

# COUNTY OF UNION

DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

*Joseph J. Policay, Jr., CPWM, Acting Director*

**BOARD OF  
COUNTY COMMISSIONERS**

KIMBERLY PALMIERI-MOUEDE  
*Chairwoman*

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JAMES E. BAKER, JR.

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EDWARD T. OATMAN  
*County Manager*


AMY CRISP WAGNER  
*Deputy County Manager*

BRUCE H. BERGEN, ESQ.  
*County Counsel*

JAMES E. PELLETTIERE  
*Clerk of the Board*

RICARDO S. MATIAS  
PE, CME, CFM  
*County Engineer*  
*Director, Division of Engineering*

**DATE:** October 30, 2024

**FROM:** Ricardo S. Matias, PE, CME, CFM   
County Engineer

**TO:** All Potential Bidders

**RE:** CLARIFICATION 1  
Vo-Tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey; BA#51-2024;  
Union County Engineering Project #2021-009

Construction Sheet C-3 inadvertently includes three (3) *additional items* that are not included in the Bid Form. The Bid Form shall govern. No separate payment shall be made for the three (3) *additional items* included in Construction Sheet C-3. Any and all costs associated with these three (3) *additional items* are to be included in the various stormwater bid items of the project.

**DIVISION OF ENGINEERING**

2325 South Avenue

Scotch Plains, NJ 07076

(908) 789-3675

fax (908) 789-3674

www.ucnj.org

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**RICARDO S. MATIAS**  
**PE, CME, CFM**  
*County Engineer*  
*Director, Division of Engineering*

### MEMORANDUM

**TO:** All Potential Bidders

**FROM:** Ricardo S. Matias, PE, CME, CFM,   
County Engineer  
Director / Division of Engineering

**DATE:** October 22, 2024

**RE:** **ADDENDUM NUMBER 2**  
Vo-tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey  
BA#51-2024;  
Union County Engineering Project #2021-009

The following plans should be replaced with the attached:

- Sheet C-3 – General Notes and Estimate & Distribution of Quantities
- Sheet C-7 – Grading Plan
- Sheet C-8 – Drainage & Utility Plan
- Sheet C-11 – Soil Erosion & Sediment Control Details
- Sheet C-18 – Construction Details
- Sheet ES-1.1 – Electrical Demolition Site Plan
- Sheet ES-2.1 – Electrical Site Plan
- Sheet E-3.1 – Electrical Schedules and Details
- Sheet E-3.2 – Electrical Details
- Sheet E-3.3 – Electrical Details

**Please be sure to complete and submit the standard  
“Acknowledgement of Addendum” form included in the original bid  
specifications and submit it with the bid.**

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1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO THE START OF THE CONSTRUCTION, ANY ERRORS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
2. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. ALL PAVED AND CONCRETE AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO THE START OF CONSTRUCTION.
5. ALL GRASSED OR WOODED AREAS DISTURBED DURING CONSTRUCTION SHALL BE TOPSOILED AND SEEDDED.
6. ALL FILL SHALL BE PLACED IN 12" LAYERS AND THOROUGHLY COMPACTED TO THE SATISFACTION OF THE ENGINEER. IF BORROW FILL IS REQUIRED, IT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT HIS OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT HE DAMAGES.
8. APPROXIMATE DEPTH OF ALL WATER MAIN IS  $\pm$  4 FEET.
9. APPROXIMATE DEPTH OF ALL GAS MAIN IS  $\pm$  3 FEET.
10. ALL CONSTRUCTION DETAILS NOT SHOWN SHALL BE IN ACCORDANCE WITH N.J.D.O.T. STANDARDS AS DETAILED IN:

- INCLUDING ALL APPLICABLE BASELINE DOCUMENT CHANGES AND APPENDICES. THESE DETAILS MAY BE PURCHASED THROUGH THE N.J.D.O.T. PLANS AND SPECIFICATION CENTER AT:

TRENTON, NEW JERSEY

(TELEPHONE:

37. THE PAY ITEM "SITE LIGHTING AND ELECTRICAL WORK" SHALL INCLUDE ALL MATERIALS AND LABOR REQUIRED TO EXPAND THE EXISTING ON-SITE ELECTRICAL SERVICE TO INCLUDE ALL IMPROVEMENTS SHOWN ON THE PLANS. THIS SHALL INCLUDE THE INSTALLATION OF NEW LIGHT POLES AND RELOCATION OF EXISTING LIGHT POLES AND SPORTS FIELD LIGHTING. ALL NEW WIRING SHALL BE INSTALLED IN PVC CONDUIT AND MEET ALL APPLICABLE CODES.
38. ALL STONE USED IN THE CONSTRUCTION OF THE SYNTHETIC TURF FIELD BASE SHALL BE CLEAN, WASHED STONE.
39. FURNISHING AND INSTALLATION OF THE SYNTHETIC TURF IS NOT INCLUDED IN THIS CONTRACT.

1. IMPLEMENT SOIL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
2. IMPLEMENT STANDARD MEASURE FOR CONSTRUCTION RELATED NOISE AND AIR QUALITY IMPACT CONTROLS.
3. BEST MANAGEMENT PRACTICE WILL BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING STORM WATER INLETS AND ENVIRONMENTALLY SENSITIVE AREAS.

**BASE BID**

ITEM NO	DESCRIPTION	UNITS	PLAN QUANTITY	IF & WHERE DIRECTED	BID QUANTITY
1	TRAFFIC CONTROL	LS	1	0	1
2	CLEARING SITE	LS	1	0	1
3	EARTHWORK	LS	1	0	1
4	DENSE GRADED AGGREGATE BASE COURSE, 4" THICK	SY	859	91	950
5	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	SY	1720	180	1900
6	HOT MIX ASPHALT 19M64 BASE COURSE, 3" THICK	TON	297	33	330
7	HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK	TON	202	28	230
8	TACK COAT	GAL	258	32	290
9	CHAIN LINK FENCE, PVC-COATED STEEL, 6' HIGH, BLACK	LF	1126	114	1240
10	CHAIN LINK FENCE, PVC-COATED STEEL, 8' HIGH, BLACK	LF	310	40	350
11	GATE, CHAIN LINK FENCE, PVC-COATED STEEL, 4' WIDE	UN	7	2	9
12	GATE, CHAIN LINK FENCE, PVC-COATED STEEL, 16' WIDE	UN	2	0	2
13	NO ITEM	-	0	0	0
14	CONCRETE SIDEWALK, 4" THICK	SY	298	32	330
15	CONCRETE PAD, REINFORCED, 6" THICK	SY	561	59	620
16	PRECAST CONCRETE WHEEL STOP	UN	6	0	6
17	9" X 18" CONCRETE VERTICAL CURB	LF	932	108	1040
18	14" X 16" CONCRETE VERTICAL CURB	LF	1585	165	1750
19	TRAFFIC STRIPES, 4"	LF	622	68	690
20	TRAFFIC STRIPES, 12"	LF	35	5	40
21	TRAFFIC MARKINGS SYMBOLS	SF	350	35	385
22	REGULATORY & WARNING SIGN	SF	46.75	5.25	52
23	62" WIDE ARCHED BASEBALL BACKSTOP	UN	1	0	1
24	TENSION BALL SAFETY NETTING SYSTEM, 30' HIGH	LF	600	60	660
25	MODULAR DUGOUT	UN	2	0	2
26	FOUL POLE, 30' HIGH	UN	2	0	2
27	PORTABLE PITCHER'S MOUND, GAME USE, WITH STORAGE CART	UN	1	0	1
28	BASEBALL FIELD HOME PLATE AND BASES	UN	1	2	3
29	PORTABLE PITCHER'S MOUND, BULLPEN USE	UN	2	0	2
30	PLAYER BENCH, 21' LONG	UN	4	2	6
31	BLEACHERS	UN	2	0	2
32	DISTANCE BANNERS	UN	6	0	6
33	SOCCER GOAL WITH MOBILITY KIT	UN	2	0	2
34	SOCCER CORNER FLAGS, SET OF 4	UN	2	1	3
35	WASTE RECEPTACLE	UN	3	1	4
36	STANDARD PICNIC TABLE	UN	4	0	4
37	ADA ACCESSIBLE PICNIC TABLE	UN	2	0	2
38	BOLLARD	UN	19	1	20
39	12' X 20' STORAGE SHED, COMPLETE	UN	1	0	1
40	DRINKING FOUNTAIN	UN	1	0	1
41	HOSE BIB WITH LOCK BOX	UN	1	0	1
42	3" DUCTILE IRON WATER PIPE, CLASS 52	LF	724	76	800
43	3" WATER VALVE	UN	1	0	1
44	TOPSOIL SPREADING, 5" THICK	SY	7000	700	7700
45	FERTILIZING AND SEEDING, TYPE A-3	SY	7000	700	7700
46	SYNTHETIC TURF FIELD BASE WITH UNDERDRAIN SYSTEM	SF	113056	11344	124400
47	SITE LIGHTING AND ELECTRICAL WORK	LS	1	0	1
48	NO ITEM	-	0	0	0
49	R-TANK HD #1, COMPLETE	LS	1	0	1
50	R-TANK HD #2, COMPLETE	LS	1	0	1
51	24" REINFORCED CONCRETE PIPE, CLASS III	LF	299	31	330
52	24" HIGH DENSITY POLYETHYLENE PIPE	LF	882	88	970
53	OUTLET STRUCTURE 1	UN	1	0	1
54	OUTLET STRUCTURE 2	UN	1	0	1
55	MANHOLE, 4' DIAMETER	UN	6	0	6
56	DOGHOUSE MANHOLE, 4' DIAMETER	UN	1	0	1
57	RETAINING WALL	SY	24	25	285
58	15" REINFORCED CONCRETE PIPE, CLASS III	LF	41	4	45
59	OUTLET STRUCTURE 3	UN	1	0	1
60	RIPRAP STONE SLOPE PROTECTION, 10" THICK (D50 4")	SY	24	1	25



**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

PLANS WHICH DO NOT BEAR AN EMBOSSED SEAL ARE NOT VALID

ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES FOR THE SPECIFIC PROJECT WILL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OF LEGAL EXPOSURE TO REMINGTON & VERNICK ENGINEERS AND AFFILIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON & VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

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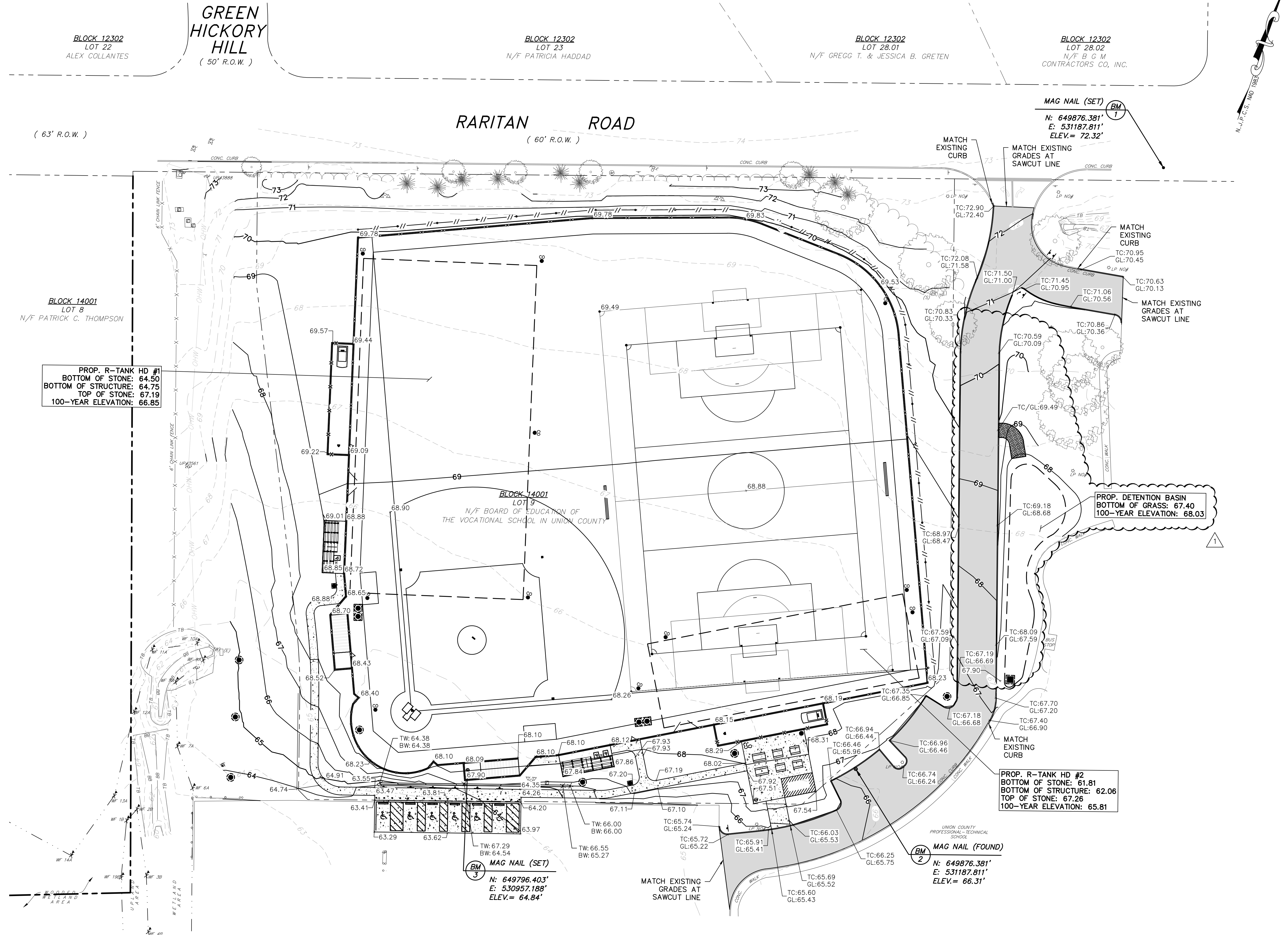
COUNTY OF UNION  
VO-TECH TURF FIELD PROJECT

NEW IDEAS

UNION COUNTY

[illegible]

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  <b>C-3</b>	
<u>JOB No. :</u> 2000F028			



- NOTES:
- UNDERDRAINS SHALL GENERALLY BE SPACED AT 15' O.C.
  - ALL AREAS WITHIN THE LIMIT OF DISTURBANCE THAT ARE NOT PAVED OR RECEIVING TURF SURFACING SHALL BE TOPSOILED, FERTILIZED AND SEEDDED.
  - SEPARATE PAYMENT WILL NOT BE MADE FOR CLEANOUT - COST SHALL BE INCLUDED IN THE PRICE FOR HDPE PIPE.

**RVE**  
1901

REMINGTON & VERNICK ENGINEERS  
2059 SPRINGDALE ROAD  
CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM  
Certification of Authorization: 24 GA 28003300  
*Excellence • Innovation • Service*

Jessica D. Hauber  
DATE: 10-09-2024  
JESSICA D. HAUBER  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

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REV	DATE	REVISION	BY	CHK
1	10/22/24	ACF/ACT		

GRADING PLAN

COUNTY OF UNION  
VO-TECH TURF FIELD PROJECT  
UNION COUNTY  
SCOTCH PLAINS TOWNSHIP

NEW JERSEY

DRAWN BY:	DESIGN BY:	CHECKED BY:	SCALE:
RLR	RLR	DAH	AS NOTED
DATE:	SHEET No.:		
04/16/2024	C-7		
JOB No.:	2000F028		

BLOCK 12302  
LOT 22  
ALEX COLLANTES

GREEN  
HICKORY  
HILL  
( 50' R.O.W. )

BLOCK 12302  
LOT 23  
N/F PATRICIA HADDAD

BLOCK 12302  
LOT 28.01  
N/F GREGG T. & JESSICA B. GRETEN

BLOCK 12302  
LOT 28.02  
N/F B G M  
CONTRACTORS CO, INC.

RARITAN ROAD

( 63' R.O.W. )

( 60' R.O.W. )

BLOCK 14001  
LOT 8  
N/F PATRICK C. THOMPSON

PROP. R-TANK HD #1  
BOTTOM OF STONE: 64.50  
BOTTOM OF STRUCTURE: 64.75  
TOP OF STONE: 67.19  
100-YEAR ELEVATION: 66.85

- NOTES:
- UNDERDRAINS SHALL BE SPACED AT 15' O.C.
  - ALL AREAS WITHIN THE LIMIT OF DISTURBANCE THAT ARE NOT PAVED OR RECEIVING SYNTHETIC TURF SURFACING SHALL BE TOPSOILED, FERTILIZED AND SEEDED.
  - SEPARATE PAYMENT WILL NOT BE MADE FOR CLEANOUTS - COST SHALL BE INCLUDED IN THE PRICE FOR HDPE PIPE.

### TO BE CONSTRUCTED

ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY	AS-BUILT QUANTITY
42	3" DUCTILE IRON WATER PIPE, CLASS 52	LF	724	
43	3" WATER VALVE	UN	1	
49	R-TANK HD #1, COMPLETE	LS	1	
50	R-TANK HD #2, COMPLETE	LS	1	
51	24" REINFORCED CONCRETE PIPE, CLASS III	LF	299	
52	24" HIGH DENSITY POLYETHYLENE PIPE	LF	882	
53	OUTLET STRUCTURE 1	UN	1	
54	OUTLET STRUCTURE 2	UN	1	
55	MANHOLE, 4' DIAMETER	UN	6	
56	DOGHOUSE MANHOLE, 4' DIAMETER	UN	1	
58	15" REINFORCED CONCRETE PIPE, CLASS III	LF	41	
59	OUTLET STRUCTURE 3	UN	6	
60	RIPRAP STONE SLOPE PROTECTION, 10" THICK (D50 4")	SY	24	

**RVE**  
1901

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& VERNICK  
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Jessica D. Hauber  
DATE: 10-09-2024

JESSICA D. HAUBER  
NJ PROFESSIONAL ENGINEER LIC. NO. 51487

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PER	ADDENDUM #2	AC/FAC	DATE	BY
1		10/22/24		DAH

### DRAINAGE & UTILITY PLAN

COUNTY OF UNION  
VO-TECH TURF FIELD PROJECT

UNION COUNTY  
SCOTCH PLAINS TOWNSHIP  
NEW JERSEY

DRAWN BY:	DESIGN BY:	CHECKED BY:	SCALE:
RLR	RLR	DAH	AS NOTED
DATE:			
04/16/2024			
JOB No.:			
2000F028			
			C-8

GRAPHIC SCALE



( IN FEET )  
1 inch = 30 ft.





RVE

1901

REMINGTON  
& VERNICK  
ENGINEERS

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CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM  
Certification of Authorization: 24 GA 28003300

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DATE:

JESSICA D. HAUBER  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

DATE:

KAVAN R. SMITH  
NJ PROFESSIONAL ENGINEER LIC. No. 56794

PLANS WHICH DO NOT BEAR  
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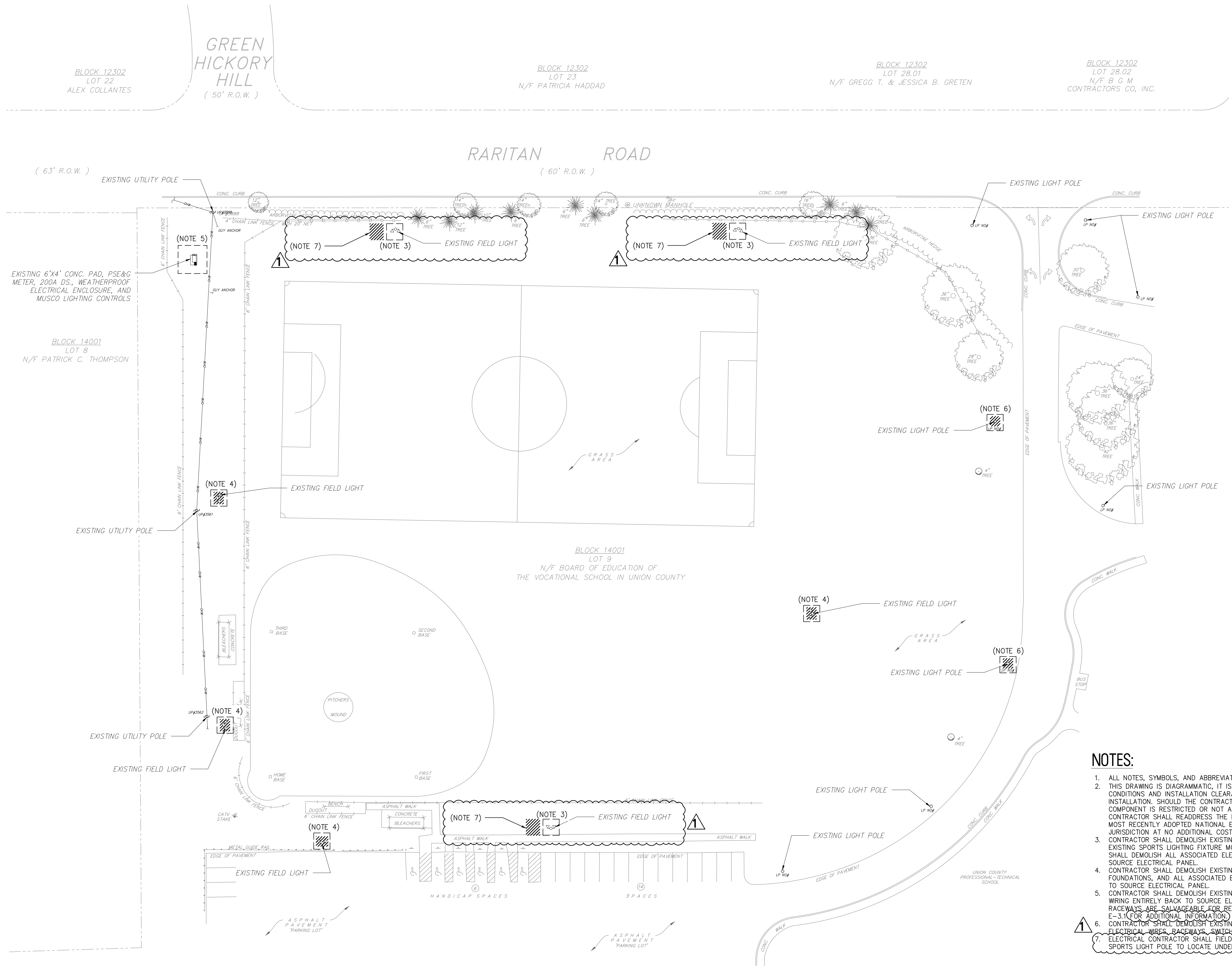
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& VERNICK ENGINEERS AND AFFILIATES. AND OWNER  
SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON &  
VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS,  
DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR  
RESULTING THEREFROM.

REVISION	DATE	BY	CHK
1	10/27/2024	P.B. KRS	

## ELECTRICAL DEMOLITION SITE PLAN

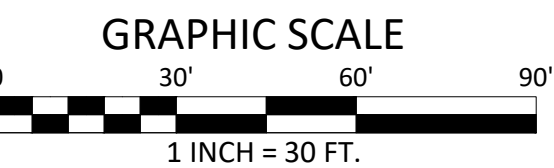
UNION COUNTY  
UNION COUNTY VO-TECH  
FIELD IMPROVEMENTS  
SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

DRAWN BY:	DESIGN BY:	CHECKED BY:	SCALE:
P.B.	P.B.	KRS	AS NOTED
DATE:	DATE:	DATE:	SHEET No.:
04/16/2024	04/16/2024	04/16/2024	ES-1.1
JOB No.:	2000F028		



### ELECTRICAL DEMOLITION SITE PLAN

SCALE: 1"=30'



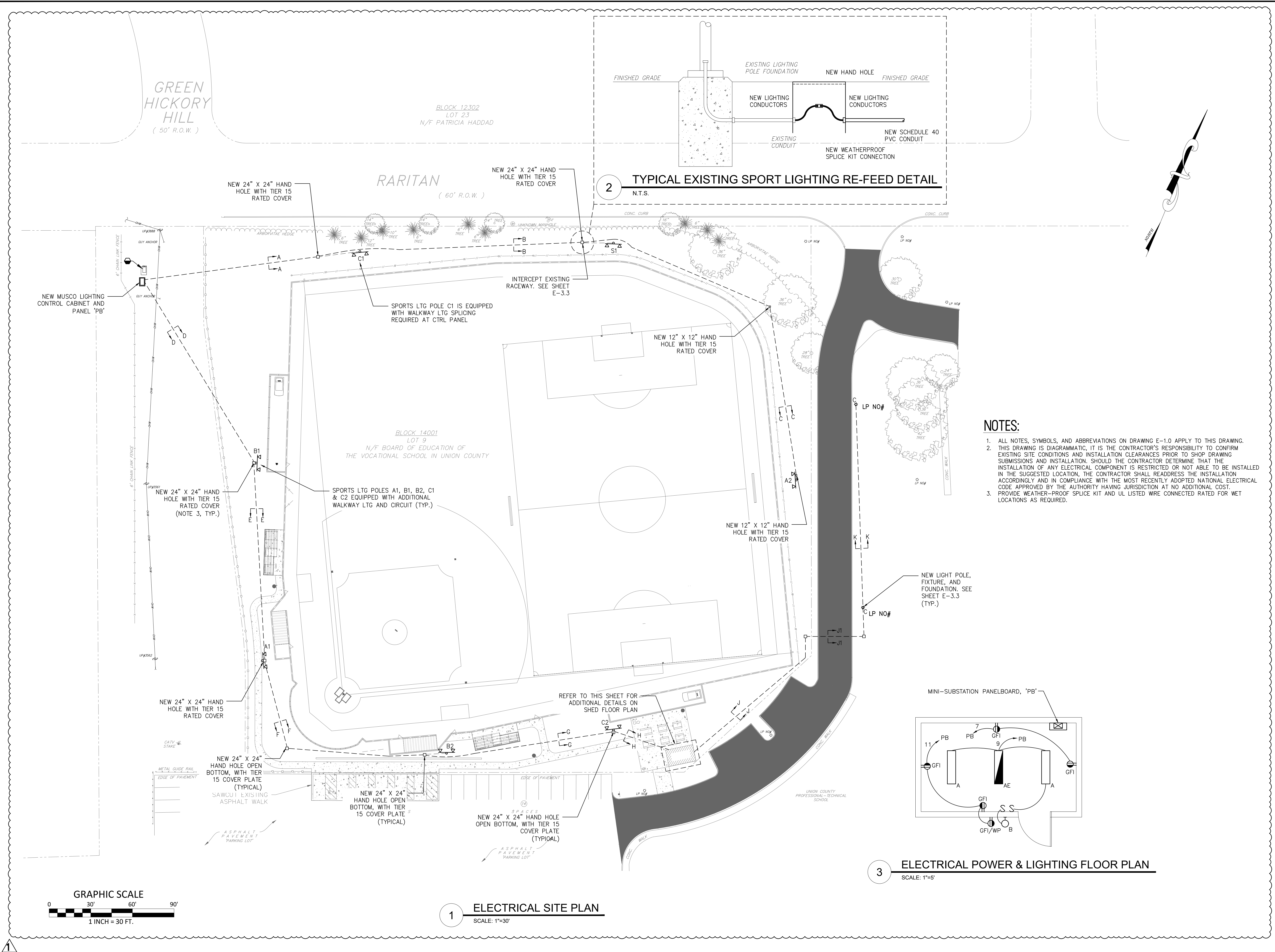


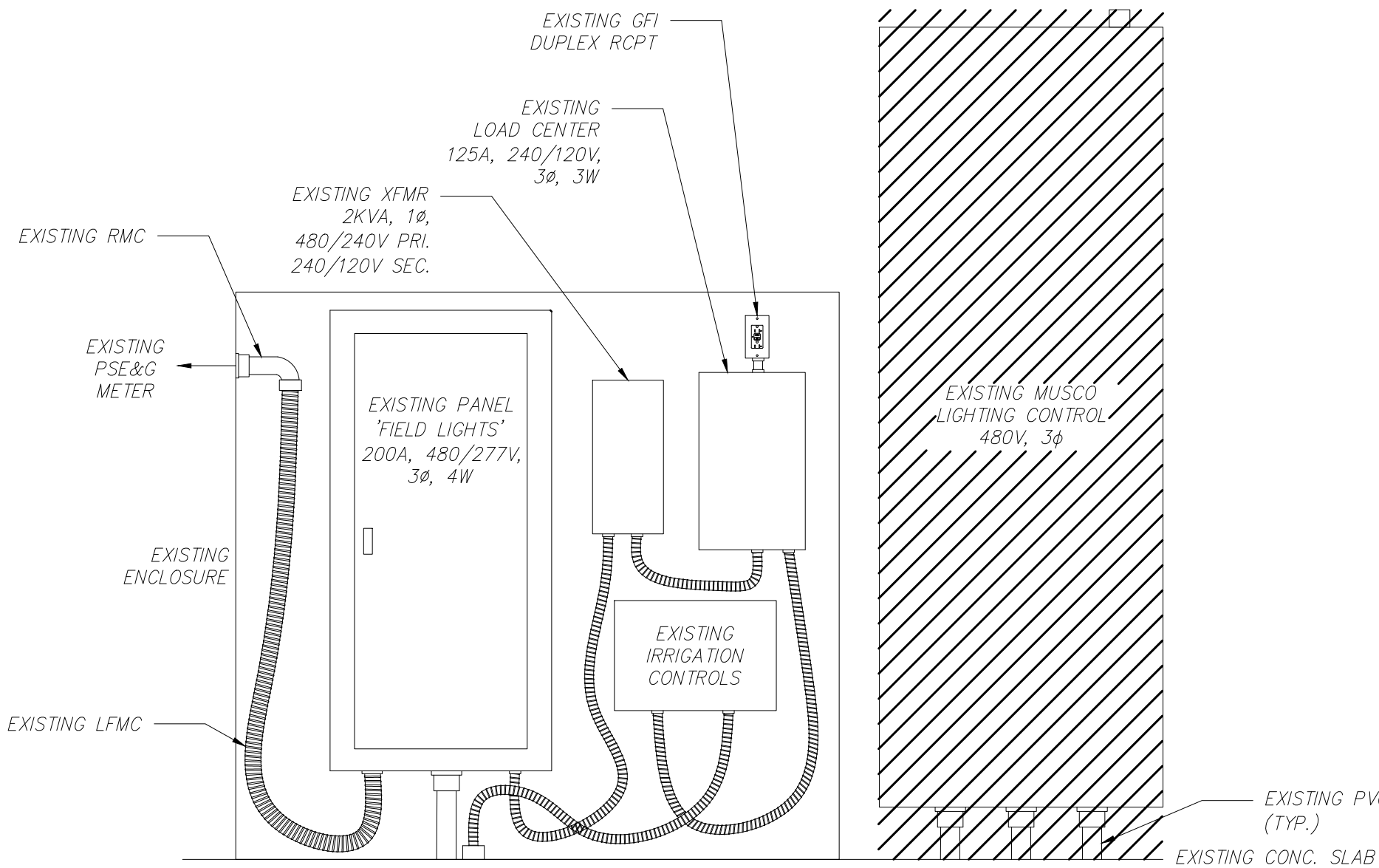
TE: 10-22-2024  
KAVAN R. SMITH  
PROFESSIONAL ENGINEER LIC. No. 567

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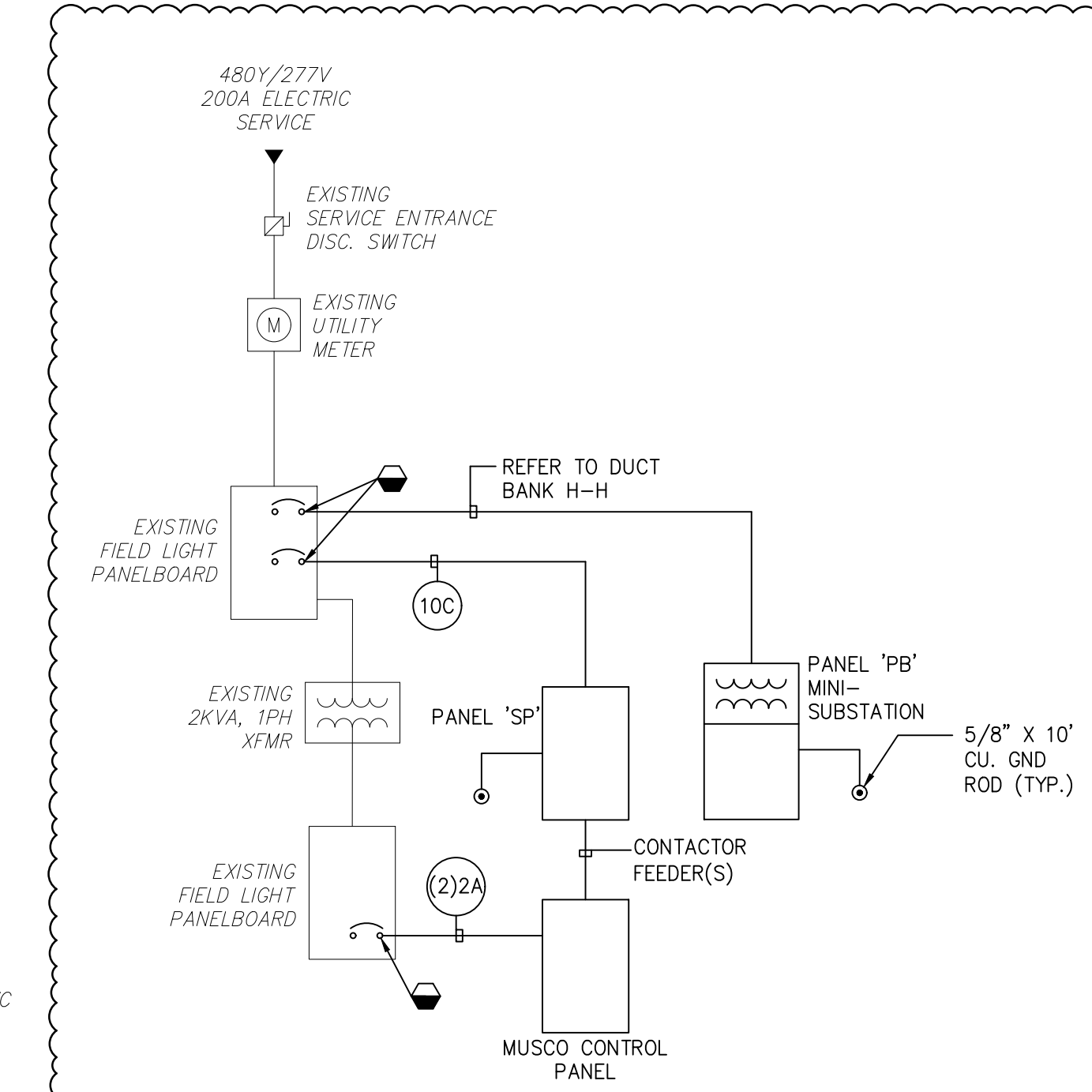
ELECTRICAL SITE PLAN

<b>DRAWN BY :</b> <b>P.B.</b>	<b>DESIGN BY :</b> <b>P.B.</b>	<b>CHECKED BY :</b> <b>K.R.S.</b>	<b>SCALE :</b> <b>AS NOTED</b>
<b>DATE :</b> 04/16/2024		<b>SHEET No. :</b>  <b>ES-2.1</b>	
<b>JOB No. :</b> 2000F028			

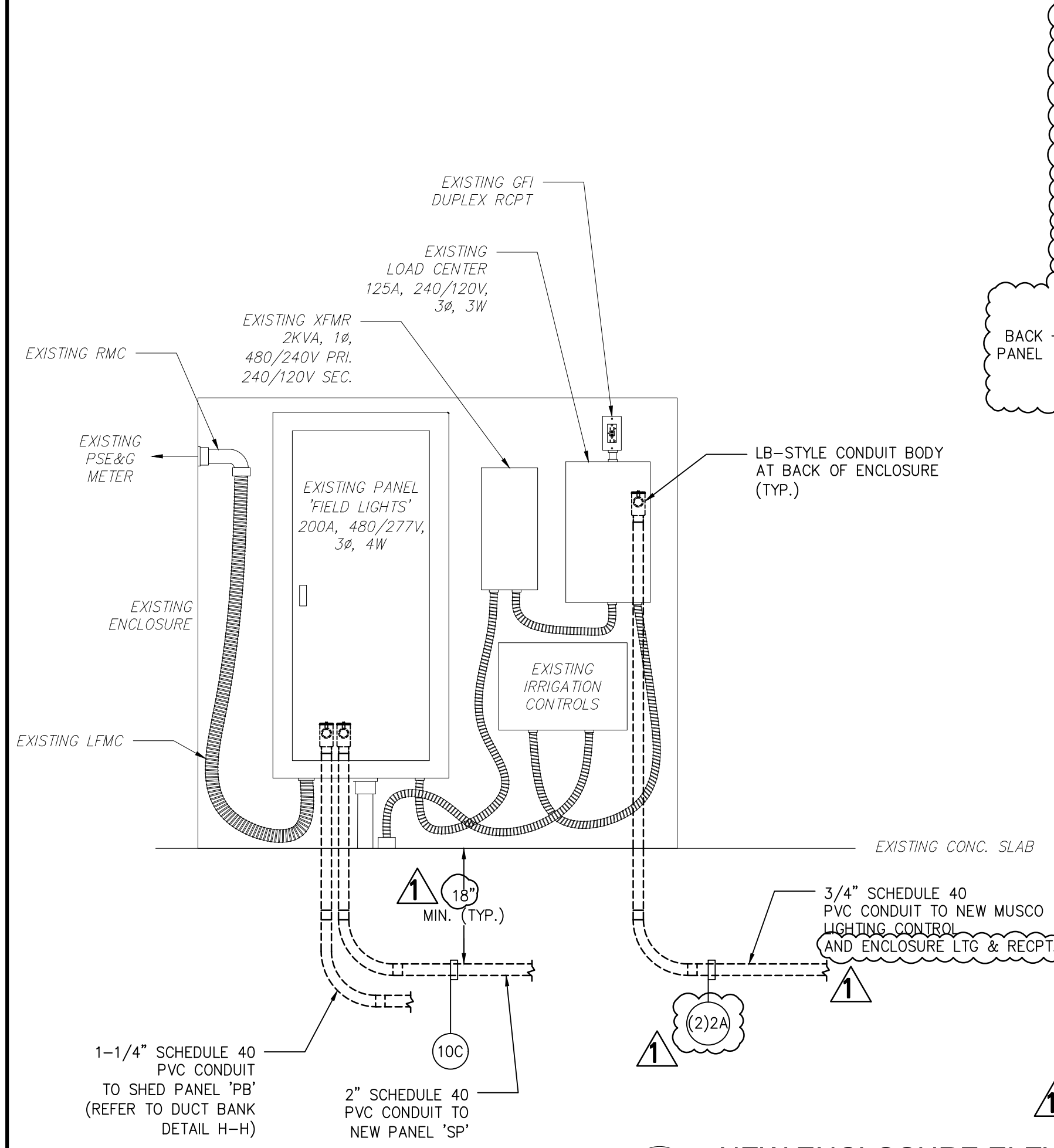




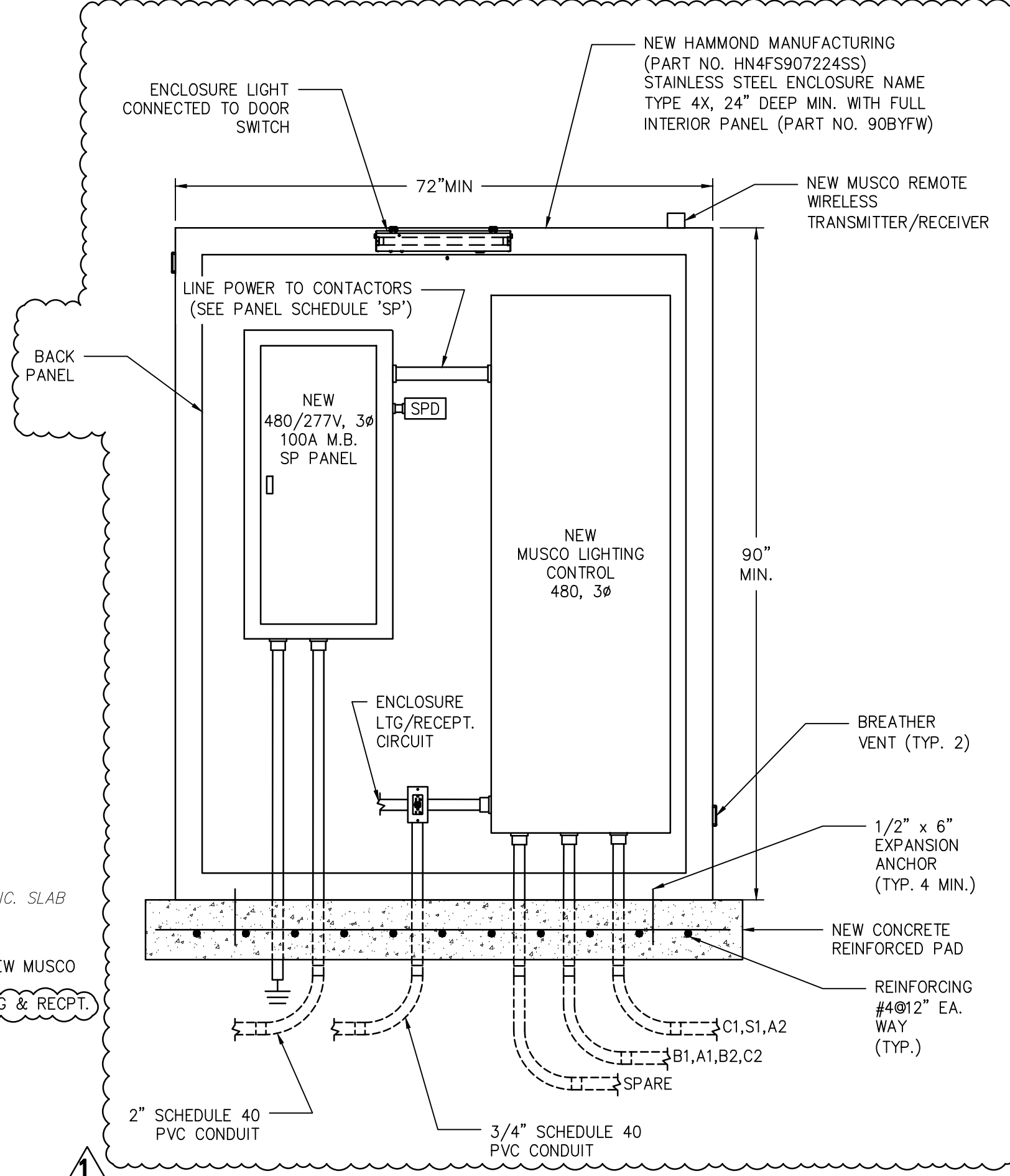
1 DEMOLITION ELEVATION DETAIL  
SCALE: N.T.S.



