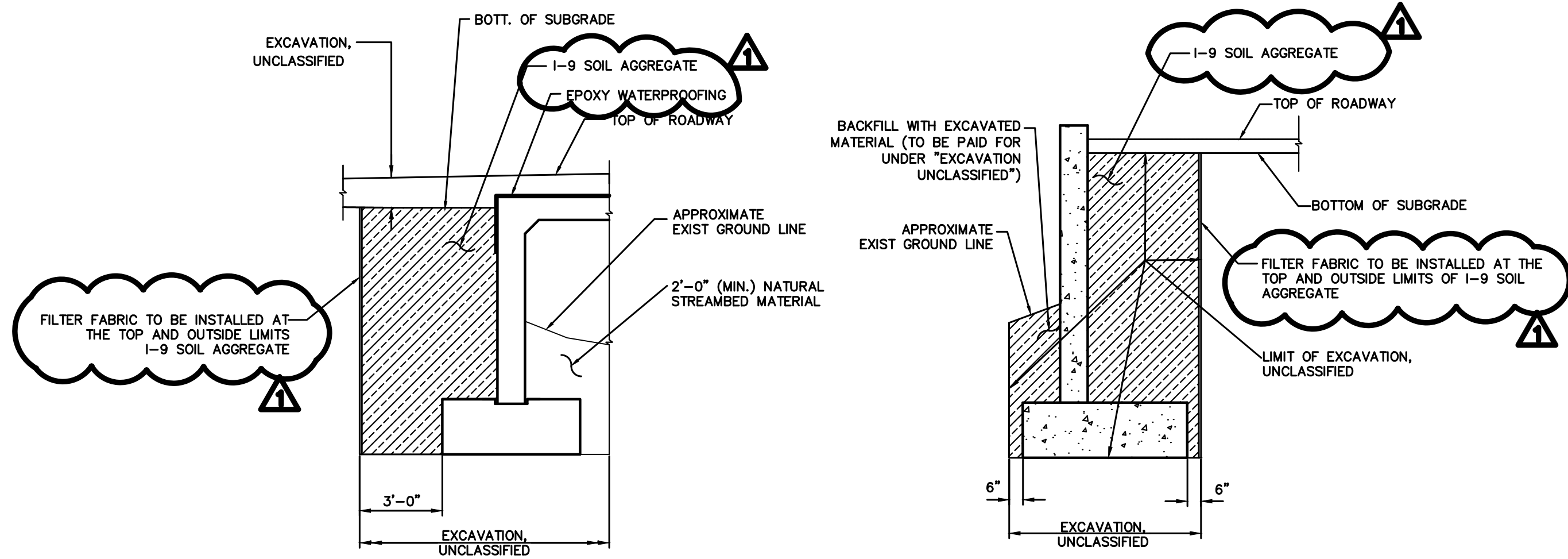
NOTES:
1. "TYPE A" ATTACHMENT BETWEEN GUIDE RAIL AND CONCRETE PARAPET UNLESS NOTED OTHERWISE (SEE NJDOT CD-609-16 AND CD-609-16A).



TYPICAL CORNER REBAR DETAIL
SCALE: N.T.S.



