

EMBANKMENTS - PERMISSIBLE RATES OF CONSTRUCTION

EMBANKMENTS AT THE FOLLOWING LOCATIONS SHALL BE CONSTRUCTED USING NORMAL RATES OF CONSTRUCTION UP THE TO ELEVATIONS LISTED IN THE TABLE BELOW. ABOVE THESE MAXIMUM ELEVATIONS, THE SPECIFIED RATES OF CONSTRUCTION ARE REQUIRED TO INCREASE SHORT TERM SLOPE STABILITY FACTORS OF SAFETY TO ACCEPTABLE LEVELS:

STATION ANALYZED	MAX EMBANKMENT ELEVATION USING NORMAL CONSTRUCTION RATES (FEET)	PERMISSIBLE CONSTRUCTION RATE (FEET/WEEK)	APPROX. STATION INTERVAL FOR RATE CONSTRUCTION
136+00	548	13	136+25 to 146+00
160+00	578	10.7	148+00 to 162+00
219+00	605	3.2	215+00 to 228+50
293+00	545	5	289+00 to 295+00
322+00	609	3.6	316+00 to 324+00
329+00	590	1.3	324+50 to 332+50
340+00	623	11.2	338+50 to 342+00
371+00	593	4.6	342+00 to 374+00
REINFORCED SLOPES			
198+00	565	6.1	196+75 to 199+87
297+68	549	16.4	296+75 to 298+58
300+81	549	16.3	300+06 to 301+00
377+50	573	8.2	376+60 to 378+34, Ramp 1 376+35 to 377+94

ITEM 203 - EMBANKMENT, AS PER PLAN (TYPE C)

THIS ITEM SHALL CONSIST OF PROVIDING AND PLACEMENT OF THE DRAINAGE LAYER AS SHOWN ON THE CROSS-SECTIONS. THE DRAINAGE LAYER MUST BE CONSTRUCTED TO PREVENT INTERNAL EROSION OR PIPING OF THE EMBANKMENT DURING OR AFTER A FLOOD EVENT. ON-SITE EXCAVATED ROCK SUCH AS SANDSTONE OR SILTSTONE MAY BE USED IF THE MATERIAL HAS A SLAKE DURABILITY INDEX (SDI) GREATER THAN 90 PERCENT ACCORDING TO ASTM D 4644-16. MATERIAL WITH AN SDI BETWEEN 85 AND 90 PERCENT IS ALLOWED IF RETAINED MATERIAL AFTER SDI TESTING IS CLASSIFIED AS TYPE I. MATERIAL DESIGNATED FOR THE DRAINAGE LAYER SHALL BE TESTED BY THE CONTRACTOR PRIOR TO PLACEMENT FOR SDI AT A MINIMUM OF ONE TEST EVERY 20,000 CY OR CHANGE IN MATERIAL, AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL DEVELOP AND IMPLEMENT A QUALITY CONTROL PROGRAM TO CONTROL THE MATERIAL AND WORK IN A METHOD THAT DOES NOT RESULT IN PLACEMENT OF EMBANKMENT WITH NON-CONFORMING MATERIAL. ITEM 712.09 TYPE A GEOTEXTILE FABRIC WITH AN AOS LESS THAN OR EQUAL TO 0.3 MM SHALL BE PLACED ABOVE THE DRAINAGE LAYER TO ASSIST SEPARATION OF THE EMBANKMENT SOIL FROM THE DRAINAGE MATERIAL. THE DRAINAGE LAYER SHALL BE CONSTRUCTED TO A TOP ELEVATION OF 557 WHERE SHOWN ON THE CROSS-SECTIONS. SEE THE DETAIL BELOW FOR ADDITIONAL INFORMATION REGARDING MATERIAL SIZE AND DRAINAGE LAYER BUILDUP. ROCK SPALLS AND ROCK FINES ARE ACCEPTABLE UP TO AN AVERAGE OF 20% OF THE MATERIAL AS DETERMINED BY VOLUME AND VISUAL INSPECTION. AREAS OF PLACED MATERIALS WITH EXCESS FINES MAY BE REJECTED BY THE ENGINEER. SOIL AND NON-DURABLE ROCK SHALL BE LIMITED TO LESS THAN 5% OF THE MATERIAL AS DETERMINED BY VOLUME AND VISUAL INSPECTION. SHOULD THE CONTRACTOR ELECT TO HAUL IN MATERIAL FOR THIS ITEM, IT MUST MEET THE CRITERIA AS DESCRIBED ABOVE.