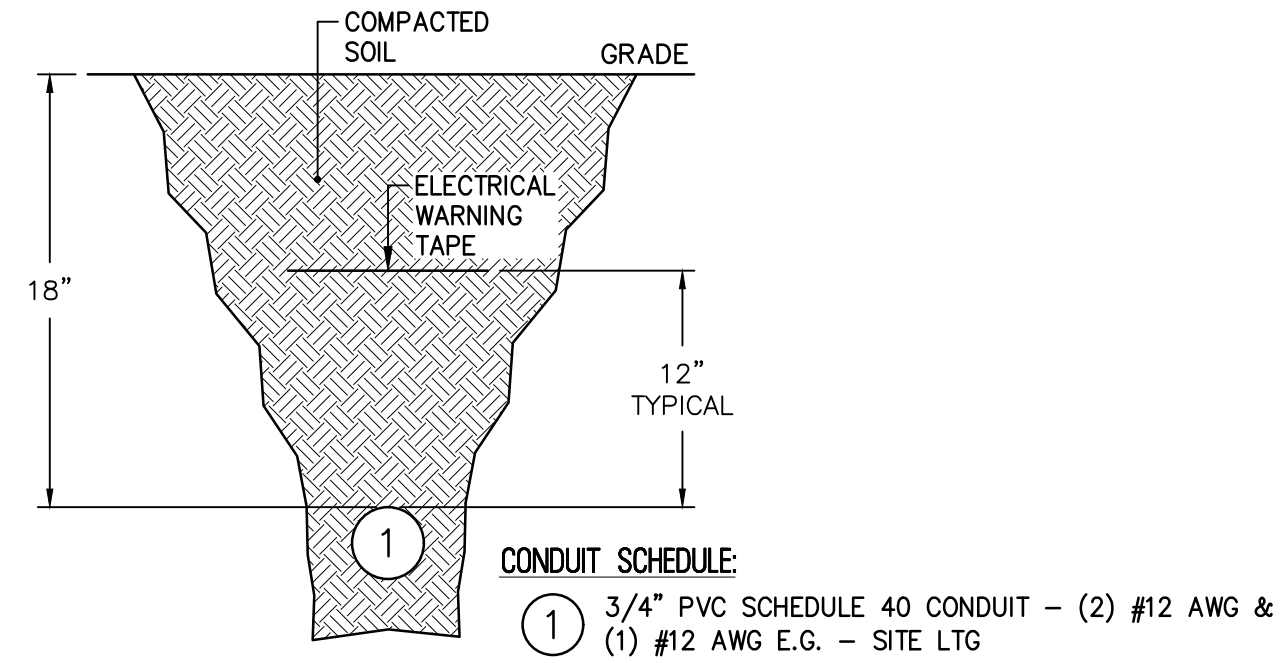
3 ELECTRICAL SINGLE LINE DIAGRAM  
SCALE: N.T.S.



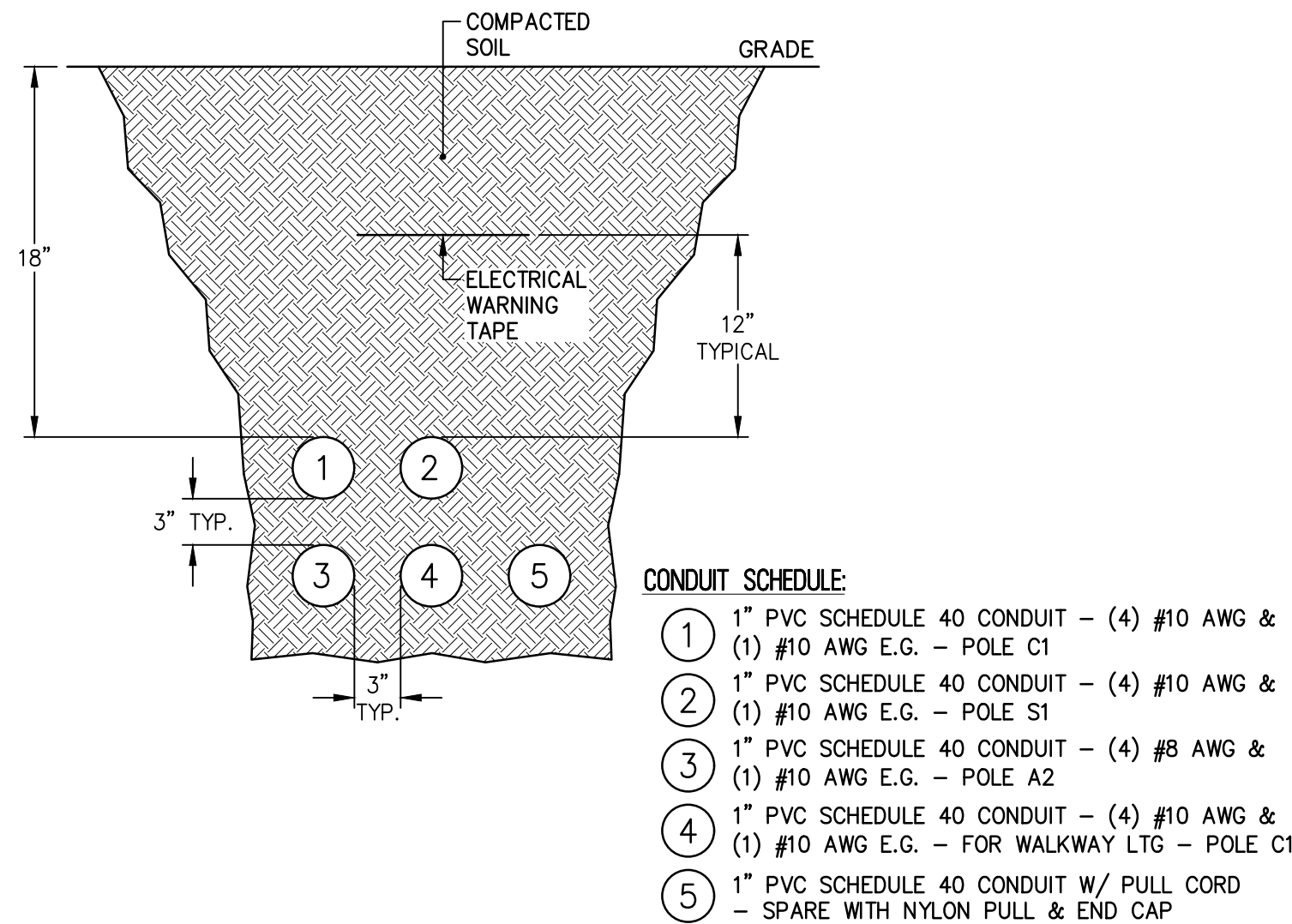
2 NEW ENCLOSURE ELEVATION DETAIL  
SCALE: N.T.S.



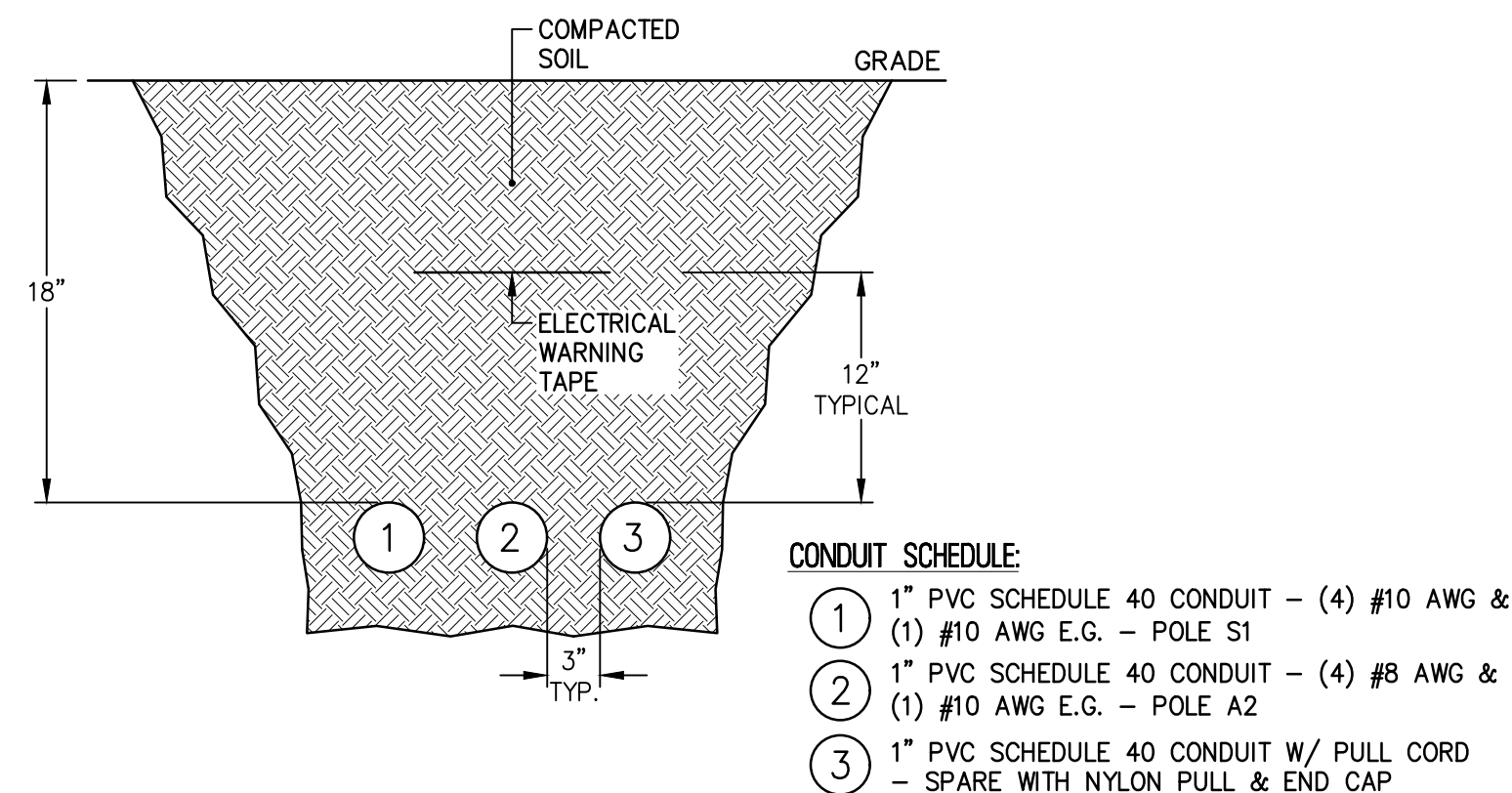
EXISTING PANEL: 'FIELD LIGHTS' (SIEMENS CAT. NO. P1E30FX200ATS)																				
VOLTAGE: 480Y/277V, 3ø, 4W+G					X MCB 200A/3P					POLES: 30					A/C RATING: EXISTING					
MAIN BUS: 250A					MLO					MTG: SURFACE					LOCATION: FIELD LIGHT CABINET					
CKT #	CIRCUIT TRIP	BREAKER POLE	BRANCH CIRCUIT	DESCRIPTION	KVA	PER PHASE			REMARKS	REMARKS	KVA	PER PHASE			DESCRIPTION	BRANCH CIRCUIT	CIRCUIT TRIP	BREAKER POLE	TRIP	CKT #
						A	B	C				A	B	C						
1											5.00									1
3	30	3		SPARE					NOTE 1		5.00	5.00		SHED PANEL 'PB'	(T)		3		40	4
5												5.00								6
7											21.90									8
9	30	3		SPARE					NOTE 1		21.90			SPORTS LIGHTING PANEL	10C		3		100	10
11												21.90		SP						12
13																				14
15	30	3		SPARE												3		30		16
17																				18
19																				20
21	30	3	EXISTING	EXISTING LOAD													3		30	22
23																				24
25											EXIST			EXISTING LOAD	EXISTING		2		15	26
27	30	3	EXISTING	EXISTING LOAD							EXIST	EXIST								28
29														SPACE			1			30
					0.00	0.00	0.00				26.90	26.90	26.90							



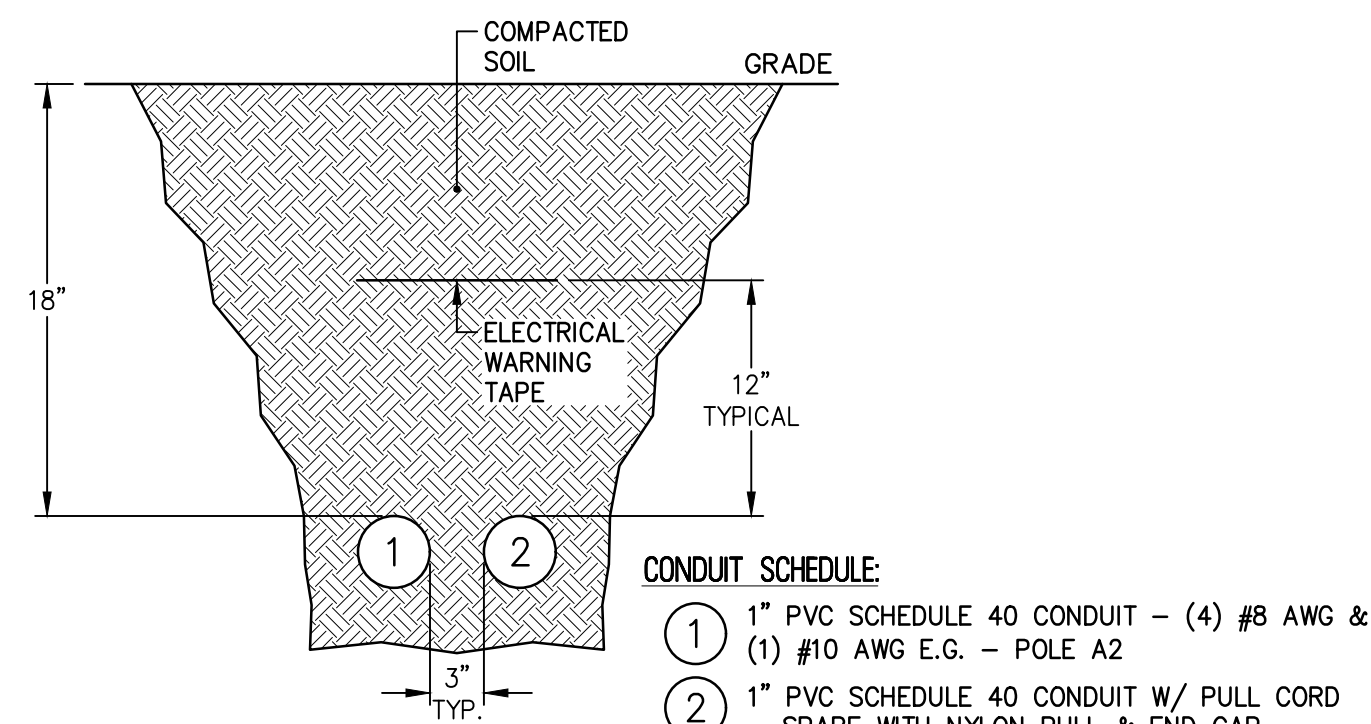
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N.T.S. (SITE LIGHTING)



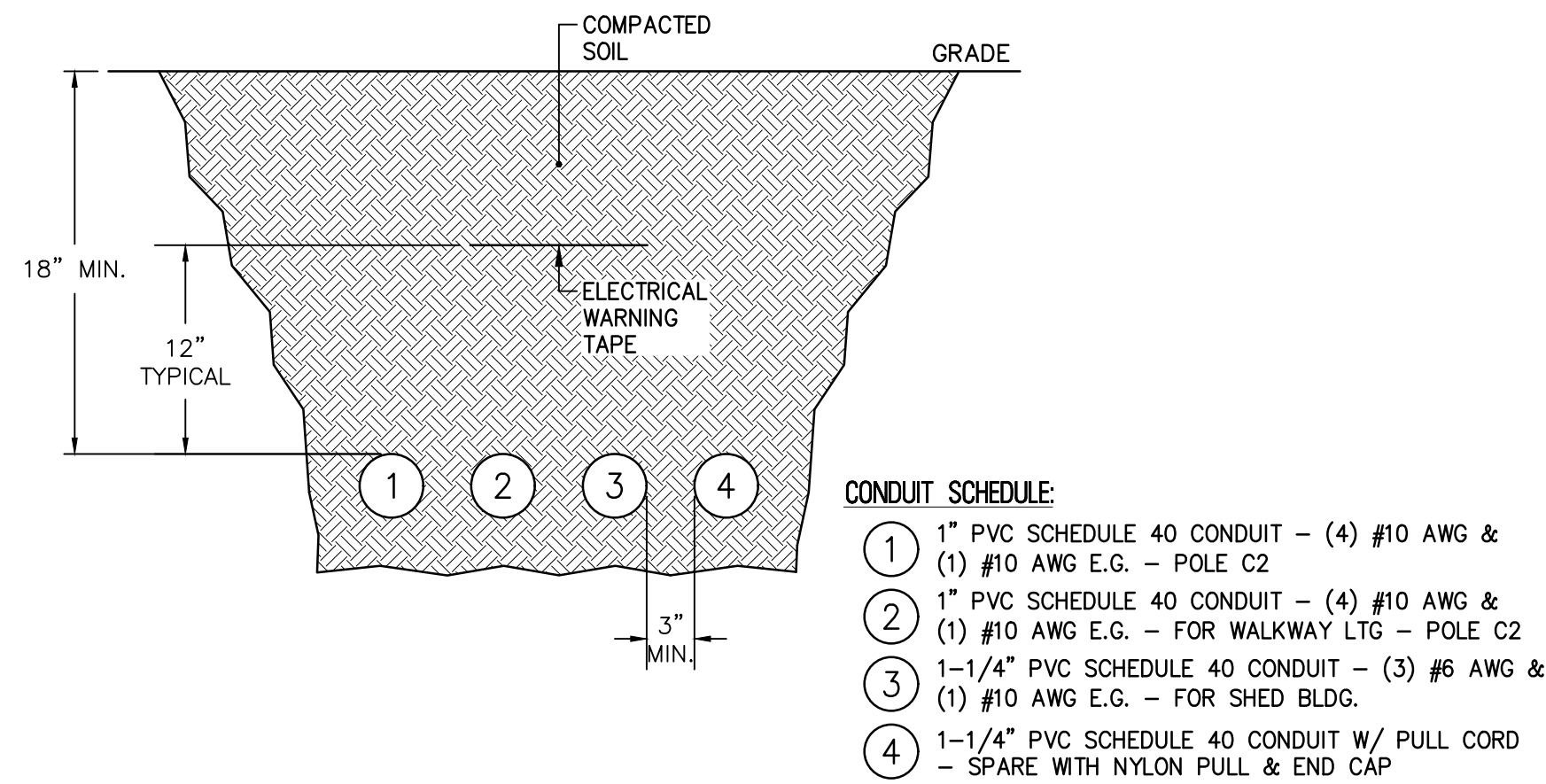
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N.T.S. (C1, S1, A2, WALKWAY)



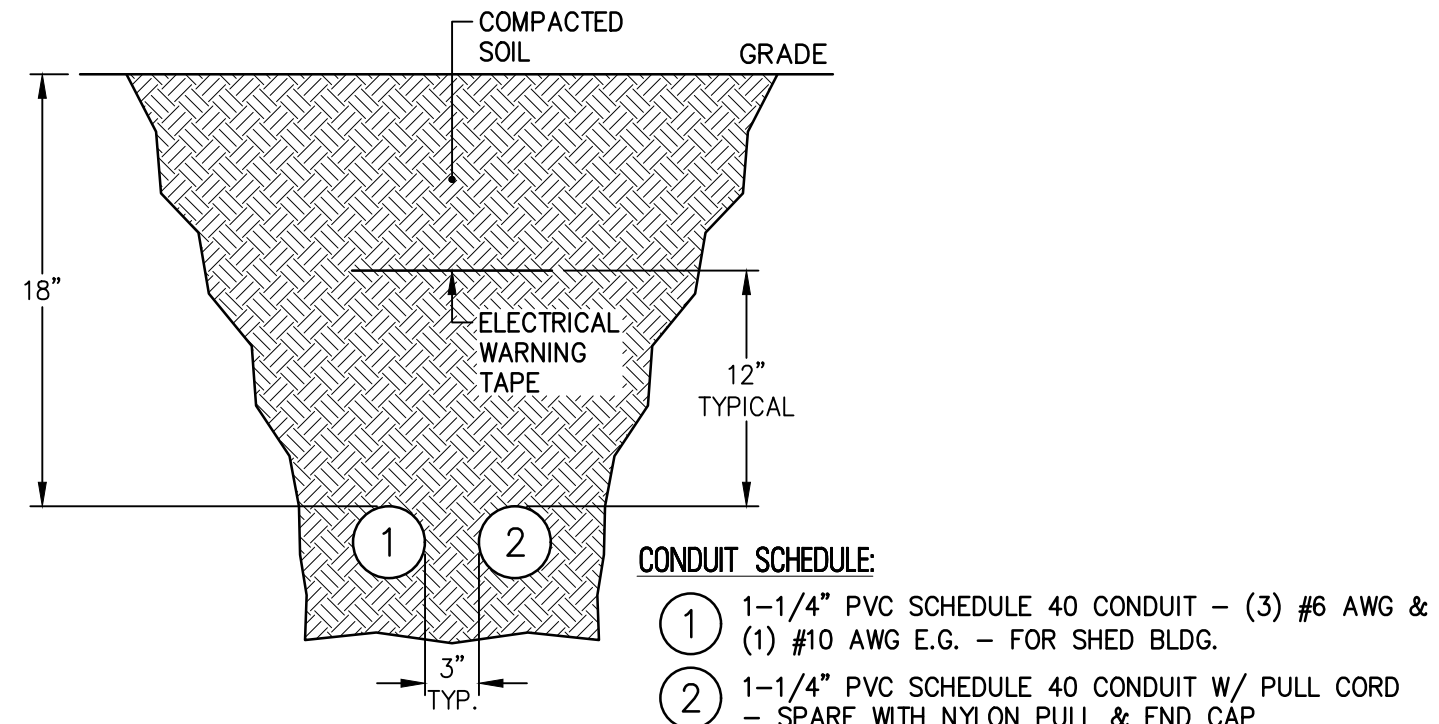
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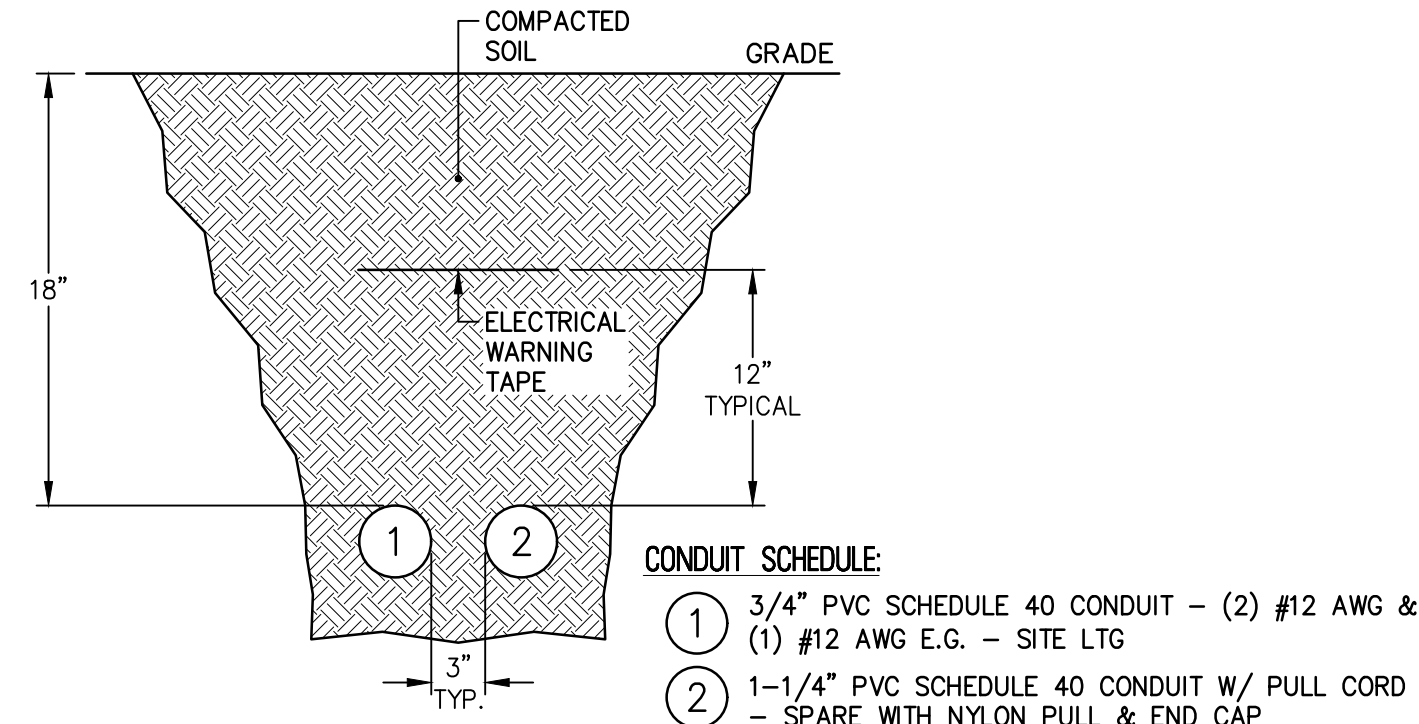
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N.T.S. (A2)



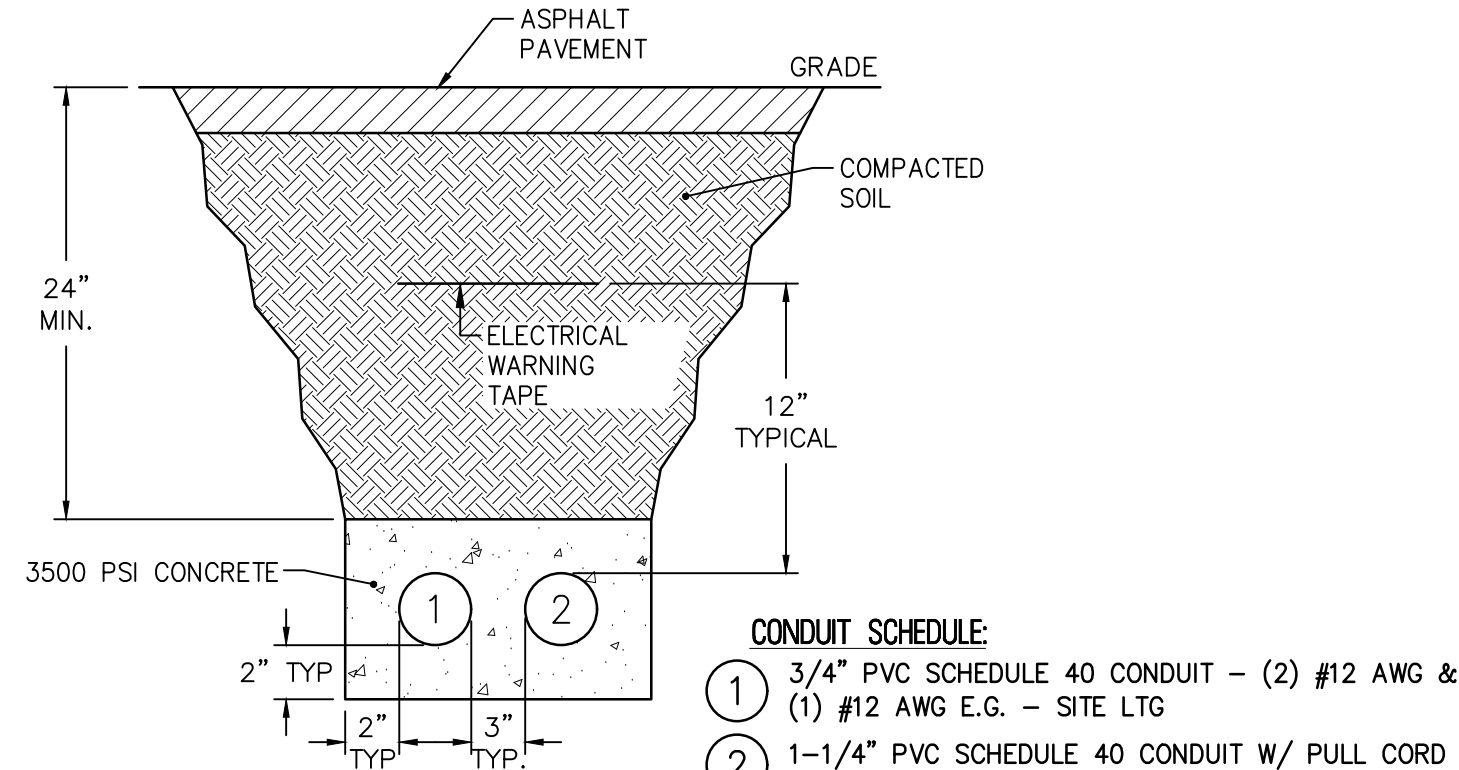
4 DUCT BANK DETAIL G-G  
N.T.S. (C2, WALKWAY, SHED)



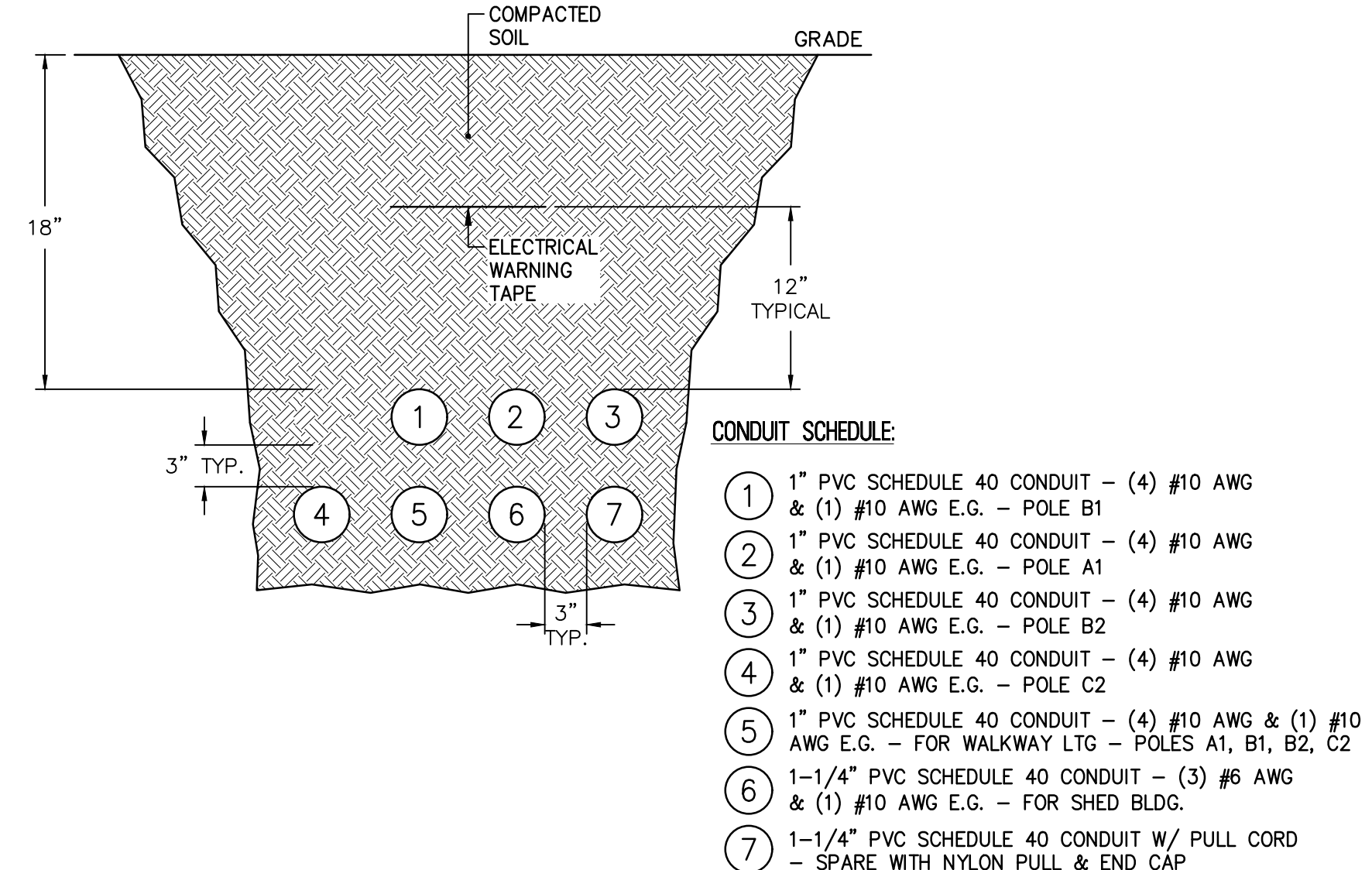
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N.T.S. (SHED)



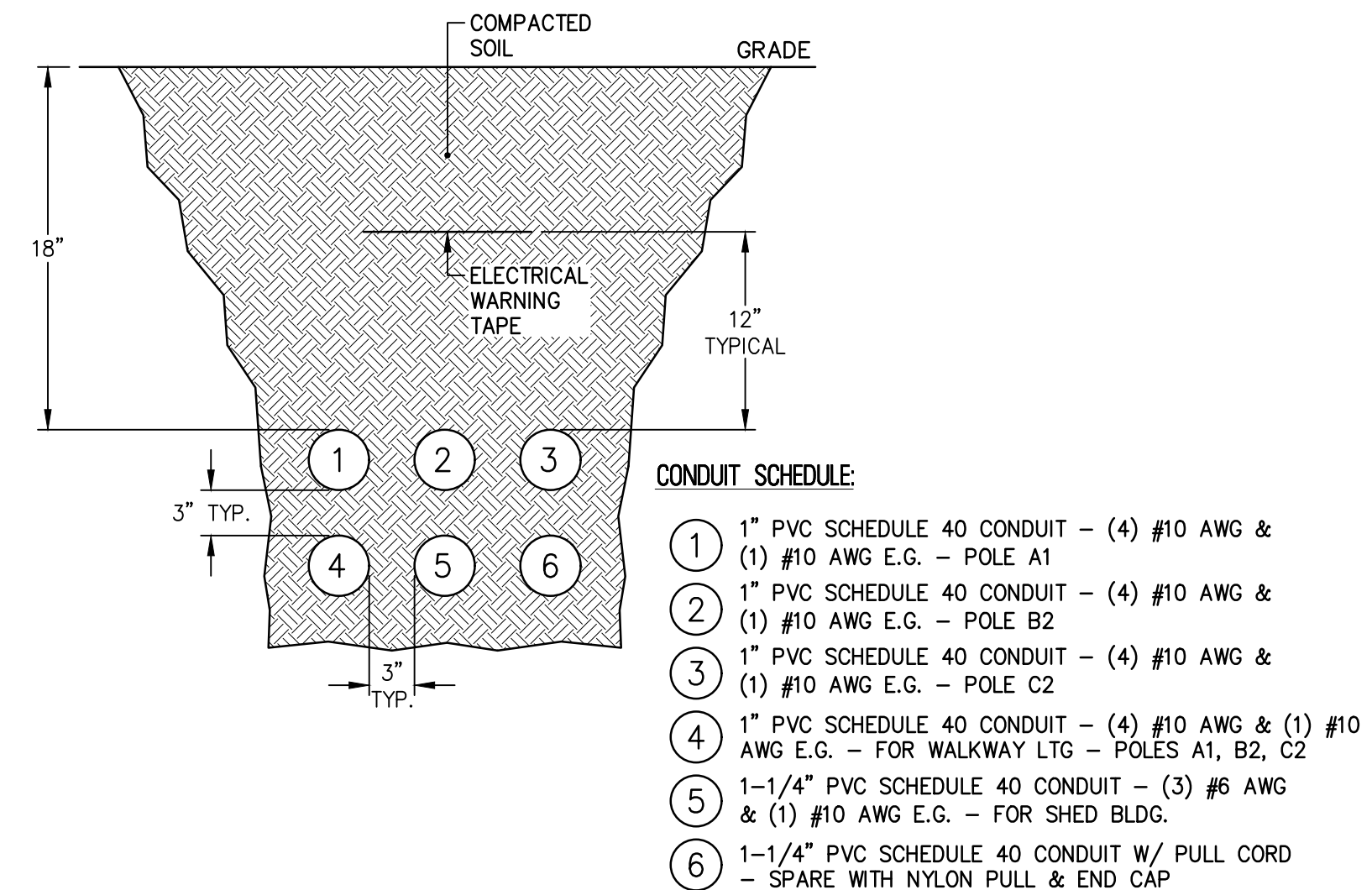
6 DUCT BANK DETAIL J-J  
N.T.S. (SITE LIGHTING)



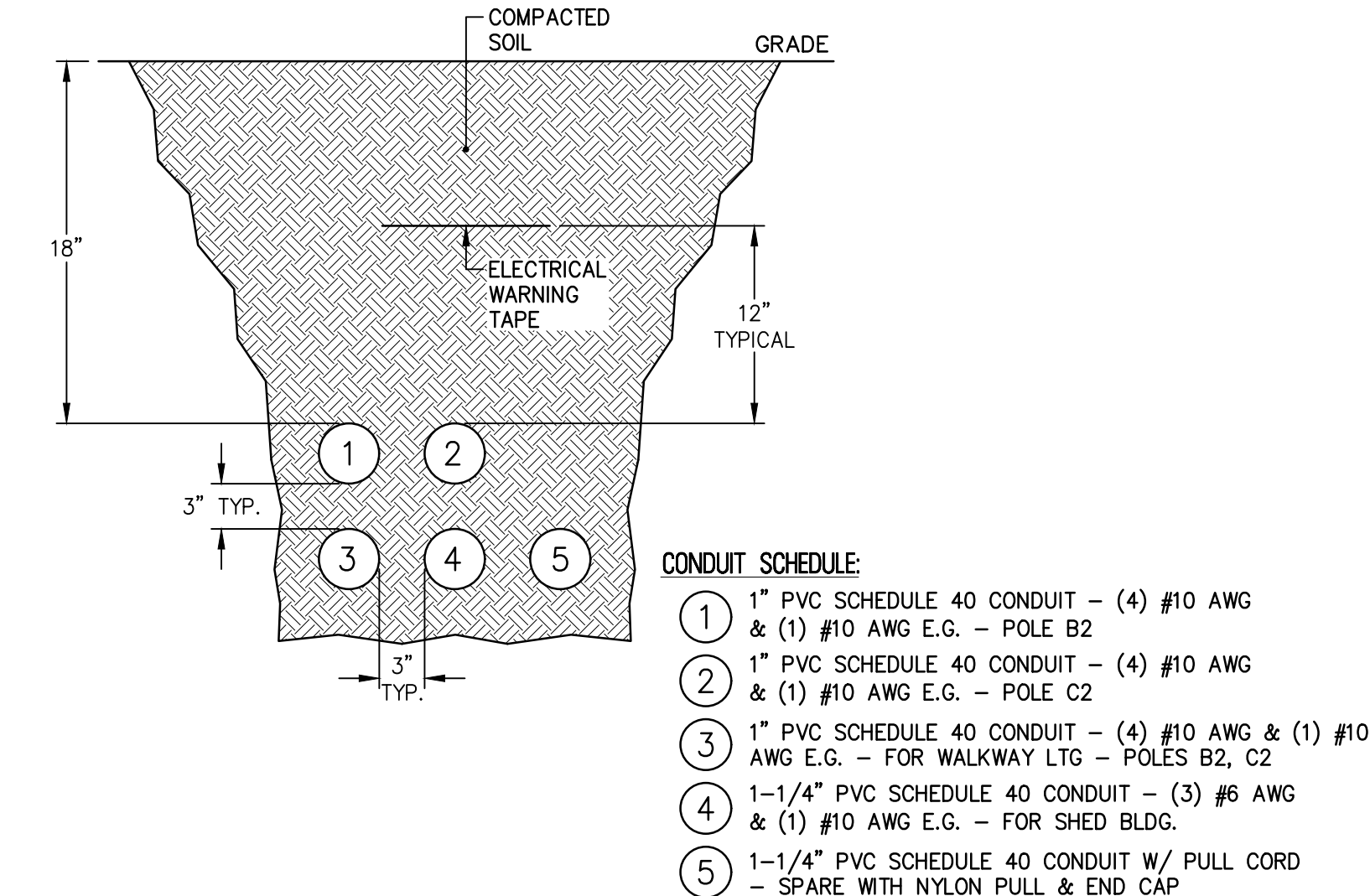
7 DUCT BANK DETAIL J1-J1  
N.T.S. (SITE LIGHTING)



1 DUCT BANK DETAIL D-D  
N.T.S. (B1, A1, B2, C2, WALKWAY, SHED)



2 DUCT BANK DETAIL E-E  
N.T.S. (A1, B2, C2, WALKWAY, SHED)



3 DUCT BANK DETAIL F-F  
N.T.S. (B2, C2, WALKWAY, SHED)

**RVE**  
1901

**REMINGTON  
& VERNICK  
ENGINEERS**  
2059 SPRINGDALE ROAD  
CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM  
Certification of Authorization: 24 GA 28003300  
**Excellence • Innovation • Service**

DATE: \_\_\_\_\_  
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

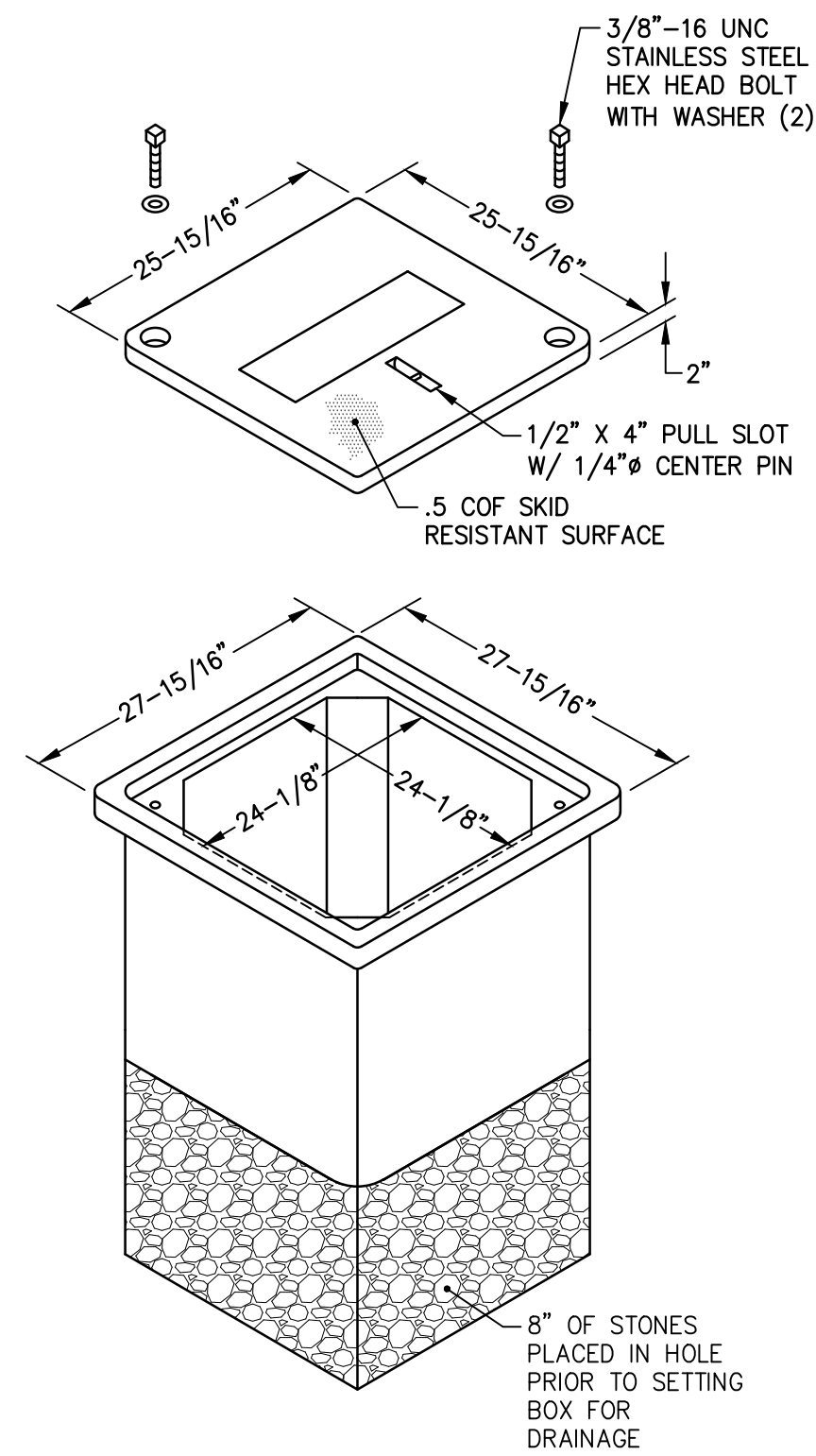
DATE: 10-22-2024  
**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 56794

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID.