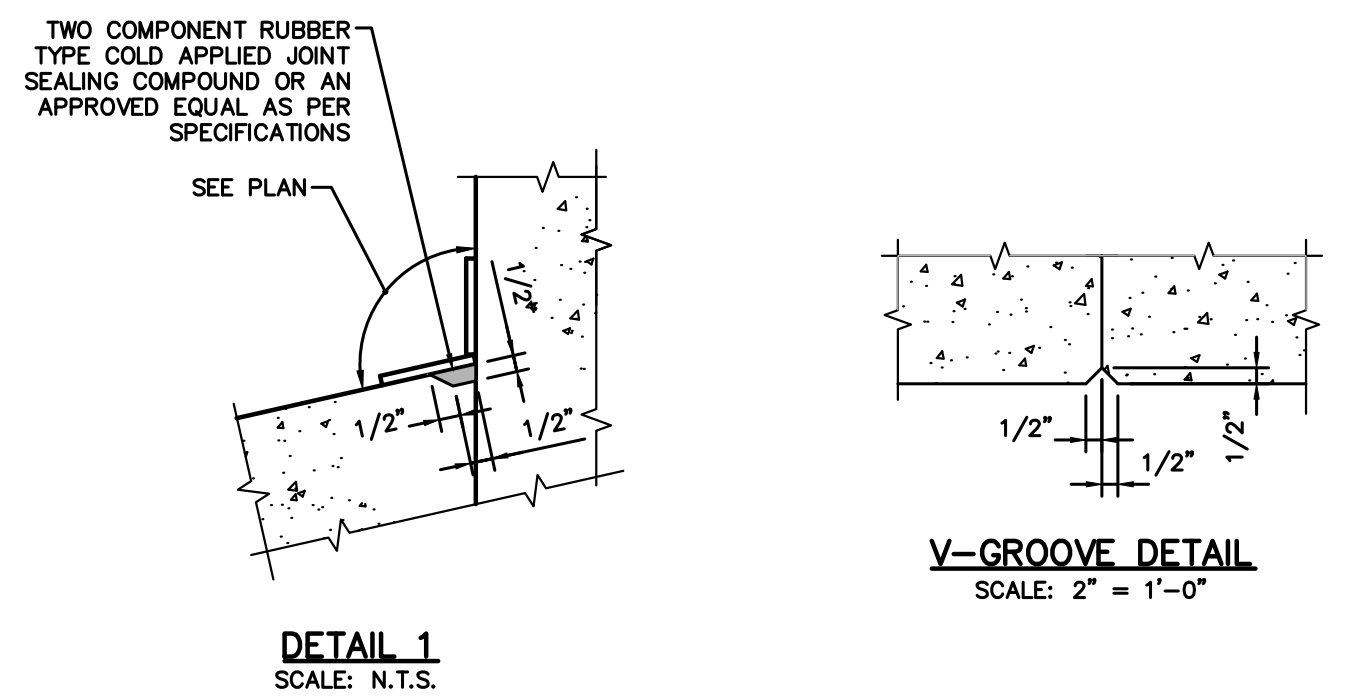
WING WALL/CULVERT CONSTRUCTION JOINT DETAILS
SCALE: N.T.S.