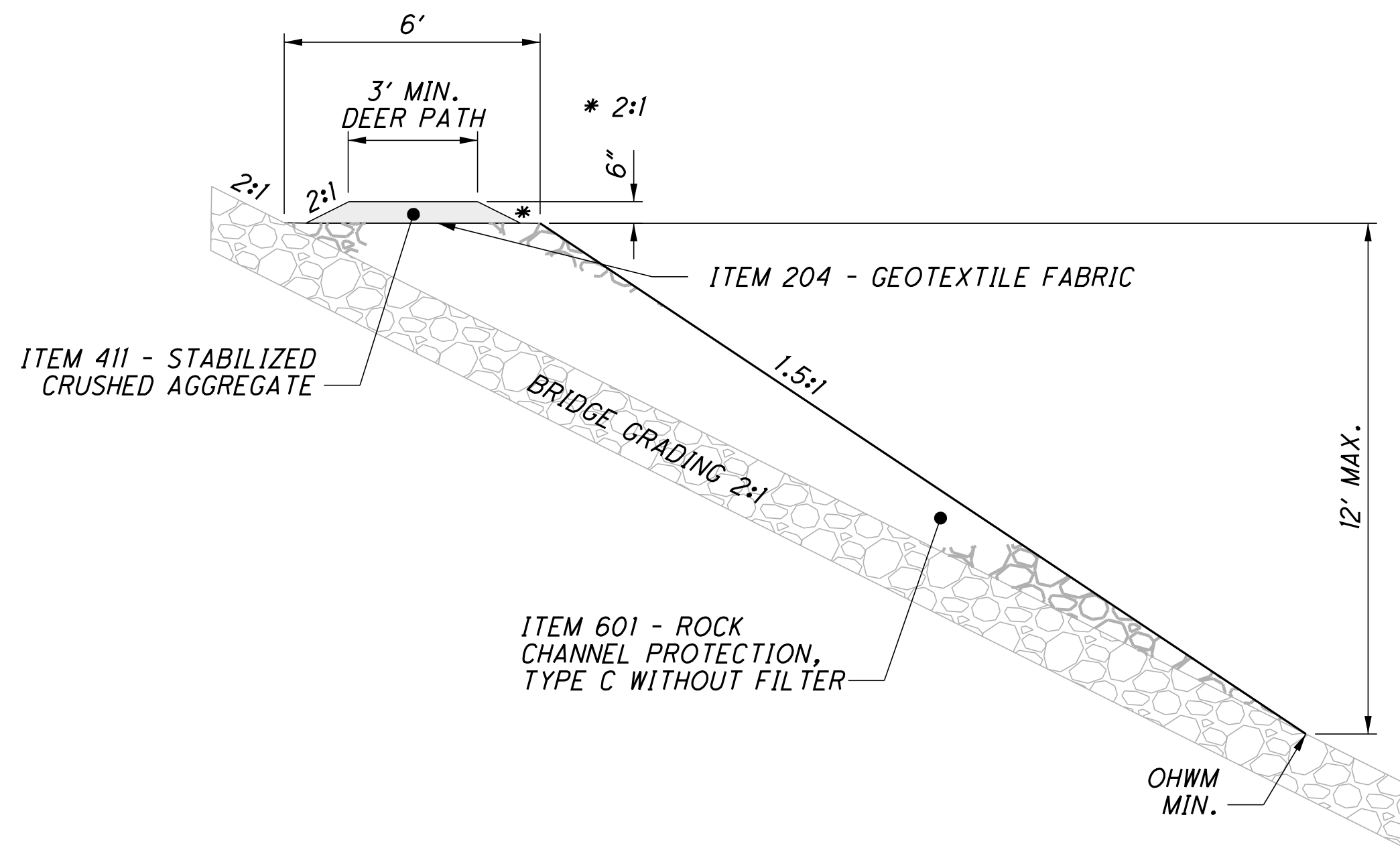
557	GEOTEXTILE FABRIC	FILL HEIGHT
555		MATERIAL PROVIDED SHOULD BE LARGE ENOUGH TO CHOK OFF THE VOIDS IN THE UNDERLYING LAYER AND SMALL ENOUGH TO PROVIDE A SMOOTH SURFACE FOR THE GEOTEXTILE FABRIC.
550	MATERIAL SHALL CONSIST PREDOMINANTLY OF ROCK CONSISTENT TO THE SIZE OF TYPE C OR D DUMPED ROCK PER 703.19.	
	MATERIAL SHALL CONSIST PREDOMINANTLY OF ROCK CONSISTENT TO THE SIZE OF TYPE A, B, C OR D DUMPED ROCK PER 703.19.	