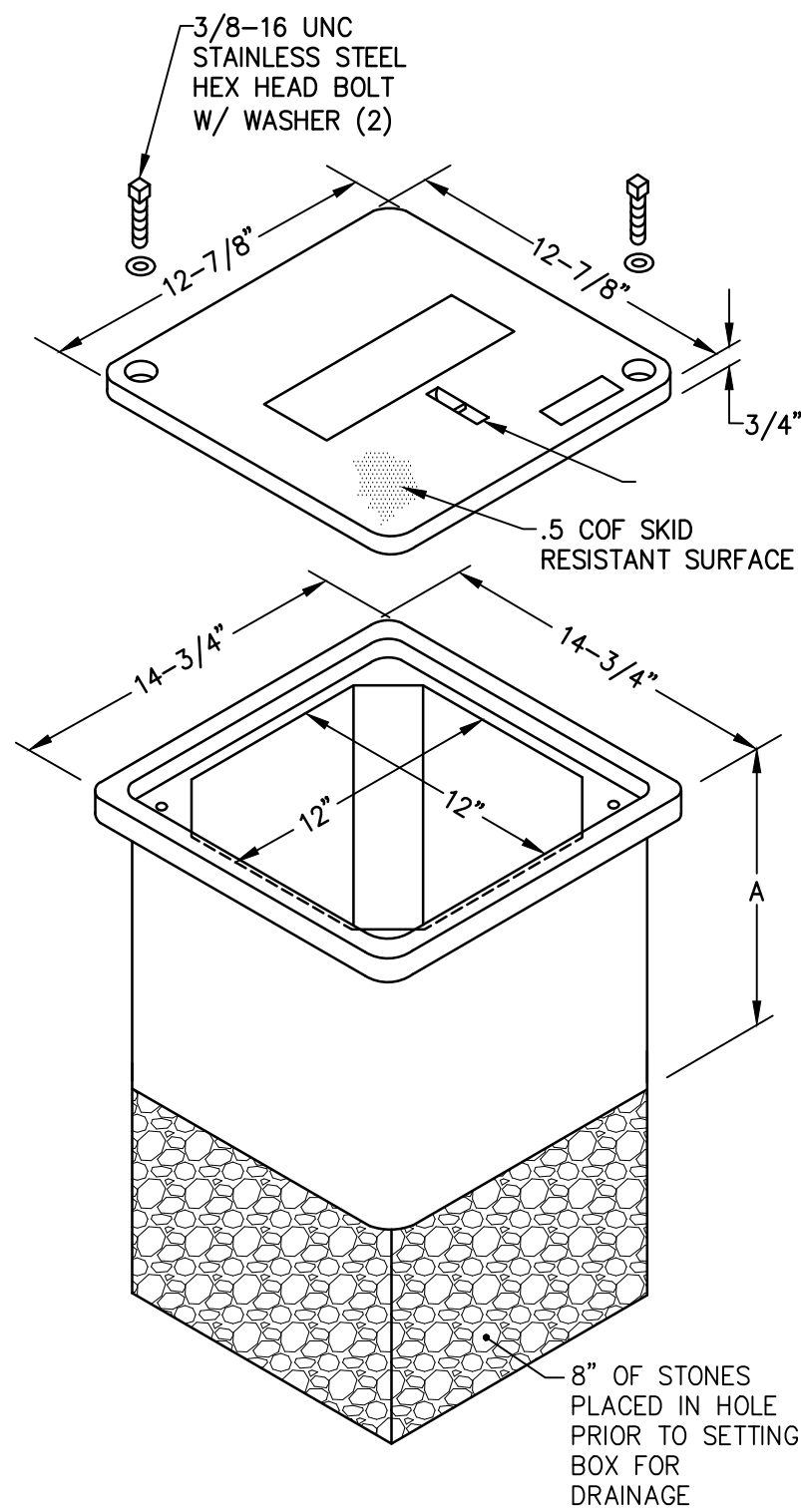
ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK  
ENGINEERS AND AFFILIATES ARE INSTRUMENTS OF  
SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT  
INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE  
BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT  
OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT  
WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON &  
VERNICK ENGINEERS AND AFFILIATES FOR THE SPECIFIC  
PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND  
WITHOUT LIABILITY OR LEGAL EXPOSURE TO REMINGTON  
& VERNICK ENGINEERS AND AFFILIATES. AND OWNER  
SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON &  
VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS,  
DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR  
RESULTING THEREFROM.

REVISION	DATE	BY	CHK
1	10/21/2024	P.B. KRS	
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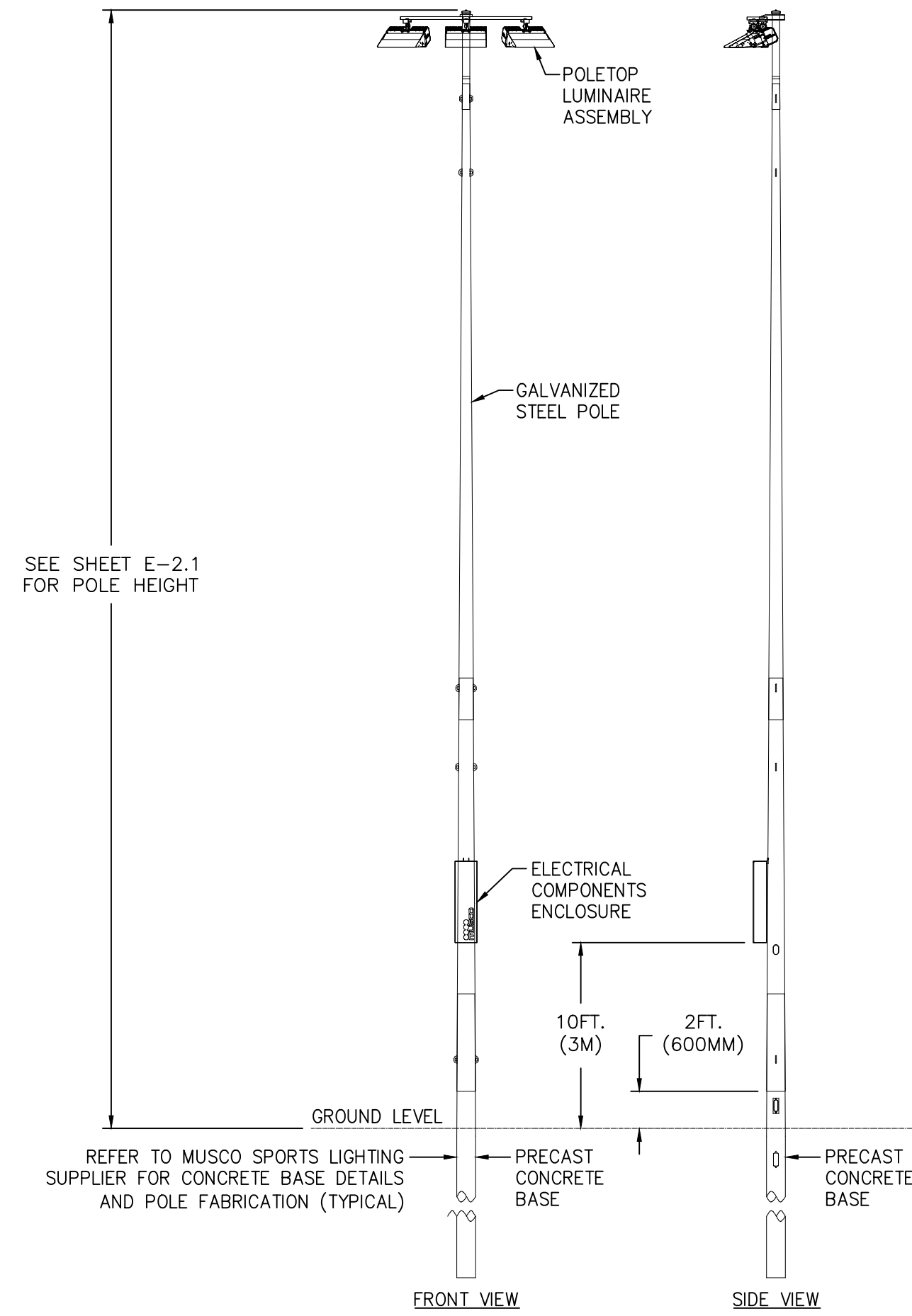
<b>ELECTRICAL DETAILS</b>	UNION COUNTY UNION COUNTY VO-TECH FIELD IMPROVEMENTS	UNION COUNTY SCOTCH PLAINS TOWNSHIP	DATE: _____	SCALE: _____
			DESIGN BY: <b>P.B. KRS</b>	CHECKED BY: _____
			DATE: 04/16/2024	SHEET No.: _____
			JOB No.: 2000F028	<b>E-3.2</b>



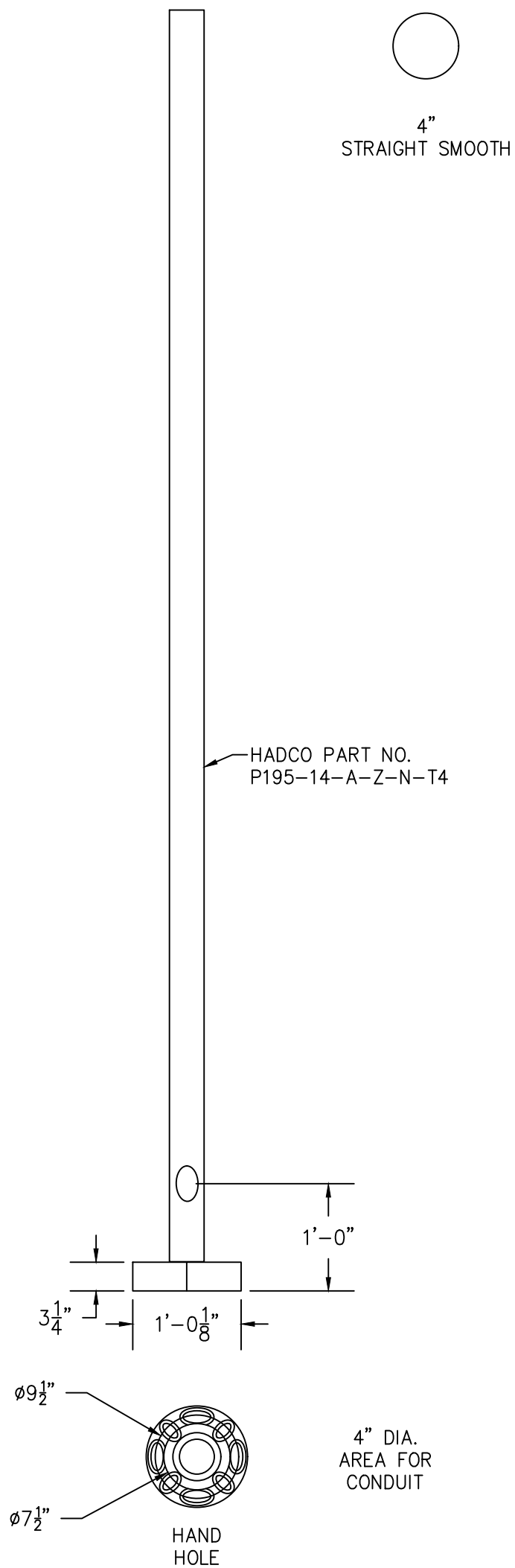
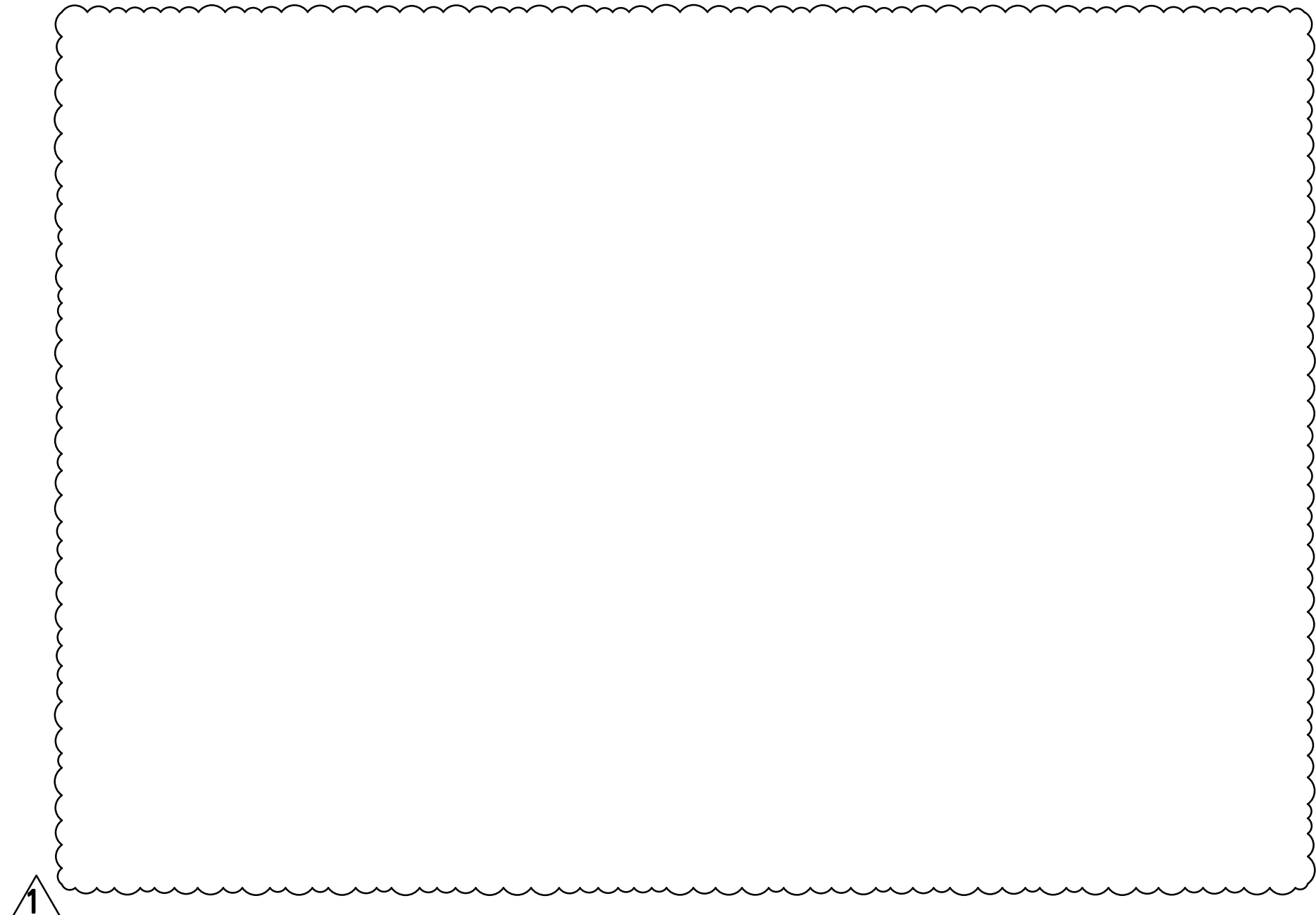
1 24"x24" HAND HOLE DETAIL  
N.T.S.



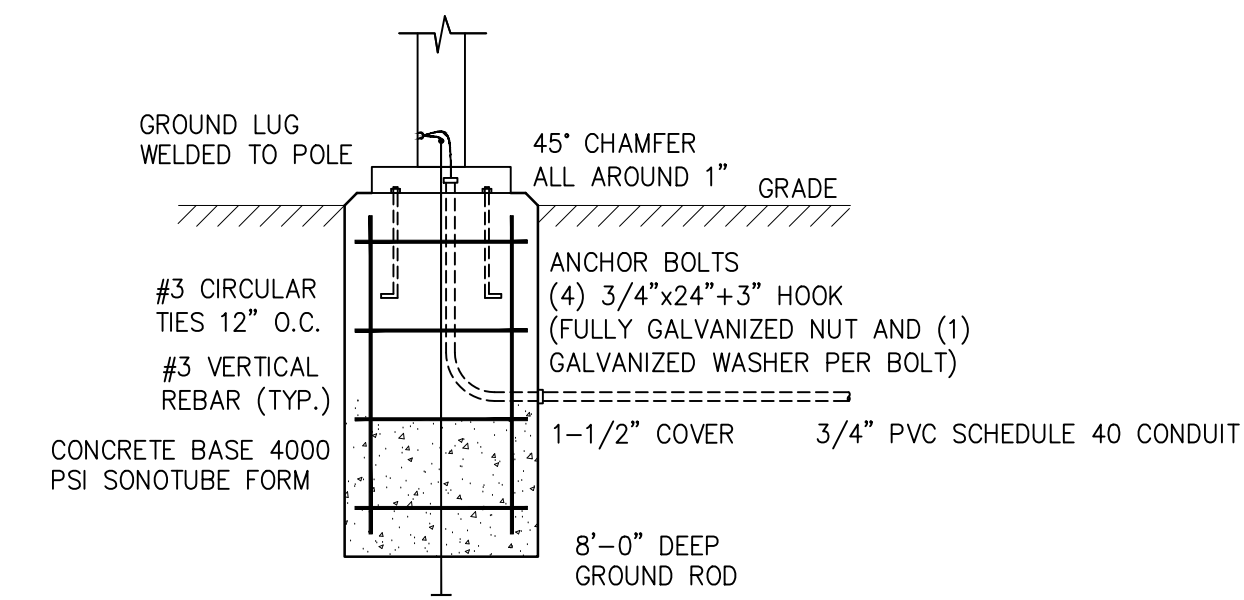
2 12"x12" HAND HOLE DETAIL  
N.T.S.



3 TYPICAL MUSCO SPORTS LIGHTING POLE DETAIL  
N.T.S.



5 TYPICAL LIGHT POLE DETAIL  
3/4" = 1'-0"



6 TYPICAL LIGHT POLE FOUNDATION DETAIL  
N.T.S.



**REMINGTON  
& VERNICK  
ENGINEERS**

2059 SPRINGDALE ROAD  
CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM

Certification of Authorization: 24 GA 28003300  
**Excellence • Innovation • Service**

DATE:

**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

*Kavan R. Smith*  
DATE: 10-22-2024

**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 56794

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID

ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO REMINGTON & VERNICK ENGINEERS AND AFFILIATES. AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON & VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

REVISION	DATE	BY	CHK
1	10/21/2024	P.B. KRS	

ELECTRICAL DETAILS

UNION COUNTY  
UNION COUNTY VO-TECH  
FIELD IMPROVEMENTS

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

DRAWN BY:	DESIGN BY:	CHECKED BY:	SCALE:
P.B.	P.B.	KRS	AS NOTED
DATE:			
04/16/2024			
JOB No.:			
2000F028			

E-3.3



# COUNTY OF UNION

## DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

*Joseph J. Policay, Jr., CPWM, Acting Director*

### BOARD OF COUNTY COMMISSIONERS

**KIMBERLY PALMIERI-MOUEDE**  
*Chairwoman*

**LOURDES LEON**  
*Vice-Chairwoman*

**JAMES E. BAKER, JR.**

**JOSEPH C. BODEK**

**MICHÈLE S. DELISFORT**

**SERGIO GRANADOS**

**BETTE JANE KOWALSKI**

**ALEXANDER MIRABELLA**

**REBECCA WILLIAMS**

**EDWARD T. OATMAN**  
*County Manager*

**AMY CRISP WAGNER**  
*Deputy County Manager*


**BRUCE H. BERGEN, ESQ.**  
*County Counsel*

**JAMES E. PELLETTIERE**  
*Clerk of the Board*

**RICARDO S. MATIAS**  
**PE, CME, CFM**  
*County Engineer*  
*Director, Division of Engineering*

### MEMORANDUM

**TO:** All Potential Bidders

**FROM:** Ricardo S. Matias, PE, CME, CFM,   
County Engineer  
Director / Division of Engineering

**DATE:** October 15, 2024

**RE:** **ADDENDUM NUMBER 1**  
Vo-tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey  
BA#51-2024;  
Union County Engineering Project #2021-009

Please remove bid sheet B – 6 Revised 2024-5-24 and insert the attached bid sheet B - 6 Revised 2024-10-15.

**Please be sure to complete and submit the standard  
“Acknowledgement of Addendum” form included in the original bid  
specifications and submit it with the bid.**

### DIVISION OF ENGINEERING

2325 South Avenue

Scotch Plains, NJ 07076

(908)789-3675

fax(908)789-3674

www.ucnj.org

***We're Connected to You!***

Bidders name: \_\_\_\_\_

**BID CONTINGENCY: (To be used if and when directed by the County)**

One Hundred Sixty Thousand Five Hundred and Twenty Two dollars and no cents    \$160,522.00

Written

Figures

**TOTAL BASE BID ITEMS PLUS BID CONTINGENCY AMOUNT:**

\_\_\_\_\_

Written

\_\_\_\_\_

Figures

**NOTE:** Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.

**SPECIFICATIONS  
FOR  
Vo-tech Turf Field Project, Township of Scotch  
Plains, County of Union, New Jersey**

**BA#51-2024; Union County Engineering Project #2021-009**

**October 2024**

**UNION COUNTY  
BOARD OF COUNTY COMMISSIONERS**

Kimberly Palmieri-Mouded, Chairwoman  
Lourdes M. Leon, Vice Chairwoman  
James E. Baker, Jr., Commissioner  
Joseph C. Bodek, Commissioner  
Michele S. Delisfort, Commissioner  
Sergio Granados, Commissioner  
Bette Jane Kowalski, Commissioner  
Alexander Mirabella, Commissioner  
Rebecca Williams, Commissioner

**CLERK OF THE BOARD**  
James E. Pellettiere, RMC

**COUNTY MANAGER**  
Edward T. Oatman

**DEPARTMENT OF ENGINEERING, PUBLIC WORKS AND  
FACILITIES MANAGEMENT**  
Joseph J. Policay Jr., CPWM  
Acting Director, Department of Engineering, Public Works and  
Facilities Management

**COUNTY ENGINEER  
DIVISION OF ENGINEERING**  
Ricardo Matias, PE, CME, CFM

**Prepared by:**  
Remington & Vernick Engineers  
2059 Springdale Road  
Cherry Hill, New Jersey 08003

**COUNTY OF UNION  
NOTICE TO BIDDERS**

Sealed bids will be received by the assistant director of the Division of Purchasing, or her designee, at the County of Union, New Jersey on **October 31, 2024** at 10:30 a.m., prevailing time, in the 3<sup>rd</sup> Floor Conference Room, U.C. Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey for:

**Vo-tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey  
BA#51-2024; Union County Engineering Project #2021-009**

Bid Packages may be obtained at no charge by registering and downloading at <http://ucnj.org/bid-specs>. Bid Packages may also be obtained in person from the Division of Engineering at 2325 South Avenue, Scotch Plains, New Jersey 07076 between 8:30 a.m. and 4:00 p.m. weekdays upon payment of a non-refundable money order or bank check in the amount of \$275.00 made payable to the County of Union. No Personal / Company checks will be accepted. Requests for mailing of specifications will not be honored. For further information please call 908-789-3675.

The County reserves the right to reject any and all bids and to waive any and all informalities in the bid in accordance with the New Jersey Local Public Contracts Law.

Bids shall be submitted in a sealed envelope and clearly marked with the subject of the bid, name and address of the bidder, phone & fax number, and date of the bid opening. Each bid must be delivered to reach the Division of Purchasing prior to the stated time of the opening of the bids. The County will not be responsible for late delivery by the U.S. Mail or any other carrier. If hand delivered, please note that parking and security access at the County Complex may cause delays and bidders should take them into consideration in order to submit a timely bid. **No** late bids will be accepted.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27.

**MICHELLE HAGOPIAN, ASSISTANT DIRECTOR OF PURCHASING**

***Union County Board of County  
Commissioners***

---

***We're Connected to You!***

NB-1

**Vo-tech Turf Field Project, Township of Scotch Plains, County of Union, New Jersey  
BA#51-2024; Union County Engineering Project #2021-009**

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Bid Document Submission Checklist  
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Bid Form  
Consent of Surety  
Bidder Signature Page  
Bidder Disclosure Statement  
Subcontractor Identification Statement: List of Subcontractors  
Subcontractor Identification Certification  
Acknowledgement of Addendum  
Contractor Business Registration Certificate  
Affirmative Action Requirement  
Experience Statement  
Certificate of Bidder Showing Ability to Perform Contract  
Non-Collusion Affidavit  
Contractor Registration Advisement  
Americans with Disabilities Act  
Statement of Bidder's Qualifications  
Contractor Performance Record  
Affidavit Regarding List of Disbarred, Suspended or Disqualified Bidders  
Prior Negative Experience Questionnaire-Certification  
Contractor's Certification of Compliance - New Jersey Prevailing Wage Act  
Uncompleted Contracts Affidavit  
Certificate of Insurance Statement  
Collection of Use Tax on Sales to Local Governments Statement  
Time of Completion  
Disclosure of Investment Activities in Iran  
Disclosure of Non-Involvement in Activities in Russia or Belarus  
Federal Non-Debarment Certification  
Byrd Anti-Lobbying Amendment Certification  
Certification regarding lobbying  
Disclosure of lobbying activities (LLL Form)

## **STANDARD SPECIFICATION FORM - SS-1**

## **NEW JERSEY PREVAILING WAGE DETERMINATION DOCUMENTS**

## **PROJECT TECHNICAL SPECIFICATIONS**

**UNION COUNTY BOARD OF COUNTY COMMISSIONERS  
INSTRUCTIONS TO BIDDERS AND FORMS**

**DEFINITIONS**

**Wherever reference is made to the County, Title of Project, Bidder, or Vendor/Contractor they shall be as follows:**

**OWNER/COUNTY:**

Union County Board of County Commissioners  
UC Administration Building, 6<sup>th</sup> Floor  
10 Elizabethtown Plaza  
Elizabeth, New Jersey 07207

**ADDRESS INQUIRIES TO:**

Union County Division of Purchasing  
UC Administration Building, 3<sup>rd</sup> Floor  
10 Elizabethtown Plaza  
Elizabeth, NJ 07207  
Attn: Michelle Hagopian, Assistant Director, Division of Purchasing  
Telephone: 908-527-4130  
Facsimile: 908-558-2548  
[ucbids@ucnj.org](mailto:ucbids@ucnj.org)

**ADDRESS BIDS AND SUBMIT TO:**

Union County Division of Purchasing  
UC Administration Building, 3<sup>rd</sup> Floor  
10 Elizabethtown Plaza  
Elizabeth, NJ 07207  
Attn: Michelle Hagopian, Assistant Director, Division of Purchasing  
Telephone: 908-527-4130  
Facsimile: 908-558-2548  
[ucbids@ucnj.org](mailto:ucbids@ucnj.org)

**TITLE OF PROJECT: Vo-tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey; BA#51-2024;  
Union County Engineering Project #2021-009**

**BIDDER:** Bidder shall be a single overall contract bidder

**ENGINEER:**

**COUNTY ENGINEER AND/OR CONSTRUCTION MANAGER (as applicable):**

**COUNTY ENGINEER:**

Ricardo S. Matias, PE, CME, CFM  
Union County  
Division of Engineering

## CONSTRUCTION MANAGER:

### GENERAL SPECIFICATIONS

#### 1. BID FORM

Bids for this Work will be enclosed in a sealed envelope addressed to the Purchasing Division, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207, with the full name of the Project clearly marked on the outside. Refer to the sheet marked "Notice of Bid (Advertisement)" for the correct name of the Project. Bidders must submit their bids on the attached pricing sheet (Bid Form), in a sealed envelope addressed to the County and bearing on the outside: the name of the Bidder, Bidder's business address, and the title of the Project.

The Division of Purchasing will receive the bids for this Work at the Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey on the date and time noted on the sheet marked "**Notice of Bid (Advertisement)**".

The County will not assume responsibility for bids forwarded by mail. It is the individual's responsibility to see that the bids are presented to the Purchasing Division at the time and at the place designated.

Bids will be accepted only on the Bid Form supplied. Bids on forms other than the original supplied herein will be rejected. The "complete" Bid Documents includes the Bid Bond, Bid Form, Bidder's Checklist, Consent of Surety, Ownership Disclosure Certification, Non-Collusion Affidavit, and any other documents noted in these Instructions to Bidders or Contract Document to be submitted with this Bid.

The bidder will state in the bidding sheet the price per unit of measure for each scheduled Item of Work for which he will agree to carry out the Work, and the Total Bid Price for the construction of the Project.

The prices in the Bid Form shall be typed or written in pen and ink. Erasures or alterations must be initialed by the bidder in ink.

The bidding sheet for this Project may include a fixed amount as a Bid Allowance. If applicable, all bidders are required to add this fixed amount to their base bid and to include this additional amount in their Bid Bond. This sum will be included in the Contract as well as the performance, labor and materials bond. Payment by the County will be made to the Contractor from these funds only upon the completion of extra Work pursuant to a written Change Order(s) signed by the County's Engineer or his designee and the Contractor, prior to the commencement of such Work. Work commenced prior to written approval by the County shall be done at Contractor's risk. Such payment will only be in the amount agreed to by the parties, in writing in the Change Order(s). See Section 37, Change Orders, of these general specifications for further details.

Refer to Bid Document Submission Checklist for all required documents.

In the event there is a discrepancy between the unit price given and the extended total, the unit price will govern. Any discrepancies will be mathematically adjusted.

Insert applicable alternates, if any have been specified, applicable to the Bidder's Work. All alternates **MUST** be bid upon. Any Bidder's failure to do so will be deemed a material, non-waivable defect and shall render the bid nonresponsive. The Bidder shall clearly designate whether the change in price is an addition or subtraction, by using either a "+" sign or the word "addition", or in the alternative, a "-" sign or the word "minus". If there is no other change in price, the Bidder shall insert "NC" or "No Charge".

When two or more low bids are equal in all respects, awards will be made according to the provisions of N.J.S.A. 40A:11-6.1(d).

Where unit prices have already been established by the Contract Documents, the Bidder agrees that such unit prices shall prevail. All unit prices, whether filled in by the Bidder or established by the Contract Documents, shall become part of the Contract. No bid will be considered or award made, unless applicable unit prices, as required, are filled in.

The County reserves the right to reject any or all bids and also reserves the right to waive any minor informalities or non-material exceptions in the bids.

The County of Union has the right to reject any and all bids from any bidder that is in, or contemplates bankruptcy of any chapter of nature. Said bidder shall notify the County, in writing, of any condition or knowledge of the same.

Conditional bids will not be accepted. Bids may be withdrawn prior to the advertised time for the opening of bids or authorized postponement thereof or in accordance with the provisions of N.J.S.A. 40A:11-23.3 discussed below. Bids received after the advertised time shall not be considered. Bidders shall be solely responsible for premature opening or late delivery of bids not properly marked, addressed, or directed.

## **2. WITHDRAWAL OF BID DUE TO MISTAKE**

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to Michele Hagopian, Assistant Director, Division of Purchasing, County of Union, New Jersey, Union County

Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207. The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, Michele Hagopian, Assistant Director of the Division of Purchasing or his designee may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the County's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The County will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

### **3. QUALIFICATIONS OF BIDDERS AND REQUIRED SUBMISSIONS**

The County may make such investigation as it deems necessary to determine the ability of the Bidders to perform the Work, which includes investigation of any and all subcontractors listed with the bid. The Bidder shall furnish any information and data for this purpose as the County may request.

### **4. INTERPRETATIONS AND ADDENDA**

Any explanation desired by a bidder regarding the meaning or interpretation of the Contract Documents must be requested in writing to the Assistant Director, Division of Purchasing at [ucbids@ucnj.org](mailto:ucbids@ucnj.org) with reasonable time allowed for a reply to reach bidders before submission of their bids. Any interpretation or instruction made by the County Engineer will be in the form of an addendum to the Contract Documents or clarification and will be furnished to all prospective bidders. Oral explanations or instructions given before the award of the Contract will not be binding. Bidders are required to bring to the attention of the Assistant Director, Division of Purchasing at [ucbids@ucnj.org](mailto:ucbids@ucnj.org), the discovery of any apparent ambiguity, inconsistency, error, discrepancy, omission in the Contract Documents for interpretation and correction at least ten (10) working days before opening of bids with the exception of Saturdays, Sundays and holidays.

All Addenda issued through the Office of the Division of Purchasing are amendments to the Contract Documents and shall be considered in preparing bids. Same shall become part of the Contract Documents.

Addenda take precedence over all earlier documents and over each other according to the latest date. Addenda unless themselves interpretive remain subject to interpretation the same as any other document incorporated in the Contract.

Addenda may be issued by the Assistant Director, Division of Purchasing up to seven (7) working days prior to the opening of bids. Failure of any bidder to receive an addendum shall not relieve such bidder from the obligation imposed by such addendum. Bidders are to keep themselves currently acquainted with the Contract Documents during the entire bidding period and make inquiry on their own initiative as to issuance of any Addenda. Receipts of all Addenda shall be acknowledged on the "*Acknowledgement of Receipt of Changes*" included in the bid package and must be submitted with the bid.

## **5. OBLIGATION OF BIDDER TO INSPECT SITE AND CONTRACT DOCUMENTS**

At the time of the opening of bids, each Bidder will be presumed to have inspected the site(s) and to have read, and be thoroughly familiar with the Contract Documents. The failure or neglect of any Bidder to receive or examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to its bid.

The Bidder shall examine the contents of the Project Manual and the set of Drawings and assure itself that all pages of the Specifications, Drawings, and other Contract Documents are included in the documents obtained for bidding purposes. Should the Specifications, Drawings, and other Contract Documents be incomplete, the Bidder shall notify the County Engineer in writing, who will supply the Bidder with any missing pages of Specifications, Drawings, or other Contract Documents. The lack of such written notification by the Bidder will be construed as evidence that the Specifications, Drawings, or other Contract Documents supplied it for bidding purposes are full and complete and as a waiver of any subsequent claim to the contrary.

## **6. BID AND PERFORMANCE GUARANTEE**

Each bidder must furnish a Bid Bond, Certified Check or Bank Cashier's Check in the amount of ten percent (10%) of the Bid. Checks shall be drawn to the order of the County of Union, New Jersey, not to exceed \$20,000.

Each bidder must furnish with the bid a certificate from a Surety Company, i.e. Consent of Surety, stating that in the event of the contract being awarded to said bidder, such Surety Company will provide the Contractor with bonds guaranteeing the faithful performance of the Work in accordance with the plans and specifications, and the payment for labor, materials, and all other indebtedness which may accrue on the account

of this Work. A Performance, Labor and Materials Bond will be furnished by the Contractor upon an award of Contract, and will be in the amount of 100% of the contract price.

A one-year Maintenance Bond will be required upon acceptance of the Project by the County in the amount as stated in Section 15 of the General Specifications. Bonds will be written by a firm authorized to issue the bonds under the laws of the State of New Jersey and be in a form acceptable to the County Counsel.

*N.J.S.A. 40A:11-1 et seq.* allows the prime Contractor to furnish the Performance Security for his Subcontractors. The County of Union requires Performance Security to be furnished by the prime contractor for the entire job in the total amount of the contract.

The County will return all certified checks or cashier's checks after the proposals have been opened, tabulated and reviewed except those of the three (3) bidders lowest responsible bidders. The County will return the checks of these bidders when a contract is awarded to the successful bidder within ten (10) days after the award of the contract.

If the successful bidder refuses or neglects to sign an agreement and furnish the required bonds, the Bid Bond will be held and used by the County to offset any damages for such refusal or neglect.

## **7. COMMENCEMENT AND COMPLETION**

Work will not commence until a Notice to Proceed is received from the County Engineer.

Upon substantial completion of the Project, the Contractor must request a joint inspection with the County Engineer. Upon completion of this inspection, the County Engineer will prepare a list of incomplete or incorrect items (punch list) and have Contractor initial and date same. The Contractor shall rectify all deficiencies noted on the punch list within 30 calendar days of receipt of the list. The County Engineer may approve extensions for extenuating circumstances.

## **8. BIDDER AFFIDAVIT**

All Bidders are required to complete, sign, and submit with their Bid, the attached "Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders". (See form enclosed)

## **9. LABOR AND MATERIALS**

The prices will cover all costs of any nature incident to and growing out of the Work, including all labor, material, equipment, transportation, loss by damage or destruction of the Project, settlement of damages, and for replacement of defective work or materials.

N.J.S.A. 54:32B-1 et seq. exempts all materials sold to the County of Union from sales or use taxes and should not be included in the prices provided on the Bidding Sheet.

## **10. INSURANCE REQUIREMENTS**

The County of Union requires all contractors to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the contractor must accept the applicable insurance requirements, as set forth below, as part of any contract awarded to it by the County.

Contractor shall carry and maintain at all times while the contract is in full force and effect, the following insurance coverage with an insurance company or companies acceptable to the County, with limits not less than those shown below. A Certificate of Insurance shall be filed with the County prior to commencement of any Work indicating the following:

- a) Commercial General Liability (CGL): Coverage for all operations including, but not limited to, contractual, products and completed operations, and personal injury with limits no less than \$5,000,000 per occurrence/\$10,000,000 aggregate. The County of Union, its Board of County Commissioners, officers, employees, agents and servants shall be included as an additional insured. Coverage is provided on a primary and non-contributory basis to the County of Union, et al.
- b) Automobile Liability: Coverage for all owned, non-owned and hired vehicles with limits not less than \$5,000,000 per occurrence, combined single limits (CSL) or its equivalent.
- c) Workers Compensation: As required by the State of New Jersey and Employers Liability with limits not less than \$1,000,000 per accident for bodily injury or disease.
- d) Professional Liability (if design/build): Coverage with limits not less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate
- e) Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors & Omissions (if project involves environmental hazards): Coverage with limits no less than \$1,000,000 per occurrence or claim/\$2,000,000 aggregate.
- f) Builders Risk (for major renovations): During the course of construction utilizing an "All Risk" coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

Where applicable, a waiver of subrogation in favor of the County of Union, its Board of County Commissioners, officers, employees, agents, servants and the State of New Jersey is to be included in those policies of insurance where permitted by law.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

Special Risks or Circumstances: The County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

## **11. INDEMNIFICATION REQUIREMENTS**

The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

“To the fullest extent permitted by law the Contractor shall indemnify, defend, and hold harmless the owner and the owner’s consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys’ fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor’s work under this contract, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the County and the County’s consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys’ fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the County or the County’s consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder.”

## **12. ROYALTIES AND PATENTS**

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall hold the County harmless from loss on account thereof.

### **13. PLANS AND SPECIFICATIONS**

In carrying out the Work, the plan(s) and the specifications will be followed by the Contractor. Minor alterations in the plan may be made or permitted by the County Engineer from time to time and, if no additional Work is necessary, there will be no additional charge for carrying out such minor alterations.