CULVERT

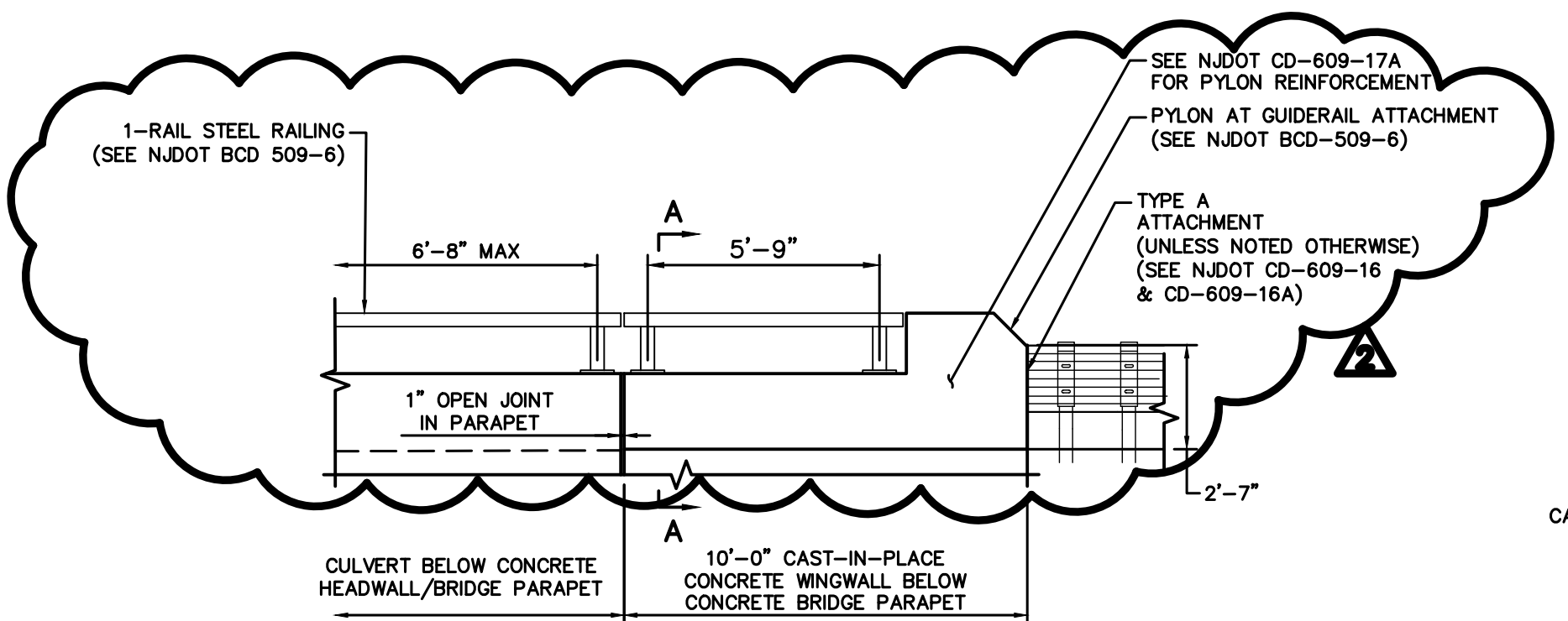
DETAIL OF PAY LIMITS FOR EXCAVATION AND FILL
SCALE: N.T.S.