PAYMENT FOR THE ABOVE WORK INCLUDING ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE PAID FOR AT THE CONTRACT PRICE PER CUBIC YARD OF ITEM 203 - EMBANKMENT, AS PER PLAN (TYPE C).

CONSTRUCTED DEER PATH

THE CONTRACTOR IS TO CONSTRUCT A PROPOSED DEER PATH AT THE LOCATIONS LISTED IN THE TABLE BELOW AND ACCORDING TO THE DETAIL BELOW. THE PATH HAS NOT BEEN SHOWN IN ITS ENTIRETY IN THE PLANS, BUT QUANTITIES HAVE BEEN INCLUDED TO PROVIDE A DEER PATH THAT EXTENDS TO THE LIMITS OF THE ROCK CHANNEL PROTECTION AT THE BRIDGE ABUTMENTS AND TRANSITIONED DOWN TO NATURAL GROUND.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO COMPLETE THIS WORK.



DEER PASSAGE THROUGH RCP

LOCATION	LENGTH	TOP OF ROCK CHANNEL PROTECTION ELEVATION	204	411	601
			GEOTEXTILE FABRIC SY	STABILIZED CRUSHED AGGREGATE CY	ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER CY
S.R. 7 - BRIDGE LAW-7-071IP REAR ABUTMENT	200	561	111.11	14.81	266.67
S.R. 7 - BRIDGE LAW-7-071IP FORWARD ABUTMENT	157	561	87.22	11.63	209.33
S.R. 7 - BRIDGE LAW-7-0713L/R REAR ABUTMENT	248	561	137.78	18.37	330.67
S.R. 7 - BRIDGE LAW-7-0713L/R FORWARD ABUTMENT	330	561	183.33	24.44	440.00
TOTALS			519.44	69.26	1246.67
TOTALS CARRIED TO GENERAL SUMMARY			520	70	1247

ITEM 863 - REINFORCED EMBANKMENT, AS PER PLAN

CONSTRUCT REINFORCED SOIL SLOPES ACCORDING TO SUPPLEMENTAL SPECIFICATION 863 WITH THE EXCEPTION THAT NON-DURABLE SHALE (AS DEFINED IN CMS 703.16.D) IS ANTICIPATED AND ALLOWED FOR USE. ONE SAMPLE OF THE NON-DURABLE SHALE IN A FULLY SOFTENED STATE AS DEFINED BY BUCKET OF WATER TEST PER CMS 703.16.D. SHALL BE TESTED EVERY 50,000 CY OR CHANGE IN MATERIAL FOR COMPLIANCE WITH ORGANIC CONTENT, PLASTICITY INDEX, AND pH REQUIREMENTS OF SS 863. LESS THAN 25% OF THE NON-DURABLE SHALE SHALL BE RETAINED ON THE 3/4-INCH SIEVE AFTER SITTING IN WATER FOR 48 HOURS PER BUCKET OF WATER TEST PER CMS 703.16.D. INSPECTION AND TESTING FOR ITEM 863 SHALL BE PERFORMED PER SUPPLEMENTAL SPECIFICATION 878. MATERIALS OTHER THAN NON-DURABLE SHALE BUT MEETING SS 863 MAY BE PERMITTED AT THE DISCRETION OF THE ENGINEER, HOWEVER, ADJUSTMENTS TO THE REINFORCEMENT SPACINGS AND LENGTHS MAY BE NECESSARY.

PRIMARY REINFORCEMENT TO BE ITEM 863 UNIAXIAL OR BIAXIAL GEOGRID TYPE P1 AND P3. SECONDARY REINFORCEMENT TO BE ITEM 863 BIAXIAL GEOGRID TYPE S1. SECONDARY REINFORCEMENT SPACING OF 1 FOOT AND WIDTH OF 6 FEET. REINFORCEMENT NOT WRAPPED AT SLOPE FACE.