The Contractor shall provide the County Engineer a set of reproducible as-built drawings upon completion of the Project. The Contractor shall maintain an updated construction progress plan in the Project field office at all times.

When applicable, The New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended, and Supplemental Specifications for State Aid Projects, herein after referred to as the "Standard Specifications", are made a part of these specifications and contract for the improvements, and will govern the construction of this Project, the material used and the execution of this Project, except as revised and modified herein. The references to these specifications are given herein for the purpose of aiding in the rapid location of the description of the various items herein specified. The entire Work must be carried on and completed to the satisfaction of the County. The Standard Specifications are amended as follows:

"Any reference to the Commissioner, Department, Department Laboratory, Engineer or Inspector should be redefined to be the County of Union".

### **14. GUARANTEE AGAINST DEFECTIVE WORK**

Prior to final payment being made or before the release of the performance security required by Section 3 above, the Contractor and Surety shall execute and deliver to the County an original Maintenance Bond with an original signature and seal having a penal sum equal to:

- A) One hundred percent (100%) of the final adjusted Contract amount, if such amount is \$50,000.00 or less;
- B) Fifty percent (50%) of the final adjusted Contract amount, if such amount be greater than \$50,000.00 but less than \$250,000.00; and,
- C) Twenty-five percent (25%) of the final adjusted contract amount, if such amount is \$250,000.00 or more.

The Bond and Surety shall be satisfactory to the Union County Counsel. The Surety shall hold a Certificate of Authorization to do business in the State of New Jersey and shall conform to P.L. 1995 c.384, codified as N.J.S.A. 2A:44-143, 144. The Surety Disclosure Statement and Certification required by N.J.S.A. 2A: 44-143, 144, shall be attached to the Bond. Such Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of Final Completion. Such Maintenance Bond shall also provide that the Contractor and the Surety guarantee to replace for the said period of one (1) year from the date of Final Completion, all Work performed and/or all materials furnished that were not performed or were not furnished in accordance to the terms and performance requirements of the Contract Documents, and will make good any defects thereof which become apparent before the expiration of one (1) year. If, during that period, any part of the Project, in the judgment of the Engineer, is found defective, the Contractor will repair or replace same within five (5) days of receipt of notice from the County Engineer. If the Contractor refuses or neglects to do such Work in the time specified, the County Engineer may have the Work done by others and the Contractor or his Surety thereof will pay the cost.

The Contractor will furnish the County a Maintenance Bond for a percentage of the final adjusted contract price, as stated above. The one (1) year period will start the day of Final Completion of Project by the County. Final payment is conditional on the receipt of a maintenance bond in a form acceptable to County Counsel.

## **15. TRAFFIC AND STREET MAINTENANCE**

The Work must be started and performed by the Contractor in such a manner as to minimize delays to the traveling public. It must be completed in a timely fashion, with little or no inconvenience to traffic and pedestrians, where such inconvenience may be avoided.

All municipal, county, and state roadways shall remain open to traffic unless otherwise provided for in the technical specifications.

If modified traffic patterns are authorized in order to provide a safe working or traveling environment, the Contractor is responsible for providing all equipment, barrels, cones, signs, and barricades to implement the work zone and detours, unless otherwise specified in the technical specifications. All work zones and detours shall be established in accordance with the technical plans and specifications if provided or in strict compliance with the current version of the Manual for Uniform Traffic Control Devices (MUTCD). The Contractor shall obtain approval for these work zones and detour plans from the Municipal Police or applicable police agency and the Union County Bureau of Traffic Maintenance prior to implementation.

All traffic control plans shall provide for safe movement of vehicular, bicycle, and pedestrian traffic. Particular attention shall be given to requirements of the Americans with Disabilities Act.

No portion of any street or alleyway may be used for the storage of any materials or equipment without the approval of the Municipal Police or other applicable police agency. Sidewalks, gutters, drains, fire hydrants and private drives shall be maintained for their intended use unless specifically approved by the County Engineer.

Upon suspension of Work, at the end of the day or for protracted periods, the Contractor shall remove all rubbish and materials from the Work site to the approved storage/staging location. All road cuts, saw cuts, and trenches that may pose hazard to vehicular, pedestrian, or bicycle traffic, to include handicapped users, shall be filled to the surface of the roadway or sidewalk. At no time will steel plates or settled trenches be allowed at the daily suspension of Work, unless specifically approved by the County Engineer.

Use of Traffic Control Officers shall be determined by the County in accordance with the provisions of N.J.S.A. 40A:11-23.1(c). If applicable to the Project, the County shall have provided an allowance for same as set forth in the Bid Form.

With respect to pedestrian traffic, the Contractor shall install signs restricting access of the general public and, as necessary, Union County employees to the area of construction. The Contractor shall provide safe access to required areas and place physical barriers to restricted areas. These barriers may range from caution tape to actual barriers, at the direction of the County Engineer.

## **16. CONTRACTOR'S EMPLOYEES**

The Contractor must employ only suitable and competent labor in the Work, and must remove from the Work any incompetent, unsuitable, or disorderly person upon complaint from the County Engineer.

The parties to any contract resulting from this proposal do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 (discrimination in employment on public works contracts); 34:11-56.25 et seq. (payment of prevailing rate of wages determined pursuant to N.J.S.A. 34:11-56.30 by the Commissioner), and the Rules and Regulations promulgated pursuant thereto, are hereby made a part of any contract and are binding upon them.

There will be no discrimination against any employee who is employed in the Work to be covered by any contract resulting from this bid because of age, race, creed, color, national origin, ancestry, marital status or sex.

Any person, firm, or corporation violating the provisions of this Section will be deemed and judged a disorderly person.

## **17. OWNERSHIP DISCLOSURES REQUIRED**

Pursuant to P.L. 2016, c. 43, codified as N.J.S.A. 52:25-24.2, no corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies the County unless prior to the receipt of the bid or accompanying the bid, of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own ten percent (10%) or more of its stock, of any class, or of all individual partners in the partnership who own a ten percent (10%) or greater interest therein, or of all members in the limited liability company who own a ten percent (10%) or greater interest therein, as the case may be. If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding ten percent (10%) or more of that corporation's stock, or the individual partners owning ten percent (10%) or greater interest in that partnership, or the members owning ten percent (10%) or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non corporate stockholder, and individual partner, and member, exceeding the ten percent (10%) ownership criteria has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a ten percent (10%) or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission ("SEC") or the foreign equivalent, and, if there is any person that holds a ten percent (10%) or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal SEC or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a ten percent (10%) or greater beneficial interest.

(See forms attached)

## **18. NON-COLLUSION AFFIDAVIT**

The Bidder shall submit with its bid either the attached completed "Non-Collusion Affidavit" or a statement of non-collusion with verbiage similar to same.

## **19. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCES**

The successful bidder shall be required to complete and submit an Initial Project Workforce Report, New Jersey Department of Treasury Form AA-201, upon notification of award. Failure to submit this completed form may result in the Contract being terminated.

The successful bidder shall also be required to submit a copy of its Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Board.

## **20. COMPLIANCE WITH NEW JERSEY PREVAILING WAGE ACT**

The County of Union, in order to fulfill the requirements of N.J.S.A. 34:11-56.25 et seq, requires that the following additional conditions be strictly followed. The bidders represent that he is not listed or is not on record in the Office of the Commissioner or the Department of Labor and Workforce Development as one who failed to pay prevailing wages in accordance with the provisions of this Act. The bidder agrees to the inclusion of a contract provision upon award which specifically requires said Contractor to fully comply with each and all of the requirements of the aforesaid Act as it relates to prevailing rates of wages on public contracts as set forth in the New Jersey Prevailing Wage Act, P.L. 1963, Chapter 150 and P.L. 1974, Chapter 64.

A Copy of the Prevailing Wage Rates is attached for your reference. Applicable rates are those wages and fringe benefit rates in effect on the date the contract is awarded. All predetermined rate increases listed at the time the contract award must also be paid, beginning on the dates specified. Rates may change between the time of issuance of this determination and the award of the public works contract. Therefore, prior to the award of the contract, verification must be made with the Public Contracts section, to insure that the rates contained in this determination are still prevailing.

The Contractor agrees to abide and be bound by each and all of the said statutory provisions with respect to the payment of prevailing rates of wages, and acknowledges that the County reserves the right to terminate the Contractor's (or his subcontractors') right to proceed with the scope of Work, or such portion thereof that relates to the failure to pay prevailing rates of wages. In such event or under the terms of N.J.S.A. 34:11-56.27, the Contractor and his surety will be liable to the County of Union for any excess costs occasioned by such a violation.

The Contractor or subcontractors for this Project will post the Prevailing Wage Rates for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workmen their wages.

The County of Union requires a copy of payroll records from the Contractor and subcontractors. Payroll records shall be submitted with each voucher request for payment. Prevailing wage rates may be obtained from the New Jersey Labor, Division of Workplace Standards, Public Contracts Section, (609-292-2259).

In addition to compliance with the New Jersey Prevailing Wage Act, the County requires compliance with procedures established by Resolution No. 2014-0408 adopted by the Union County Board of County Commissioners on May 8, 2014. The resolution is furnished in Section 56 of these General Specifications.

## **UNION LABOR IS PREFERRED ON ALL COUNTY WORK**

The foregoing reference to specific laws will not be deemed to be a limitation of obligation of the Contractor to perform his obligations in full compliance with the provisions and requirements of all federal and state statutes and local ordinances applicable to the Work to be done under the contract.

It is agreed and understood that any contracts and/or orders placed as a result of this proposal will be governed and construed and the rights and obligations of the parties hereto will be determined in accordance with the laws of the State of New Jersey.

Upon completion of the Work, the Contractor will furnish a Certification of Compliance with the New Jersey Prevailing Wage Act. The certificate in a form acceptable to County Counsel is a condition of the final payment. (See form attached)

## **21. BRAND NAME OR EQUAL**

When the Specifications, Forms, and other Contract Documents use “brand name or equivalent” or similar language, the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the goods or services being requested. Where a bidder attempts to submit an equivalent product for a brand name, it shall be the responsibility of the bidder to fully describe and document the product to be provided with the bid in order to establish the equivalence claim.

A. If the Bidder proposes to offer substitute goods as an equal to those specified herein, the bidder shall so indicate with the Bid Proposal. For the purposes of this paragraph, a proposed item shall be considered equal to goods specified herein if:

1. The County, in its sole discretion, determines that: (i) the goods conform substantially, even with deviations, to the brand name goods specified herein; (ii) the goods are

equal to or greater than the brand name goods specified herein in terms of quality, durability, functionality, appearance, strength and design; (iii) the goods are capable, at least as well as the brand name goods specified herein, or performing with existing equipment; and (iv) the goods do not cost the County more than the brand name goods specified herein costs the County.

B. To offer substitute goods as an equal to those specified herein, it is necessary that:

1. The Bidder submits sufficient information with its bid to permit the County to determine that the goods are equivalent to the brand name goods specified herein, including, but not necessarily limited to the brand, catalog number and specifications/data sheets;
2. The Bidder fully identifies and describes the variations of the goods from the brand name goods specified herein on a separate sheet that is to be submitted with the bid proposal. Bidder's literature WILL NOT suffice in explaining exceptions to these specifications.
3. The Bidder certifies that the goods (i) are similar in substance to the brand name goods specified, and (ii) are suited to the same use as the item specified;

C. The County shall be allowed a reasonable time within which to evaluate the Bidder's proposal to offer substitute goods as an equal to those specified herein. The County shall be the sole judge of acceptability. No "or-equal" goods shall be ordered, delivered, assembled, set-up or utilized until the County's evaluation is complete. The County's determination as to equivalency shall be deemed final and absolute.

In the event the Bidder does not provide sufficient supporting documentation with the bid, it will be presumed and required that the brand name goods and services as described in the specifications will be provided.

## **22. LINES AND GRADES**

Normally, horizontal and vertical control points will be provided in the technical specifications. All other surveying will be the responsibility of the Contractor unless otherwise noted.

### **23. NUMBER OF WORKING DAYS**

In accordance with N.J.S.A. 40A:11-17, the Work for the within Project shall be completed as specified on the Time of Completion Form. See form attached

There shall be taken a deduction from the contract price, or any wages paid by the County, to any inspector(s) necessarily employed by it on the Work, for any number of days in excess of the number allowed in the specifications.

### **24. PROMPT PAYMENT OF CONSTRUCTION CONTRACTS (NJ Prompt Payment Act)**

Pursuant to N.J.S.A. 2A:30A-1 et seq., payment to the Contractor, other than for Work done pursuant to a contact allowance, where applicable, shall be processed and paid as follows:

1. All contractor bills shall be either approved for payment, or notice provided as to why the bill or any portion of it will not be approved by the representative(s) of the governing body no later than the public meeting following 20 calendar days of the billing date as defined in the statute.
2. If the billing is approved, said bill shall be paid in the payment cycle following the meeting.

### **25. STOPPING WORK ON ACCOUNT OF BAD WEATHER**

Work must only be performed in weather suitable for the type of construction planned or underway. Extremes in temperature, humidity, precipitation, evaporation, etc. can detrimentally affect the constructed product. Refer to the Standard and Technical Specifications for specific items.

### **26. ACCESS FOR OTHER CONTRACTORS**

The Contractor for this Work will give proper access to other contractors who may be employed upon the Project and must not hinder or delay unnecessarily any Work that may be progressing under other contracts.

### **27. CONDEMNED MATERIALS AND WORK**

Any materials and or part of the Work that may be condemned by the County Engineer will be removed and replaced by the Contractor or otherwise rectified, as may be directed by the County Engineer. No payment will be made upon the Work until such faulty work has been made good as may be directed. In the event the Contractor refuses or neglects to make good such faulty work, he will be deemed to have abandoned the contract and proceedings may be taken against him as provided herein.

## **28. STORAGE**

In the event that it is necessary for the Contractor to stockpile or store materials or equipment on the job site, the Contractor shall inform the County of such necessity and the County may offer available space, if any, for storage of such materials or equipment. The Contractor shall use said space only for such purpose. Any and all materials which may be stored in such space or which may be brought onto the job site at any time by the Contractor will be at the Contractor's sole risk. The County will not be responsible for loss of or damage to said materials or equipment for any cause whatsoever. The Contractor shall take necessary measures to protect any such storage area and shall be responsible for any and all damages.

## **29. FINAL CLEAN UP**

Upon completion of the Work, the Contractor will remove all equipment, unused materials, rubbish, etc., and will repair, or replace in an a manner acceptable to the County Engineer, all areas that may have been damaged in the prosecution of the Work. Same shall be a condition precedent to final payment. Should said Contractor fail to comply with this requirement, the County shall undertake the clean-up with its own forces and charge the cost of same against the Contractor's contract balance.

## **30. SUB-LETTING OF WORK**

Except for the List of Subcontractors, pursuant to N.J.S.A. 40A:11-16 (See form attached), no portion of the Work will be sublet by the Contractor to any other entities, except with the consent of the County Engineer. A complete list of subcontractors must be submitted to the County Engineer at the preconstruction meeting. If the job does not warrant a preconstruction meeting, the Contractor must submit such list prior to the start of Work.

All Subcontractors will be subject to N.J.S.A. 34:11-56 et al.

N.J.S.A. 40A:11-16 requires the bidder to list in the bid sheets the name or names of all subcontractors involved in the following types of Work: plumbing and gas fitting and all kindred work, steam and hot water heating, ventilating apparatus, steam power plants and kindred work, electrical work, ornamental iron work, and structural steel. In addition,

the County may require the identification of specific additional subcontractors. If these trades are expected to be part of the contract, such subcontractors should be listed on the "Subcontractor Identification Statement List of Subcontractors" and Bidder shall certify same on the accompanying sheet titled "Subcontractor Identification Certification". (See forms attached) **Bidder's failure to submit these two forms shall be considered a material defect and result in rejection of Bidder's bid.** Substitutions of any listed subcontractors pursuant to N.J.S.A. 40A:11-16 will not be permitted except with the consent of the County Engineer.

### **31. SAFETY**

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

The Contractor shall admit to the site, without delay and without the presentation of an inspection warrant, any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

The Contractor shall make available to the Contractor's employees, subcontractors, the County Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 of The Hazard Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all Material Safety Data Sheets (MSDS) for products in use at the Project. These Material Safety Data Sheets shall be made available to the Engineer upon request.

The Contractor shall at all times conduct the Work to provide for the safety and convenience of the general public and protection of persons and property. The safety provisions of applicable laws, OSHA regulations, building and construction codes, and the rules and regulations of the New Jersey Department of Labor and Workforce Development shall be observed.

### **32. QUALITY, SAFETY AND PERFORMANCE STANDARDS**

All goods and services must be constructed and provided with the highest quality materials and workmanship. It is the intent of these specifications that only equipment equal to, or exceeding, the standard specified will be acceptable in order to protect the safety of the occupants of the Building.

### **33. MATTERS NOT MENTIONED IN CONTRACT DOCUMENTS**

Any Work, material, or method, not specifically described in these specifications, but shown upon the plans of the Work, will be carried out as shown on said plan.

### **34. PERMITS**

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The Contractor will obtain all necessary permits required by law and provide the County with necessary approvals prior to commencement of permitted Work.

### **35. CONTRACTOR TO PROVIDE PROOF OF PAYMENT**

Upon the completion of the Work, the Contractor will furnish a General Release as proof that all claims for labor, materials, etc., have been settled by the Contractor. The General Release, in a form acceptable to County Counsel, is a condition of final payment.

### **36. CHANGE ORDERS**

The applicability of change orders and change order procedures shall comply with *N.J.S.A. 40A:11-16.7* and *N.J.A.C. 5:30-11.1 et seq.*, "Change Orders and Open End Contracts".

### **37. SUPPLEMENTAL WORK**

In case any supplemental work is necessary, it will be performed by the Contractor at a price fixed by agreement between the Contractor and the County Engineer and approved by the County as specified in Section 36. The Contractor will do no supplemental work on any character, for which the Contractor will demand pay, except upon the written order of the County.

### **38. FORM OF CONTRACT**

The Contract will be subject to all statutory provisions on the matter of Public Works, Public Contracts, The Law Against Discrimination, the Laws Governing Affirmative Action and Prevailing Rates of Wages under the laws of New Jersey.

The Agreements shall be executed by both parties not later than twenty-one (21) days from the date of the award by the County (Sundays and holidays excluded); however, such time frame may be extended by agreement of the parties.

### **39. PROGRESS PAYMENTS**

Monthly progress payments will be made based on the value of labor and materials incorporated in the Work and of materials suitably stored at the site. An itemized schedule of values shall be submitted with each Application for Payment.

(Refer to the Owner/Contractor Agreement for Retainage and other conditions pertaining to payment and the application of N.J.S.A. 2A:30A-1 et seq.)

All Applications for Payment shall be accompanied by paid invoices for materials incorporated in the Work and for materials suitably stored at the site, and affidavit(s) by Subcontractors whose Work was included in the next to the last application to the effect such Work and such materials have been paid for.

No payment shall be made without Contractor having provided all submittals set forth in this Section, and the approval of same by the County.

For contracts exceeding \$100,000.00, monthly payments will be made on the Work to the extent of 98% of the value of the Work done which is considered to be retainage.

For contracts less than \$100,000.00, monthly payments will be on the Work to the extent of 90% of the value of the Work done. In lieu of the retainage, the Contractor will, at his option, deposit with the County Counsel negotiable bearer bonds of the State of New Jersey or any political subdivision thereof, equal to the amount otherwise withheld as retainage.

When the Project is completed, the final cost of the Project will be based on actual quantities of authorized Work done under each item scheduled in the bidding sheet and approved Change Orders, if any. The money due to the Contractor as determined by said final certificate after deduction of previous monthly payments on account, will be paid to the Contractor in accordance with the terms of the contract dealing with Prompt Payment, providing, however that before such final payment is made, all outstanding claims against the Contractor must be satisfied. Before final payment is released, the Contractor must furnish: **a)** Maintenance Bond (see Section 6 of these general specifications); **b)** Certification of Compliance, New Jersey Prevailing Wage Act (see Sections 21 and 51); and **c)** General Release (see Section 36) in a form satisfactory to County Counsel; **d)** complete set of as-built plans in the latest AutoCad on compact disc; and **e)** a complete set of in-progress photos in jpg, jpeg, or bmp digital format on a compact disc.

#### **40. INSPECTION**

The Work must be done in accordance with the plans and specifications, and will be inspected by the County Engineer. An inspector may be placed upon the Work at any time by the County Engineer to see that the plans, specifications, and instructions of the County Engineer are carried out. In connection herewith, bidders are referred to N.J.S.A. 40A:11-17.

#### **41. DAMAGES**

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The Contractor will be held responsible for all damages that may occur to Work, or to persons or property by reason of the nature of the Work or from the elements, or by reason of inadequate protection of the Work, or from any carelessness or negligence on his part or on the part of his employees. The County will withhold payments on the Work until all suits or claims for damages sustained on, or by reason of, this Work will have been settled by the Contractor.

The construction and final completion of this Work will be guaranteed by the Contractor. Any damages that may be done to the Work or any part thereof, by the elements or otherwise, during its construction, will be made good by the Contractor.

## **42. LIQUIDATED DAMAGES**

If the Project is not completed within the time specified herein or within such further time as may have been granted by the County Engineer, then the Contractor hereby agrees to pay to the County as liquidated damages, but not as a penalty, \$1,000.00 per day for each and every calendar day that he is in default on time to complete the Work. The said sum will be deducted from moneys due the Contractor and if the damages exceed this amount, then the Contractor or his Surety Company will pay the excess. These damages may be waived at the option of the County.

## **43. AFFIRMATIVE ACTION REQUIREMENTS**

(REVISED 01/2022)

### **EXHIBIT B**

#### **MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE**

**N.J.S.A. 10:5-31 et seq. (P.L.1975, c.127)**

**N.J.A.C. 17:27-1.1 et seq.**

#### **CONSTRUCTION CONTRACTS**

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional

or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

- (A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities

Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

- (1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
- (2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
- (3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
- (4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
- (5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women. (D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

#### **44. INVESTMENT ACTIVITIES IN IRAN**

Pursuant to N.J.S.A. 52:32-55 et seq., prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran.

#### **45. NON-INVOLVEMENT ACTIVITIES IN RUSSIA OR BELARUS**

Pursuant to N.J.S.A. 52:32-60.1 et seq., Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here:

<https://sanctionssearch.ofac.treas.gov/>. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

#### **46. COMPLIANCE WITH THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT - (N.J.S.A. 34:11-56.48 et. seq.)**

Pursuant to the above-referenced law, Bidders are required to be registered with the New Jersey Department of Labor and Workforce Development and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received. Bidders are notified of this requirement of their compliance. Such certificates or applications shall also be provided for each Subcontractor furnishing plumbing and gas fitting, steam and hot water heating and ventilating apparatus, and all kindred work, steam power plants and kindred work, electrical work, structural steel and ornamental iron work, and such other subcontractors as the specifications require relative to prior identification.

#### **47. UTILITIES**

Attention of the bidder is directed to the fact that the approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the Work are shown on the plans and described herein. The accuracy and completeness of this information is not guaranteed by the County Engineer and the bidder is advised to ascertain for himself all the facts concerning the location of these and other utilities.

The Contractor will not proceed with his Work until he has made diligent inquiries of all public utility and municipal officials to determine the exact location of all underground structures and pipes within the site of the Project. The Contractor will notify utility owners not less than ten (10) days in advance of the time he proposes to perform any Work that will endanger or affect their facilities in compliance with **New Jersey One-Call**. In excavating in any part of the Work, care must be taken not to remove or damage any gas, water, sewer, or other pipe, conduit, or structure, - public or private - without the concurrence of the owner and the County Engineer. The Contractor will, at his own expense, shore up, secure and maintain a continuous flow in such structures, and will keep them in repair until final acceptance of the Work.

When pipes or other structures are encountered or when the removal, relocation or protection of these utilities are necessary in carrying out the Project as planned, the Contractor will cooperate with the owner of said utilities and will permit the owners or their agents access to the site of the Work in order to relocate or protect their facilities and not hinder or delay unnecessarily the Work of the owners in moving same. No extra allowance of payment will be made to the Contractor for the use of any materials, equipment, etc., or for the performance of any Work in connection with the moving of said structures unless the Contractor is specifically ordered by the County Engineer to furnish such materials, equipment, or services. If directed by the County Engineer to do any Work or furnish any materials or equipment, payment will be allowed the Contractor in accordance with the unit prices bid for such Work, or, if such items are not scheduled in the proposal, such Work shall be allowed "Supplemental Work" as provided in Section 39 of these general specifications. The corporations, companies, agencies or municipalities owning or controlling the utilities, and the name, and telephone numbers are listed in the beginning of the Technical Specifications.

#### **48. MATERIAL COMPLIANCE AND SHOP DRAWINGS**

The Contractor will require the manufacturer or supplier to furnish three (3) copies of Certification of Compliance with each delivery of materials, components and manufactured items for the Project. Two (2) copies will be furnished to the County Engineer; one copy will be retained by the Contractor. Certificates of Compliance will contain the following information:

1. Project to which material is consigned;
2. Name of the Contractor to which the material is supplied;
3. Kind of material supplied;
4. Quantity of material represented by the Certificate;
5. Means of identifying the consignment, such as label marking, seal number, etc.;
6. Date and method of shipment;
7. That the material is in conformity with the pertinent specifications stated in the certificate; and

8. Signature of a person having legal authority to bind the supplier.

The Contractor will submit to the County Engineer for his approval five (5) copies of complete and fully detailed shop or working drawings for those items listed in the beginning of the technical specifications.

Each drawing will identify the name of the job, location and Contractor.

All drawings will be approved in accordance with the standard specifications. Refer to the Technical Specifications for specific items.

All materials or articles used in the Work will be of American manufacture, insofar as same are available, in conformance with N.J.S.A. 40A:11-18.

## **49. PRECONSTRUCTION**

In order to provide full coordination of this Project among the parties concerned, the County Engineer will arrange for a preconstruction meeting between the Contractor, County Engineer and other interested parties as soon as possible after the contract is executed. At this meeting the Contractor will present his proposed schedule of Work which shall be subject to review and approval of the County through its designated representatives.

## **50. DISPUTES UNDER THE CONTRACT**

A dispute arising under the Contract shall be submitted in writing to the County Engineer with all facts and supporting data. The County Engineer will review the dispute and issue his decision or request additional facts or documentation after which he will render his decision.

In the event the dispute is not then resolved, the matter shall, pursuant to law, be submitted to mediation before being submitted to a court of competent jurisdiction venued in Union County.

The County Engineer will notify the County Counsel when a matter is to be submitted to mediation. The County Counsel will communicate with the parties and inform them of the procedures to be followed in making such a submission.

## **51. CONTRACTOR BUSINESS REGISTRATION CERTIFICATE**

Pursuant to N.J.S.A. 52:32-44, the County of Union is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business

Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the County of Union with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the County of Union prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

Proof of registration must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids. If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly, to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

During the course of contract performance:

- 1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- 2) the contractor shall maintain and submit to the County of Union a list of subcontractors and their addresses that may be updated from time to time.
- 3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the County of Union a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

## **52. BID PROTEST – LEGAL FEES AND COSTS**

In the event a Bidder unsuccessfully challenges a Bid Submission by filing an action in a court of law concerning same, said Bidder shall be responsible for payment of reasonable legal costs and fees incurred by the County relating to said protest.

### **53. AMERICAN GOODS AND PRODUCTS WHERE POSSIBLE**

Bidder shall comply with the requirements of N.J.S.A. 40A:11-18 and use only manufactured and farm products of the United States, wherever available, for the Project.

### **54. NEW JERSEY PAY-TO-PLAY REQUIREMENTS**

This Contract is required by law to be publicly advertised for bids. As such, lists of political contributions pursuant to N.J.S.A. 19:44A-1 et seq. are NOT REQUIRED to be provided with the bids.

### **55. STATEMENT OF EQUIPMENT TO BE USED IN CONSTRUCTION**

Pursuant to N.J.S.A. 40A:11-20 entitled Certificate of Bidder Showing Ability to Perform Contract, the County requires a Certification from all bidders submitting a bid showing that the Bidder owns, leases, or controls all necessary equipment required by the Project Plans and Specifications. All bidders shall provide this information at the time of the bid opening using the attached form entitled, "CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT".

If the Bidder is not the actual owner of the equipment, it shall state the source from which the equipment will be obtained and shall attach a certificate from the owner or person in control of the equipment demonstrating that the equipment owner has granted the Bidder control of the requisite equipment during such time as may be necessary for completion of the portion of the contract for which the equipment is necessary.

### **56. NEW JERSEY SALES AND USE TAX REQUIREMENTS,**

Contractors are required to comply with the following:

New Jersey Sales and Use Tax Requirements: All contractors with subcontractors, or any of their affiliates, who enter into contracts for the provision of goods or services with or for New Jersey local government entities, are required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax due on all of their sales of tangible personal property delivered into the State of New Jersey pursuant to the "Sales and Use Tax Act," (N.J.S.A. 54:32B-1 et seq.), regardless of whether the tangible personal property is intended for a contract with the contracting agency. This tax shall be remitted for the term

of the Contract.

For purposes herein “affiliate” shall mean any entity that: (a) directly, indirectly, or constructively controls another entity, (b) is directly, indirectly, or constructively controlled by another entity, or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the ownership interest in that entity. NJSA 52:32-44(g)(3).

## **57. RESOLUTION NO. 2014-408**

**WHEREAS**, the County of Union recognizes there is a need to ensure that all work on significant public construction and maintenance contracts is performed by responsible, qualified firms that maintain the capacity, expertise, personnel, and other qualifications and resources necessary to successfully perform public contracts in a timely, reliable, and cost-effective manner; and

**WHEREAS**, in order to effectuate the purpose of selecting responsible contractors for significant public contracts and to protect Union County's capital investments in such contracts prospective contractors and subcontractors should be required to meet pre-established, clearly-defined, minimum standards relating to contractor responsibility, including retirements and criteria concerning qualifications, competency) expertise, adequacy of resources, including equipment, financial and personnel, and satisfactory records regarding past project performance, safety, legal compliance and business integrity; and

**WHEREAS**, the County has a compelling interest in assuring that its Public Works Projects meet the highest standard of safety and quality; and

**WHEREAS**, due to the critical impact that skilled construction craft labor has on public works projects, and due to the limited availability of skilled construction craft labor and imminent craft labor skill shortages, it is necessary to require contractors and subcontractors to participate in established, formal apprenticeship training programs for the purpose of both promoting successful project delivery and ensuring future workforce development; and

**WHEREAS**, an apprenticeship program is a structured system of training designed to prepare individuals for occupations and lifelong careers in skilled trades and crafts by providing a wage-paying job that incorporates extensive workplace and classroom training under the supervision of experienced workers, in preparation for highly skilled occupations; and

**WHEREAS**, apprenticeship programs are a critical component in public safety, by ensuring that workers on public projects are properly trained, able, competent and capable craftsmen, and provide assurance of compliance with the County's bid specifications and achieve high quality standards; and

**WHEREAS**, for an apprenticeship program to be fully effective, the public and private sectors must recognize its value and commit to supporting its mission; and

**WHEREAS**, Union County has long recognized the value of apprenticeship programs through its support of the Union County Vocational-Technical Schools, which offer training programs to help ensure that Union County will continue to produce a skilled and educated work force in the trade specialties, and thus, strengthen Union County's economy by fostering the development of highly paid trade and craft careers; and

**WHEREAS**, the use of apprenticeship programs or apprenticeship trained employees on Union County Public Works Projects will serve the dual goal of providing the County with assurance that its public works projects are completed with a well-trained workforce, in a highly skilled and timely fashion, while creating opportunities for careers in the skilled trades and craft industry for County residents; and

**WHEREAS**, the County of Union also recognizes that it is beneficial to their employees to utilize fair business, employment, and training practices that have a positive impact on local communities affected by such contracts:

**NOW, THEREFORE, BE IT RESOLVED by** the Board of Chosen Freeholders of the County of Union as follows:

1. The County of Union shall require compliance with the provisions of this Resolution by business entities seeking to provide services to the County of Union as specified herein. The requirements of this Resolution are intended to supplement, not replace, existing contractor qualifications and performance standards or criteria currently required by law, public policy or contracting documents, including but not limited to Union County's DPMC classification and Project Labor Agreement policies
2. All contractors and subcontractors that perform significant work on any public facility or public works project, including construction, alteration, renovation, repair, service, or maintenance work, shall meet the requirements of this Resolution. For purposes of this Resolution, the

term "significant work" shall be defined as any work or activity covered under the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq.

3. All firms engaged in contracts covered by this Resolution shall be qualified responsible contractors or subcontractors that have sufficient capabilities in all respects to successfully perform contracts on which they are engaged, including the necessary experience, equipment, technical skills and qualifications and organizational, financial and personnel resources. Firms bidding on public contracts shall also be required to have a satisfactory past performance record and a satisfactory record of legal compliance, integrity and business ethics. Compliance with these standards shall be established by compliance with the requirements set forth in paragraph 8 of this Resolution.

4. As a condition of performing work on public works contracts over the public works threshold, the general contractor shall provide certification that he and each subcontractor working on the project shall have at least one (1) employee who has successfully completed the OSHA 10-hour construction safety and health course. As a condition of performing work on public works contracts of \$500,000.00 or more total cost of project, the general contractor shall provide certification that each subcontractor working on the project shall have at least one (1) employee who has successfully completed the OSHA 30-hour construction safety and health course.

5. All contractors and subcontractors that perform significant work on any public facility or public works project shall be required to affirmatively provide evidence of and confirm compliance with proof of participation in an Apprenticeship Program currently registered and approved by the United States Department of Labor ("USDOL"), the New Jersey Department of Labor ("NJDOL") or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs. Additionally, Apprenticeship Programs shall meet the criteria set forth in Section 8(i) of this Resolution.

6. As a condition of performing work on public works contracts subject to this Resolution, a general contractor seeking award of a contract shall submit a Contractor Responsibility Certification at the time it submits its bid for contract.

7. The Contractor Responsibility Certification shall be completed on a form provided by the Union County Purchasing Department and shall reference the project for which a bid is being submitted by name and contract or project number.

8. In the Contractor Responsibility Certification, general contractors and subcontractors shall certify the following facts regarding their past performance and work history and its current qualifications and performance capabilities:

a. The firm has all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, including, but not limited to, licenses, registrations, certificates required to: (1) do business in the designated locale; and (2) perform the contract work it seeks to perform. These shall include, but not be limited to, licenses, registrations or certificates for any type of trade work or specialty work, which the firm proposes to self-perform.

b. The firm meets the bonding requirements for the contract, as required by applicable law or contract specifications and any insurance requirements, as required by applicable law or contract specifications, including general liability insurance, workers compensation insurance and unemployment requirements.

c. The firm has not been debarred by any federal, state or local government agency or authority in the past three (3) years.

d. The firm has not defaulted on any project in the past three (3) years.

e. The firm has not had any type of business, contracting or trade license, registration, or other certification suspended or revoked in the past three (3) years.

f. The firm has not been cited and found guilty for a willful violation of federal or state safety laws in the past three (3) years.

g. The firm and/or its owners have not been convicted of any crime relating to the contracting business by a final decision of a court or government agency in the past three (3) years.

h. The firm will pay all craft employees that it employs on the project the current wage rates and benefits as required under applicable Federal or State prevailing wage laws.

i. The firm participates in an Apprenticeship Program that is

currently registered with the USDOL, the NJDOL or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs, for each craft or trade in which it apprentices. The firm shall provide proof of meeting this qualification standard by submitting appropriate documentation as an attachment to this Certification. The firm shall continue to participate in applicable apprenticeship programs for the full duration of the contract work. The apprenticeship program in which the firm participates shall have graduated at least one (1) enrollee in each of the past three (3) years.

9. The County of Union may conduct any additional inquiries to verify that the prospective awardee and its subcontractors have the technical qualifications and performance capabilities necessary to successfully perform the contract and that the firms have a sufficient record of legal compliance and business integrity to justify the award of a public contract. In conducting such inquiries, the County of Union may seek relevant information from the firm, its prior clients or customers, its subcontractors or any other relevant source.

10. If any provision of this Resolution shall be held to be invalid or unenforceable by a court of competent jurisdiction, any such holding shall not invalidate any other provisions of this Resolution and all remaining provisions shall remain in full force and effect.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Chosen Freeholders of the County of Union that it hereby establishes and adopts the Responsible Contractor Policy, and it hereby authorizes the County Manager to sign any and all documents necessary to make said Policy effective immediately.

## **58. FEDERAL TERMS**

### TERMS AND CONDITIONS APPLICABLE TO ALL CONTRACTS/PURCHASES FUNDED, IN WHOLE OR IN PART, BY FEDERAL FUNDS.

The provisions set forth below apply to all contracts funded, in whole or in part, by Federal funds as required by 2 CFR 200.317.

#### 1. CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

Pursuant to 2 CFR 200.321, the State must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Accordingly, if subawards are to be made the Contractor shall:

- (1) Include qualified small and minority businesses and women's business enterprises on solicitation lists;
- (2) Assure that small and minority businesses, and women's business enterprises are

- solicited whenever they are potential sources;
- (3) Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
  - (4) Establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and,
  - (5) Use the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

## 2. DOMESTIC PREFERENCE FOR PROCUREMENTS

Pursuant to 2 CFR 200.322, where appropriate, the State has a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). If subawards are to be made the Contractor shall include a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). For purposes of this section:

- (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) "Manufactured products" means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

## 3. PROCUREMENT OF RECOVERED MATERIALS

Where applicable, in the performance of contract, pursuant to 2 CFR 200.323, the contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$ 10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

To the extent that the scope of work or specifications in the contract requires the contractor to provide recovered materials the scope of work or specifications are modified to require that as follows.

- i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—
  1. Competitively within a timeframe providing for compliance with the contract performance schedule;
  2. Meeting contract performance requirements; or
  3. At a reasonable price.

- ii. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
- iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

#### 4. EQUAL EMPLOYMENT OPPORTUNITY

Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor." See, 2 CFR Part 200, Appendix II, para. C.

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:  
Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- (4) The contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and

accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- (7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

#### 5. DAVIS-BACON ACT, 40 U.S.C. 3141-3148, AS AMENDED

When required by Federal program legislation, all prime construction contracts in excess of \$2,000 shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. Additionally, contractors are required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

#### 6. COPELAND ANTI-KICKBACK ACT

Where applicable, the Contractor must comply with Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

- a. Contractor. The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into the OGS centralized contract.
- b. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- c. Breach. A breach of the clauses above may be grounds for termination of the OGS centralized contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. § 5.12.

#### 7. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, 40 U.S.C. 3701-3708

Where applicable, all contracts awarded by the non-Federal entity in excess of \$ 100,000 that involve the employment of mechanics or laborers must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5).

- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the

sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

- (3) Withholding for unpaid wages and liquidated damages. The unauthorized user shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.
- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

#### 8. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

#### 9. CLEAN AIR ACT, 42 U.S.C. 7401-7671Q, AND THE FEDERAL WATER POLLUTION CONTROL ACT, 33 U.S.C. 1251-1387, AS AMENDED

Where applicable, Contracts and subgrants of amounts in excess of \$150,000, must comply with the following:

##### Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

##### Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

2. The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

#### 10. DEBARMENT AND SUSPENSION (EXECUTIVE ORDERS 12549 AND 12689)

- (1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- (2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- (3) This certification is a material representation of fact relied upon by the State or authorized user. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the State or authorized user, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

#### 11. BYRD ANTI-LOBBYING AMENDMENT, 31 U.S.C. 1352

Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

#### 12. PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

(a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

- (1) Procure or obtain;
- (2) Extend or renew a contract to procure or obtain; or
- (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115–232, section 889,

covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

### 13. CONTRACTS FOR MORE THAN THE SIMPLIFIED ACQUISITION THRESHOLD

Contracts for more than the simplified acquisition threshold, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

### 14. TERMINATION FOR CONVENIENCE PROVISION

All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.

### 15. BONDING REQUIREMENTS

For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold, the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected. If such a determination has not been made, the minimum requirements must be as follows:

(a) A bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.

(b) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor's requirements under such contract.

(c) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

EDWARD T. OATMAN  
COUNTY MANAGER

MICHELLE HAGOPIAN, ASSISTANT DIRECTOR  
DIRECTOR / DIVISION OF PURCHASING

**BID DOCUMENT SUBMISSION CHECKLIST**

**ALL SIGNATURES AND SEALS SHALL BE ORIGINALS UNLESS OTHERWISE SPECIFIED  
BID SHEETS SHOULD NOT BE SUBMITTED DOUBLE SIDED PAGES, (SINGLE SIDE ONLY)**

**EACH BIDDER SHOULD COMPLETE THIS FORM AND INITIAL EACH ENTRY.**

**DATE COMPLETED:** \_\_\_\_\_

**PLEASE SUBMIT BID DOCUMENTS ON SINGLE SIDED PAPER ONLY, WITH THE EXCEPTION OF THE SURETY  
AND BID BOND DOCUMENTS.**

**IN ACCORDANCE WITH THE BID SPECIFICATIONS I HAVE REVIEWED, COMPLETED / EXECUTED AND INCLUDED  
THE FOLLOWING FORMS:**

\_\_\_\_\_ Bid Form Page (**Signed, Dated and Bid on all alternatives applicable to the Work**).

\_\_\_\_\_ Security in the form of:

- \_\_\_\_\_ Bid bond in an amount equal to 10% of the total amount of this bid not to exceed \$20,000.00; or
- \_\_\_\_\_ Certified check or cashier's check in the amount of 10% of this bid not to exceed \$20,000.00

\_\_\_\_\_ Consent of Surety form signed by a Surety Company if the total amount of your Bid is over \$36,000.00.

If your bid is accepted, the Surety Company that provided the Consent shall be required to furnish a Performance, Labor and Materials Bond in the amount of 100% of the award of the contract.

The County of Union has provided its Consent of Surety form for your use. The use of this form by your Surety Company will expedite the bid review process and eliminate the possibility of having your bid rejected. If, however, you should need to use another form, please use language similar to that used on the Union County form and avoid making any additions or deletions to the Union County form language. In lieu of the Consent of Surety you may submit a Certified Check in the full amount of the bid.