WING WALL

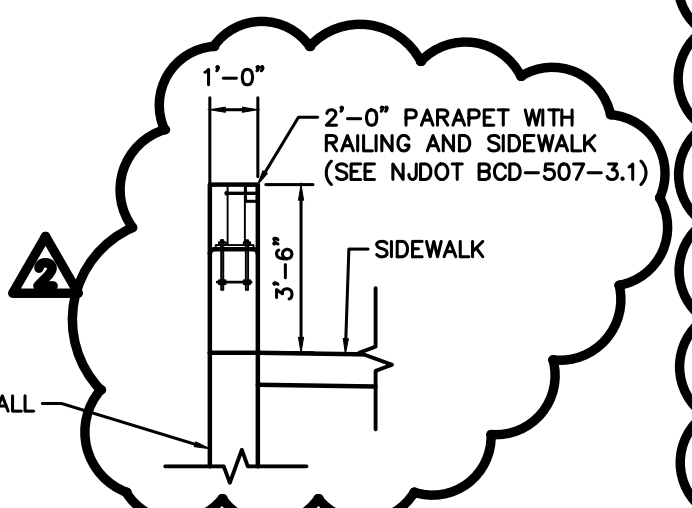


DETAIL 1
SCALE: N.T.S.

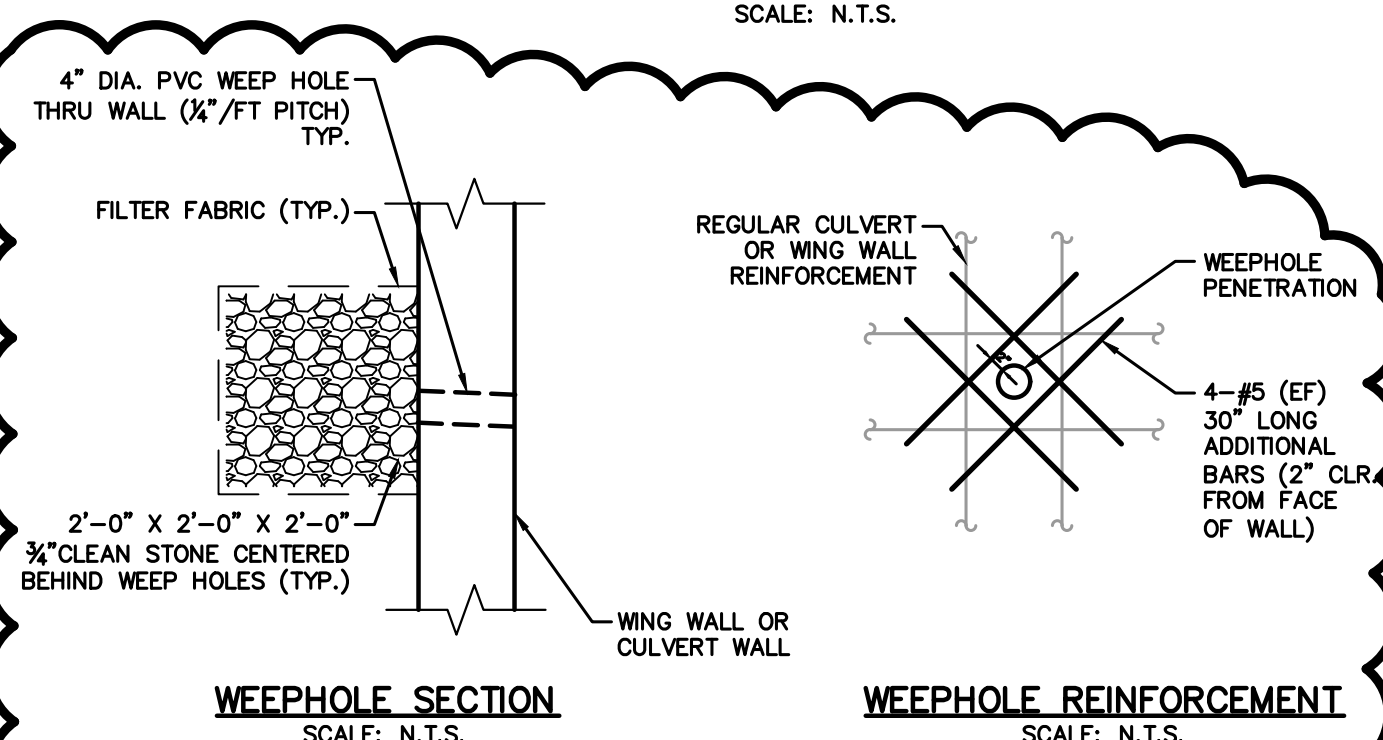
V-GROOVE DETAIL
SCALE: 2"=1'-0"



CONCRETE BRIDGE PARAPET DETAILS
SCALE: 1/4"=1'-0"



SECTION A-A



WEEP HOLE SECTION
SCALE: N.T.S.

WEEP HOLE REINFORCEMENT
SCALE: N.T.S.

NOTE:
1. ALL COSTS ASSOCIATED WITH THE BROKEN STONE POCKET, FILTER FABRIC AND 4" DIA. PVC SHALL BE INCLUDED IN THEIR RESPECTIVE CULVERT OR CONCRETE WING WALL PAY ITEMS.

NOTE:
1. ALL CLEAR COVER OF REINFORCEMENT BARS SHALL BE IN ACCORDANCE WITH THE NJDOT BRIDGE DESIGN MANUAL AND AASHTO LRFD TABLE 5.12.3-1

NOTE:
COST OF PYLON SHALL BE INCLUDED IN "CONCRETE BRIDGE PARAPET" ITEM.