ESTIMATED GEOGRID QUANTITIES WERE BASED ON THE MAXIMUM FILL SECTION. GEOGRID LAYERS CAN BE DISCONTINUED WHEN EXITING GROUND IS HIGHER THAN THE GEOGRID LAYER ELEVATION. ACTUAL GEOGRID QUANTITIES WILL DEPEND ON THE AMOUNT OF UNDERCUTTING, BENCHING, AND SURFACE PREPARATION PERFORMED.

EMBANKMENTS AT THE FOLLOWING LOCATIONS SHALL BE REINFORCED WITH GEOGRID AS INDICATED IN THE FOLLOWING TABLES.

STA. 134+56 TO STA. 136+25, RT/LT/BRIDGE SPILL THROUGH*				
ELEVATION	GEOGRID TYPE	EMBEDMENT LENGTH FT	863	863
			GEOGRID, TYPE P1 SY	GEOGRID, TYPE S1 SY
525	P1	90	5280	
526	P1	90	5280	
527	P1	90	5280	
528	P1	85	4987	
529	P1	85	4987	
530	S1	6		352
531	S1	6		352
532	P1	50	2933	
533	S1	6		352
534	S1	6		352
535	P1	50	2933	
536	S1	6		352
537	S1	6		352
538	P1	50	2933	
539	S1	6		352
540	S1	6		352
541	P1	50	2933	
542	S1	6		352
543	S1	6		352
544	S1	6		352
545	S1	6		352
546	S1	6		352
547	P1	40	2347	
548	S1	6		352
549	S1	6		352
550	S1	6		352
551	S1	6		352
552	S1	6		352
553	P1	40	2347	
554	S1	6		352
555	S1	6		352
556	S1	6		352
557	S1	6		352
558	S1	6		352
559	P1	40	2347	
560	S1	6		352
561	S1	6		352
562	S1	6		352
563	S1	6		352
TOTALS CARRIED TO SHEET			44587 ₄₁	9504

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POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM AMERICAN ELECTRIC POWER AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC.) IF THERE ARE CONSTRUCTABILITY ISSUES (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER. THE DISTRICT TRAFFIC ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL DESIGNATED DISTRICT TRAFFIC PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT EFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY DISTRICT TRAFFIC PERSONNEL PRIOR TO FINAL ACCEPTANCE. ODOT FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE SR 775 INTERCHANGE SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

ITEM 632 SIGNALIZATION, MISC.: COMBINATION STRAIN POLE, TYPE TC-81.11 AND SIGN SUPPORT, TC-9.3J

THIS SUPPORT SHALL CONSIST OF A TC-81.11 DESIGN 12 POLE WITH A TC-9.31 DESIGN 2 SIGN SUPPORT ARM. ALL SIGNAL SUPPORT ITEMS REQUIRED BY C&MS ITEM 632 AND ALL SIGN SUPPORT ITEMS REQUIRED BY C&MS ITEM 630 SHALL BE INCLUDED AS PART OF THIS SUPPORT.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 633 CABINET TYPE TS2, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

THE GROUND-MOUNTED CABINET SHALL BE A NEMA TS-2, TYPE 1, CABINET SIZE 7 WITH 16 LOAD SWITCH BAYS, LED UNDER-SHELF LIGHTING, POWER HARNESSSES FOR BOTH TS2 TYPE 1 AND TYPE 2 CONTROLLERS AND SHALL HAVE A MINIMUM OF THREE SHELVES.

EACH CABINET SHALL COME EQUIPPED WITH TWO 16-CHANNEL CABINET DETECTOR RACKS (CDR) INCLUDING BUS INTERFACE UNITS (BIU). THE LOOP DETECTOR TERMINATION PANEL FOR THE SECOND DETECTOR RACK SHALL BE OMITTED.

THE CABINET SHALL BE FURNISHED WITH AN EDI MMU AS ALLOWED ON THE TAP/ APPROVED PRODUCTS LIST.

PAYMENT FOR ITEM 633 CABINET, TYPE TS-2, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

- A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
- B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
- C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
- D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
- E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
- F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

- 2. CONDUITS.
 - A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
 - B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
 - C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
 - D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
- 3. WIRE FOR GROUNDING AND BONDING.
 - A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:
 - I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
 - II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
 - III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
 - IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
 - B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

- 4. GROUND ROD.
 - A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
 - B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

GROUNDING AND BONDING (CONT.)