\_\_\_\_\_ STATEMENT OF BIDDER OWNERSHIP. Pursuant to N.J.S.A. 52:25-24.2, which includes **BOTH** of the following documents:

- Bidder Signature Page
- Bidder Disclosure Statement (**Fill out 2 pages completely**)

\_\_\_\_\_ SUBCONTRACTOR IDENTIFICATION. Pursuant to N.J.S.A. 40A:11-16, which includes **BOTH** of the following documents:

- Subcontractor Identification Statement: List of Subcontractors (**only for certain types of work**)
- Subcontractor Identification Certification

\_\_\_\_\_ Acknowledgement of Addendum form: (**This form is to be used only when an addendum has been added to the specifications**).

\_\_\_\_\_ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** may be included with the bids to expedite the contract process because the bidder is required to provide the County of Union with its proof of business registration and that of any named subcontractor(s) prior to contract award or authorization.

\_\_\_\_\_ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** of all named or listed subcontractors (List of Subcontractors) in a Construction bid may be included with the bid as the BRC(s) for each named or listed subcontractors in order to expedite the contract process. Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the County of Union prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

Bidders name: \_\_\_\_\_

- \_\_\_\_\_ Affirmative Action Requirement
- \_\_\_\_\_ Experience Statement
- \_\_\_\_\_ Certificate of Bidder showing ability to perform Contract
- \_\_\_\_\_ Non-Collusion Affidavit – Fill out completely and notarize
- \_\_\_\_\_ Certificates from New Jersey Department of Labor and Workforce Development – Public Works Contractor Registration Act. **(Only for certain types of work)**
- \_\_\_\_\_ Federal Attachments **(If applicable)**
- \_\_\_\_\_ NJDPMC Certificate / Notice of Classification **(If applicable)**
- \_\_\_\_\_ Americans with Disabilities Act
- \_\_\_\_\_ Statement of Bidder's Qualifications
- \_\_\_\_\_ Contractor Performance Record
- \_\_\_\_\_ Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders
- \_\_\_\_\_ Prior Negative Experience Questionnaire
- \_\_\_\_\_ Contractor's Certification of Compliance – New Jersey Prevailing Wage Act
- \_\_\_\_\_ Uncompleted Contracts Affidavit **(For Bidder, if applicable) MUST ALSO PROVIDE DPMC FORM 701**
- \_\_\_\_\_ Certificate of Insurance Statement
- \_\_\_\_\_ Collection of Use Tax on Sales to Local Government Statement
- \_\_\_\_\_ Time of Completion
- \_\_\_\_\_ Disclosure of Investment Activities in Iran
- Disclosure of Non-Involvement in Activities in Russia or Belarus
- \_\_\_\_\_ Federal Non-Debarment Certification
- \_\_\_\_\_ BYRD Anti-Lobbying Amendment Certification
- \_\_\_\_\_ Certification regarding Lobbying
- \_\_\_\_\_ Disclosure of Lobbying Activities (LLL Form)

**I HAVE TAKEN THE FOLLOWING ACTIONS:**

- \_\_\_\_\_ Visited the site and attended the Pre-Bid Meeting **(Where applicable)**
- \_\_\_\_\_ Reviewed the Contract Documents (including any permits the County or its professionals may have obtained), Work, Site, Locality, and Local Conditions and Laws and Regulations that in any manner may affect Cost, Progress, Performance or Furnishing of Work.
- \_\_\_\_\_ Reviewed Bond Requirements
- \_\_\_\_\_ Provided Proof of Compliance with New Jersey Prevailing Wage Act

Bidders name: \_\_\_\_\_

\_\_\_\_\_ Reviewed Form of Owner/Contractor Agreement and General Conditions to the Contract

**NOTE: QUESTIONS PERTAINING TO THIS BID ARE TO BE DIRECTED TO THE DIVISION OF PURCHASING AT [ucbids@ucnj.org](mailto:ucbids@ucnj.org).**

### **BIDDING DOCUMENTS**

The Bidding Documents consist of the following items:

- **ADDENDA, if issued**
- **CLARIFICATIONS, if issued**
- **INSTRUCTION TO BIDDERS**
- **BID FORM**
- **SPECIFICATIONS:**      **As outlined in the Table of Contents and included in the Project Manual.**
- **DRAWINGS:**              **As per List of Drawings, indicated on the Project Title Sheet.**

**BID FORM**

I/We have carefully examined the plans, specifications, and advertisement for bid for the

**Vo-tech Turf Field Project, Township of Scotch Plains,  
County of Union, New Jersey  
BA#51-2024; Union County Engineering Project #2021-009**

that is on file in the Union County Division of Engineering. I/We have inspected the site of the work and will contract to do all the work and furnish all materials mentioned in said plans and specifications. Work will be accomplished in the manner prescribed therein.

**BASE BID ITEMS:**

ITEM NO	DESCRIPTION	UNIT	CONTRACT QUANTITY	UNIT PRICE	AMOUNT
1	TRAFFIC CONTROL	LS	1		
2	CLEARING SITE	LS	1		
3	EARTHWORK	LS	1		
4	DENSE GRADED AGGREGATE BASE COURSE, 4" THICK	SY	950		
5	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	SY	1900		
6	HOT MIX ASPHALT 19M64 BASE COURSE, 3" THICK	TON	330		
7	HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK	TON	230		
8	TACK COAT	GAL	290		
9	CHAIN LINK FENCE, PVC-COATED STEEL, 6' HIGH, BLACK	LF	1240		
10	CHAIN LINK FENCE, PVC-COATED STEEL, 8' HIGH, BLACK	LF	350		
11	GATE, CHAIN LINK FENCE, PVC- COATED STEEL, 4' WIDE	UN	9		
12	GATE, CHAIN LINK FENCE, PVC- COATED STEEL, 16' WIDE	UN	2		
13	NO ITEM	-	-		
14	CONCRETE SIDEWALK, 4" THICK	SY	330		
15	CONCRETE PAD, REINFORCED, 6" THICK	SY	620		
16	PRECAST CONCRETE WHEEL STOP	UN	6		
17	9" X 18" CONCRETE VERTICAL CURB	LF	1040		
18	14" X 16" CONCRETE VERTICAL CURB	LF	1750		
19	TRAFFIC STRIPES, 4"	LF	690		
20	TRAFFIC STRIPES, 12"	LF	40		
21	TRAFFIC MARKINGS SYMBOLS	SF	385		
22	REGULATORY & WARNING SIGN	SF	52		
23	62' WIDE ARCHED BASEBALL BACKSTOP	UN	1		
24	TENSION BALL SAFETY NETTING SYSTEM, 30' HIGH	LF	660		
25	MODULAR DUGOUT	UN	2		
26	FOUL POLE, 30' HIGH	UN	2		

Bidders name: \_\_\_\_\_

27	PORTABLE PITCHER'S MOUND, GAME USE, WITH STORAGE CART	UN	1		
28	BASEBALL FIELD HOME PLATE AND BASES	UN	3		
29	PORTABLE PITCHER'S MOUND, BULLPEN USE	UN	2		
30	PLAYER BENCH, 21' LONG	UN	6		
31	BLEACHERS	UN	2		
32	DISTANCE BANNERS	UN	6		
33	SOCCER GOAL WITH MOBILITY KIT	UN	2		
34	SOCCER CORNER FLAGS, SET OF 4	UN	3		
35	WASTE RECEPTACLE	UN	4		
36	STANDARD PICNIC TABLE	UN	4		
37	ADA ACCESSIBLE PICNIC TABLE	UN	2		
38	BOLLARD	UN	20		
39	12' X 20' STORAGE SHED, COMPLETE	UN	1		
40	DRINKING FOUNTAIN	UN	1		
41	HOSE BIB WITH LOCK BOX	UN	1		
42	3" DUCTILE IRON WATER PIPE, CLASS 52	LF	800		
43	3" WATER VALVE	UN	1		
44	TOPSOIL SPREADING, 5" THICK	SY	7700		
45	FERTILIZING AND SEEDING, TYPE A-3	SY	7700		
46	SYNTHETIC TURF FIELD BASE WITH UNDERDRAIN SYSTEM	SF	124400		
47	SITE LIGHTING AND ELECTRICAL WORK	LS	1		
48	NO ITEM	-	-		
49	R-TANK HD #1, COMPLETE	LS	1		
50	R-TANK HD #2, COMPLETE	LS	1		
51	24" REINFORCED CONCRETE PIPE, CLASS III	LF	330		
52	24" HIGH DENSITY POLYETHYLENE PIPE	LF	970		
53	OUTLET STRUCTURE 1	UN	1		
54	OUTLET STRUCTURE 2	UN	1		
55	MANHOLE, 4' DIAMETER	UN	6		
56	DOGHOUSE MANHOLE, 4' DIAMETER	UN	1		
57	RETAINING WALL	SF	300		

**TOTAL BASE BID AMOUNT:**

Written

Figures

Bidders name: \_\_\_\_\_

**BID CONTINGENCY: (To be used if and when directed by the County)**

\_\_\_\_\_  
Written

\_\_\_\_\_  
Figures

**TOTAL BASE BID ITEMS PLUS BID CONTINGENCY AMOUNT:**

\_\_\_\_\_  
Written

\_\_\_\_\_  
Figures

**NOTE:** Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.

Bidders name: \_\_\_\_\_

**CONSENT OF SURETY**  
TO ACCOMPANY PROPOSAL (BID)

\_\_\_\_\_ (hereinafter called Surety), organized and existing under the laws of the State of \_\_\_\_\_ duly authorized and qualified to transact business in the State of New Jersey, in consideration of the sum of One Dollar (\$1.00), lawful money of the United States of America, to it in hand paid, receipt whereof is hereby acknowledged, and in consideration, hereby certifies and agrees that if the contract for which the attached proposal is made be awarded to \_\_\_\_\_ (hereinafter called Contractor) for the performance of certain work and labor or the supplying of certain materials, or both, as more particularly set forth in said proposal and described for purposes of this instrument as a proposal for \_\_\_\_\_ to the COUNTY OF UNION and if Contractor shall enter into the contract, Surety will become bound as surety for its faithful performance, labor and material payment and will provide the Contractor with a performance, labor and material payment bond in the full amount of the contract price.

**NOTE:**  
Expiration date  
Needed if Annual  
Surety

\_\_\_\_\_  
**NAME OF INSURANCE COMPANY**  
  
**ADDRESS:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**ORIGINAL SIGNATURE**  
**ATTORNEY-IN-FACT FOR INSURANCE CO.**

**NOTE:**      **PROOF OF AUTHORITY OF OFFICERS OF SURETY COMPANY TO EXECUTE THIS DOCUMENT  
MUST BE SUBMITTED.**

Bidders name: \_\_\_\_\_

**BIDDER SIGNATURE PAGE**

THE BIDDER MUST READ THE FOLLOWING INSTRUCTIONS TO COMPLETE THIS PAGE:

- 1. If doing business under a **trade name, partnership or a sole proprietorship**, you must submit the bid under exact title of the trade name, partnership, or proprietorship, and the bid must be signed by either the **owner**, or a **partner** and **witnessed** by a **notary public**.
- 2. If a **Corporation**, the bid must be signed by the **President** or **Vice President** and **witnessed** by a **Corporate Secretary** (corporate title must be exact) and **affix corporate seal**. If a Corporate Secretary does not exist, President or Vice President's signature shall be witnessed by a Notary Public.
- 3. Other persons **authorized** by **corporate resolution** to execute agreements in its behalf may also sign the bid documents (pages). **Copy of a resolution must accompany the bid**.
- 4. The person who signs this bid form **must also** sign the **Non-Collusion Affidavit**.
- 5. You **cannot** witness your own signature.

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**ADDRESS OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE  
CORPORATE SECRETARY**

\_\_\_\_\_  
**PRINT NAME AND TITLE  
CORPORATE SECRETARY**

TEL: \_\_\_\_\_  
FAX: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

**BY:** \_\_\_\_\_  
**ORIGINAL SIGNATURE**

**Corporate Seal**

\_\_\_\_\_  
\_\_\_\_\_  
**PRINT OR TYPE NAME AND TITLE**

**WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY SUPPLY THE INFORMATION REQUESTED ON THIS PAGE, YOUR BID MAY BE REJECTED.**

**STATEMENT OF OWNERSHIP DISCLOSURE**

**N.J.S.A. 52:25-24.2** (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

**This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.**

**Name of Organization:** \_\_\_\_\_

**Organization Address:** \_\_\_\_\_

**Part I Check the box that represents the type of business organization:**

- ☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- ☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- ☐ For-Profit Corporation (any type)    ☐ Limited Liability Company (LLC)
- ☐ Partnership    ☐ Limited Partnership    ☐ Limited Liability Partnership (LLP)
- ☐ Other (be specific): \_\_\_\_\_

**Part II**

- ☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. **(COMPLETE THE LIST BELOW IN THIS SECTION)**
- OR**
- ☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. **(SKIP TO PART IV)**

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Address

**Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II**

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

**Please list** the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above.** The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address

**Part IV Certification**

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the **County of Union** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with **County of Union** to notify the **County of Union** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the **County of Union** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Bidders name: \_\_\_\_\_

**SUBCONTRACTOR IDENTIFICATION STATEMENT**

**LIST OF SUBCONTRACTORS**

This form is ONLY required for plumbing and gas fitting, steam and hot water heating and ventilating apparatus, steam power plants, electrical work, structural steel, ornamental iron work, and any other trades required to be identified by the specifications (including, but not limited, to satisfying any DPMC Classification requirements).

☐ **CHECK THIS BOX IF NONE OF THE ABOVE LISTED TRADES OR THOSE REQUIRED TO BE IDENTIFIED IN THE SPECIFICATIONS ARE TO BE USED TO PERFORM THE WORK**

In compliance with N.J.S.A. 40A:11-16 and the bid specifications, the undersigned hereby lists the name or names of the following subcontractors:

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

\_\_\_\_\_

License No. \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

\_\_\_\_\_

License No. \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Subcontract Amount: \$ \_\_\_\_\_

Specific Scope of Work Subcontracted: \_\_\_\_\_

\_\_\_\_\_

License No. \_\_\_\_\_

**IF MORE THAN THREE SUBCONTRACTORS, PLEASE COPY THIS SHEET AS NECESSARY AND ATTACH TO THE BID PACKAGE.**

(Continued on following page)

Bidders name: \_\_\_\_\_

**SUBCONTRACTOR IDENTIFICATION CERTIFICATION**

Note the law does not permit the listing of alternate subcontractors. However, multiple subcontractors for the same trade are permitted to be named provided the bidder meets the following requirements:

- Bidder identifies each subcontractor named for that category;
- Bidder states the scope of work, goods and services (the portion of the work) to be performed by each subcontractor; and
- Bidder provides the price quote provided by each subcontractor.

The bidder is advised that any change of subcontractor(s) from ones listed herein is subject to the County's approval. Change of subcontractor(s) will be approved only if made for good cause and not as a result of an arbitrary purpose.

The undersigned Bidder certifies and declares that the subcontractors listed above shall be used as subcontractors to complete certain portions of the work in this project as set forth in N.J.S.A. 40A: 11-16.

\_\_\_\_\_  
**Witness**

**Date** \_\_\_\_\_

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ADDRESS**

**By:** \_\_\_\_\_  
**ORIGINAL SIGNATURE ONLY**

\_\_\_\_\_  
**PRINT NAME AND TITLE**

Bidders name: \_\_\_\_\_

**ACKNOWLEDGMENT OF ADDENDUM**

**COUNTY OF UNION**

\_\_\_\_\_  
**(Name of Construction /Public Works Project)**

\_\_\_\_\_  
**(Project or Bid Number)**

Pursuant to N.J.S.A. 40A:11-23.1a., the undersigned bidder, hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the County of Union’s record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

Local Unit Reference Number or Title of Addendum/Revision	How Received (mail, fax, pick- up, etc.)	Date Received

**ACKNOWLEDGMENT BY BIDDER:**

**NAME OF BIDDER:** \_\_\_\_\_

**ORIGINAL SIGNATURE:** \_\_\_\_\_

**PRINTED NAME AND TITLE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**CONTRACTOR BUSINESS REGISTRATION CERTIFICATE**

New Mandatory Requirement - Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

- ☐ A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue;
- or
- ☐ A copy of the web version provided by the NJ Division of Revenue, or

Register online at [www.nj.gov/treasury/revenue/taxreg.htm](http://www.nj.gov/treasury/revenue/taxreg.htm). Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.

**Note: A NJ Certificate of Authority is not acceptable.**

**FAILURE** to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of a contract shall be cause to reject the bids.

**FAILURE** of the bidder or any subcontractor named on the bid to be registered prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction work as well as non-construction bids.

**IN ADDITION:**

The contractor shall provide written notice to all **subcontractors and suppliers** not specifically named on the bid of the responsibility to register and submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the contracting agency, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-44(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001,c.134 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L.1977,c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Bidders name: \_\_\_\_\_

### **BUSINESS REGISTRATION**

Pursuant to N.J.S.A. 52:32-44, the County of Union is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the County of Union with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the County of Union prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

Proof of registration must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids. If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) the contractor shall maintain and submit to the County of Union a list of subcontractors and their addresses that may be updated from time to time.
- (3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the County of Union a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

STATE OF NEW JERSEY  
BUSINESS REGISTRATION CERTIFICATE  
FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS

TAXPAYER NAME: TAX REG TEST ACCOUNT  
TRADE NAME: CLIENT REGISTRATION  
TAXPAYER IDENTIFICATION #: 970-097-382/900  
SEQUENCE NUMBER: 0107330  
ADDRESS: 847 ROEBLING AVE  
TRENTON, NJ 08611  
EFFECTIVE DATE: 01/01/01  
ISSUANCE DATE: 07/14/04

FORM-BRC(06-01)

STATE OF NEW JERSEY  
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name: TAX REG TEST ACCOUNT  
Trade Name:  
Address: 847 ROEBLING AVE  
TRENTON, NJ 08611  
Certificate Number: 1093907  
Date of Issuance: October 14, 2004

For Office Use Only:  
20041014112813533

ATTACH BRC HERE

Bidders name: \_\_\_\_\_

**AFFIRMATIVE ACTION REQUIREMENT**

**REQUIRED AFFIRMATIVE ACTION EVIDENCE**

General Requirements of P.L. 1975, c. 127: You are hereby put on notice that:

CONSTRUCTION CONTRACTS: The successful contractor must submit within three (3) days of the notice of intent to award or the signing of the contract the initial project manning report (A.A.201). This report should be submitted at the time the signed contract is returned to the County of Union. Attention: *Affirmative Action Officer*.

**If the successful contract does not submit the initial project manning report (A.A.201) within the three (3) days from the time the signed contract is returned to the County of Union, the County of Union WILL declare the contractor non-responsive and award the contract to the next lowest responsible bidder.**

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE**

\_\_\_\_\_  
**PRINT OR TYPE NAME AND TITLE**

\_\_\_\_\_  
**DATE THIS FORM IS COMPLETED**

Bidders name: \_\_\_\_\_

**EXPERIENCE STATEMENT**

I hereby certify that my company has performed the following private or public work, which is relevant to this bid. I further certify that my company has never defaulted under any contract. Should you not sign this form due to prior defaults, please provide details on an attached sheet.

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Date

\_\_\_\_\_  
NAME OF BIDDER

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
ADDRESS

By: \_\_\_\_\_  
ORIGINAL SIGNATURE ONLY

\_\_\_\_\_  
\_\_\_\_\_  
PRINT NAME AND TITLE

YOU MAY ATTACH ADDITIONAL SHEETS, BUT YOU MUST SIGN AND WITNESS THIS SHEET.

Bidders name: \_\_\_\_\_

**CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT**

STATE OF NEW JERSEY / \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) Specify, if Other SS:

I, \_\_\_\_\_, of the (City, Town, Borough, etc.) of \_\_\_\_\_  
\_\_\_\_\_ State of \_\_\_\_\_, of full age, being duly sworn according to law on my oath depose and say that:

I am \_\_\_\_\_ of the firm of \_\_\_\_\_, the Bidder making  
the proposal for the above named Project ("Contractor"), and that I executed said proposal with full authority to do so; and  
that said Contractor, pursuant to N.J.S.A. 40A:11-20, certifies that it owns, leases or controls all the necessary equipment  
required by the Plans, Specifications and Advertisements under this Bids are asked for.

If the Bidder is not the actual owner or lessee of any such equipment, then the Bidder shall attach to this Certificate  
information identifying the source from which the equipment will be obtained, and such information shall be accompanied  
by a certificate from the owner or person in control of the equipment definitively granting to the Bidder the control of the  
equipment required during such time as may be necessary for the completion of that portion of the contract.

\_\_\_\_\_  
(Also type or print name of affiant under signature)

By: \_\_\_\_\_

Bidders name: \_\_\_\_\_

**NON-COLLUSION AFFIDAVIT**  
(N.J.S.A. 52:34-15)

STATE OF \_\_\_\_\_ )  
 ) SS: \_\_\_\_\_  
COUNTY OF \_\_\_\_\_ )

I \_\_\_\_\_, of the City of \_\_\_\_\_, in the County of \_\_\_\_\_, and the State of \_\_\_\_\_, of full age, being duly sworn according to law, on my oath depose and say that: I am \_\_\_\_\_ of the firm of \_\_\_\_\_, the bidder making the proposal for the above named project, and that I executed the said proposal for the above named project, and that I executed the said proposal with full authority to do so; that said bidder has not, directly or indirectly, entered into any agreement, participation in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this Affidavit are true and correct, and made with full knowledge that the COUNTY OF UNION, NEW JERSEY relies upon the truth of the statements contained in said proposal and in the statements contained in the affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bonafide established commercial or selling agencies maintained by \_\_\_\_\_ (N.J.S.A. 52:34-15).

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**ORIGINAL SIGNATURE ONLY**

**NOTE: The person who signed the bidder signature page for the bidder should sign this form also.**

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/\_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY FILL OUT THIS AFFIDAVIT OF NON-COLLUSION, YOUR BID MAY BE REJECTED.**

**Contractor Registration Advisement**  
For Public Works Projects

A new law, known as "The Public Works Contractor Registration Act" (P.L. 1999, c.238), became effective April 11, 2000. Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in Section 2 of P.L. 1963, c.150 (C:34:11-56.26), unless that contractor/subcontractor is registered with the New Jersey Department of Labor and Workforce Development. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at \$300.00 per year. Upon the effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor," is defined in the, Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," P.L. 1963, c.150 (C.34:11-56.25, et seq.) for the construction, reconstruction, demolition, alteration, repair or maintenance of a public building regularly open to and used by the general public or a public institution, and includes any subcontractor or lower tier subcontractor as defined herein: except that, for the purposes of the act, no pumping station, treatment plant or other facility associated with utility and environmental construction, reconstruction, demolition, alteration, repair or maintenance shall be regarded as a public building regularly open to and used by the general public or a public institution."

Registration forms, copies of the Act, and other relevant information can be obtained by contacting:

Contractor Registration Unit  
New Jersey Department of Labor and Workforce Development  
Division of Wage & Hour Compliance  
PO Box 389  
Trenton, New Jersey 08625-0389  
Telephone: 609-292-9464  
Fax: 609-633-8591  
E-mail: [contreg@dol.state.nj.us](mailto:contreg@dol.state.nj.us)

**AMERICANS WITH DISABILITIES ACT**  
**EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES**

The contractor and the County of Union (hereafter "Owner") do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. S12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereunto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the Owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the Owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the Owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the Owner's grievance procedure, the contractor agrees to abide by any decision of the Owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the Owner, or if the Owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The Owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the Owner or any of its agents, servants, and employees, the Owner shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or process received by the Owner or its representatives.

It is expressly agreed and understood that any approval by the Owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the Owner pursuant to this paragraph.

It is further agreed and understood that the Owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the Owner from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

**Name** \_\_\_\_\_ **(Please print or type)**

**Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

**STATEMENT OF BIDDER’S QUALIFICATIONS**

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

1. \_\_\_\_\_  
(Name of Bidder)
2. \_\_\_\_\_  
(Permanent Main Office Address)
3. \_\_\_\_\_  
(When Organized)
4. \_\_\_\_\_  
(If a Corporation, where incorporated)
5. Number of years your organization has been engaged in construction or contracting business under present firm or trade name? \_\_\_\_\_
6. How many years of experience in construction work has your organization had (a) as a general contractor? And/or (b) As a subcontractor? \_\_\_\_\_
7. Contracts on hand: (Attach a list or table showing gross amounts of each Contract and the appropriate dates of completion) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. General character of work performed by you. \_\_\_\_\_  
\_\_\_\_\_
9. Have you ever failed to complete any work awarded to you? \_\_\_\_\_  
\_\_\_\_\_
10. Have you ever defaulted on a Contract? \_\_\_\_\_ If so, complete details, including where and why?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**STATEMENT OF BIDDER’S QUALIFICATIONS - (continued)**

11. Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name? If so, state name of individual, name of owner, location and type of project, and reason for the failure to complete. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. List your major equipment available for this Contract.  
\_\_\_\_\_  
\_\_\_\_\_
13. Experience in the construction work similar in importance to this Project.  
\_\_\_\_\_  
\_\_\_\_\_
14. Have you had any material adverse changes from the trades as listed in NJ Notice of Classification within last five (5) years? \_\_\_\_\_. If so, list prior classification.
15. Background and experience of the principal members of your organization, including the officers.

Individual’s Name	Present Position or Office	Yrs. of Construction Experience	Magnitude & Type of Work	In What Capacity

16. Bank Reference. (Name, Address, Phone, Representative) \_\_\_\_\_
17. Will you, upon request, fill out a detailed financial statement? \_\_\_\_\_

Bidders name: \_\_\_\_\_

18. The undersigned, hereby authorizes and requests any person, firm or corporation to furnish any information requested by the proper agency in verification of the responses comprising this Statement of Bidder's Qualifications.

19. Bidder's telephone number, fax number and e-mail address (if applicable).

Phone \_\_\_\_\_

Fax \_\_\_\_\_

E-mail \_\_\_\_\_

Mobile \_\_\_\_\_

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_, 20\_\_.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/\_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH  
YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidders name: \_\_\_\_\_

**CONTRACTOR PERFORMANCE RECORD**

List all contracts completed by you below or provide separate form.

Name of Owner	Name & Location of Project: Type Of Work	Prime or Sub-Cont.	Engineer or Architect in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was Time* Extension Necessary	Were Any Penalties Imposed	Were Liens* Claims or Stop Notice Filed

\* If answer is YES, provide explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles, liens, claims and notices filed against contracts listed in preceding item "Performance Record" on an attached sheet.

**NOTE:            FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL  
MAY RESULT IN A REJECTION OF YOUR BID.**

Bidders name: \_\_\_\_\_

**CONTRACTOR PERFORMANCE RECORD**  
**CERTIFICATION**

The information above is true and complete to the best of my knowledge and belief.

\_\_\_\_\_  
(Name of Organization)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/\_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

Bidders name: \_\_\_\_\_

**AFFIDAVIT REGARDING LIST OF DEBARRED,  
SUSPENDED OR DISQUALIFIED BIDDERS**

STATE OF NEW JERSEY / \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) SS:  
Specify, if Other

I, \_\_\_\_\_, of the (City, Town, Borough, etc.) of \_\_\_\_\_  
\_\_\_\_\_ State of \_\_\_\_\_, of full age, being duly sworn according to law on my oath depose and say that:

I am \_\_\_\_\_ of the firm of \_\_\_\_\_, the Bidder making  
the Proposal for the above named Project. I have executed the said Proposal with full authority to do so. Said Bidder is  
not at the time of the making this bid included on the New Jersey State Treasurer's or the Federal Government's List of  
Debarred, Suspended or Disqualified Bidders as a result of action taken by any State or Federal Agency.

\_\_\_\_\_  
Name of Contractor

By: \_\_\_\_\_  
(Signature of Authorized Representative)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/ \_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR  
PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

**PRIOR NEGATIVE EXPERIENCE QUESTIONNAIRE**  
(N.J.S.A. 40A:11-4)

1. Within the past ten (10) years, have you been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete a contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with a public entity?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to look to your surety for completion of the contract or tender of the costs of completion?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Within the past ten (10) years, have you been debarred or suspended from contracting with any of the agencies or department of the executive branch of the State of New Jersey at the time of the contract award, where the action was based on failure to perform a contract for goods or services with a public entity?

\_\_\_\_\_ yes                      \_\_\_\_\_ no    If yes, please provide full, detailed explanation.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Bidders name: \_\_\_\_\_

**PRIOR NEGATIVE EXPERIENCE CERTIFICATION**

I hereby certify that the above statements are true and accurate as of this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Name of Contractor

By \_\_\_\_\_  
(Signature of Authorized Representative)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/ \_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

**TO BE COMPLETED ONLY WHEN FINAL PAYMENT IS REQUESTED**

**CONTRACTOR'S CERTIFICATION OF COMPLIANCE - NEW JERSEY PREVAILING WAGE ACT**

<b>TO:</b> County of Union Division of Engineering 2325 South Avenue Scotch Plains, New Jersey 07076	<b>CONTRACT:</b>
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**PROJECT:** \_\_\_\_\_

In accordance with the requirements of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56 et al \*, the undersigned contractor on the public work being performed for:

**COUNTY OF UNION**

hereby certifies that he/she has complied with the contract requirements regarding the payment of the minimum prevailing wages established under "The New Jersey Prevailing Wage Act" N.J.S.A. 34:11-56 et al.

<b>CONTRACTOR:</b>	_____
<b>ADDRESS:</b>	_____
	_____
	_____
<b>BY:</b>	_____
	<b>ORIGINAL SIGNATURE ONLY</b>

**STATE OF NEW JERSEY**  
**COUNTY OF** \_\_\_\_\_

Being by me duly sworn according to law, on his oath deposes  
and says that \_\_\_\_\_ is \_\_\_\_\_  
of \_\_\_\_\_ the above named contractor, and that  
the facts set forth in the above statement are true.

Subscribed and sworn to before me  
  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/ \_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

\* N.J.S.A. 34:11-56.33 requires the contractor and subcontractor to file written statements with the public body in form satisfactory to the Commissioner certifying to the amounts then due and owing from such contractor and subcontractor filing such statement to any and all workmen for wages due on account of the public work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively. Union County will withhold the amount so deducted for the benefit of the workmen whose wages are unpaid as shown by the verified statement filed, and will pay directly to any workman the amount shown by such statement to be due to him for such wages. Such payment shall thereby discharge the obligation of the contractor to the person receiving such payment to the extent of the amount thereof.

Bidders name: \_\_\_\_\_

**UNCOMPLETED CONTRACTS AFFIDAVIT**  
(To be Submitted with DPMC Form 701)

PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOURCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS				
ENTITY	PROJECT TITLE	ORIGINAL CONTRACT AMOUNT	UNCOMPLETED AMOUNT AS OF BID OPENING DATE	NAME AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FROM ENTITY FOR VERIFICATION

TOTAL AMOUNT OF UNCOMPLETED CONTRACTS \$ \_\_\_\_\_

**BIDDER:**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Print Name)

Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Seal) Notary Public of New Jersey/ \_\_\_\_\_  
Specify Other State

My Commission Expires \_\_\_\_\_, 20\_\_.

**NOTE:** FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidders name: \_\_\_\_\_

**CERTIFICATE OF INSURANCE STATEMENT**

The Bidder fully understands the County of Union insurance requirements as stated in the Instructions to Bidders as well as the Owner/Contractor Agreement and agrees to provide all insurance required by these documents prior to the issuance of the Notice to Proceed.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

**NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidders name: \_\_\_\_\_

**COLLECTION OF USE TAX ON SALES TO LOCAL GOVERNMENTS STATEMENT**

The Bidder fully understands the requirements of the use tax on sales to local governments as stated in the General Conditions to the Contract for Construction and the Instructions to Bidders, and agrees at all times to comply with the “Contractor Use Tax Collection Legislation”, as defined therein, and the terms relating thereto contained in the Contract Documents.

\_\_\_\_\_  
BIDDER (Signature)

\_\_\_\_\_  
BIDDER (Print Name)

**NOTE:      FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR  
PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.**

Bidders name:\_\_\_\_\_

**TIME OF COMPLETION**

The undersigned proposed that if awarded the Contract, the scope of work will be started within ten (10) calendar days and will be substantially completed within **180 calendar days** from the date of the notice to proceed.

I, \_\_\_\_\_ of \_\_\_\_\_  
NAME (Print or type) COMPANY

Agree to complete work in the time frame specified \_\_\_\_\_  
SIGNATURE

**SITE VISIT – GENERAL CONTRACTOR**

I, \_\_\_\_\_ of \_\_\_\_\_  
NAME (Print or type) COMPANY

Visited the site of the work on \_\_\_\_\_  
SIGNATURE

Bidders name: \_\_\_\_\_

COUNTY OF UNION NEW JERSEY  
Division of Purchasing  
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

Solicitation Number: \_\_\_\_\_ Vendor/Bidder: \_\_\_\_\_

**PART 1**

CERTIFICATION

VENDOR/BIDDER MUST COMPLETE PART 1 BY CHECKING ONE OF THE BOXES

**FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE**

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the State of New Jersey, Department of the Treasury's Chapter 25 list as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Department's website at <http://www.nj.gov/treasury/purchase/pdf/Chapter25List.pdf>. Vendors/Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a Vendor's/Bidder's proposal non-responsive.** If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

**CHECK THE APPROPRIATE BOX**



A. I certify, pursuant to Public Law 2012, c.25, that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). Disregard Part 2 and complete and sign the Certification below.

OR



B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such information will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.



**PART 2**

PLEASE PROVIDE ADDITIONAL INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in investment activities in Iran by completing the information below.

ENTITY NAME: \_\_\_\_\_

RELATIONSHIP TO VENDOR/BIDDER: \_\_\_\_\_

DESCRIPTION OF ACTIVITIES: \_\_\_\_\_

DURATION OF ENGAGEMENT: \_\_\_\_\_

ANTICIPATED CESSATION DATE: \_\_\_\_\_

VENDOR/BIDDER CONTACT NAME: \_\_\_\_\_

VENDOR/BIDDER CONTACT PHONE#: \_\_\_\_\_

*Attach Additional Sheets If Necessary*

**CERTIFICATION**

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the County of Union, New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Print Name and Title \_\_\_\_\_



Bidders name: \_\_\_\_\_

### CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. ([L. 2022, c. 3](#)) any person or entity (hereinafter "Vendor"<sup>i</sup>) that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: <https://sanctionssearch.ofac.treas.gov/>. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

*(Check the Appropriate Box)*

- ☐ A. That the Vendor is not identified on the [OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus](#).
- OR**
- B. That I am unable to certify as to "A" above, because the Vendor is identified on the [OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus](#).
- OR**
- C. That I am unable to certify as to "A" above, because the Vendor is identified on the [OFAC Specially Designated Nationals and Blocked Persons list](#). However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

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*(Attach Additional Sheets If Necessary.)*

Signature of Vendor's Authorized Representative	Date
Print Name and Title of Vendor's Authorized Representative	Vendor's FEIN
Vendor's Name	Vendor's Phone Number
Vendor's Address (Street Address)	Vendor's Fax Number
Vendor's Address (City/State/Zip Code)	Vendor's Email Address

<sup>i</sup> Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2).

<b>STANDARD BID DOCUMENT REFERENCE</b>	
Name of Form:	<b>FEDERAL NON-DEBARMENT CERTIFICATION</b>
Statutory Reference:	N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)
Description:	Meets statutory criteria for certification of non-debarment by a federal government agency.

### **Summary of the Certification Requirements under N.J.S.A. 52:32-44.1**

Pursuant to state law any natural person, company, firm, association, corporation, or other entity prohibited, or “debarred,” from contracting with the federal government agencies, shall also be prohibited from contracting for public work in the state of New Jersey. This prohibition also extends to any affiliate organization(s) held by or subject to the control of an entity of that prohibited person or entity.

Prior to awarding a contract for public work a local units must obtain written certification from the contracting person or entity through the form below, attesting to their non-debarment from contracting with federal government agencies. Contracting units are reminded that they must fill-in the boilerplate information in the certification sections of Parts II through IV regarding their name and type of contracting unit before using the form.

**CERTIFICATION OF NON-DEBARMENT**  
**FOR FEDERAL GOVERNMENT CONTRACTS**

N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

**This certification shall be completed, certified to, and submitted to the contracting unit prior to contract award, except for emergency contracts where submission is required prior to payment.**

<b>PART I: VENDOR INFORMATION</b>	
Individual or Organization Name	
Physical Address of Individual or Organization	
Unique Entity ID (if applicable)	
CAGE/NCAGE Code (if applicable)	
<b>Check the box that represents the type of business organization:</b>	

☐ Sole Proprietorship (skip Parts III and IV)   ☐ Non-Profit Corporation (skip Parts III and IV)

☐ For-Profit Corporation (any type)   ☐ Limited Liability Company (LLC)   ☐ Partnership

☐ Limited Partnership   ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): \_\_\_\_\_

<b>PART II – CERTIFICATION OF NON-DEBARMENT: Individual or Organization</b>			
<p>I hereby certify that the <b>individual or organization listed above in Part I</b> is not debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

**PART III – CERTIFICATION OF NON-DEBARMENT: Individual or Entity Owning Greater than 50 Percent of Organization****Section A (Check the Box that applies)**

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of its voting stock, or of the partner in the partnership who owns more than 50 percent interest therein, or of the member of the limited liability company owning more than 50 percent interest therein, as the case may be.
<b>Name of Individual or Organization</b>	
<b>Physical Address</b>	
<b>OR</b>	
<input type="checkbox"/>	No one stockholder in the corporation owns more than 50 percent of its voting stock, or no partner in the partnership owns more than 50 percent interest therein, or no member in the limited liability company owns more than 50 percent interest therein, as the case may be.
<b>Section B (Skip if no Business entity is listed in Section A above)</b>	
<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of the voting stock of the organization's parent entity, or of the partner in the partnership who owns more than 50 percent interest in the organization's parent entity, or of the member of the limited liability company owning more than 50 percent interest in organization's parent entity, as the case may be.
<b>Stockholder/Partner/Member Owning Greater Than 50 Percent of Parent Entity</b>	
<b>Physical Address</b>	
<b>OR</b>	
<input type="checkbox"/>	No one stockholder in the parent entity corporation owns more than 50 percent of its voting stock, no partner in the parent entity partnership owns more than 50 percent interest therein, or no member in the parent entity limited liability company owns more than 50 percent interest therein, as the case may be.

**Section C – Part III Certification****Section C – Part III Certification**

I hereby certify that no individual or organization that is debarred by the federal government from contracting with a federal agency owns greater than 50 percent of the **Organization listed above in Part I** or, if applicable, owns greater than 50 percent of a parent entity of **<name of organization>**

\_\_\_\_\_. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

**Part IV – CERTIFICATION OF NON-DEBARMENT: Contractor – Controlled Entities****Section A**

Below is the name and address of the corporation(s) in which the **Organization listed in Part I** owns more than 50 percent of voting stock, or of the partnership(s) in which the **Organization listed in Part I** owns more than 50 percent interest therein, or of the limited liability company or companies in which the **Organization listed above in Part I** owns more than 50 percent interest therein, as the case may be.

**Name of Business Entity****Physical Address**

\*\*Add additional sheets if necessary\*\*

**OR**

The **Organization listed above in Part I** does not own greater than 50 percent of the voting stock in any corporation and does not own greater than 50 percent interest in any partnership or any limited liability company.

Bidders name: \_\_\_\_\_

<input type="checkbox"/>			
<b>Section B (skip if no business entities are listed in Section A of Part IV)</b>			
<input type="checkbox"/>	Below are the names and addresses of any entities in which an entity listed in Part III A owns greater than 50 percent of the voting stock (corporation) or owns greater than 50 percent interest (partnership or limited liability company).		
<b>Name of Business Entity Controlled by Entity Listed in Section A of Part IV</b>		<b>Physical Address</b>	
**Add additional Sheets if necessary**			
<b>OR</b>			
<input type="checkbox"/>	No entity listed in Part III A owns greater than 50 percent of the voting stock in any corporation or owns greater than 50 percent interest in any partnership or limited liability company.		
<b>Section C – Part IV Certification</b>			
<p>I hereby certify that the <b>Organization listed above in Part I</b> does not own greater than 50 percent of any entity that that is debarred by the federal government from contracting with a federal agency and, if applicable, does not own greater than 50 percent of any entity that in turns owns greater than 50 percent of any entity debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

Bidders name: \_\_\_\_\_

**BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION**  
(To be submitted with each bid, proposal or offer exceeding \$100,000)

The undersigned, [Company] \_\_\_\_\_ certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, [Company] \_\_\_\_\_, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.

\_\_\_\_\_  
Signature of Contractor's Authorized Representative

\_\_\_\_\_  
Name and Title of Contractor's Authorized Representative

\_\_\_\_\_  
Date

Bidders name: \_\_\_\_\_

## CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents of all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, United States Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Organization: \_\_\_\_\_

Street address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

\_\_\_\_\_  
CERTIFIED BY: (type or print)

TITLE: \_\_\_\_\_

\_\_\_\_\_  
(signature)

\_\_\_\_\_  
(date)

Bidders name: \_\_\_\_\_

## DISCLOSURE OF LOBBYING ACTIVITIES (LLL Form)

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352 0348-0046



N/A – My agency does not engage in any lobbying activities

<b>1. Type of Federal Action:</b>  <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance		<b>2. Status of Federal Action:</b>  <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. Initial award <input type="checkbox"/> c. Post-award		<b>3. Report Type:</b>  <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change  <b>For Material Change Only:</b> year _____ quarter _____ date of last report _____	
<b>4. Name and Address of Reporting Entity:</b> <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known:  <b>Congressional District, if known:</b>			<b>5. If Reporting Entity in NO.4 is a Subawardee, enter Name and Address of Prim:</b>   <b>Congressional District, if known:</b>		
<b>6. Federal Department/Agency:</b>			<b>7. Federal Program Name/Description:</b>   CDFA NUMBER, if applicable _____		
<b>8. Federal Action Number, if known:</b>			<b>9. Award Amount, if known:</b>  \$		
<b>10. a. Name and address of Lobbying Registrant</b> (if individual, last name, first name, MI):			<b>b. Individuals Performing Services</b> (including address if different from No. 10a) (las name, first name, MI):		
<b>11.</b> Information request through this form is authorized by title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.			<b>Signature:</b> _____ <b>Print Name:</b> _____ <b>Title:</b> _____ <b>Telephone NO.:</b> _____ <b>Date:</b> _____		

Federal Use Only:

Authorized for Local Reproduction Standard Form  
LLL (Rev. 7-97)

**INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES**

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1<sup>st</sup> tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract, grant, or loan award number, the application/proposal control number assigned by the Federal agency.) Include prefixes, e.g. "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. A) Enter the full name, address, city, state and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.  
B) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter last name, first name and middle initial (MI).
11. The certifying official shall sign and date the form; print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-10046), Washington, DC 20503.