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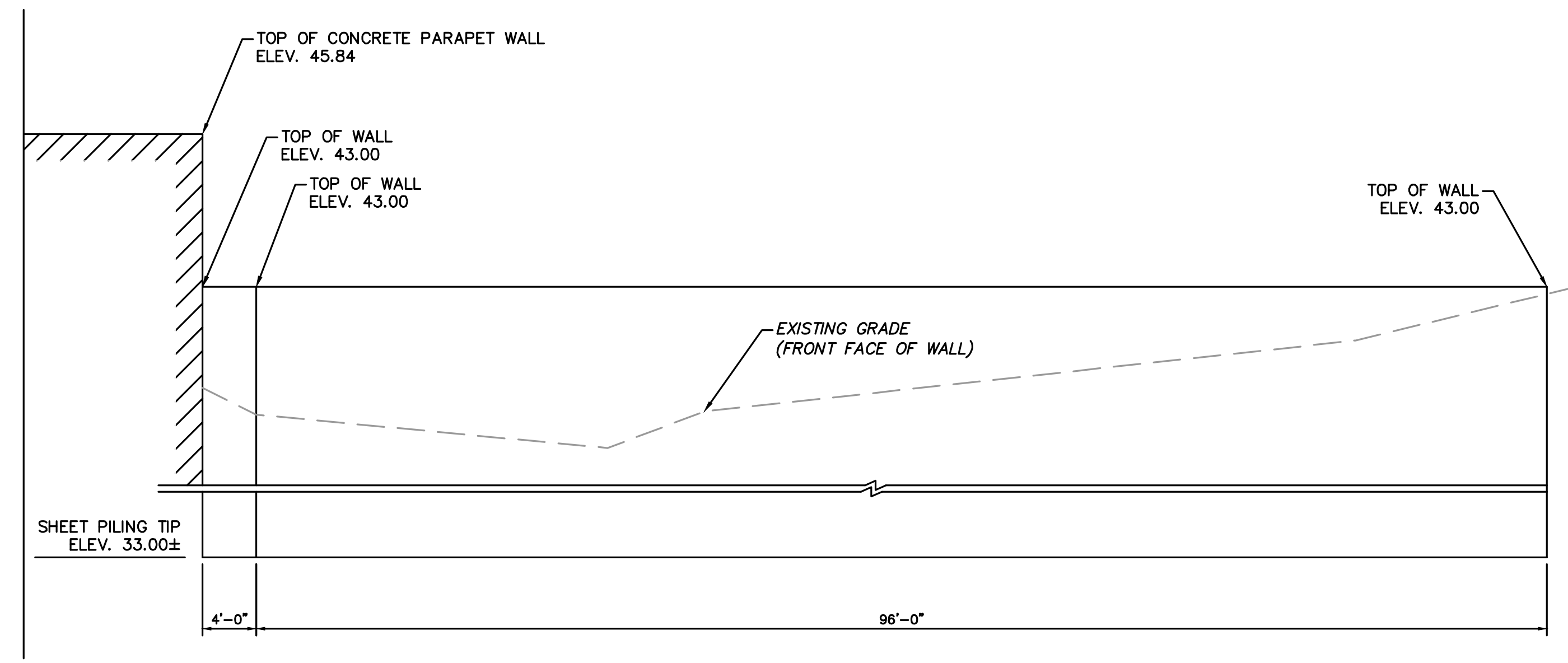
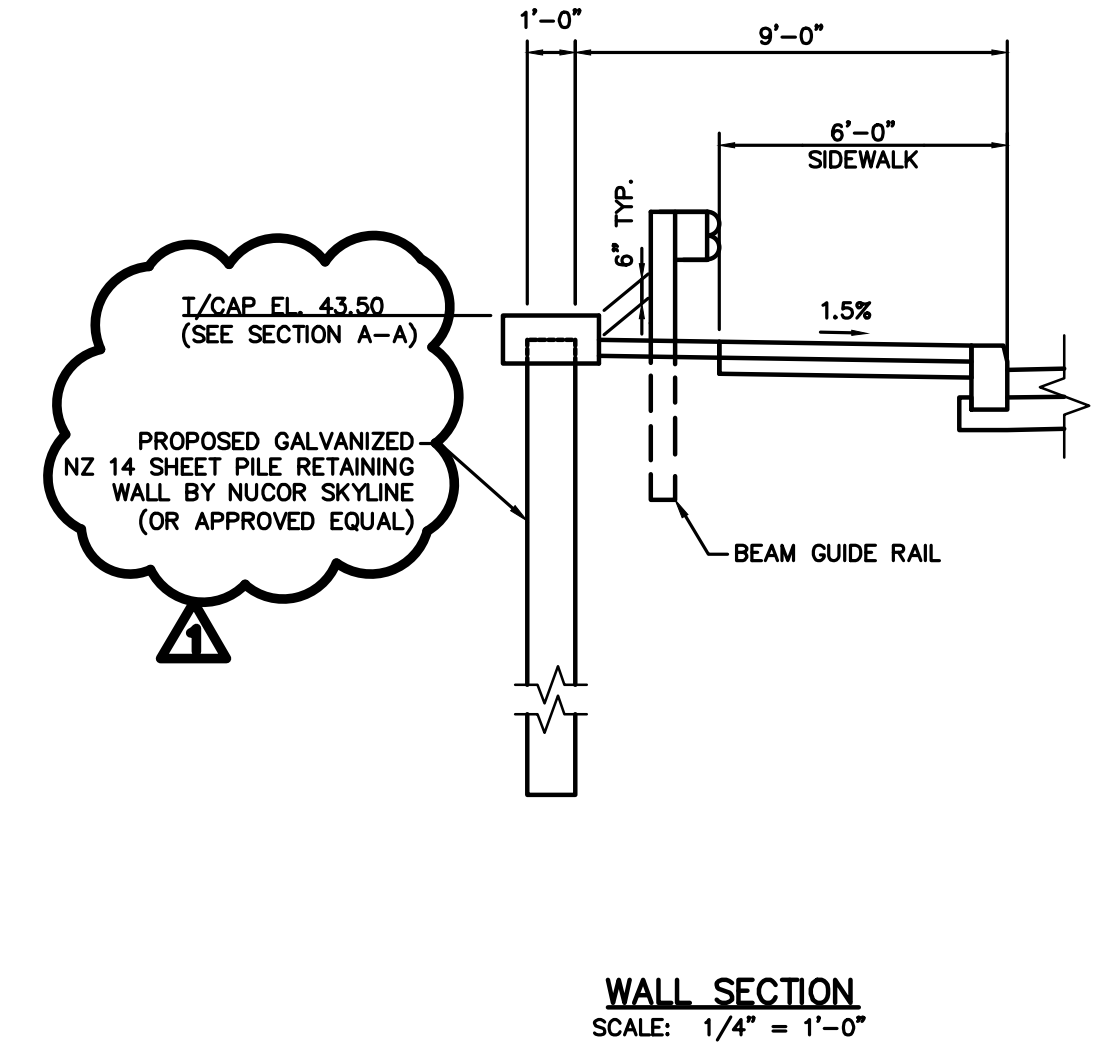