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

- 6. POWER SERVICE AND DISCONNECT SWITCH.
 - A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
 - B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
 - I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
 - II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.
- 7. PAYMENT ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN: 120V

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATION, LUMINAIRES SHALL BE:

LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS WITH AN IES M-SC DISTRIBUTION, 3000K CCT, AND 200 WATT (EQUIVALENT) LED LAMPS. LUMINAIRES SHALL BE EATON STREETWORKS NAVION NVN-AE-03-E-U-T3R-10K-7030-AP (15,700 LUMENS), AMERICAN ELECTRIC AUTOBAHN SERIES ATBM-P60-MVOLT-R3-4B-3K (20,000 LUMENS), LUMEC ROADFOCUS RFM-160W48LED-3K-G2-R3M-UNV-GY3 (18,283 LUMENS), OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, AS PER PLAN", WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 809 ATC CONTROLLER, AS PER PLAN
 THE CONTROLLER UNIT SHALL BE FURNISHED AND INSTALLED PER SS 809 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST.

 THE CONTROLLER SHALL BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

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TRAFFIC SIGNAL PLAN
GENERAL NOTES

LAW - 7 - 2.17

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1247

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SHEET NUMBER												PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
									767	769	01/NHS/01							
TRAFFIC SIGNALS																		
									4		4	625	18100	4	EACH	BRACKET ARM, 12'		
									882		882	625	23306	882	FT	NO. 10 AWG 600 VOLT DISTRIBUTION CABLE		
									22		22	625	25400	22	FT	CONDUIT, 2", 725.04		
									4		4	625	26253	4	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN: 120V	764	
									22		22	625	29000	22	FT	TRENCH		
									10		10	625	32000	10	EACH	GROUND ROD		
									14		14	632	05006	14	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE		
									2		2	632	05086	2	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE		
									16		16	632	25000	16	EACH	COVERING OF VEHICULAR SIGNAL HEAD		
									728		728	632	29900	728	FT	MESSANGER WIRE, 7 STRAND. 1/4" DIAMETER WITH ACCESSORIES		
									728		728	632	30600	728	FT	TETHER WIRE, WITH ACCESSORIES		
									860		860	632	40500	860	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG		
									458		458	632	40700	458	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		
									8		8	632	64000	8	EACH	STRAIN POLE FOUNDATION		
									2		2	632	70000	2	EACH	POWER SERVICE		
									2		2	632	86120	2	EACH	STRAIN POLE, TYPE TC-81.11, DESIGN 8		
									3		3	632	87120	3	EACH	COMBINATION STRAIN POLE, TYPE TC-81.11, DESIGN 8		
									1		1	632	87130	1	EACH	COMBINATION STRAIN POLE, TYPE TC-81.11, DESIGN 10		
									2		2	632	90400	2	EACH	SIGNALIZATION, MISC.: COMBINATION STRAIN POLE, TC-81.11 AND TC-9.31	764	
									2		2	633	65511	2	EACH	CABINET, TYPE TS-2, AS PER PLAN	764	
									2		2	633	67100	2	EACH	CABINET FOUNDATION		
									2		2	633	67200	2	EACH	CONTROLLER WORK PAD		
									2		2	633	75001	2	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	765	
									70		70	644	00500	70	FT	STOP LINE		
									4		4	809	69000	4	EACH	ADVANCE RADAR DETECTION	765	
									3		3	809	69100	3	EACH	STOP LINE RADAR DETECTION	765	
									2		2	809	69123	2	EACH	ATC CONTROLLER, AS PER PLAN	764	
									2		2	815	30000	2	EACH	SPREAD SPECTRUM RADIO		