## **STANDARD SPECIFICATIONS**

The Standard Specifications for Road and Bridge Construction of New Jersey Department of Transportation, 2019 Edition; is added to and/or amended elsewhere herein by the Notice to Contractors (Advertisement), Proposal, Information for Bidders, General Conditions, Supplemental Conditions, Project Plans, and Supplementary Specifications; shall, insofar as technical requirements are involved, govern in the execution of this project.

Such Standard Specifications are made a part of these Specifications by this reference and will not be repeated herein. It is the responsibility of prospective bidders to familiarize themselves with these Standard Specifications, copies of which may be examined at the office of the Engineer and may be obtained, upon payment of the cost thereof, from:

Department of Transportation  
State of New Jersey  
1035 Parkway Avenue  
Trenton, New Jersey 08625

The Notice to Contractors (Advertisement), Proposal, General Conditions, Special Provisions, Project Plans and/or Supplementary Specifications shall govern and prevail in the case of conflict between them and the Standard Specifications.

In these Standard Specifications the words "COMMISSIONER" or "DEPARTMENT" shall refer to and mean the person, persons, body, board or agent legally empowered to enter into contracts and otherwise legally act for the Owner. The word "STATE" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "ENGINEER" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "INSPECTOR" shall mean the authorized project representative of the Engineer with the authority as hereinbefore defined. The word "LABORATORY" shall mean and refer to the Engineer who may, at his discretion, and with the consent of the Owner, employ qualified technical personnel or testing laboratories to assist him in fulfilling the duties normally assigned to the "LABORATORY" in these Standard Specifications.

When reference is made herein to the bulletins, standards, specifications, publications or requirements of the American Association of State Highway Official (AASHO), the American Concrete Institute (ACI), the American Society of Civil Engineers (ASCE) or similar national or regional societies, associations, institutes or organizations; the requirements of the bulletins, specifications, publications or requirements referred to shall be considered a part of these Specifications by such reference and shall not be repeated herein but shall have the same import and be as binding as if herein set forth in full.



STATE OF NEW JERSEY  
Department of Labor and Workforce Development  
Division of Wage and Hour Compliance - Public Contracts Section  
PO Box 389  
Trenton, NJ 08625-0389

### PREVAILING WAGE RATE DETERMINATION

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

#### Prevailing Wage Rate

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

**W** = Wage Rate per Hour

**B** = Fringe Benefit Rate per Hour\*

**T** = Total Rate per Hour

- \* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

#### Apprentice Rate Schedule

An "apprentice" is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

## Comments/Notes

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

## Public Works Contractor Registration

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at [www.nj.gov/labor](http://www.nj.gov/labor) (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

*No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.*

## Snow Plowing

Snow plowing contracts are not subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**PREVAILING WAGE RATE**

	03/01/24
Journeyman (Mechanic)	W45.23 B30.03 T75.26

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year	Wage = %	of Jnymn	Wage		
Wage and Bene	40%	50%	60%	70%	80%	Bene = %	of Jnymn	Bene		

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Air Conditioning & Refrigeration - Service and Repair**

**COMMENTS/NOTES**

THESE RATES MAY BE USED FOR THE FOLLOWING:

- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:

- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:

Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Boilermaker**

**PREVAILING WAGE RATE**

	01/12/24
Foreman	W54.11 B47.08 T101.19
General Foreman	W56.11 B48.14 T104.25
Journeyman	W49.11 B45.31 T94.42

**Craft: Boilermaker**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	65%	70%	75%	80%	85%	90%	95%			
Benefit =	38.33	39.30	40.32	41.31	42.32	43.32	44.30			

**Ratio of Apprentices to Journeymen - \***

\* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

**Craft: Boilermaker**

**COMMENTS/NOTES**

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall work 7 1/2 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, holiday or any other circumstances beyond the employer's control.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.
- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40 hours per week.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Boilermaker - Minor Repairs**

**PREVAILING WAGE RATE**

	01/12/24
Foreman	W35.88 B17.89 T53.77
General Foreman	W36.38 B17.89 T54.27
Mechanic	W34.38 B17.89 T52.27

**Craft: Boilermaker - Minor Repairs**

**COMMENTS/NOTES**

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed \$125,000.00), for boilers that do not produce electric or are not used in the heating of petroleum products.

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Bricklayer, Stone Mason**

**PREVAILING WAGE RATE**

	05/09/24
Deputy Foreman	W51.60 B37.68 T89.28
Foreman	W56.35 B37.68 T94.03
Journeyman	W48.60 B37.68 T86.28

**Craft: Bricklayer, Stone Mason**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	50%	55%	60%	65%	70%	75%	80%		
Benefits	5.61	6.88	7.50	8.13	28.95	30.86	32.78	34.67		

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Bricklayer, Stone Mason**

**COMMENTS/NOTES**

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

**OVERTIME:**

- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Carpenter**

**PREVAILING WAGE RATE**

	05/09/24
Foreman	W64.41 B38.73 T103.14
Journeyman	W56.01 B33.76 T89.77

**Craft: Carpenter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	59.25% of	Appren	tice	Wage Rate	for all	intervals	+ \$0.57			

**Ratio of Apprentices to Journeymen - 1:3**

For Solar installation- all work on solar projects that fall under the jurisdiction of the carpenters, and does not require an electrician, the ratio of Apprentices to Journeymen shall be 1:1.

**Craft: Carpenter**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 5-1-19:

INTERVAL      PERIOD AND RATES  
Yearly    40%    55%    65%    80%  
Benefits   59.25% of apprentice wage rate for all intervals + \$0.57

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.
- All time worked before and after a regularly established shift shall be paid at the applicable overtime rate. When a portion of the regularly established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.

**OVERTIME:**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Carpenter - Resilient Flooring**

**PREVAILING WAGE RATE**

	05/01/24
Foreman	W64.41 B38.64 T103.05
Journeyman	W56.01 B33.67 T89.68

**Craft: Carpenter - Resilient Flooring**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	59.25%	of	Appren	tice	Wage Rate	for all	intervals	+ \$0.48		

**Ratio of Apprentices to Journeymen - \***

\* 1 apprentice shall be allowed to every 2 journeymen or major fraction thereof. No more than 3 apprentices on any one job or project.

**Craft: Carpenter - Resilient Flooring**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 5-1-19:

INTERVAL      PERIOD AND RATES  
Yearly    40%    55%    65%    80%  
Benefits   59.25% of apprentice wage rate for all intervals + \$0.48.

**FOREMAN REQUIREMENTS:**

- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

**FOR SYNTHETIC TURF INSTALLATION ONLY:**

- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 10%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

**OVERTIME:**

- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Carpenter-Residential Construction**

**PREVAILING WAGE RATE**

	05/09/24
Foreman	W54.29 B11.99 T66.28
Journeyman	W47.21 B11.14 T58.35

**Craft: Carpenter-Residential Construction**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%						
Benefit	12% of	Appren	tice	wage rate	for all	intervals	+ \$5.48			

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Carpenter-Residential Construction**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

**RESIDENTIAL CONSTRUCTION:**

All residential construction (excluding commercial buildings and institutional housing), no more than four (4) floors in height above grade consisting of those projects involving the construction, alteration, or repair of town houses or row houses, single family homes, mobile homes, multi-family homes, mixed-use buildings that include commercial space on the first floor or below grade, and apartment buildings.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
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**County - UNION**

day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Cement Mason                      PREVAILING WAGE RATE

See "Bricklayer, Stone Mason" Rates

Craft: Cement Mason                      APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									

Ratio of Apprentices to Journeymen - 1:4

Craft: Cement Mason                      COMMENTS/NOTES

\*\*\*See "Bricklayer, Stone Mason" Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Commercial Painter**

**PREVAILING WAGE RATE**

	05/29/24
Foreman	W48.90 B30.71 T79.61
General Foreman	W53.34 B30.71 T84.05
Journeyman	W44.45 B30.71 T75.16

**Craft: Commercial Painter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	45%	55%	65%	70%	75%	80%	80%		
Benefits	9.40	9.40	11.90	11.90	13.00	13.00	15.90	15.90		

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Commercial Painter**

**COMMENTS/NOTES**

\* Commercial Painters perform work on all commercial structures such as offices, schools, hotels, shopping malls, restaurants, condominiums, etc.

Spraying, sandblasting, lead abatement work on commercial buildings, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day,

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
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**County - UNION**

Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Diver**

**PREVAILING WAGE RATE**

	05/01/24
Diver	W64.72 B52.74 T117.46
Tender	W52.98 B52.74 T105.72

**Craft: Diver**

**COMMENTS/NOTES**

NOTE: All dive crews must consist of a Tender, a Diver, and a standby Diver (standby Diver is the same rate as a Diver).

DEPTH & PENETRATION RATES: Divers shall be paid the following depth and penetration rates, in addition to the regular hourly rate, when applicable:

**AIR DIVES:**

0-59 feet: No additional wage  
60-74 feet: + \$0.25 per foot  
75-125 feet: + \$0.78 per foot

**MIXED GAS DIVES:**

0-74 feet: No additional wage  
75-125 feet: + \$1.00 per foot  
126-200 feet: + \$2.00 per foot

**PENETRATION DIVES:**

126-200 feet: + \$1.50 per foot  
201-275 feet: + \$1.75 per foot  
276-350 feet: + \$2.00 per foot  
351-425 feet: + \$2.50 per foot

**SHIFT DIFFERENTIAL:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis and receive an additional 113% of the wage rate.
- When a three shift schedule is established, all three shifts shall be established on an 8 hour basis, but the second and third shifts shall receive an additional 113% of the wage rate.
- Benefits on shift work shall be paid at the straight-time rate.

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Dockbuilder/Pile Driver**

**PREVAILING WAGE RATE**

	05/01/24
Foreman	W60.93 B52.74 T113.67
Foreman (Concrete Form Work)	W59.82 B39.39 T99.21
Journeyman	W52.98 B52.74 T105.72
Journeyman (Concrete Form Work)	W52.02 B39.39 T91.41

**Craft: Dockbuilder/Pile Driver**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
Yearly	21.19	26.49	34.44	42.38						
Benefits	34.70	for all	intervals							

**Ratio of Apprentices to Journeymen - \***

\* When there are 4 or fewer Dockbuilders/Pile Drivers on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders/Pile Drivers, there may be 1 apprentice for every 5 Dockbuilders/Pile Drivers.

**Craft: Dockbuilder/Pile Driver**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR CONCRETE FORM WORK ONLY:

INTERVAL	PERIOD AND RATES			
Yearly	20.81	26.01	33.81	41.62
Benefits	26.73 for all intervals			

**CREOSOTE HANDLING:**

When handling creosote products on land piledriving, floating marine construction, and construction of wharves, the worker shall receive an additional \$0.25 per hour.

**HAZARDOUS WASTE WORK:**

- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional \$1.00 per hour.

**CERTIFIED WELDER:** When required on the job by the project owner, a Certified Welder shall receive an additional \$1.00 per hour.

**FOREMAN REQUIREMENTS:**

The first Dockbuilder/Pile Driver on the job shall be designated a Foreman.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**SHIFT DIFFERENTIAL:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis and receive an additional 113% of the wage rate.
- When a three shift schedule is established, all three shifts shall be established on an 8 hour basis, but the second and third shifts shall receive an additional 113% of the wage rate.
- Benefits on shift work shall be paid at the straight-time rate.

**OVERTIME:**

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Drywall Finisher**

**PREVAILING WAGE RATE**

	05/29/24
Foreman	W47.75 B31.11 T78.86
General Foreman	W49.92 B31.11 T81.03
Journeyman	W43.41 B31.11 T74.52

**Craft: Drywall Finisher**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	50%		60%	70%		80%	90%		
Benefits	Intervals	1 to 2 =	11.90	Intervals	3 to 4 =	15.03	Intervals	5 to 6 =	18.84	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Drywall Finisher**

**COMMENTS/NOTES**

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

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PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician**

**PREVAILING WAGE RATE**

	06/03/24
Cable Splicer	W69.72 B44.96 T114.68
Foreman (11-20 Journeyman)	W74.15 B47.84 T121.99
Foreman (1-3 Journeyman)	W69.72 B44.96 T114.68
Foreman (4-10 Journeyman)	W72.89 B47.02 T119.91
General Foreman (21-30 Journeyman)	W76.06 B49.06 T125.12
General Foreman (31-60 Journeyman)	W82.39 B53.15 T135.54
General Foreman (61+ Journeyman)	W83.66 B53.97 T137.63
Journeyman	W63.38 B40.89 T104.27
Sub-Foreman	W72.25 B46.61 T118.86

**Craft: Electrician**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
Yearly	40%	49%	58%	68%	80%		of Jour	neyman	Wage	Rate
Benefit	40%	49%	58%	68%	80%		of Jour	neyman	Benefit	Rate

**Ratio of Apprentices to Journeyman - 2:3**

**Craft: Electrician**

**COMMENTS/NOTES**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**THESE RATES ALSO APPLY TO THE FOLLOWING:**

- All burglar and fire alarm work.
- All fiber optic work.
- Teledata work in new construction.
- Teledata work involving 16 Voice/Data Lines or more.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

- 1 to 3 Journeymen- 1 must be a Foreman (Foreman/1-3 Journeymen rate).
- 4 to 10 Journeymen- 1 must be a Foreman (Foreman/4-10 Journeymen rate).
- 11 to 20 Journeymen- 1 must be Foreman (Foreman/11-20 Journeymen rate) and 1 must be a Sub-Foreman.
- 21 to 30 Journeymen- 1 must be a General Foreman (General Foreman/21-30 Journeymen rate) and 2 must be a Sub-Foreman.
- 31 to 40 Journeymen- 1 must be a General Foreman (General Foreman/31-40 Journeymen rate) and 3 must be a Sub-Foreman.
- 41 to 50 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 4 must be a Sub-Foreman.
- 51 to 60 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 5 must be a Sub-Foreman.
- 61+ Journeymen- 1 must be a General Foreman (General Foreman/61+ Journeymen rate) and 6 must be a Sub-Foreman.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**PREVAILING WAGE RATE**

	12/04/23	12/02/24
Journeyman Technician (1-2 Workers on Job)	W47.08 B27.78 T74.86	W48.21 B28.45 T76.66
Master Tech/General Foreman (26 + Workers on Job)	W61.20 B36.12 T97.32	W62.67 B36.99 T99.66
Senior Technician/Lead Foreman (16-25 Workers on Job)	W56.03 B33.05 T89.08	W57.37 B33.86 T91.23
Technician A/Foreman (9-15 Workers on Job)	W53.67 B31.67 T85.34	W54.96 B32.43 T87.39
Technician B/Working Foreman (4-8 Workers on Job)	W51.32 B30.28 T81.60	W52.55 B31.01 T83.56
Technician C/Foreman (3 Workers on Job)	W48.96 B28.89 T77.85	W50.14 B29.59 T79.73

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.45	7.45	8.51	9.15	10.22	11.49	12.98	14.26	15.76	17.24

**Ratio of Apprentices to Journeymen - 2:3**

**Craft: Electrician - Teledata (15 Voice/Data Lines & Less)**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 11-28-22:

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.67	7.67	8.76	9.43	10.52	11.84	13.38	14.69	16.22	17.76

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 12-4-23:

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.88	7.88	9.00	9.68	10.80	12.15	13.73	15.09	16.66	18.23

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 12-2-24:

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

INTERVAL	PERIOD AND RATES									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	8.07	8.07	9.22	9.91	11.07	12.45	14.06	15.44	17.06	18.68

**NOTES:**

- These rates are for service, maintenance, moves, and/or changes affecting 15 Voice/Data (teledata) lines or less. These rates may NOT be used for any teledata work in new construction (including additions) or any fiber optic work.
- The number of Teledata workers on the jobsite is the determining factor for which Foreman category applies .

The regular workday shall be 8 hours, between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 10 on Saturday and all hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.

- Four 10-hour days may be worked Monday through Friday, between the hours of 7:00 AM and 5:30 PM. A make-up day may be used for a day not being worked during the four 10-hour day schedule if a holiday occurs during the week or for any other conditions that prevent an employee from working the four 10-hour day schedule.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Saturday holidays will be observed the preceding Friday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician - Teledata (16 Instruments & More)	PREVAILING WAGE RATE
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See "Electrician" Rates

Craft: Electrician - Teledata (16 Instruments & More)	COMMENTS/NOTES
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\*\*\*See ELECTRICIAN Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician- Outside Commercial**

**PREVAILING WAGE RATE**

	06/03/24
Cable Splicer	W70.04 B44.66 T114.70
Certified Welder	W66.86 B42.62 T109.48
Equipment Operator	W63.67 B40.60 T104.27
Foreman (11-20 Journeymen workers on job)	W74.50 B47.50 T122.00
Foreman (1-3 Journeymen workers on job)	W70.04 B44.66 T114.70
Foreman (4-10 Journeymen workers on job)	W73.23 B46.70 T119.93
General Foreman (21-30 Journeymen workers on job)	W76.41 B48.71 T125.12
General Foreman (31-60 Journeymen workers on job)	W82.78 B52.76 T135.54
General Foreman (61+ Journeymen workers on job)	W84.05 B53.58 T137.63
Groundman	W38.21 B24.35 T62.56
Journeyman Lineman/Technician	W63.67 B40.60 T104.27
Sub-Foreman	W72.59 B46.27 T118.86

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Electrician- Outside Commercial**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	61.75% of	Journey	man	wage	+ \$.01					

**Craft: Electrician- Outside Commercial**

**COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 5-29-23:

Interval	Period and Rates									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	62.75% of the Journeyman wage + \$.01									

APPRENTICE RATE SCHEDULE AS OF 6-3-24:

Interval	Period and Rates									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	63.75% of the Journeyman wage + \$.01									

\* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular worday shall be 8 hours, between 8:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

- 1 to 3 Journeymen- 1 must be a Foreman (Foreman/1-3 Journeymen rate).
- 4 to 10 Journeymen- 1 must be a Foreman (Foreman/4-10 Journeymen rate).
- 11 to 20 Journeymen- 1 must be Foreman (Foreman/11-20 Journeymen rate) and 1 must be a Sub-Foreman.
- 21 to 30 Journeymen- 1 must be a General Foreman (General Foreman/21-30 Journeymen rate) and 2 must be a Sub-Foreman.
- 31 to 40 Journeymen- 1 must be a General Foreman (General Foreman/31-40 Journeymen rate) and 3 must be a Sub-Foreman.
- 41 to 50 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 4 must be a Sub-Foreman.
- 51 to 60 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 5 must be a Sub-Foreman.
- 61+ Journeymen- 1 must be a General Foreman (General Foreman/61+ Journeymen rate) and 6 must be a Sub-Foreman.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

**OVERTIME:**

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:**

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day,

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

Thanksgiving Day and Christmas Day.





**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Elevator Constructor**

**PREVAILING WAGE RATE**

	03/29/23
Journeyman	W77.49 B45.23 T122.72

**Craft: Elevator Constructor**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	34.60	42.62	50.37	58.12						
Benefits	35.56	36.49	38.02	39.55						

**Ratio of Apprentices to Journeymen - 1:1**

**Craft: Elevator Constructor**

**COMMENTS/NOTES**

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

**OVERTIME:**

For all hours worked before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday, shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Elevator Modernization & Service**

**PREVAILING WAGE RATE**

	03/29/23
Journeyman	W60.89 B44.07 T104.96

**Craft: Elevator Modernization & Service**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	34.60	33.49	39.58	45.67						
Benefits	35.50	36.07	37.52	38.97						

**Ratio of Apprentices to Journeymen - 1:1**

**Craft: Elevator Modernization & Service**

**COMMENTS/NOTES**

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Glazier                      PREVAILING WAGE RATE**

	05/09/24
* Leadman	W53.43 B31.98 T85.41
Foreman	W55.43 B32.22 T87.65
General Foreman	W57.43 B32.47 T89.90
Journeyman	W51.43 B31.74 T83.17

**Craft: Glazier                      APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	46%	46%	55%	55%	61%	61%	70%	70%		
Benefits	12.44	12.44	14.76	14.76	18.16	18.16	19.79	19.79		

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Glazier                      COMMENTS/NOTES**

Hazard/Height Pay: +\$1.00 per hour

\* When there are three (3) men working on a jobsite for three (3) days or longer, 1 Journeyman may be designated as a Leadman for the duration of the job, provided he has his OSHA certification.

**FOREMAN REQUIREMENTS:**

- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Heat & Frost Insulator**

**PREVAILING WAGE RATE**

	09/19/23
Foreman	W60.97 B37.97 T98.94
General Foreman	W63.31 B39.08 T102.39
Journeyman	W58.69 B37.41 T96.10

**Craft: Heat & Frost Insulator**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	27.51	32.64	39.31	45.91						
Benefits	21.73	25.78	28.63	31.61						

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Heat & Frost Insulator**

**COMMENTS/NOTES**

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

**SHIFT DIFFERENTIAL:**

- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

**OVERTIME:**

The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Heat & Frost Insulator - Asbestos Worker**

**PREVAILING WAGE RATE**

	09/19/23
Asbestos Helper Abatement	W36.89 B24.92 T61.81

**Craft: Heat & Frost Insulator - Asbestos Worker**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	INSULAT OR						

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Heat & Frost Insulator - Asbestos Worker**

**COMMENTS/NOTES**

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

**OVERTIME:** The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Industrial Painter- Bridges**

**PREVAILING WAGE RATE**

	03/21/24	02/01/25	02/01/26
Foreman	W64.29 B35.91 T100.20	W0.00 B0.00 T102.20	W0.00 B0.00 T104.20
General Foreman	W66.79 B35.91 T102.70	W0.00 B0.00 T104.70	W0.00 B0.00 T106.70
Journeyman	W59.29 B35.91 T95.20	W0.00 B0.00 T97.20	W0.00 B0.00 T99.20

**Craft: Industrial Painter- Bridges**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	50%	70%	90%							
Benefits	14.10	21.26	27.88							

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Industrial Painter- Bridges**

**COMMENTS/NOTES**

\* Industrial Painters perform work on all industrial structures, such as bridges.

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except Veterans Day, which shall be paid at time and one-half the regular rate.
- During a regular work week schedule, Saturday may be used as a make-up day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Industrial Painter- Structural Steel**

**PREVAILING WAGE RATE**

	03/21/24	02/01/25	02/01/26
Foreman	W53.03 B33.56 T86.59	W0.00 B0.00 T88.59	W0.00 B0.00 T90.59
General Foreman	W55.53 B33.56 T89.09	W0.00 B0.00 T91.09	W0.00 B0.00 T93.09
Journeyman	W48.03 B33.56 T81.59	W0.00 B0.00 T83.59	W0.00 B0.00 T85.59

**Craft: Industrial Painter- Structural Steel**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	INDUST	RIAL	PAINTER	BRIDGES					

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Industrial Painter- Structural Steel**

**COMMENTS/NOTES**

\* Industrial Painters perform work on all industrial structures, such as water tanks, waste water facilities, refineries, any structural steel work, etc.

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, on all open steel, in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except for Veterans Day, which shall be paid at time and one-half the regular rate.
- During the regular work week schedule, Saturday may be used to make-up a day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Industrial Painter- Water Tanks**

**PREVAILING WAGE RATE**

	03/21/24	02/01/25	02/01/26
Foreman	W54.08 B33.21 T87.29	W0.00 B0.00 T89.29	W0.00 B0.00 T91.29
General Foreman	W56.58 B33.21 T89.79	W0.00 B0.00 T91.79	W0.00 B0.00 T93.79
Journeyman	W49.08 B33.21 T82.29	W0.00 B0.00 T84.29	W0.00 B0.00 T86.29

**Craft: Industrial Painter- Water Tanks**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	50%	70%	90%							
Benefits	14.10	21.26	27.88							

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Industrial Painter- Water Tanks**

**COMMENTS/NOTES**

\* Industrial Painters perform work on all industrial structures, such as water tanks, waste water facilities, refineries, any structural steel work, etc.

These rates apply to: All new and repaint water tanks (interior and exterior).

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except Veterans Day, which shall be paid at time and one-half the regular rate.
- During a regular work week schedule, Saturday may be used to make-up a day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT**  
**PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Ironworker**

**PREVAILING WAGE RATE**

	07/03/24
Rod /Fence Foreman	W53.29 B50.87 T104.16
Rod/Fence Journeyman	W48.44 B50.87 T99.31
Structural Foreman	W55.82 B50.87 T106.69
Structural Journeyman	W50.74 B50.87 T101.61

**Craft: Ironworker**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	50%	60%		Yearly	70%	80%	90%			
Benefits	same as	journeyma n	amount							

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Ironworker**

**COMMENTS/NOTES**

**HAZARDOUS WASTE WORK:** On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + \$3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

**FOREMAN REQUIREMENTS:**

When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod/Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%.

**OVERTIME:**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday , shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**PREVAILING WAGE RATE**

	08/21/24
Foreman	W45.88 B26.21 T72.09
Journeyman (Handler)	W40.78 B26.21 T66.99

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	22.47	28.55	32.62	36.70						
Benefits	22.31	for	all	intervals						

**Ratio of Apprentices to Journeymen - \***

\* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

**Craft: Laborer - Asbestos & Hazardous Waste Removal**

**COMMENTS/NOTES**

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at straight time.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Easter, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. (Holidays start at 12:00 am).

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Laborer - Building**

**PREVAILING WAGE RATE**

	08/28/24
Class A Journeyman	W39.25 B33.17 T72.42
Class B Journeyman	W38.25 B33.17 T71.42
Class C Journeyman	W32.51 B33.17 T65.68
Foreman	W44.16 B33.17 T77.33
General Foreman	W49.06 B33.17 T82.23

**Craft: Laborer - Building**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	60%	70%	80%	90%	of Class B	wage rate				
Benefit	29.92	29.92	29.92	29.92						

**Ratio of Apprentices to Journeymen - \***

\* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

**Craft: Laborer - Building**

**COMMENTS/NOTES**

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzlemen on gunite work.

CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.

CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 5 consecutive workdays.
- When a 2-shift schedule is worked, including a day shift, both shifts shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.
- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT**  
**PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

- When an irregular shift must be established this shift shall receive the regular rate plus an additional 10%.

**OVERTIME:**

- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.

- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.

- Benefits on ALL overtime hours shall be paid at time and one-half.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Laborer - Heavy & General                      PREVAILING WAGE RATE

Rates are located in the  
"Statewide" rate package

Craft: Laborer - Heavy & General                      APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	25.08	for	all	intervals						

Ratio of Apprentices to Journeymen - \*

\* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

As of 3-1-25, benefits shall be 26.13.  
As of 3-1-26, benefits shall be 27.13.

Craft: Laborer - Heavy & General                      COMMENTS/NOTES

Heavy & General Laborer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Laborer-Residential and Modular Construction**

**PREVAILING WAGE RATE**

	04/01/23
* Skilled Tradesman (only applies to Modular Construction)	W27.90 B5.45 T33.35
Foreman (person directing crew, regardless of his skill classification)	W31.90 B5.45 T37.35
Laborer (for single family and stand-alone duplex owned by single owner)	W17.85 B2.95 T20.80
Residential and Modular Construction Laborer	W23.90 B5.45 T29.35

**Craft: Laborer-Residential and Modular Construction**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
As shown	800 hours	600 hours	600 hours							
wage & benefits	70%	80%	90%							

Ratio of Apprentices to Journeymen-

One (1) apprentice shall be allowed for the first journeyman on site and no more than one (1) additional apprentice for each additional three (3) journeymen on site.

**Craft: Laborer-Residential and Modular Construction**

**COMMENTS/NOTES**

**\* SKILLED TRADESMAN-**

any worker doing work not typically done by a Building Laborer. Some examples are installing interior doors, sheet rock, hooking up appliances, installing light fixtures, installing railing systems, etc. Please note where local building codes require that certain work be performed under the supervision of a licensed tradesman (i.e. Plumber, Electrician, etc.) Laborers shall work under such supervision.

**RESIDENTIAL CONSTRUCTION-** All residential construction (not commercial), single-family, stand-alone duplex houses, townhouses and multi-family buildings of not more than four (4) floors. Each housing unit must be fully and independently functional; each housing unit must have its own kitchen and bathroom. The definition includes all incidental items such as site work, parking areas, utilities, streets and sidewalks. Please note the construction must be Residential in nature. A First Floor at or below grade may contain commercial space not to exceed 50% square footage of the floor; at least 50% of the First Floor must contain living accommodations or related nonresidential uses (e.g. laundry space, recreation/hobby rooms, and/or corridor space). Basement stories below grade used for storage, parking, mechanical systems/equipment, etc., are considered basement stories which are not used in determining the building's height. An attic is an unfinished space located immediately below the roof. Such space is not used in determining a building's height even if used for storage purposes. In addition, barracks and dormitories are not considered residential projects.

**MODULAR RESIDENTIAL CONSTRUCTION-** all aspects of modular residential construction (not commercial) at the site of installation of structures of no more than four (4) stories, including all excavation and site preparation, footings and

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

foundation systems whether poured on-site or prefabricated, all underground waterproofing, underground utilities, concrete slabs, sidewalks, driveways, paving, hardscape and landscaping. Please note the construction must be Residential as defined above. All work performed by the Set Crew (the crew of workers who set the modular boxes on the foundation), including the rigging, setting, attaching and assembly of all modules and structural members, preparation of the foundation to accept modules, such as sill plates, connection of all in-module and under-module connections including, but not limited to, plumbing, electrical, HVAC, fire suppression, CATS, telephone, television/internet, and fiber optic, the building or installation of any porches or decks regardless of material or method of construction, the on-site installation of, or completion of any roof system, doors, windows and fenestrations, including flashing, gutter and soffit systems, waterproofing, insulation and interior and exterior trim work, and painting. Please note that modular construction does not include on-site stick built construction, tip up construction or panel built construction.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

**OVERTIME:**

Hours worked in excess of 8 per day/40 per week, Monday through Saturday, and all hours worked on Sunday and holidays shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOILDAYS:**

New Year's Day, Martin Luther King Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Millwright**

**PREVAILING WAGE RATE**

	05/01/24
Foreman	W66.04 B39.75 T105.79
Journeyman	W57.43 B34.65 T92.08

**Craft: Millwright**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	55%	65%	80%	90%					
Benefits	59.25% of	Appren	tice	Wage	Rate	for all	intervals	+ \$0.62		

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Millwright**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Millwrights on a job, 1 shall be designated as a Foreman.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

**SHIFT DIFFERENTIALS:**

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.

- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Operating Engineer                      PREVAILING WAGE RATE

Rates are located in the  
"Statewide" rate package

Craft: Operating Engineer                      APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	60%	70%	80%	90%						

Ratio of Apprentices to Journeymen - \*

\* 1 apprentice for each piece of heavy equipment. At least 10 pieces of heavy equipment or a minimum of 5 Operating Engineers must be on site.

Craft: Operating Engineer                      COMMENTS/NOTES

Operating Engineer rates are located in the "Statewide" rate package.



**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Painter - Line Striping**

**PREVAILING WAGE RATE**

	12/01/23
Apprentice (1st year)	W29.89 B15.70 T45.59
Apprentice (2nd year)	W34.10 B26.65 T60.75
Foreman (Charge Person)	W43.10 B27.43 T70.53
Journeyman 1 (at least 1 year of working exp. as a journeyman)	W38.33 B27.43 T65.76
Journeyman 2 (at least 2 years of working exp. as a journeyman)	W42.10 B27.43 T69.53

**Craft: Painter - Line Striping**

**APPRENTICE RATE SCHEDULE**

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									

**Ratio of Apprentices to Journeymen - 1:1**

**Craft: Painter - Line Striping**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Paperhanger**

**PREVAILING WAGE RATE**

	05/29/24
Foreman	W53.79 B30.71 T84.50
Journeyman	W48.90 B30.71 T79.61

**Craft: Paperhanger**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	COMME R	CIAL	PAINTER						

**Craft: Paperhanger**

**COMMENTS/NOTES**

**FOREMEN REQUIREMENTS:**

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.  
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.  
- Four 10-hour days may be worked, at straight time, Monday through Friday.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans Day, Thanksgiving Day, Christmas Day

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Pipefitter**

**PREVAILING WAGE RATE**

	05/01/24
Foreman	W59.34 B52.02 T111.36
Journeyman	W55.09 B48.30 T103.39

**Craft: Pipefitter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	35%	45%	55%	65%	75%					
Benefit	27.62	30.78	33.95	37.12	40.29					

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Pipefitter**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Journeyman Pipefitters on a job, 1 shall be designated a Foreman.
- There shall be a Foreman for every 8 Journeyman Pipefitters on a job.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM.

**SHIFT DIFFERENTIAL:**

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 10% per hour on the total rate.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 15% per hour on the total rate.

**OVERTIME:**

- All hours worked in excess of 8 per day, Monday through Friday, and all hours worked on Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sunday and holidays shall be paid at double time, inclusive of benefits.
- By mutual agreement, employees may work four 10-hour days, Monday to Thursday, at straight time rate. Friday may be used as a make-up day for a day lost to inclement weather, and may be paid at straight time. If Friday is not a make-up day, the first 8 hours shall be paid at time and one-half, inclusive of benefits; hours in excess of 8 shall be paid at double time, inclusive of benefits.

**SHIFT DIFFERENTIAL (Maintenance Work Only):**

- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 10% per hour on the total rate.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 15% per hour on the total rate.

**OVERTIME (Maintenance Work Only):**

- All hours in excess of 8 per day, Monday through Saturday, shall be paid at time and one-half, inclusive of benefits. All

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

hours on Sundays and holidays shall be paid at double time, inclusive of benefits.

NOTE: Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Plasterer                      PREVAILING WAGE RATE

See Bricklayer, Stone Mason Rates

Craft: Plasterer                      COMMENTS/NOTES

\*\*\*See BRICKLAYER, STONE MASON Rates\*\*\*

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Plumber**

**PREVAILING WAGE RATE**

	05/01/24
Foreman	W65.33 B43.22 T108.55
General Foreman	W69.56 B43.22 T112.78
Journeyman	W60.49 B43.22 T103.71

**Craft: Plumber**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	30%	45%	55%	65%	75%					
Benefits	18.23	24.72	27.02	29.31	31.60					

**Ratio of Apprentices to Journeymen - \***

\* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

**Craft: Plumber**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- On any job having 2 or more Plumbers, 1 must be designated a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours between 7:00 AM and 4:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 15%, inclusive of benefits.

**OVERTIME:**

- All hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Roofer**

**PREVAILING WAGE RATE**

	06/01/24
Foreman	W47.52 B32.34 T79.86
Journeyman	W44.52 B32.34 T76.86

**Craft: Roofer**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	17.80	22.26	26.71	28.94	31.16	33.39	35.62	40.07		
Benefits	2.19	2.19	28.34	28.34	28.34	28.34	28.34	28.34		

**Ratio of Apprentices to Journeymen - \***

- \* A) For roofing jobs that are of the 1 or single ply nature: 1:2 or fraction thereof
- B) For roofing jobs on new built up roofs: 1:3 or fraction thereof
- C) For roofing jobs that are of a tear-off nature: 1:2 or fraction thereof
- D) For roofing jobs {not requiring complete removal of existing systems, installation done over existing roof}: 1:3 or fraction thereof

**Craft: Roofer**

**COMMENTS/NOTES**

Pitch: +.50 per hour

Mop Man: +.30 per hour

The regular workday consists of 8 hours between 8:00 AM and 4:30 PM.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the regular rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Sheet Metal Sign Installation**

**PREVAILING WAGE RATE**

	04/17/24
Foreman	W44.19 B43.87 T88.06
Journeyman	W41.69 B43.87 T85.56

**Craft: Sheet Metal Sign Installation**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 hours	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
Benefits	14.62	16.66	18.72	20.79	23.33	25.43	27.52	29.62	31.73	33.82

**Ratio of Apprentices to Journeymen - 1:3**

**Craft: Sheet Metal Sign Installation**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENT:**

When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

**OVERTIME:**

Hours before or after the regular workday, Monday through Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost due to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Sheet Metal Worker**

**PREVAILING WAGE RATE**

	06/13/24
Foreman	W61.90 B50.32 T112.22
General Foreman	W62.90 B50.32 T113.22
Journeyman	W57.90 B50.32 T108.22

**Craft: Sheet Metal Worker**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	45%	48%	52%	65%	of	Journey	man	Wage	Rate	
Benefit	45%	48%	52%	65%	of	Journey	man	Benefit	Rate	

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Sheet Metal Worker**

**COMMENTS/NOTES**

**FOREMAN REQUIREMENTS:**

- When there are 2 or more Sheet Metal Workers on a project, 1 must be designated a Foreman.
- When there are 17 or more Sheet Metal Workers on a project, 1 must be designated a General Foreman.
- When there is only 1 Sheet Metal Worker (1 Journeyman) on a project, he/she shall receive \$1.00 more than the regular Journeyman's rate.

The regular workday is 8 hours between 7:00 AM and 4:30 PM.

**SHIFT DIFFERENTIAL:**

- 2nd Shift (3:30 PM - 12:00 AM) : +17% of regular hourly rate
- Shift work must run for a minimum of 5 consecutive workdays.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday, that are not shift work, and the first 10 hours on Saturdays shall be paid at time and one-half of the regular rate, inclusive of benefits. Hours in excess of 10 per day on Saturday, and all hours on Sundays and holidays shall be at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Friday, at straight time, with hours in excess of 10 per day, and hours in excess of 40 per week paid at the overtime rates listed above.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Sprinkler Fitter**

**PREVAILING WAGE RATE**

	07/01/24
Foreman	W73.06 B39.71 T112.77
General Foreman	W76.79 B39.71 T116.50
Journeyman	W68.56 B39.71 T108.27

**Craft: Sprinkler Fitter**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours									80%	85%
Benefits							Intervals	9 to 10	Jourymn	Ben.

**Craft: Sprinkler Fitter**

**COMMENTS/NOTES**

Apprentice rate schedule for those apprentices registered as of 7-1-13:

Interval                      Period and Rates  
1000 Hrs. 25% 30% 40% 45% 55% 60% 70% 75% 85% 90%  
Ben.      14.31 14.31 29.86 29.86 29.86 29.86 Intervals 7-10 Journey. Ben.

Apprentice rate schedule for those apprentices registered as of 7-1-22:

Interval                      Period and Rates  
1000 Hrs. 30% 35% 40% 45% 50% 55% 60% 70% 85% 95%  
Ben.      14.31 14.31 29.86 29.86 29.86 29.86 Intervals 7-10 Journey. Ben.

APPRENTICE RATE SCHEDULES AS OF 7-1-24:

Apprentice rate schedule for those apprentices registered as of 7-1-13:

Interval                      Period and Rates  
1000 Hrs. 25% 30% 40% 45% 55% 60% 70% 75% 85% 90%  
Ben.      14.41 14.41 30.71 30.71 30.71 30.71 Intervals 7-10 Journey. Ben.

Apprentice rate schedule for those apprentices registered as of 7-1-22:

Interval                      Period and Rates  
1000 Hrs. 30% 35% 40% 45% 50% 55% 60% 70% 85% 95%  
Ben.      14.41 14.41 30.71 30.71 30.71 30.71 Intervals 7-10 Journey. Ben.

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**FOREMAN REQUIREMENTS:**

- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

**SHIFT DIFFERENTIALS:**

- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

**OVERTIME:**

The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.

Four 10 hour days may be worked, Monday through Friday, at straight-time.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Finisher-Marble**

**PREVAILING WAGE RATE**

	07/01/24
Finisher	W49.99 B37.54 T87.53

**Craft: Tile Finisher-Marble**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	40%	60%	65%	70%	75%	85%	95%			
Benefits	Interval 1	thru 5 =	75% of	jyrnm. ben	rate	Interval 6	thru 7 =	full jyrnm	benefit	rate

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Finisher-Marble**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Ceramic**

**PREVAILING WAGE RATE**

	06/03/24
Finisher	W49.08 B32.98 T82.06
Setter	W63.91 B36.26 T100.17

**Craft: Tile Setter - Ceramic**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	35%	40%	50%	55%	60%	65%	70%	75%	80%	90%

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Setter - Ceramic**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Marble**

**PREVAILING WAGE RATE**

	07/01/24
Tile Setter	W63.92 B40.20 T104.12

**Craft: Tile Setter - Marble**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	40%	60%	65%	70%	75%	85%	95%			
Benefits	Interval 1	thru 5 =	75% of	jyrnm. ben	rate	Interval 6	thru 7 =	full jyrnm	benefit	rate

**Ratio of Apprentices to Journeymen - 1:4**

**Craft: Tile Setter - Marble**

**COMMENTS/NOTES**

**OVERTIME:**

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Tile Setter - Mosaic & Terrazzo**

**PREVAILING WAGE RATE**

	07/01/24
Grinder or Assistant	W59.37 B41.48 T100.85
Mechanic	W60.98 B41.49 T102.47
Terrazzo Resinous Worker	W50.76 B33.86 T84.62

**Craft: Tile Setter - Mosaic & Terrazzo**

**APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1500 Hours	35%	45%	60%	70%	80%	90%				

**Ratio of Apprentices to Journeymen - 1:5**

**Craft: Tile Setter - Mosaic & Terrazzo**

**COMMENTS/NOTES**

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

**OVERTIME:**

- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Truck Driver**

**PREVAILING WAGE RATE**

	05/01/24
Bucket, Utility, Pick-up, Fuel Delivery trucks	W45.41 B43.28 T88.69
Dump truck, Asphalt Distributor, Tack Spreader	W45.41 B43.28 T88.69
Euclid-type vehicles (large, off-road equipment)	W45.51 B43.28 T88.79
Helper on Asphalt Distributor truck	W45.41 B43.28 T88.69
Low Boy Driver	W47.01 B43.28 T90.29
Slurry Seal, Seeding/Fertilizing/ Mulching truck	W45.41 B43.28 T88.69
Straight 3-axle truck	W45.41 B43.28 T88.69
Tractor Trailer (all types)	W45.51 B43.28 T88.79
Vacuum or Vac-All truck (entire unit)	W45.41 B43.28 T88.69
Winch Trailer	W45.61 B43.28 T88.89

**Craft: Truck Driver**

**COMMENTS/NOTES**

**BLENDED RATE:**

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

**HAZARDOUS WASTE REMOVAL:**

- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional \$3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional \$1.00 per hour.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

TRUCK FOREMAN: \$.75 cents per hour above regular rate. Overtime shall be increased accordingly.