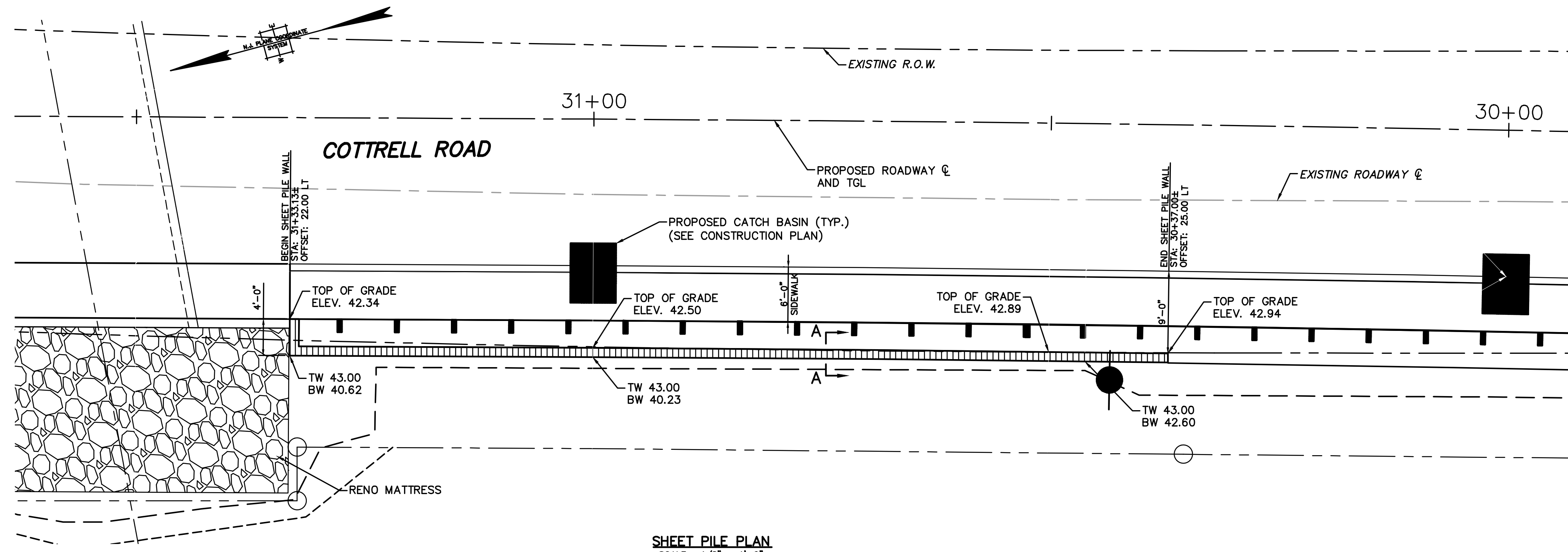
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TYPICAL CULVERT DETAILS