TRAFFIC SIGNAL GENERAL SUMMARY

LAW - 7 - 2.17

CALCULATED	EAE	CHECKED	MJH
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SHEET NO.	LOCATION	625					632										633					809		815			
		CONDUIT, 2", 725.04 FT	CONDUIT, 3", 725.04 FT	TRENCH FT	UNDERGROUND WARNING/ MARKING TAPE FT	GROUND ROD EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE EACH	COVERING OF VEHICULAR SIGNAL HEADS EACH	MESSANGER WIRE, 7 STRAND 3/8" DIAMETER WITH ACCESSORIES FT	TETHER WIRE WITH ACCESSORIES FT	SIGNAL CABLE, 5-CONDUCTOR, #14 AWG FT	SIGNAL CABLE, 7-CONDUCTOR, #14 AWG FT	STRAIN POLE FOUNDATION EACH	STRAIN POLE TYPE TC-81.II, DESIGN 8 EACH	COMBINATION STRAIN POLE TYPE TC-81.II, DESIGN 8 EACH	COMBINATION STRAIN POLE TYPE TC-81.II, DESIGN 10 EACH	ITEM 632 SIGNALIZATION, MISC.: COMBINATION STRAIN POLE, TYPE TC-81.II AND SIGN SUPPORT, TC-9.3I EACH	CABINET, TYPE TS2, AS PER PLAN EACH	CABINET FOUNDATION EACH	CONTROLLER WORK PAD, AS PER PLAN EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN EACH	ADVANCE RADAR DETECTION EACH	STOP-BAR RADAR DETECTION EACH	ATC CONTROLLER, AS PER PLAN EACH	SPREAD SPECTRUM RADIO EACH	
768	CONTROL CABINET					1												1	1	1	1				1	1	
	CABINET TO POLE "SP2"	11	11	11	11	1	1	1				1					1						1				
	POLE "SP2" TO POLE "SP1"					1	2	1	3	110	110																
	POLE "SP1"					1						1			1												
	POLE "SP2" TO POLE "SP4"					1	2		2	109	109																
	POLE "SP4"					1						1			1										1		
	POLE "SP4" TO POLE "SP3"					1	2		2	95	95																
	POLE "SP3"					1							1	1										1	1		
	CABINET TO 1A																										
	1A TO 6B																	135									
	6B TO 6A																22										
	CABINET TO 4A																82										
	4A TO 4B																22										
	CABINET TO 2B																191										
	2B TO 2A																22										
	CABINET TO 2C																38										
772	CONTROL CABINET					1														1	1	1	1			1	
	CABINET TO POLE "SP4"	11	11	11	11	1																					
	POLE "SP4"					1																					
	POLE "SP4" TO POLE "SP2"					1				178	178																
	POLE "SP2"					1																					
	BULLRING 1 TO POLE "SP1"					1	3		3	70	70																
	POLE "SP1"					1																					
	BULLRING 2 TO POLE "SP3"					1	1	1	2	70	70																
	POLE "SP3"					1	1		1																		
	POLE "SP1" TO POLE "SP3"					1	2		2	96	96																
	CABINET TO 2B																										
	2B-2A																22										
	CABINET TO 6D																184										
	CABINET TO 3B																189										
	3B-3A																22										
	CABINET TO 6C																										
	6C-6B																22										
	6B-6A																22										
TO GENERAL SUMMARY		22	22	22	22	10	14	2	16	728	728	860	458	8	2	3	1	2		2	2	2	2	4	3	2	2

SHEET NO.	LOCATION	625			632																						
		BRACKET ARM, 12' EACH	NO. 10 AWG 600 VOLT DISTRIBUTION CABLE FT	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN "B" EACH	POWER SERVICE EACH	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG FT	SERVICE CABLE, 3 CONDUCTOR, NO. 8 AWG FT																				
768	CONTROL CABINET				1	33	35																				
772	CONTROL CABINET				1	33	35																				
768	CABINET TO LT-1	1	786	1																							
768	CABINET TO LT-2	1	129	1																							
772	CABINET TO LT-1	1	753	1																							
772	CABINET TO LT-2	1	129	1																							
TO GENERAL SUMMARY		4	882	4	2	66	70																				