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

**SHIFT DIFFERENTIAL:**

- Shifts starting at 4:00 PM (2nd Shift): + \$3.00 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + \$3.00 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.
- Benefits on overtime shall be \$40.03.
- As of 5-1-23, benefits on overtime shall be \$41.53.
- As of 5-1-24, benefits on overtime shall be \$43.03.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veteran's Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION**

**County - UNION**

**Craft: Truck Driver-Material Delivery Driver**

**PREVAILING WAGE RATE**

	05/01/24
Driver	W37.62 B43.28 T80.90

**Craft: Truck Driver-Material Delivery Driver**

**COMMENTS/NOTES**

**BLENDED RATE:**

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

Truck Foreman/Shop Steward: +\$0.25 per hour

**SHIFT DIFFERENTIALS:**

- 2nd Shift shall receive an additional \$0.50 per hour
- 3rd Shift shall receive time and one-half the hourly rate.

**OVERTIME:**

- Hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Welder                      PREVAILING WAGE RATE

Welder

Craft: Welder                      COMMENTS/NOTES

Welders rate is the same as the craft to which the welding is incidental .

# STATEWIDE RATES

**OPERATING ENGINEERS**    **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for \* tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- \* FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

**OVERTIME:**

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
58.88	39.15	98.03	100.53

CLASSIFICATIONS:

- A-Frame
- Backhoe (combination)
- Boom Attachment on loaders (Except pipehook)
- Boring & Drilling Machine
- Brush Chopper, Brush Shredder, Tree Shredder, Tree Shearer
- Bulldozer, finish grade
- Cableway
- Carryall
- Concrete Pump
- Concrete Pumping System (Pumpcrete & similar types)
- Conveyor, 125 feet or longer
- Drill Doctor (Duties include dust collector and maintenance)
- Front End Loader (2 cu. yds. but less than 5 cu. yds.)
- Grader, finish
- Groove Cutting Machine (ride-on type)
- Heater Planer
- Hoist: Outside Material Tower Hoist (all types including steam, gas, diesel, electric, air hydraulic, single and double drum, concrete, brick shaft caisson, snorkle roof, and other similar types, Except Chicago-boom type) \* receives an additional \$1.00 per hour on 100 ft. up to 199 ft. total height, and an additional \$2.00 per hour on 200 ft. and over total height.
- Hydraulic Crane (10 tons & under)
- Hydraulic Dredge
- Hydro-Axe
- Hydro-Blaster

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
58.88	39.15	98.03	100.53

CLASSIFICATIONS:

Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)

Log Skidder

Pan

Paver, concrete

Plate & Frame Filter Press

Pumpcrete (unit type)

Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)

Scraper

Side Boom

Straddle Carrier (Ross and similar types)

Whiphammer

Winch Truck (hoisting)

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

- Asphalt Curbing Machine
- Asphalt Plant Engineer
- Asphalt Spreader
- Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)
- Autograde Curecrete Machine (CMI & similar types)
- Autograde Tube Finisher & Texturing Machine (CMI & similar types)
- Bar Bending Machines (Power)
- Batcher, Batching Plant, & Crusher [On Site]
- Belt Conveyor System
- Boom-Type Skimmer Machine
- Bridge Deck Finisher
- Bulldozer (all sizes)
- Captain (Power Boats)
- Car Dumper (railroad)
- Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)
- Compressor (2 or 3 battery)
- Concrete Breaking Machine
- Concrete Cleaning/Decontamination Machine
- Concrete Finishing Machine
- Concrete Saw or Cutter (ride-on type)
- Concrete Spreader (Hetzl, Rexomatic & similar types)
- Concrete Vibrator

**OPERATING ENGINEERS**     **Rates Expiration Date :**

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

**CLASSIFICATIONS:**

Conveyors - under 125 feet

Crane Signalman

Crushing Machine

Directional Boring Machine

Ditching Machine - Small (Ditchwitch, Vermeer or similar types)

Dope Pot - Mechanical (with or without pump)

Dumpster

Elevator

Fireman

Fork Lift (Economobile, Lull & similar types)

Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)

Generator (2 or 3 battery)

Giraffe Grinder

Goldhofer/Hydraulic Jacking Trailer

Grader & Motor Patrols

Grout Pump

Gunnite Machine (Excluding nozzle)

Hammer - Vibratory (in conjunction with generator)

Heavy Equipment Robotics - Operator/Technician

Hoist (roof, tugger, aerial platform hoist, house car)

Hopper

Hopper Doors (power operated)

Ladder (motorized)

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

- Laddervator
- Locomotive (Dinky-type)
- Maintenance Utility Man
- Master Environmental Maintenance Technician
- Mechanic
- Mixer (Except paving mixers)
- Pavement Breaker (truck-mounted or small self-propelled ride-on type)
- Pavement Breaker - maintenance of compressor or hydraulic unit
- Pipe Bending Machine (power)
- Pitch Pump
- Plaster Pump (regardless of size)
- Post Hole Digger (post pounder, auger)
- Rod Bending Machines
- Roller (black top)
- Scale (power)
- Seamen Pulverizing Mixer
- Shoulder Widener
- Silo
- Skimmer Machine (boom type)
- Steel Cutting Machine (service & maintenance)
- Tamrock Drill
- Tractor
- Transfer Machines

**OPERATING ENGINEERS**      **Rates Expiration Date :**

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

**CLASSIFICATIONS:**

Tug Captains

Tug Master (Power Boats)

Ultra High Pressure Waterjet Cutting Tool System -  
Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
51.63	39.15	90.78	93.28

**CLASSIFICATIONS:**

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

Tire Repair & Maintenance

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
49.05	39.15	88.20	90.70

**CLASSIFICATIONS:**

Field Engineer - Rodman or Chainman

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.21	39.15	98.36	100.86

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

CLASSIFICATIONS:

- Autograde Pavement Profiler (CMI & similar types)
- Autograde Pavement Profiler - Recycle Type (CMI & similar types)
- Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)
- Autograde Slipform Paver (CMI & similar types)
- Backhoe (Excavator)
- Central Power Plant
- Concrete Paving Machine
- Cranes, Derricks, Pile Drivers (all types), under 100 tons with a boom (including jib and/or leads) under 100 ft.
- Draglines
- Drill, Bauer, AMI and similar types
- Drillmaster, Quarrymaster
- Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill
- Elevator Grader
- Field Engineer-Chief of Party
- Front End Loader (5 cu. yards or larger)
- Gradall
- Grader, Rago
- Helicopter Co-Pilot
- Helicopter Communications Engineer
- Juntann Pile Driver
- Locomotive (large)
- Mucking Machine

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

CLASSIFICATIONS:

- Pavement & Concrete Breaker (Superhammer & Hoe Ram)
- Pile Driver
- Prentice Truck
- Roadway Surface Grinder
- Scooper (loader & shovel)
- Shovel (Excavator)
- Trackhoe (Excavator)
- Tree Chopper with boom
- Trenching Machine (cable plow)
- Tunnel Boring Machine
- Vacuum Truck

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.34	39.15	94.49	96.99

CLASSIFICATIONS:

- Chipper
- Compressor (single)
- Concrete Spreader (small type)
- Conveyor Loader (Except elevator graders)
- Engines, Large Diesel (1620 HP) & Staging Pump
- Farm Tractor
- Fertilizing Equipment (operation & maintenance)
- Fine Grade Machine (small type)
- Form Line Grader (small type)
- Front End Loader (under 1 cubic yard)
- Generator (single)
- Grease, Gas, Fuel, & Oil Supply Trucks
- Heaters (Nelson or other type)
- Lights - portable generating light plant
- Mixer, Concrete (small)
- Mulching Equipment (operation & maintenance)
- Power Broom or Sweeper
- Pump (diesel engine & hydraulic - regardless of power)
- Pump (larger than 2 inch suction, including submersible pumps)
- Road Finishing Machine (small type)
- Roller - grade, fill, or stone base
- Seeding Equipment (operation & maintenance)
- Sprinkler & Water Pump Trucks

**OPERATING ENGINEERS**      **Rates Expiration Date :**

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.34	39.15	94.49	96.99

**CLASSIFICATIONS:**

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including  
proprane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and  
maintenance)

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.29	39.15	101.44	103.94

**CLASSIFICATIONS:**

Helicopter Pilot/Engineer

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
66.97	39.15	106.12	108.62

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
65.97	39.15	105.12	107.62

**CLASSIFICATIONS:**

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to  
139 ft.

OPERATING ENGINEERS

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.47	39.15	101.62	104.12

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.97	39.15	104.12	106.62

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
61.47	39.15	100.62	103.12

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

**STRUCTURAL STEEL ERECTION**     **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

**SHIFT DIFFERENTIALS:**

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for \* tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- \* FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

**OVERTIME:**

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.10	39.15	103.25	105.75

**CLASSIFICATIONS:**

Helicopter Co-Pilot & Communications Engineer

STRUCTURAL STEEL ERECTION

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.04	39.15	99.19	101.69

CLASSIFICATIONS:

- A-Frame
- Cherry Picker -10 tons or less (Over 10 tons use crane rate)
- Hoist (all types Except Chicago-boom)
- Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)
- Side Boom
- Straddle Carrier

STRUCTURAL STEEL ERECTION

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
57.38	39.15	96.53	99.03

CLASSIFICATIONS:

- Aerial Platform Used On Hoists
- Apprentice Engineer/Oiler with Compressor or Welding Machine
- Captain (Power Boats)
- Compressor (2 or 3 in battery)
- Concrete Cleaning/Decontamination Machine Operator
- Conveyor or Tugger Hoist
- Directional Boring Machine
- Elevator or House Car
- Fireman
- Forklift
- Generator (2 or 3)
- Heavy Equipment Robotics, Operator/Technician
- Maintenance Utility Man
- Master Environmental Maintenance Technician
- Tug Master (Power Boats)
- Ultra High Pressure Waterjet Cutting Tool System Operator/Maintenance Technician
- Vacuum Blasting Machine Operator/Maintenance Technician
- Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

STRUCTURAL STEEL ERECTION

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.85	39.15	95.00	97.50

CLASSIFICATIONS:

- Compressor (Single)
- Generators
- Welding Machines, Gas, Diesel, Or Electric Converters of any type-single
- Welding System, Multiple (Rectifier Transformer Type)

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
52.09	39.15	91.24	93.74

CLASSIFICATIONS:

- Assistant Engineer/Oiler
- Drillers Helper
- Field Engineer - Transit/Instrument Man
- Maintenance Apprentice (Deckhand)
- Maintenance Apprentice (Oiler)
- Off Road Back Dump

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.66	39.15	98.81	101.31

CLASSIFICATIONS:

- Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
49.05	39.15	88.20	90.70

CLASSIFICATIONS:

- Field Engineer - Rodman or Chainman

STRUCTURAL STEEL ERECTION

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.80	39.15	99.95	102.45

CLASSIFICATIONS:

Field Engineer-Chief of Party

Vacuum Truck

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
68.99	39.15	108.14	110.64

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) 100 tons and over and Tower Cranes.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
67.33	39.15	106.48	108.98

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), 100 tons and over and Tower Crane.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.49	39.15	103.64	106.14

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.83	39.15	101.98	104.48

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

STRUCTURAL STEEL ERECTION

Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.49	39.15	103.64	106.14

CLASSIFICATIONS:

Helicopter Pilot & Engineer

**TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST**      **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for \* tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- \* FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

**CLASSIFICATIONS:**

Driller

**Effective Dates:**

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
53.63	39.15	92.78	95.28

**CLASSIFICATIONS:**

Driller's Helper

**FREE AIR TUNNEL JOBS**     **Rates Expiration Date :**

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Traffic Control Coordinator:** When either of the work classifications found below are working as a Traffic Control Coordinator they are to receive \$.75 above their current rate of pay.

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
65.06	37.33	102.39	106.26	109.94

**CLASSIFICATIONS:**

Walking Boss & Superintendent

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
64.69	37.33	102.02	105.88	109.57

**CLASSIFICATIONS:**

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

**TERRITORY**  
**ENTIRE STATE**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT**  
**PREVAILING WAGE RATE DETERMINATION**

**FREE AIR TUNNEL JOBS**      **Rates Expiration Date :**

**Effective Dates:**

<b>04/17/2024</b>			<b>03/01/2025</b>	<b>03/01/2026</b>
Rate	Fringe	Total	Total	Total
64.06	37.33	101.39	105.26	108.94

**CLASSIFICATIONS:**

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

**Effective Dates:**

<b>04/17/2024</b>			<b>03/01/2025</b>	<b>03/01/2026</b>
Rate	Fringe	Total	Total	Total
67.19	37.33	104.52	108.38	112.07

**CLASSIFICATIONS:**

Blaster

**Effective Dates:**

<b>04/17/2024</b>			<b>03/01/2025</b>	<b>03/01/2026</b>
Rate	Fringe	Total	Total	Total
63.38	37.33	100.71	104.57	108.26

**CLASSIFICATIONS:**

Top Labor Foreman

**Effective Dates:**

<b>04/17/2024</b>			<b>03/01/2025</b>	<b>03/01/2026</b>
Rate	Fringe	Total	Total	Total
62.94	37.33	100.27	104.13	107.82

**CLASSIFICATIONS:**

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manitenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

**Effective Dates:**

<b>04/17/2024</b>			<b>03/01/2025</b>	<b>03/01/2026</b>
Rate	Fringe	Total	Total	Total
62.75	37.33	100.08	103.94	107.63

**CLASSIFICATIONS:**

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

FREE AIR TUNNEL JOBS

Rates Expiration Date :

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
62.25	37.33	99.58	103.44	107.13

CLASSIFICATIONS:

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

DRILL FOR GROUND WATER SUPPLY

Rates Expiration Date :

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.22	39.15	98.37	100.87

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
52.38	39.15	91.53	94.03

CLASSIFICATIONS:

Driller's Helper

**OPERATING ENGINEERS MARINE-DREDGING**     **Rates Expiration Date :**

NOTE: These wage rates only apply to dredging and other marine construction activities occurring in navigable waters and their tributaries.

Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.

**OVERTIME:**

Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
45.26	15.22	60.48

**CLASSIFICATIONS:**

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
39.14	14.79	53.93

**CLASSIFICATIONS:**

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
36.84	14.63	51.47

**CLASSIFICATIONS:**

Certified Welder

**OPERATING ENGINEERS MARINE-DREDGING**      **Rates Expiration Date :**

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
35.83	14.31	50.14

**CLASSIFICATIONS:**

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
34.68	14.23	48.91

**CLASSIFICATIONS:**

Boat Operator

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
28.81	13.82	42.63

**CLASSIFICATIONS:**

Shoreman, Deckhand, Rodman, Scowman

**Effective Dates:**

**10/01/2023**

Rate	Fringe	Total
40.33	14.87	55.20

**CLASSIFICATIONS:**

Crane Operator

**TERRITORY**  
**ENTIRE STATE**

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT**  
**PREVAILING WAGE RATE DETERMINATION**

**MICROSURFACING/SLURRY SEAL**     **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

\*\*\*IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.\*\*\*

**SHIFT DIFFERENTIALS:**

Any shift starting at 3:30 PM or later shall receive an additional \$0.35/hr

**OVERTIME:**

Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**Effective Dates:**

**03/01/2017**

Rate	Fringe	Total
36.50	21.27	57.77

**CLASSIFICATIONS:**

Foreman

**Effective Dates:**

**03/01/2017**

Rate	Fringe	Total
33.80	21.27	55.07

**CLASSIFICATIONS:**

Box man

**Effective Dates:**

**03/01/2017**

Rate	Fringe	Total
31.75	21.27	53.02

**CLASSIFICATIONS:**

Microsurface/Slurry Preparation

**Effective Dates:**

**03/01/2017**

Rate	Fringe	Total
31.75	21.27	53.02

**CLASSIFICATIONS:**

Squeegee man

TERRITORY  
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

MICROSURFACING/SLURRY SEAL      Rates Expiration Date :

Effective Dates:

03/01/2017

Rate	Fringe	Total
30.30	21.27	51.57

**CLASSIFICATIONS:**

Cleaner, Taper

ASPHALT LABORERS - SOUTH

Rates Expiration Date :

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

Paving Foreman

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.10	37.33	87.43	90.88	94.13

CLASSIFICATIONS:

Head Raker

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

Screedman

**ASPHALT LABORERS - SOUTH**      **Rates Expiration Date :**

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.70	37.33	87.03	90.48	93.73

**CLASSIFICATIONS:**

Tampers, Smoothers, Kettlemen,  
Painters, Shovelers, Roller Boys

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.80	37.33	87.13	90.58	93.83

**CLASSIFICATIONS:**

Milling Controller

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

**CLASSIFICATIONS:**

Traffic Control Coordinator

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.95	37.33	87.28	90.73	93.98

**CLASSIFICATIONS:**

Raker, Luteman

TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH

Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:  
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

SHIFT DIFFERENTIAL:  
Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional \$2.00 per hour.

OVERTIME:  
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 15% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:  
1st year on the job - 70% of Helper wage rate  
2nd year on the job - 80% of Helper wage rate  
3rd year on the job - 90% of Helper wage rate  
All helpers receive full fringe benefit rate.  
Effective Dates:

12/01/2023

Rate	Fringe	Total
36.28	33.49	69.77

CLASSIFICATIONS:

Helper (4th year helper)

Effective Dates:

12/01/2023

Rate	Fringe	Total
46.25	33.49	79.74

CLASSIFICATIONS:

Driller

Effective Dates:

12/01/2023

Rate	Fringe	Total
52.66	33.49	86.15

CLASSIFICATIONS:

Foreman

HEAVY & GENERAL LABORERS - NORTH

Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:  
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate .
- Shifts shall receive an additional \$3.00 per hour.

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

"D" Rate:  
basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

"C" Rate:  
pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; asphalt raker or lute man

**HEAVY & GENERAL LABORERS - NORTH**

**Rates Expiration Date :**

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

**CLASSIFICATIONS:**

"B" Rate:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.80	37.33	91.13	94.58	97.83

**CLASSIFICATIONS:**

"A" Rate:

blaster

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

**CLASSIFICATIONS:**

"FOREMAN" Rate:

labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
54.55	37.33	91.88	95.33	98.58

**CLASSIFICATIONS:**

"GENERAL FOREMAN" Rate

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.75	37.33	88.08	91.53	94.78

**CLASSIFICATIONS:**

TRAFFIC CONTROL COORDINATOR Rate

HEAVY & GENERAL LABORERS - SOUTH

Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:  
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

- SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
  - When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
  - Shifts shall receive an additional \$3.00 per hour.

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

- OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
  - Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

- Hazardous Waste Work:
- where Level A, B, or C protection is required: + \$5.00/hr
  - other Hazardous Waste site: + \$1.00/hr
- Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

- CLASSIFICATIONS:
- basic, landscape, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers; tree cutter, timberman
- Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

- CLASSIFICATIONS:
- wagon drill or drill master helper; powder carrier; magazine tender; signal man

**HEAVY & GENERAL LABORERS - SOUTH**      **Rates Expiration Date :**

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

**CLASSIFICATIONS:**

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

**CLASSIFICATIONS:**

wagon or directional drill operator; drill master

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.80	37.33	91.13	94.58	97.83

**CLASSIFICATIONS:**

blaster

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

**CLASSIFICATIONS:**

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

**Effective Dates:**

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
54.55	37.33	91.88	95.33	98.58

**CLASSIFICATIONS:**

general foreman

HEAVY & GENERAL LABORERS - SOUTH

Rates Expiration Date :

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

**PIPELINE - MAINLINE TRANSMISSION**      **Rates Expiration Date :**

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

**PER DIEM PAYMENT:**

In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: \$80.50; Pipeline Journeyman Welder: \$140.50; and Pipeline Helper: \$64.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

**NOTES:**

- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive \$1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid \$1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid \$2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive \$3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
  - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
  - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate \$1.00 per hour above the regular helper rate for the days involved.
- Welders working on "hot work" shall be paid \$2.00 per hour above the regular rate for each day engaged in such work. "Hot work" is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

**OVERTIME:**

Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

**06/13/2024**

Rate	Fringe	Total
57.34	35.90	93.24

**CLASSIFICATIONS:**

Pipeline Journeyman Welder

PIPELINE - MAINLINE TRANSMISSION

Rates Expiration Date :

Effective Dates:

06/13/2024

Rate	Fringe	Total
57.34	35.90	93.24

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

06/13/2024

Rate	Fringe	Total
33.84	25.02	58.86

CLASSIFICATIONS:

Pipeline Helper

**PIPELINE - GAS DISTRIBUTION**     **Rates Expiration Date :**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

**SHIFT DIFFERENTIALS:**

An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

**OVERTIME:**

Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

**RECOGNIZED HOLIDAYS:** New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

**Effective Dates:**

**11/01/2023**

Rate	Fringe	Total
64.70	31.84	96.54

**CLASSIFICATIONS:**

Pipeline Journeyman Welder

**Effective Dates:**

**11/01/2023**

Rate	Fringe	Total
64.70	31.84	96.54

**CLASSIFICATIONS:**

Pipeline Journeyman

**Effective Dates:**

**11/01/2023**

Rate	Fringe	Total
41.00	23.56	64.56

**CLASSIFICATIONS:**

Pipeline Helper

ASPHALT LABORERS- NORTH

Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:  
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren  
{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}  
The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

Asphalt Foreman

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

Asphalt Screedman

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

Asphalt Raker or Lute Man

ASPHALT LABORERS- NORTH

Rates Expiration Date :

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

Asphalt Laborer

ELECTRICIAN- UTILITY WORK (NORTH)

Rates Expiration Date :

Electrician-Utility Work (North)  
(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).  
These rates apply to work contracted for by the following utility companies:  
Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.  
These rates do not apply to work on substations or switching stations.  
For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

\* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.  
FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.  
SHIFT DIFFERENTIALS:  
Shift work must run for a minimum of 5 consecutive workdays.  
2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.  
3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:  
Hours in excess of 8 per day, or before or after the regular wokday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.  
Four 10-hour days may worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:  
New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
62.94	43.42	106.36	109.56

CLASSIFICATIONS:

Chief Lineman

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
59.38	40.97	100.35	103.36

CLASSIFICATIONS:

Journeyman Lineman

**ELECTRICIAN- UTILITY WORK (NORTH)**

**Rates Expiration Date :**

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
59.38	40.97	100.35	103.36

**CLASSIFICATIONS:**

Special License Operator

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
58.79	40.56	99.35	102.32

**CLASSIFICATIONS:**

Transit Man

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
57.00	39.33	96.33	99.21

**CLASSIFICATIONS:**

Line Equipment Operator

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
49.88	34.41	84.29	86.81

**CLASSIFICATIONS:**

Dynamite Man

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
74.23	51.21	125.44	129.20

**CLASSIFICATIONS:**

General Foreman

**Effective Dates:**

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
68.29	47.12	115.41	118.85

**CLASSIFICATIONS:**

Assistant General Foreman

ELECTRICIAN- UTILITY WORK (NORTH)

Rates Expiration Date :

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
66.51	45.89	112.40	115.76

CLASSIFICATIONS:

Line Foreman

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
48.10	33.18	81.28	83.72

CLASSIFICATIONS:

Street Light Mechanical Leader

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.72	31.54	77.26	79.58

CLASSIFICATIONS:

Groundman Winch Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.72	31.54	77.26	79.58

CLASSIFICATIONS:

Groundman Truck Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.13	31.13	76.26	78.55

CLASSIFICATIONS:

Street Light Mechanic

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.13	31.13	76.26	78.55

CLASSIFICATIONS:

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH)

Rates Expiration Date :

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
38.60	26.63	65.23	67.17

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
35.63	24.58	60.21	62.02

CLASSIFICATIONS:

Groundman 1st Year

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
58.79	40.56	99.35	102.32

CLASSIFICATIONS:

Line Equipment Foreman

**ELECTRICIAN- UTILITY WORK (SOUTH)**     **Rates Expiration Date :**

Electrician-Utility Work (South)

(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).

These rates apply to work contracted for by the following utility company:

Atlantic City Electric.

These rates do not apply to work on substations or switching stations.

For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

\* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.

**SHIFT DIFFERENTIALS:**

Shift work must run for a minimum of 5 consecutive workdays.

When two (2) or three (3) shifts are worked the following shall apply:

1st shift (between the hours of 8:00 AM and 4:30 PM)

2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

**OVERTIME:**

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

**RECOGNIZED HOLIDAYS:**

New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

**WORKING RULES:**

There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are more than twenty (20) employees on site.

A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.

Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.

On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.

There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
69.38	57.15	126.53

**CLASSIFICATIONS:**

General Foreman

**ELECTRICIAN- UTILITY WORK (SOUTH)**      **Rates Expiration Date :**

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
61.79	52.45	114.24

**CLASSIFICATIONS:**

Foreman

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
58.54	50.46	109.00

**CLASSIFICATIONS:**

Small Job Foreman

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
54.20	47.78	101.98

**CLASSIFICATIONS:**

Heavy Equipment Operator

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
54.20	47.78	101.98

**CLASSIFICATIONS:**

Cable Splicer

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
54.20	47.78	101.98

**CLASSIFICATIONS:**

Journeyman Lineman

**Effective Dates:**

**12/03/2023**

Rate	Fringe	Total
54.20	47.78	101.98

**CLASSIFICATIONS:**

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH)

Rates Expiration Date :

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Journeyman Painter

Effective Dates:

12/03/2023

Rate	Fringe	Total
43.36	41.09	84.45

CLASSIFICATIONS:

Light Equipment Operator

Effective Dates:

12/03/2023

Rate	Fringe	Total
37.94	37.71	75.65

CLASSIFICATIONS:

Groundman Truck Driver

Effective Dates:

12/03/2023

Rate	Fringe	Total
35.23	36.05	71.28

CLASSIFICATIONS:

Groundman 3rd Year

Effective Dates:

12/03/2023

Rate	Fringe	Total
32.52	34.37	66.89

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/03/2023

Rate	Fringe	Total
29.81	32.69	62.50

CLASSIFICATIONS:

Groundman 1st Year

TERRITORY  
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (SOUTH)      Rates Expiration Date :

Effective Dates:

12/03/2023

Rate	Fringe	Total
23.85	29.03	52.88

**CLASSIFICATIONS:**

Flagman

**HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS**      **Rates Expiration Date :**

**\*\*THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY\*\***

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

**SHIFT DIFFERENTIALS:**

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

**OVERTIME:**

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

**RECOGNIZED HOLIDAYS:** New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

**Hazardous Waste Work:**

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

**Traffic Control Coordinator:** When either of the work classifications found below are working as a Traffic Control Coordinator they are to receive \$.75 above their current rate of pay.

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
78.08	37.33	115.41	119.68	123.81

**CLASSIFICATIONS:**

Walking Boss & Superintendent

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
77.63	37.33	114.96	119.23	123.36

**CLASSIFICATIONS:**

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

**HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS**      **Rates Expiration Date :**

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
76.88	37.33	114.21	118.48	122.61

**CLASSIFICATIONS:**

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
80.63	37.33	117.96	122.23	126.36

**CLASSIFICATIONS:**

Blaster

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
76.05	37.33	113.38	117.66	121.78

**CLASSIFICATIONS:**

Top Labor Foreman

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
75.53	37.33	112.86	117.13	121.26

**CLASSIFICATIONS:**

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

**Effective Dates:**

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
75.30	37.33	112.63	116.91	121.03

**CLASSIFICATIONS:**

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS

Rates Expiration Date :

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
74.70	37.33	112.03	116.31	120.43

CLASSIFICATIONS:

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

# **TECHNICAL SPECIFICATIONS**

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**TECHNICAL SPECIFICATIONS**

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**TECHNICAL SPECIFICATIONS**

DEBARMENT LIST

The list of debarred firms and individuals can be reviewed at the following web address:

[https://www.nj.gov/labor/wagehour/wagerate/prevailing\\_wage\\_debarment\\_list.html](https://www.nj.gov/labor/wagehour/wagerate/prevailing_wage_debarment_list.html)

PREVAILING COUNTY & STATE WAGE RATES

Prevailing wage rates are available online at the following web address:

[https://www.nj.gov/labor/wagehour/wagerate/pwr\\_construction.html](https://www.nj.gov/labor/wagehour/wagerate/pwr_construction.html).

A copy will be included with each contract set provided to the awarded contractor.

*END OF TABLE*

## SCOPE OF WORK

### 1.01 DESCRIPTION

This project, located along Raritan Road in the Township of Scotch Plains, Union County, New Jersey, consists of the construction of the foundation of a new synthetic turf field, the reconstruction of the asphalt driveway, and improvements to the existing parking lot. Specifically, the contract includes, but is not limited to, the following major components:

- Demolition of existing baseball field, driveway, asphalt walkways, fencing and portions of parking area.
- Construction of the foundation for a new synthetic turf field complete with associated amenities, including but not limited to underdrains, storm pipe, stormwater manholes, soccer goals, baseball field sports appurtenances, dugouts, player benches, fencing, and bleachers. The field will be utilized for baseball and soccer and will be permanently striped accordingly. **The synthetic turf will be purchased and installed under a separate contract.**
- Construction of new parking lot improvements including additional parking spaces and concrete ADA parking spaces.
- Construction of new concrete sidewalks providing direct connections to the turf field viewing areas and parking area.
- The expansion of the existing on-site electrical service to include new light poles and the relocation of existing light poles and sports field lighting.
- Installation of new regulatory and warning signs throughout the site.
- Topsoil and seeding.
- Installation of a new storage building and gathering area complete with picnic tables, a drinking fountain and hose bib.

1.02 The above Scope of Work outlines the general items and shall not be construed as being all inclusive.

1.03 The plans entitled "Vo-Tech Turf Field Project, Scotch Plains Township, Union County, New Jersey" are appended hereto and now made a part of these specifications.

END OF SCOPE

SECTION 01000  
GENERAL REQUIREMENTS

1.01 GENERAL

- A. Only major items of work are given in the Bid Form, but it is the intent of the specifications to secure a completely interconnected and functionable system, and if any workmanship or materials be required which are obviously necessary to carry out the full intent and meaning of the plans and specifications or to be reasonably inferred therefrom, the cost of such workmanship or materials shall be included in the unit price for the major items of work.
- B. Where construction is being performed in traveled roadways, Contractor is to provide necessary traffic control and devices in accordance with the Current Manual on Uniform Control Devices.
- C. Contractor shall notify all utility companies prior to construction of the work under this contract including the utility "Call Before You Dig" requirement at 1-800-272-1000 for any excavation or asphalt paving work under the contract.
- D. Prior to any excavation, the Contractor shall have all utilities marked, and shall excavate or otherwise determine the exact location and elevations of said utilities. The Contractor shall notify the Engineer of any conflicts. The Contractor shall arrange for any necessary utility relocations or plan changes and shall reschedule his operations appropriately.
- E. The contractor, in the construction of any project, shall not stockpile materials or his equipment on any private property; except areas designated by the plans or as directed by the Engineer. If so required, the Engineer may direct the Contractor to have his equipment removed from any project during weekend hours.
- F. All work of refilling sunken ditches, repaving over trenches and keeping streets and sidewalks in passable condition shall be done to the satisfaction of the owner during the construction of the above work as well as during the maintenance period. If any work is not done within five (5) days after written notice is given by the Engineer, the work may be done by the Owner and charged to the Contractor.
- G. Special care shall be taken to prevent contamination, siltation, or interfering in any way with the stream flows or ponds along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water or any ponds or other bodies of water.
- H. The contractor is hereby advised that Public Law 1975, Chapter 251, as amended by P.L. 1979, Chapter 459 is applicable to this project.
- I. It is the intent of the current standards for Soil Erosion and Sediment Control to insure that proper measures for erosion control are employed and provide for the early establishment of vegetation that will help avoid erosion problems during and after construction. It is expected that the contractor will anticipate possible problems and provide timely and adequate control to prevent or minimize adverse effect.
- J. The contractor shall apply and pay for all permits that may be required for any of the work involved with this project. Municipalities or Authorities having an interest or jurisdiction on this project are: **Camden County**.

- K. Contractor is to notify residents by door-hangers at least forty-eight (48) hours in advance before starting construction work.
- L. All notes on plans shall be made a part of the specifications.
- M. Contractor shall notify Engineer at least forty-eight (48) hours in advance of any work on Saturdays. There will be no work permitted on Sundays or holidays. This project will receive inspections and the normal working hours for the Inspector are from 8:00 AM to 4:30 PM, Monday through Friday. Any overtime inspection costs which are avoidable will be reimbursed by the contractor.
- N. During the construction of the project, travel lanes shall remain open at all times.
- O. Contractor shall take extreme care in the placement of the asphaltic tack coat so as to not make it visible on the concrete curb. It shall be the contractor's responsibility to keep the concrete curb clean of this oil.

#### 1.02 PUBLIC UTILITIES

- A. The bidder is advised to ascertain for himself all the facts concerning the location of existing utilities.
- B. The contractor shall cooperate with the utility owners in the adjustment of their facilities and shall notify the utility owners not less than ten (10) days in advance of the time he proposes to perform any work that will endanger or affect their facilities.
- C. The Contractor shall permit the owners of utilities, or their agents access to the site of the work at all times in order to relocate, construct or protect their lines and he shall cooperate with them in performing this work.
- D. Separate payments will not be made for the coordination and cooperation of the contractor with the utility companies, nor for the protection or replacement of utilities as specified hereinbefore and the bidder shall include all such costs in the prices bid for the various scheduled items in the Bid Form.

#### 1.03 PRE-CONSTRUCTION PHOTOGRAPHS

- A. The Contractor shall, at no extra cost, take DVD or digital photographs of the site prior to the commencement of construction. The DVD or photograph record shall accurately depict the existing preconstruction condition of all curbs, sidewalks, driveways, fences, lawns, landscaped areas, mailboxes, street furniture and all other appurtenances within, or outside a 25 foot radius of the limits of the construction of the project. One (1) copy of the CD photograph record or DVD shall be provided to the Engineer. The date of all disks, as well as identification as to the location which the records depict, must be provided.

#### 1.04 MAINTENANCE & PROTECTION OF TRAFFIC

- A. The contractor shall erect or place and maintain in good condition, barricades, warning signs, lights, rubber traffic cones, and other warning and danger signals and devices, appropriate and adequate for the specific needs and subject to the Engineer's approval at working sites, closed roads, intersections, open excavations, locations of material storage, standing equipment and other obstructions, at points where the usable traffic width of the road is reduced, and at points where traffic is deflected from its vehicular or pedestrian traffic.
- B. The contractor shall provide sufficient watchmen and traffic directors and shall take all other precautions including any that may be ordered by the Engineer, which are necessary for the safety of the public and protection of the work.
- C. The contractor shall obtain the approval and consent of all appropriate authorities having jurisdiction, for any detours which may be required. The contractor shall make all necessary arrangements with such authorities regarding the establishment, maintenance and repair of such detours, the regulations and direction of traffic thereon, and the installation and maintenance of sign and traffic devices.
- D. Before beginning work on any phase of the project, the contractor shall furnish and install all specified warning signals, barricades, wood traffic guides, lights and other devices necessary, in the opinion of the Engineer, to protect the public during that phase of his operations.
- E. Road construction signs shall be placed at each end of the project along the road for the work along the public road.
- F. During the work on this project, the contractor shall provide and/or be prepared to provide traffic protection devices in accordance with Part VI "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," Current Edition. The minimum numbers set forth in the Manual shall be on hand at each separate project site prior to the commencement of any work (or phase of work) and shall be maintained available on the project site throughout the period of the project (or phase). Failure to provide and maintain the minimum number of devices specified in the Manual shall be sufficient cause for the Engineer to order cessation of the work. When lack of any required safety devices presents an immediate hazard, the engineer may order that such devices be provided by the Owner or by other contractors, deducting the cost thereof from any monies due or becoming due the contractor.
- G. Additional devices up to the maximum number set forth in the Manual shall be provided by the contractor as required or directed prior to the commencement of any operation or phase of an operation requiring such devices.
- H. Traffic directors (flagmen) shall be provided whenever alternate two-way traffic is maintained in a single lane, whenever contractor's operations require closing of a lane or portion of a lane on a multiple lane roadway, whenever the contractor's equipment or vehicles are entering or leaving active roadways at other than normal street intersections, whenever a contractor's operations will be contrary to or cause confusion regarding normal traffic control devices (traffic signals, signs, etc.) within a work area and whenever else, in the opinion of the Engineer, the contractor's operations cause such hazards as to require the use of Traffic Directors.

- I. Traffic Directors shall be responsible and thoroughly familiar with their responsibilities, and while serving as Traffic Directors, shall not be required to perform any other duties. Traffic Directors shall be provided with an orange or red flag, an orange or orange and white traffic safety vest or orange hard hat or other appropriate head gear.
- J. Traffic must be maintained throughout each separate work area during construction. At least one 12' lane must be maintained for traffic during all actual construction periods and at least two 10' lanes must be maintained for traffic at all other times.
- K. The contractor is advised that there is heavy commuter traffic during the morning from 7:30 AM to 9:00 AM and the afternoon from 4:00 PM to 5:30 PM. The contractor shall schedule his construction activity such that he does not interfere or restrict traffic during the above peak hours.
- L. Construction shall be so staged to maintain at least one lane for traffic in each direction throughout each separate work area during the morning, 7:30 AM to 9:00 AM, and the afternoon, 4:00 PM to 5:30 PM weekday periods of peak traffic.
- M. Any restriction of traffic at any time shall be subject to the review of the Engineer and the Police Department having jurisdiction in the work area. The contractor shall submit a schedule of staged construction for review prior to any restriction of traffic.
- N. If detours are proposed by the Contractor, they are to be submitted to the Engineer for review and approval by the Police Department having jurisdiction in the work area and any other agency having jurisdiction of the roadway that will be detoured or roadway that will be used as a detour.
- O. All detour signs shall conform to the requirements for Traffic Control Devices.
- P. Temporary traffic stripes will be necessary to control and guide traffic through individual work areas. The contractor shall submit a scheme for review by the Engineer of all temporary traffic stripes prior to removal of any existing traffic stripes.
- Q. Construction of proposed utilities across existing roadways shall be so staged to maintain one lane in each direction. Trenches shall not remain open overnight.
- R. The contractor shall provide adequate means of access for fire, police and emergency vehicles throughout the length of the project.
- S. NO PAYMENT WILL BE MADE FOR ANY TRAFFIC CONTROL/DEVICES REQUIRED.

#### 1.05 TEMPORARY PAVING FOR ALL TRENCHES

- A. Description - 2" thick temporary paving shall be in accordance with the plans and specifications and to the prescribed lines and grades. Temporary paving replacement shall include necessary excavation.
- B. Materials - Materials shall conform to the New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction 2019 and/or as amended by these contract specifications.

- C. Contractor shall submit to Engineer, in triplicate, reports on materials used, attesting to the fact that said materials conform with these specifications of the State of New Jersey Department of Transportation and the Engineer.
- D. Method of Construction - Unless shown or specified otherwise, the trenches or other excavation, after backfilling, shall be covered with 2" thick temporary paving in passable condition suitable for normal use. The cost of such temporary paving and maintenance shall be included in the contract price for all items.

#### 1.06 REFERENCE TO THE STANDARD SPECIFICATIONS

- A. Portions of the work performed under this contract shall comply with the requirements of the State of New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction 2019, and all requirements modified, as amended or supplemented and whose specifications are made part of these specifications. The New Jersey Department of Transportation Standard Construction Details shall govern except insofar as same are modified, amended or changed in detail drawings prepared specifically for this particular project.
- B. The Standard Specifications are made part of these specifications by this reference as if they were set forth in full. It is the responsibility of the prospective bidder to be familiar with these Standard Specifications. Copies may be examined in the Engineer's office or may be purchased from the New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, New Jersey, 08625.

#### 1.07 DUST CONTROL

The contractor will be required to maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or outside the project boundaries free from dust which would cause a hazard or nuisance to others. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. If any dust control is not done within twenty-four (24) hours after written notice is given by the Engineer, the work may be done by the Owner and charged to the Contractor. Costs for dust control shall be included in the prices bid for the various items in the bid form.

#### 1.08 QUANTITY AND PAYMENT

Unless otherwise provided for in these contract specifications, no separate payment will be made for work associated with this section and all costs shall be included in the various items of the bid proposal.

END OF SECTION

SECTION 01010  
AS-BUILT DRAWINGS

1.01 GENERAL

The contractor shall provide a set of reproducible as-built drawings prior to final payment.

2.01 MATERIALS

- A. As-builts shall be a reproducible of the original contract drawings including any additional sheets required. All deviations from the original contract drawings shall be on the as-builts. The drawings shall be legible, neat, and of a quality acceptable to the Engineer.
- B. The Engineer shall provide a set of drawings at the beginning of the project for tracking as-built conditions by the contractor.

3.01 EXECUTION

- A. The contractor shall be responsible for keeping the as-built up-to-date as the project progresses.
- B. Storm Sewer and Underdrains: Any change in invert location, grate elevation, pipe size, class, or type, and any utility sleeves shall be indicated on the drawings.
- C. Change in location of all proposed work.
- D. This section is intended to provide a minimum level of acceptance. Any section with more stringent requirements shall have precedence over this section.

4.01 PAYMENT

No separate payment will be made for work performed under this section.

END OF SECTION

SECTION 01710  
CLEANING AND RESTORATION

1.01 DESCRIPTION

- A. Contractor shall provide all equipment, labor and materials required to clean and restore the site to at least the existing condition.
- B. Maintain premises and public properties free from accumulations of waste, debris and rubbish caused by work operations.
- C. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; clean all sight exposed surfaces; leave project clean and ready for occupancy.
- D. At completion of project, restore and replace, when and as directed by the Engineer, any public or private property disturbed or damaged by Contractor's work operations to a condition at least equal to that existing prior to beginning work, or as otherwise specified. Materials, equipment and methods shall be approved by the Engineer.