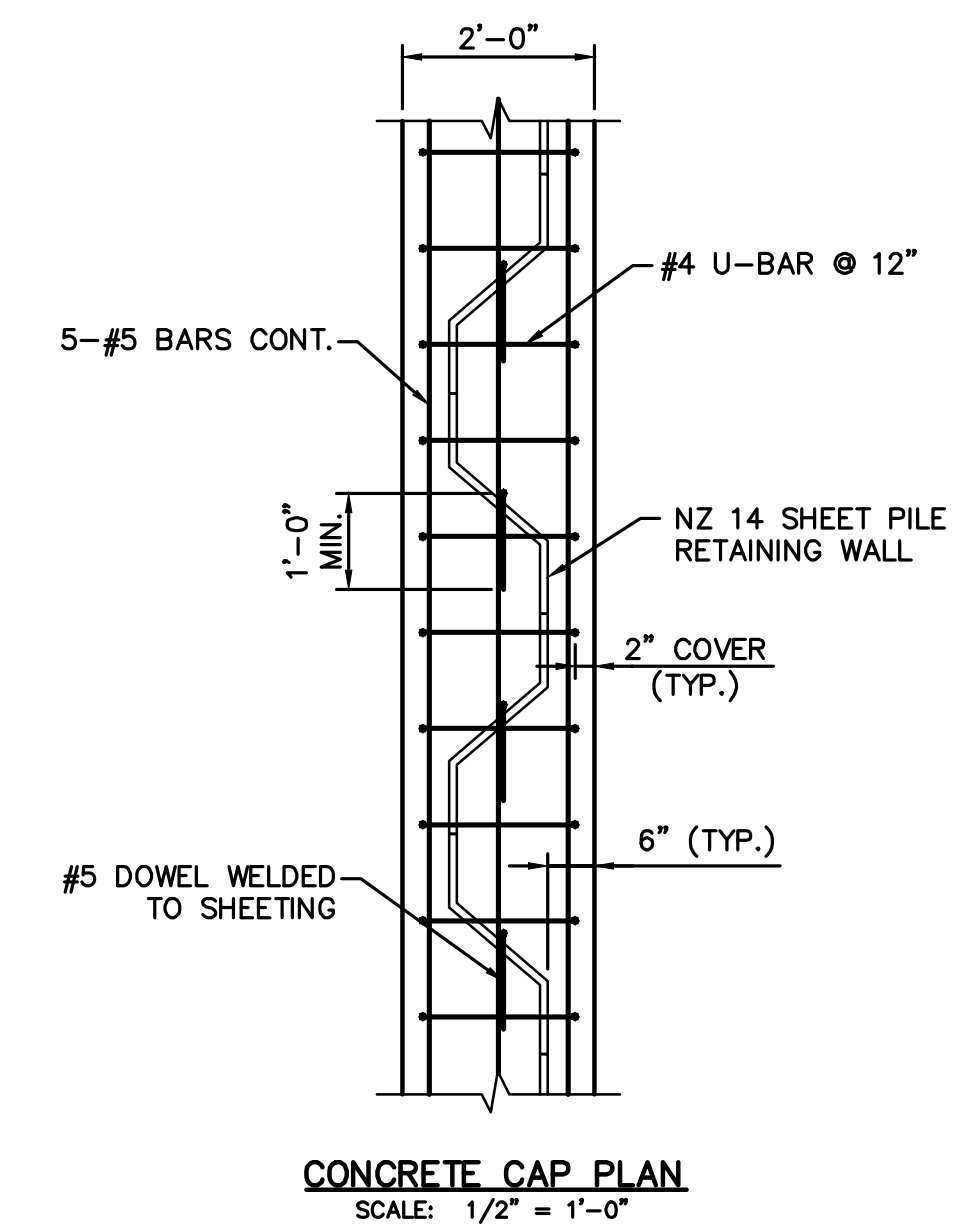
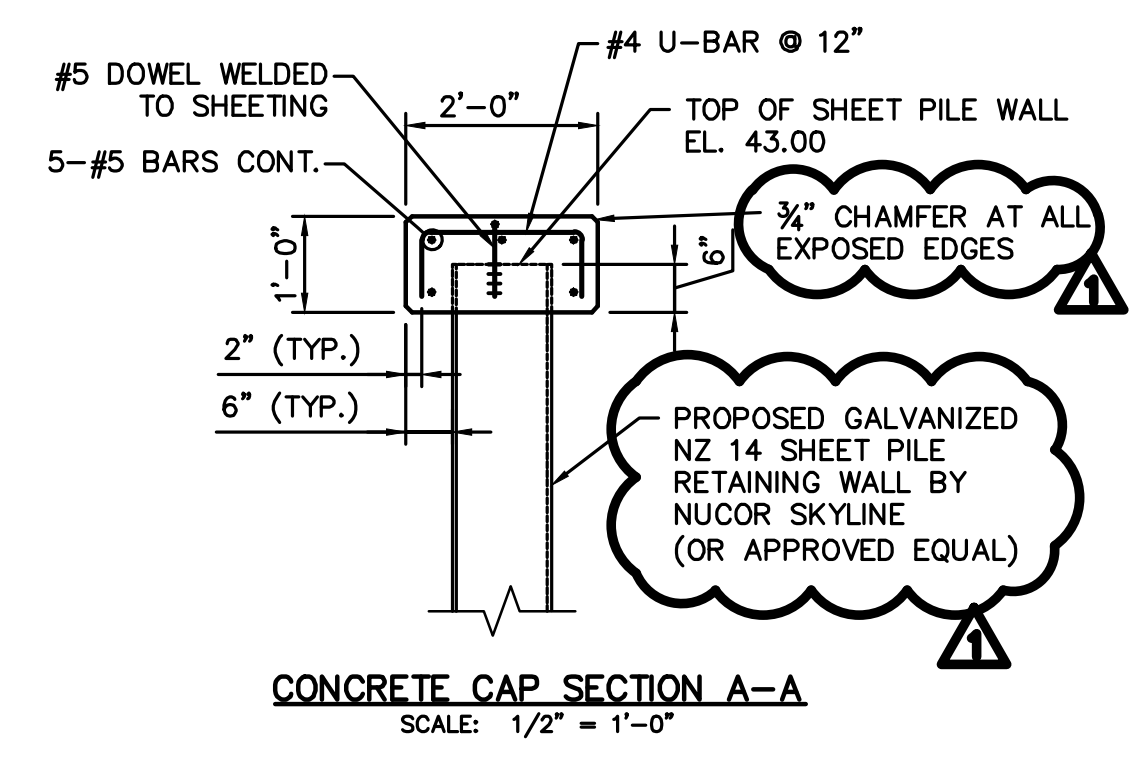
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Date: November 8, 2021
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NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



NOTE:
ALL PERMANENT SHEETING SHALL BE GALVANIZED.



NOTE:
ALL HORIZONTAL REINFORCEMENT SHALL HAVE A MINIMUM LAP SPLICE OF 18".

SHEET PILE WALL ITEMS		
PAY ITEM NO.	TO BE CONSTRUCTED	QUANTITY
79	PERMANENT SHEETING	1,050 SF
80	REINFORCEMENT STEEL, GALVANIZED	930 LBS
89	MISCELLANEOUS CONCRETE	8 CY

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SHEET PILE RETAINING WALL PLAN

Scale: AS SHOWN
Sheet No.: 68 of 68
Date: November 8, 2021
Project No.: 11000297G

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