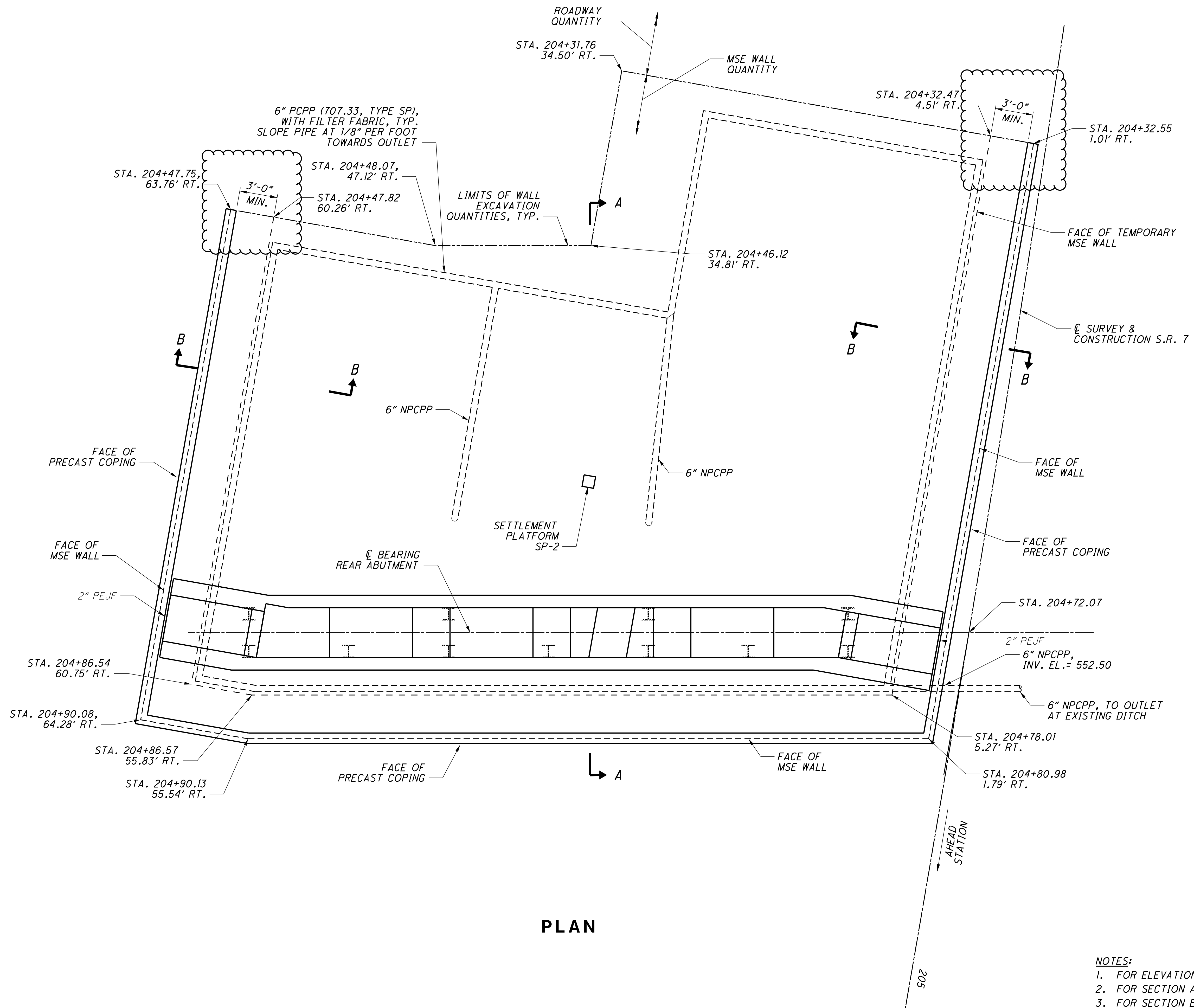
**TRAFFIC SIGNAL SUBSUMMARY
SR 775 INTERCHANGE**

LAW - 7 - 2.17

CALCULATED EAE
CHECKED MJH

(767)
1247

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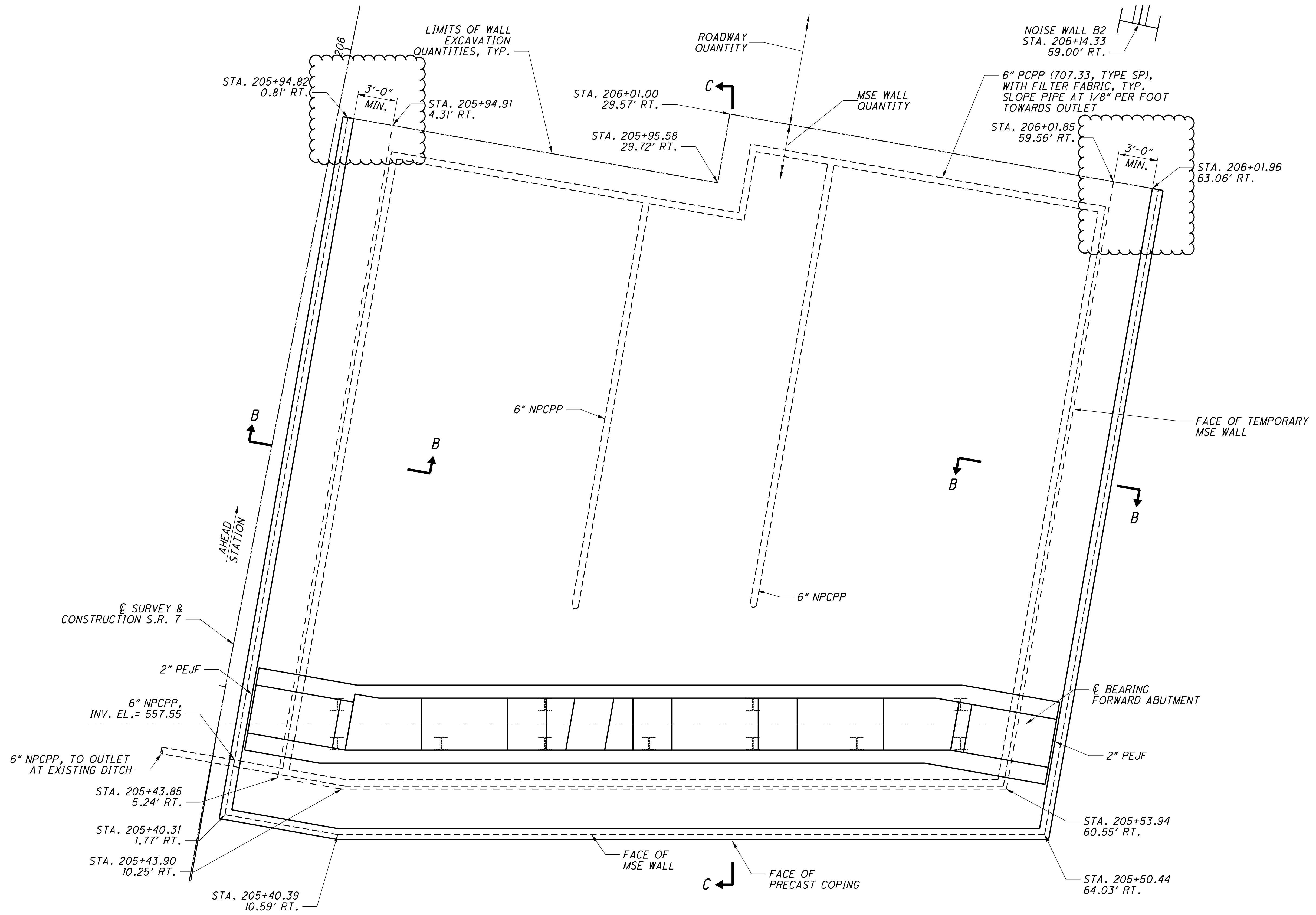
PLAN

- NOTES:
1. FOR ELEVATIONS, SEE SHEET 26/28.
 2. FOR SECTION A-A, SEE SHEET 27/28.
 3. FOR SECTION B-B, SEE SHEET 28/28.



DESIGN AGENCY Stanlec Consulting Services Inc. 1500 Lake Shore Drive, Suite 100 Columbus, Ohio 43204 (614) 486-4983	DATE 03/2024	FILE NUMBER 4400259	WALL 1 PLAN BRIDGE NO. LAW-7-0387 S.R. 7 OVER C.R. 32 (EATON ROAD)	LAW-7-2.17
REVIEWED EDA	DESIGNED BSM	DRAWN JWS	DESIGNED BSM	PID No. 75923
STRUCTURE FILE NUMBER 4400259	CHECKED MRS	REVISED	CHECKED MRS	24/28
				893 1247

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PLAN

- NOTES:
- FOR ELEVATIONS, SEE SHEET 26/28.
 - FOR SECTION B-B, SEE SHEET 28/28.
 - FOR SECTION C-C, SEE SHEET 27/28.

DESIGNED BSM		DRAWN JWS		REVIEWED EDA		DATE 03/2024		DESIGN AGENCY Starlec Consulting Services Inc. 1500 Lake Shore Drive, Suite 100 Columbus, Ohio 43204 (614) 486-4983	
CHECKED MRS		REVISED		STRUCTURE FILE NUMBER 4400259		BRIDGE NO. LAW-7-0387		WALL 2 PLAN	
						S.R. 7 OVER C.R. 32 (EATON ROAD)		LAW-7-2.17	
								PID No. 75923	
								25/28	
								894	
								1247	