1.02 MATERIALS

- A. For restorations, use the following materials. All materials shall comply with the following Articles of the New Jersey Department of Transportation Standard Specifications latest revisions and these specifications.
- B. Grass restorations: See Section 806 "Fertilizing and Seeding" and Section 808 "Sodding."
- C. Pavement restorations: See Section 401 "Hot Mix Asphalt (HMA) courses."
- D. Restoration of curbs and other concrete structures:
  - 1. Concrete:
    - a. Shall conform to Section 903.
    - b. Compressive Strength: 4,000 psi at 28 days.
    - c. Air-entrained.
  - 2. Joint Fillers: Section 914.01, preformed expansion joint filler.
  - 3. Curing Compound: Section 903.10.
- E. All Other Materials: As approved by the Engineer or authorities as jurisdiction.

### 1.03 METHOD OF CONDUCTING WORK - CLEANING

A. Requirements of regulatory agencies:

All excess material shall be removed from the site and disposed of by the Contractor at his expense. Cost to be included in the unit price bid for all items. The disposal site shall be in permanently established licensed OSWA (Office of Solid Waste Administration, New Jersey Department of Environmental Protection) landfills.

B. Cleaning during construction:

Provide periodic cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.

Provide on-site containers for the collection of waste materials, debris and rubbish. Maintain containers as required.

C. The Contractor will be required to maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or outside the project boundaries free from dust which would cause a hazard or nuisance to others. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. If any dust control is not done within twenty-four (24) hours after written notice is given by the Engineer, the work may be done by the Owner and charged to the Contractor.

### 1.04 METHODS OF CONSTRUCTION

A. General: All existing structures, unpaved areas and paved areas disturbed or damaged during the work under this contract shall be restored or replaced to a condition at least equal to that existing prior to the beginning work, or as otherwise specified. The methods of conducting this work shall, as a minimum, conform to the following Articles of the New Jersey Department of Transportation Standard Specifications, latest revision.

B. Grass Restorations:

See Section 806 "Fertilizing and Seeding" and Section 808 "Sodding."

C. Pavement Restorations:

The method of construction employed shall conform to the requirements set forth in Section 301, 304 and 401 of the Standard Specifications as applicable to the type of material being utilized.

Restoration type and thickness shall be as shown on the contract drawings.

D. Restorations of curbs and other concrete structures:

1. Curbs: Section 607
2. Other concrete structures: Restore in accordance with applicable Articles of the Standard Specifications.

E. All Other Restorations:

Restore in accordance with applicable Articles of the Standard Specifications, or as approved by the Engineer or authorities having jurisdiction.

1.05 QUANTITY AND PAYMENT

- A. All costs for Cleaning and Restorations shall be included in prices bid for various items scheduled in the Proposal.

END OF SECTION

SECTION 02830  
MODULAR BLOCK RETAINING WALL SYSTEMS

SECTION 1: BLOCK RETAINING WALL  
PART 1: GENERAL

1.1 Scope

Work includes furnishing and installing modular concrete block retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

1.2 Applicable Sections of Related Work

Section 2: Geogrid Wall Reinforcement

1.3 Reference Standards

- A. ASTM C1372 Standard Specification for Segmental Retaining Wall Units.
- B. ASTM C1262 Evaluating the Freeze thaw Durability of Manufactured CMU's and Related concrete Units
- C. ASTM D698 Moisture Density Relationship for Soils, Standard Method
- D. ASTM D422 Gradation of Soils
- E. ASTM C140 Sample and Testing concrete Masonry Units

1.4 Delivery, Storage, and Handling

- A. Contractor shall check the materials upon delivery to assure proper material has been received.
- B. Contractor shall prevent excessive mud, cementitious material, and like construction debris from coming in contact with the materials.
- C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project (ASTM C1372).

PART 2: MATERIALS

2.1 Modular Wall Units

- A. Wall units shall be Allan Block Retaining Wall units or approved equal as produced by a licensed manufacturer.
- B. Wall units shall have minimum 28 day compressive strength of 3000 psi (20.7 MPa) in accordance with ASTM C1372. The concrete units shall have adequate freeze-thaw protection with an average absorption rate in accordance with ASTM C1372.
- C. Exterior dimensions shall be uniform and consistent. Maximum dimensional deviations on the height of any two units shall be 0.125 in. (3 mm).
- D. Wall units shall provide a minimum of 110 lbs total weight per square foot of wall face area (555 kg/m<sup>2</sup>). Fill contained within the units may be considered 80% effective weight.
- E. Exterior face shall be textured. Color as specified by owner.

2.2 Wall Rock

- A. Material must be well-graded compactable aggregate, 0.25 in. to 1.5 in., (6 mm - 38 mm) with no more than 10% passing the #200 sieve. (ASTM D422)
- B. Material behind and within the blocks may be the same material.

### 2.3 Infill Soil

- A. Infill material shall be site excavated soils when approved by the on-site soils engineer unless otherwise specified in the drawings. Unsuitable soils for backfill (heavy clays or organic soils) shall not be used in the reinforced soil mass. Fine grained cohesive soils ( $\phi < 31$ ) may be used in wall construction, but additional backfilling, compaction and water management efforts are required. Poorly graded sands, expansive clays and/or soils with a plasticity index (PI)  $> 20$  or a liquid limit (LL)  $> 40$  should not be used in wall construction.
- B. The infill soil used must meet or exceed the designed friction angle and description noted on the design cross sections, and must be free of debris and consist of one of the following inorganic USCS soil types: GP, GW, SW, SP meeting the following gradation as determined in accordance with ASTM D422.

<u>Sieve Size</u>	<u>Percent Passing</u>
4 inch (100 mm)	100 – 75
No. 4 (4.75 mm)	100 – 20
No. 40 (0.425 mm)	0 - 60
No. 200 (0.075 mm)	0 - 35

- C. Where additional fill is required, contractor shall submit sample and specifications to the wall design engineer or the onsite soils engineer for approval and the approving engineer must certify that the soils proposed for use has properties meeting or exceeding original design standards.

## PART 3: WALL CONSTRUCTION

### 3.1 Excavation

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall use caution not to over-excavate beyond the lines shown, or to disturb the base elevations beyond those shown.
- B. Contractor shall verify locations of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation.

### 3.2 Foundation Soil Preparation

- A. Foundation soil shall be defined as any soils located beneath a wall.
- B. Foundation soil shall be excavated as dimensioned on the plans and compacted to a minimum of 95% of Standard Proctor (ASTM D698) prior to placement of the base material.
- C. Foundation soil shall be examined by the on-site soils engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable material.

### 3.3 Base

- A. The base material shall be the same as the Wall Rock material (Section 2.2) or a low permeable granular material.
- B. Base material shall be placed as shown on the construction drawing. Top of base shall be located to allow bottom wall units to be buried to proper depths as per wall heights and specifications.
- C. Base material shall be installed on undisturbed native soils or suitable replacement fills compacted to a minimum of 95% Standard Proctor (ASTM D698).
- D. Base shall be compacted at 95% Standard Proctor (ASTM D698) to provide a level hard surface on which to place the first course of blocks. The base shall be constructed to ensure proper wall embedment and the final elevation shown on the plans. Well-graded sand can be used to smooth the top 1/2 in. (13 mm) on the base material.
- E. Base material shall be a 4 in. (100 mm) minimum depth for walls under 4 ft (1.2 m) and a 6 in. (150 mm) minimum depth for walls over 4 ft (1.2 m).

### 3.4 Unit Installation

- A. The first course of wall units shall be placed on the prepared base with the raised lip facing up and out and the front edges tight together. The units shall be checked for level and alignment as they are placed.
- B. Ensure that units are in full contact with base. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.
- C. Fill all cores and cavities and a minimum of 12 in. (300 mm) behind the base course with wall rock. Use infill soils behind the wall rock and approved soils in front of the base course to firmly lock in place. Check again for level and alignment. Use a plate compactor to consolidate the area behind the base course. All excess material shall be swept from top of units.
- D. Install next course of wall units on top of base course. Position blocks to be offset from seams of blocks below. Perfect "running bond" is not essential, but a 3 in. (75 mm) minimum offset is recommended. Check each block for proper alignment and level. Fill all cavities in and around wall units and to a minimum of 12 in. (300 mm) depth behind block with wall rock. For taller wall application the depth of wall rock behind the block should be increased; walls from 15 ft (4.57 m) to 25 ft (7.62 m) should have a minimum of 2 ft (0.61 m) and walls above 25 ft (7.62 m) should have a minimum of 3 ft (0.9 m). Spread infill soil in uniform lifts not exceeding 8 in. (200 mm) in uncompacted thickness and compact to 95% of Standard Proctor (ASTM D698) behind the consolidation zone.
- E. The consolidation zone shall be defined as 3 ft (0.9 m) behind the wall. Compaction within the consolidation zone shall be accomplished by using a hand operated plate compactor and shall begin by running the plate compactor directly on the block and then compacting in parallel paths from the wall face until the entire consolidation zone has been compacted. A minimum of two passes of the plate compactor are required with maximum lifts of 8 in. (200 mm). Expansive or fine-grained soils may require additional compaction passes and/or specific compaction equipment such as a sheepsfoot roller. Maximum lifts of 4 inches (100 mm) may be required to achieve adequate compaction within the consolidation zone. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Final

compaction requirements in the consolidation zone shall be established by the engineer of record.

- F. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.
- G. As with any construction work, some deviation from construction drawing alignments will occur. Variability in construction of modular block is approximately equal to that of cast-in-place concrete retaining walls. As opposed to cast-in-place concrete walls, alignment of modular block can be simply corrected or modified during construction. Based upon examination of numerous completed modular block, the following recommended minimum tolerances can be achieved with good construction techniques.

**Vertical Control** -  $\pm 1.25$  in. (32 mm) max. over 10 ft (3 m) distance

**Horizontal Location Control** - straight lines  $\pm 1.25$  in. (32 mm) over a 10 ft (3 m) distance.

**Rotation** - from established plan wall batter:  $2.0^\circ$

**Bulging** - 1.0 in. (25 mm) over a 10 ft (3.0 m) distance

### 3.5 Additional Construction Notes

- A. Filter fabric use is not suggested for use with cohesive soils. Clogging of such fabric creates unacceptable hydrostatic pressures in soil reinforced structures. When filtration is deemed necessary in cohesive soils, use a three dimensional filtration system of clean sand or filtration aggregate.
- B. Water management is of extreme concern during and after construction. Steps must be taken to ensure that drain pipes are properly installed and vented to daylight and a grading plan has been developed that routes water away from the retaining wall location. Site water management is required both during construction of the wall and after completion of construction.

## SECTION 2: GEOGRID REINFORCEMENT SYSTEMS

### PART 1: GENERAL

#### 1.1 Reference Standards

See specific geogrid manufacturer's reference standards.

Additional Standards:

- A. ASTM D4595 - Tensile Properties of Geotextiles by the Wide-Width Strip Method
- B. ASTM D5262 - Test Method for Evaluating the Unconfined Creep Behavior of Geogrids
- C. ASTM D6638 Grid Connection Strength (SRW-U1)
- D. ASTM D6916 SRW Block Shear Strength (SRW-U2)
- E. GRI-GG4 - Grid Long Term Allowable Design Strength (LTADS)
- F. ASTM D6706 - Grid Pullout of Soil

#### 1.2 Delivery, Storage, and Handling

- A. Contractor shall check the geogrid upon delivery to assure that the proper material has been received.
- B. Geogrid shall be stored above -10 F (-23 C).
- C. Contractor shall prevent excessive mud, cementitious material, or other foreign materials from coming in contact with the geogrid material.

### PART 2: MATERIALS

#### 2.1 Materials

- A. Geogrid products shall be of high density polyethylene or polyester yarns encapsulated in a protective coating specifically fabricated for use as a soil reinforcement material.
- B. Concrete retaining wall units are as detailed on the drawings and shall be Allan Block Retaining Wall Units or approved equal.
- C. Drainage material is free draining granular material as defined in Section 1, 2.2 Wall Rock.
- D. Infill soil is the soil used as fill for the reinforced soil mass.
- E. Foundation soil is the in-situ soil.
- F. Geogrid shall be Fortrac or approved equal.

### PART 3: WALL CONSTRUCTION

#### 3.1 Foundation Soil Preparation

- A. Foundation soil shall be excavated to the lines and grades as shown on the construction drawings, or as directed by the on-site soils engineer.
- B. Foundation soil shall be examined by the on-site soils engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength.

- C. Over-excavated areas shall be filled with compacted backfill material approved by on-site soils engineer.
- D. Contractor shall verify locations of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation.

### 3.2 Wall Construction

Wall construction shall be as specified under Section 1, Part 3, Wall Construction.

### 3.3 Geogrid Installation

- A. Install modular block wall to designated height of first geogrid layer. Backfill and compact the wall rock and infill soil in layers not to exceed 8 in. (200 mm) lifts behind wall to depth equal to designed grid length before grid is installed.
- B. Cut geogrid to designed embedment length and place on top of Block to back edge of lip. Extend away from wall approximately 3% above horizontal on compacted infill soils.
- C. Lay geogrid at the proper elevation and orientations shown on the construction drawings or as directed by the wall design engineer.
- D. Correct orientation of the geogrid shall be verified by the contractor and on-site soils engineer. Strength direction is typically perpendicular to wall face.
- E. Follow manufacturer's guidelines for overlap requirements.
- F. Place next course of block on top of grid and fill block cores with wall rock to lock in place. Remove slack and folds in grid and stake to hold in place.
- G. Adjacent sheets of geogrid shall be butted against each other at the wall face to achieve 100 percent coverage.
- H. Geogrid lengths shall be continuous. Splicing parallel to the wall face is not allowed.

### 3.4 Fill Placement

- A. Infill soil shall be placed in lifts and compacted as specified under Section 1, Part 3.4, Unit Installation.
- B. Infill soil shall be placed, spread and compacted in such a manner that minimizes the development of slack or movement of the geogrid.
- C. Only hand-operated compaction equipment shall be allowed within 3 ft (0.9 m) behind the wall. This area shall be defined as the consolidation zone. Compaction in this zone shall begin by running the plate compactor directly on the block and then compacting in parallel paths to the wall face until the entire consolidation zone has been compacted. A minimum of two passes of the plate compactor are required with maximum lifts of 8 in. (200 mm). Section 1, Part 3.4 E, Page 4.
- D. When fill is placed and compaction cannot be defined in terms of Standard Proctor

- E. Density, then compaction shall be performed using ordinary compaction process and compacted so that no deformation is observed from the compaction equipment or to the satisfaction of the engineer of record or the site soils engineer.
- F. Tracked construction equipment shall not be operated directly on the geogrid. A minimum fill thickness of 6 in. (150 mm) is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- G. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 mph (16 Km/h). Sudden braking and sharp turning shall be avoided.
- H. The infill soil shall be compacted to achieve 95% Standard Proctor (ASTM D698). Compaction tests shall be taken at 3 ft (0.9 m) behind the block and at the back of the reinforced zone. The frequency shall be as determined by the on-site soils engineer or as specified on the plan. Soil tests of the infill soil shall be submitted to the on-site soils engineer for review and approval prior to the placement of any material. The contractor is responsible for achieving the specified compaction requirements. The on-site soils engineer may direct the contractor to remove, correct or amend any soil found not in compliance with these written specifications.

### 3.5 Special Considerations

- A. Geogrid can be interrupted by periodic penetration of a column, pier or footing structure.
- B. Modular block walls will accept vertical and horizontal reinforcing with rebar and grout.
- C. If site conditions will not allow geogrid embedment length, consider the following alternatives:
  - Masonry Reinforced Walls
  - Increased Wall Batter
  - Double Allan Block Wall
  - No-Fines Concrete
  - Earth Anchors

## SECTION 3: WATER MANAGEMENT

### PART 1: GENERAL DRAINAGE

#### 1.1 Surface Drainage

- A. At the end of each day's construction and at final completion, grade the backfill to avoid water accumulation behind the wall or in the reinforced zone.
- B. Surface water must not be allowed to pond or be trapped in the area above the wall or at the toe of the wall.
- C. Existing slopes adjacent to retaining wall or slopes created during the grading process shall include drainage details so that surface water will not be allowed to drain over the top of the slope face and/or wall. This may require a combination of berms and surface drainage ditches.

- D. Irrigation activities at the site shall be done in a controlled and reasonable manner. If an irrigation system is employed, the design engineer or irrigation manufacture shall provide details and specification for required equipment to ensure against over irrigation which could damage the structural integrity of the retaining wall system.
- E. Surface water that cannot be diverted from the wall must be collected with surface drainage swales and drained laterally in order to disperse the water around the wall structure.

## 1.2 Grading

- A. Establish final grade with a positive gradient away from the wall structure. Concentrations of surface water runoff shall be managed by providing necessary structures, such as paved ditches, drainage swales, catch basins, etc.
- B. Grading designs must divert sources of concentrated surface flow, such as parking lots, away from the wall.

## 1.2 Drainage System

- A. All walls will be constructed with a minimum of 12 in. (300 mm) of wall rock directly behind the wall facing. The material shall meet or exceed the specification for wall rock outlined in Section 1, 2.2 Wall Rock.
- B. The drainage collection pipe, drain pipe, shall be a 4 in. (100 mm) perforated or slotted PVC, or corrugated HDPE pipe as approved by engineer of record.
- C. All walls will be constructed with a 4 in. (100 mm) diameter drain pipe placed at the lowest possible elevation within the 12 in. (300 mm) of wall rock. This drain pipe is referred to as a toe drain, Section 3, 1.4 Toe Drain.
- D. Geogrid Reinforced Walls shall be constructed with an additional 4 in. (100 mm) drain pipe at the back bottom of the reinforced soil mass. This drain pipe is referred to as a heel drain, Section 3, 1.5 Heel Drain

## 1.4 Heel Drain

- A. The piping used at the back of the reinforced mass shall have a one percent minimum gradient over the length, but it is not critical for it to be positioned at the very bottom of the cut. Additionally the entire length of the pipe may be vented at one point and should not be tied into the toe drain.
- B. The pipe may be a rigid pipe with holes at the bottom with an integral sock encasing the pipe or a corrugated perforated flexible pipe with a sock to filter out fines when required based on soil conditions. For infill soils with a high percentage of sand and/or gravel the heel drain pipe does not need to be surrounded by drainage rock. When working with soils containing more than fifty percent clay, one cubic foot of drainage rock is required for each foot of pipe.

## 1.5 Ground Water

- A. If water is encountered in the area of the wall during excavation or construction, a drainage system (chimney, composite or blanket) must be installed as directed by the wall design engineer.
- B. Standard retaining wall designs do not include hydrostatic forces associated with the presence of ground water. If adequate drainage is not provided the retaining wall design must consider the presence of the water.
- C. When non-free draining soils are used in the retained zone, the incorporation of a chimney and blanket drain should be added to minimize the water penetration into the reinforced mass. Refer to Design Detail 6: Chimney and Blanket Drain, Page 14 of the AB Spec Book.

## SECTION 4 QUANTITY AND PAYMENT

- 4.1 Payment will be made for all modular block retaining walls within the limits of the project as described on the drawings. Include all associated costs for complete installation of the retaining wall in the unit price bid for that item in the bid form.
- 4.2 Payment for retaining walls specified will be on a square foot basis in the Bid Form, which price shall include the cost of excavating, dewatering, laying, assembling, shoring, backfilling, bedding, PVC pipe, Geogrid, wall cap, cutting, testing, all materials, labor, equipment, and all else necessary therefore and all other work in connection therewith and incidental thereto.

END OF SECTION

## SECTION 02925 - SYNTHETIC TURF BASE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes construction of synthetic grass base.

#### 1.2 PRE-INSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.4 QUALITY ASSURANCE

- A. Contractor Experience: The contractor shall have completed a minimum of five (5) regulation synthetic turf fields in the past five (5) years with their own forces.

### PART 2 - PRODUCTS

- 2.1 Perimeter Edge: Concrete curb edge as shown on the plans and details.

- 2.2 Underdrain System: ADS AdvanEdge or approved equal.

- A. 1 inch by 12-inch flat drain.
- B. 12 inch diameter preformed collector

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. The contractor/sub-contractor shall construct all excavation and aggregate layers utilizing equipment that is equipped with laser control and automatic slope control devices. The laser level that is used to control this work shall be recently calibrated and certified as to the accuracy of the instrument. The contractor/sub-contractor shall be required to furnish a report, from an independent Professional Engineer or Licensed Surveyor in the state of New Jersey, certifying that the installed sub-base for this project meets or exceeds the related guidelines and requirements for Synthetic Turf Construction as required per the specifications for this project.
- B. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to the beginning of installation of the turf.
  - 1. Acceptance is dependent upon the Contractor's test results indicating compaction and planarity are in compliance with manufacturer's specifications.

2. The surface shall be accepted by Installer as “clean” as installation commences and shall be maintained in that condition throughout the process.

- C. Correct conditions detrimental to timely and proper completion of work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of existing conditions.

### 3.2 PREPARATION

- A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.
- B. Sub-base acceptance shall be subject to receipt of test results for compaction and planarity that sub-base is in compliance with manufacturer’s specifications and recommendations. Testing shall be performed by Contractor and observed by the Engineer.
- C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.
- D. Installed sub-base shall be tested for porosity prior to the installation of the turf. A sub base that drains poorly is an unacceptable substrate.

### 3.3 INSTALLATION

- A. Permeable Aggregate Base Layer

A layered system of quarry-processed stone shall be placed over the entire subbase, which has been covered with the permeable liner. The aggregates shall be comprised of a minimum 8” compacted, stable, permeable, processed stone. Care shall be taken to maintain the grade designed for the subbase. Aggregate shall be durable and not exceed 12% loss of materials as determined by a sulfate soundness test (ASTM C88). The layered processed stone layer shall be compacted to a minimum of 95% of maximum density (per ASTM D698). Nuclear density tests shall be performed during aggregate placement and rolling to ensure specified compaction.

Contractor shall have an independent testing agency conduct a field infiltration test per ASTM D3385, Standard Test Method for Infiltration Rate of Soils in Field Using Test Method BSI 7044 Method #4 or equivalent percolation test to affirm the stone drainage base water permeability rate exceeds twenty (20) inches per hour. Testing will be a minimum of two (2) tests.

The layered system of quarry-processed stone shall be constructed as follows:

- Base layer: 6” size #57 stone, constructed in a minimum of 2 lifts
- Choke layer: 1-1/2” size #8 stone
- Finishing layer: 1/2” size #10 stone

Size #8, #10 and #57 stone shall conform to the applicable sections of the NJDOT Standard Specifications for Road and Bridge Construction 2007 and all addenda thereto.

## PART 4 - PAYMENT

### 4.1 METHOD OF MEASUREMENT AND PAYMENT

- A. "SYNTHETIC TURF FIELD BASE WITH UNDERDRAIN SYSTEM" will be measured and paid for by the square foot.
- B. Separate payment will not be made for coarse aggregate stone base, drain rock, geotextile liner, the 12" HDPE collector pipe, connection to the 12" HDPE Pipe, 1" x 12" perforated underdrains with sleeves and all outlets and connections. The cost shall be included in the price bid for "SYNTHETIC TURF FIELD BASE WITH UNDERDRAIN SYSTEM."

END OF SECTION 02925

## SECTION 022100 - TRENCHING, SITE EXCAVATION, BACKFILLING AND COMPACTION

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. Refer to Division 1 as they form a part of this Section.
- B. Furnish all tools, equipment, labor and materials, and perform operations necessary for complete all required Trenching, Site Excavation, Backfilling and Compaction Work of this Section in strict accordance with these Specifications and requirements of Drawings.

#### 1.2 WORK INCLUDED

- A. Provide trenching, site excavation, backfilling and compaction as indicated on Drawings, as specified herein and as needed for a complete and proper installation, including but not necessarily limited to the following:
  - 1. Excavate trenches for rerouting of existing utilities.
  - 2. Excavate all equipment foundations and footings as indicated on the contract documents.
  - 2. Shore, form or brace excavations as may be required.
  - 3. Dewater all open trenches as may be required.
  - 4. Compacted bed and compacted fill over utilities to subgrade elevations.
  - 5. Compaction requirements.
  - 6. Existing utility lines encountered in the Work shall be capped and removed if not used in the Project. Utility lines to remain or to be used shall be rerouted as indicated or as required for project requirements.
  - 7. Testing Laboratory Services.
- B. All material and compaction of soil shall be approved by the Soils Engineer as provided and paid for by the General Contractor.

#### 1.3 RELATED WORK

- A. Section 022100 – Trenching, Backfilling and compaction.
- B. Section 02115 – Landscaping – Topsoil, seed, sod, and tree planting.
- C. Water Distribution: Water piping from buildings to municipal utilities.
- D. Sewerage and Drainage: Sewer piping from buildings to municipal utilities.
- E. Electric Service: Electric service from buildings to municipal utilities.

#### 1.4 TESTS

- A. General
  - 1. The Contractor shall retain of a qualified, experienced soil testing laboratory to provide compaction data on fill and backfill material and in-place density control. The cost of this laboratory and field testing shall be borne by the Contractor. The Contractor shall submit the credentials of the testing laboratory to the Architect for approval prior to beginning any site work.
- B. Tests and analysis of fill materials will be performed in accordance with ASTM D1557.
- C. When Work of this Section or portions of Work are completed, notify the testing laboratory to perform density tests. Do not proceed with additional portions of Work until results have been verified.

- D. If, during progress of Work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace and retest at no cost to Owner, as directed by the Architect.
- E. Ensure compacted fills are tested before proceeding with placement of surface materials.

## 1.5 REFERENCES

- A. ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D1556 - Density of Soil in Place.
- C. ASTM D1557 - Method C, Moisture Density Relationship

## 1.6 SAMPLES

- A. Submit 10 lb. sample of each type of fill to testing laboratory, in air-tight containers.

## 1.7 PROTECTION

- A. Protect areas to receive seeding and other features remaining as part of final landscaping.
- B. Protect bench marks and existing structures, roads, sidewalks, paving and curbs against damage. Repair damage at no costs to Owner.
- C. Protect excavations by shoring, bracing, sheet piling, underspinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- D. Notify Architect of unexpected subsurface conditions and discontinue work in affected area until notification to resume work.
- E. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- F. Grade excavation top perimeter to prevent surface water run-off into excavation.

## 1.8 TEMPORARY DRAINAGE, PUMPING AND DEWATERING

- A. Keep excavations free of water. Form protective swales to drain water away from top of banks of excavated areas and to prevent erosion of banks.
- B. If pumping of water becomes necessary, include equipment, fuel, labor, maintenance and other relevant work necessary to keep pumps operating. Pump the water to natural or manmade drainage without overloading or eroding same.
- C. During filling operations, maintain water level below deposited fill material.

## PART 2 - PRODUCTS

### 2.1 SELECT BED AND FILL MATERIALS

- A. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension.
- B. Fill under landscaped areas: Free from alkali, salt, petroleum products. Use subsoil excavated from site only if conforming to specified requirements.
- C. Pipe bedding: granular material consisting of sand, gravel, crushed gravel or crushed stone conforming to ASTM C33-78, gradation 67, (3/4 inch to No.4)
- D. Fill material is subject to the approval of the Soils Engineer.

### 2.2 COMMON FILL MATERIALS

- A. Subsoil: Reused; free of gravel larger than 3 inch size, and debris.

- B. Test and verify the stockpiles backfill material as still being in conformance with the quality specified. If tests show material unacceptable, modify to acceptable condition, or provide new acceptable off-site material. Remove unacceptable material from site.
- C. Fill material is subject to the approval of the Soils Engineer.

## 2.3 OTHER MATERIALS

- A. All other materials not specifically described but required for a complete and proper installation of the Work of this Section, shall be provided by the Contractor and shall be new, first quality of their respective kinds and subject to approval of the Architect.

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Verify stockpiled fill to be reused is approved by the Soils Engineer.
- B. Verify areas to be backfilled are free of debris, snow, ice, or water, and surfaces not frozen.

### 3.2 PREPARATION

- A. Identify and set required lines, levels, contours, and datum.
- B. Maintain benchmarks, monuments and other reference points.
- C. When necessary, compact subgrade surfaces to density requirements for backfill material.

### 3.3 SURFACE CONDITIONS

- A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.4 UTILITIES

- A. Before starting excavation, establish the location and extent of underground utilities occurring in the Work area.
- B. Notify utility companies to remove and relocate lines which are in the way of excavation.
- C. Maintain, reroute or extend as required, existing utility lines to remain which pass through the Work area. Pay costs for this Work, except those covered by the utility companies.
- D. Protect active utility services uncovered by excavation.
- E. Remove abandoned utility service lines from areas of excavation. cap, plug or seal such lines and identify at grade.
- F. Accurately locate and record abandoned and active utility lines rerouted or extended, on project record drawings.

### 3.5 EXCAVATION

- A. Excavate for all utility services from building(s) to municipal utilities. Ensure trenching does not interfere with normal 45 degree bearing splay of any foundation.
- B. Excavate in accordance with lines and grades.
- C. Remove lumped subsoil, boulders and rock.
- D. Do not disturb soil within branch spread of existing trees or shrubs that are to remain. If it is necessary to excavate through roots, perform work by hand and cut roots with a sharp ax.

- E. Hand Excavation: Do excavation within 3 feet of any existing utility line by hand and in accordance with the requirements of the utility company involved. Coordinate with the utility company and make necessary arrangements to avoid damages. Be responsible for damage during excavation to existing pipe, conduit or equipment and repair any damage. Protect trees and roots from damage.
- F. Trench Depth: Excavate to the minimum depths below the bottom of the conduit as shown.

Trench Width:

1. From the subgrade elevation to an elevation at least 12 inches above the top of the conduit, the banks of the trenches shall be excavated to vertical lines and the trenches shall not be less than 23 inches nor more than 16 inches wider than the conduit to be laid. If sheeting is required, the foregoing dimensions shall be applicable to the inside faces of the sheeting.
  2. From a point 12 inches above the top of the conduit to the surface, the banks of trenches in streets, roads or highways, paved or unpaved, shall be kept as nearly vertical as possible, and in no case shall the width of trench at the top exceed the outside diameter of the conduit plus 48 inches.
  3. As warranted by working conditions and where permitted by applicable local and state requirements, the Owner's Representative may waive the requirements that the maximum width at the top of the trench not exceed the outside diameter of the conduit plus 48 inches.
- G. Trench Length - No trench shall be opened more than 400 feet in advance of conduit installation without express permission. Where rock excavating is encountered, trenches must be fully opened at least 30 feet in advance of pipe installation.
  - H. Bottoms of excavations are subject to approval. Protect bottoms of excavations from freezing.
  - I. Do additional excavation only by written authorization of Architect.
  - J. Correct unauthorized excavation as directed by Soils Engineer, at no cost to Owner.
  - K. Fill over-excavated areas under pipe bearing surfaces in accordance with direction of the Soils Engineer.
  - L. Stockpile excavated material in area designated on site and remove excess subsoil not being reused, from site.
  - M. Where it becomes necessary to excavate beyond the limits of normal excavation lines, backfill the voids remaining after removal of foreign objects as directed by the Soils Engineer.
    1. When the void is below the subgrade for the utility bedding, use suitable earth materials and compact to the relative density directed by the Soils Engineer, but in no case to a relative density less than 90%.
    2. When the void is below the subgrade for the utility bedding, use suitable earth materials or sand compacted or consolidated as approved by the Soils Engineer, but in no case to a relative density less than 80%.
    3. Remove interfering objects and backfill voids left by such removals, at no additional cost to the Owner.
  - N. Depressions
    1. Dig bell holes and depressions for joints after the trench has been graded. Provide uniform bearing for the pipe on prepared bottom of the trench.
  - O. Where utility runs traverse public property or is subject to governmental or utility company jurisdiction, provide depth, bedding, cover and other requirements as set forth by legally constituted authority having jurisdiction, but in no case less than the depth shown in the Contract Documents.

### 3.6 PROTECTION OF PERSONS AND PROPERTY

- A. Barricade open holes and depressions occurring as part of the Work, and post warning lights on property adjacent to or with public access.
- B. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

### 3.7 SHORING, BRACING AND SHEET PILING

- A. Design and provide shoring and bracing necessary to retain earth banks and to prevent collapse or displacement of soil adjacent to excavations. Provide necessary timbers, cribbing, planking or sheet piling, for shoring and bracing, and other materials and work necessary.
- B. Shoring, bracing, sheet piling and other protective work provided as part of the Work of this section shall be removed from the site when no longer required, except whether local regulations do not permit complete removal; in such instance, cut off to depth permitted.
- C. Do not damage underground utilities, existing or new, in driving or removing sheet piling.

### 3.8 DEWATERING

- A. Keep trenches dry. Provide necessary equipment including pumps, piping and temporary drains.
- B. Do not discharge drainage water lines into municipal sewers without municipal approval. Ensure water discharge does not contain silt held in suspension.
- C. Direct surface drainage away from excavated areas.
- D. Control the grading in and adjacent to excavations to prevent water running into excavated areas or onto adjacent properties or public thoroughfares.
- E. Furnish and operate suitable pumps on a 24 hour basis to keep excavations free of water until services have been placed and backfilling is completed.

### 3.9 PIPE FOUNDATION

- A. Place bedding material under and around the pipe in 6 inch layers. Compact by rodding or spading.
- B. Where soil at the bottom of the trench is unsuitable because of soft, unstable or water saturated conditions, remove such unsuitable material and stabilize the trench bottom with a granular material similar to bedding material except that maximum size shall be 2 inches. Provide depth of stabilization as required to construct a firm subgrade for the bedding material. Provide concrete cradles where necessary to bridge highly unstable soils.

### 3.10 BACKFILLING

- A. General
  - 1. Do not completely backfill trenches until required pressure and leakage tests have been performed and until the utilities systems, as installed, conform to the requirements specified in the pertinent Sections of these Specifications.
  - 2. Except as otherwise specified or directed for special conditions, backfill trenches to the ground surface with selected material approved by the Soils Engineer.
  - 3. Reopen trenches which have been improperly backfilled to a depth as required for proper compaction. Refill and compact as specified, or otherwise correct to the approval of the Soils Engineer.
  - 4. Do not allow or cause any of the Work performed or installed to be covered up or enclosed by Work of this section prior to required inspections, tests and approvals.

5. Should any of the Work be so enclosed or covered up before it has been approved, uncover all such Work, and after approvals have been made, refill and compact as specified, all at no additional cost to the Owner.
- 
- B. Begin no backfilling until pipe systems are inspected, approved and comply with all applicable codes.
  - C. Support pipe and conduit during placement and compaction of bedding fill.
  - D. Backfill trenches to contours and elevations. Backfill systematically, as early as possible to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
  - E. Leave sheeting in place by cutting off no lower than one foot above the top of the pipe.
  - F. Ensure trenches are free of building debris, snow, ice, and water and that ground surfaces are not in a frozen condition.
  - G. Do not damage protective coatings on piping.
  - H. Bring backfill up evenly on both sides of the pipe.
  - I. Maintain optimum moisture content of backfill materials to attain required compaction density.

### 3.11 COMPACTION

- A. Compaction testing will be performed in accordance with ASTM.
- B. Place and compact backfill materials in continuous layers not exceeding 6 inches loose depth.
- C. Employ a placement method so not to disturb or damage foundation dampproofing and waterproofing.
- D. Degree of compaction is expressed as a percentage of maximum density obtained by test procedure in ASTM C 1557.
- E. Compact each layer of earth fill, depending upon location to the respective percentage of maximum density (ASTM D 1557) as follows:
  1. 95% under slabs on grade within building.
  2. Under roads, parking areas, steps, site paving:
    - a. 90% for depths greater than 6 inches below finished subgrade.
    - b. 95% for the top 6 inches of subgrade and for 12 inches horizontally beyond edges of roads, parking areas and site paving.
  3. Lawn and planted areas:
    - a. 90% for depth 30 inches and greater below finished subgrade.
    - b. 85% for the top 30 inches or portion thereof where depth of fill is less than 30 inches.
- F. Backfilled areas shall be compacted to density specified for the type of areas which occur (road, parking area, steps, site paving, lawn, planted area, respectively.) These percentages apply for cohesive soil. Should the earth fill be cohesionless soil, increase these percentages 5%.
- G. Perform compaction by rolling with approved tamping rollers, pneumatic tired roller, three-wheel power roller, or other equipment well suited to the area of work. Do not use rollers or other heavy equipment closer than 4 feet over sanitary sewers and water distribution lines unless specifically approved.
- H. Do not operate heavy equipment for compacting backfilling closer than 10 feet from exterior walls, but in any case sufficiently far enough away to prevent damage to the walls. Compact backfill in areas remaining by means of power-driven hand tampers or other approved equipment.
- I. As compaction of fill in each work area has been completed, leave the area undisturbed for a reasonable period of time for testing and inspection. Do not place additional fill material on an area of compact fill until the area has been approved.

### 3.12 TOLERANCES

- A. Top Surface of Backfilling: Plus or minus one inch.

### 3.13 FOOTING PROTECTION

- A. Provide 2,000 PSI concrete fill in pipe trenches whenever trenches are running parallel to structural footings. Use the following 2:1 ratio.

<u>Distance from Trench to Edge of Footing</u>	<u>Distance from Bottom of Footing to Top of Concrete Fill</u>
2 feet	1 foot
4 feet	2 feet

### 3.14 REPAIR

- A. Repair all damages to other property such as sidewalks, streets, curbs and walls resulting from the Work.

### 3.15 SURPLUS MATERIALS

- A. Remove surplus backfill materials from site.  
B. Leave stockpile areas completely free of all excess fill materials.

### 3.16 FIELD QUALITY CONTROL

- A. The Soils Engineer will inspect and approve open cuts and trenches before installation of utilities and will make the following tests:
1. Assure that trenches are not backfilled until all tests have been completed.
  2. Check backfilling for proper layer thickness and compaction.
  3. Verify that test results conform to the specified requirements, and that sufficient tests are performed.
  4. Assure that defective work is removed and properly replaced.

## PART 4 - QUANTITY AND PAYMENT

### 4.01 METHOD OF MEASUREMENT

- A. N/A

### 4.02 BASIS OF PAYMENT

- A. All costs for Trenching and Backfilling work coordination of existing utilities shall be included in the prices bid for the various scheduled items in the Bid Form and no separate payment will be made thereto.

END OF SECTION 022100

## SECTION 033000 - CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

#### 1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

#### 1.3 ACTION SUBMITTALS

##### A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement
7. Aggregates.
8. Admixtures:
  - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
9. Color pigments.
10. Fiber reinforcement.
11. Vapor retarders.
12. Floor and slab treatments.
13. Liquid floor treatments.
14. Curing materials.
  - a. Include documentation from color pigment manufacturer, indicating that proposed methods of curing are recommended by color pigment manufacturer.

15. Joint fillers.
16. Repair materials.

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Synthetic micro-fiber content.
11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
12. Include manufacturer's certification that permeability-reducing admixture is compatible with mix design.
13. Include certification that dosage rate for permeability-reducing admixture matches dosage rate used in performance compliance test.
14. Intended placement method.
15. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
  - a. Location of construction joints is subject to approval of the Engineer.

D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

#### 1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Fiber reinforcement.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.
8. Vapor retarders.
9. Semirigid joint filler.
10. Joint-filler strips.
11. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:

- a. Permeability-Reducing Admixture: Include independent test reports, indicating compliance with specified requirements, including dosage rate used in test.

D. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.

E. Research Reports:

1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
2. For sheet vapor retarder/termite barrier, showing compliance with ICC AC380.

F. Preconstruction Test Reports: For each mix design.

G. Field quality-control reports.

## 1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete, incorporating permeability-reducing admixtures.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
  - 1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
  - 1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- D. Field Quality-Control Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
  - 1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

#### 1.6 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.
  - 1. Include the following information in each test report:
    - a. Admixture dosage rates.
    - b. Slump.
    - c. Air content.
    - d. Seven-day compressive strength.
    - e. 28-day compressive strength.
    - f. Permeability.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

#### 1.8 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.
  - 1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## 1.9 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder/termite barrier material and accessories for sheet vapor retarder/ termite barrier and accessories that do not comply with requirements or that fail to resist penetration by termites within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

### 2.2 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I Type II,.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.

- C. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
  - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Air-Entraining Admixture: ASTM C260/C260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.
  - 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
  - 2. Retarding Admixture: ASTM C494/C494M, Type B.
  - 3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
  - 5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
  - 7. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.
  - 8. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

## 2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 6 mils thick.

## 2.4 FLOOR AND SLAB TREATMENTS

- A. Slip-Resistive Emery Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive, crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.
- B. Slip-Resistive Aluminum Granule Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of not less than 95 percent fused aluminum-oxide granules.

## 2.5 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

## 2.6 CURING MATERIALS

- A. Clear, Solvent-Borne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. ChemMasters, Inc.
    - b. Concrete Sealers USA.
    - c. Kaufman Products, Inc.

## 2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade and class to suit requirements, and as follows:
  - 1. Types I and II, nonload bearing Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

## 2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

## 2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
  1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  1. Fly Ash or Other Pozzolans: 25 percent by mass.
  2. Slag Cement: 50 percent by mass.
  3. Silica Fume: 10 percent by mass.
  4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
  5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
  1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
  4. Use permeability-reducing admixture in concrete mixtures where indicated.
- D. Color Pigment: Add color pigment to concrete mixture in accordance with manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

## 2.10 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
  1. Minimum Compressive Strength: 4000 psi at 28 days.
  2. Maximum w/cm: .48
  3. Slump Limit: 4 inches, plus or minus 1 inch.
  4. Air Content:
    - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.

5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- B. Class B: Normal-weight concrete used for foundation walls.
1. Minimum Compressive Strength: 4000 psi at 28 days.
  2. Maximum w/cm: 0.45.
  3. Slump Limit: 4 inches, plus or minus 1 inch.
  4. Air Content:
    - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- C. Class C: Normal-weight concrete used for interior slabs-on-ground.
1. Minimum Compressive Strength: 4000 psi at 28 days.
  2. Maximum w/cm: 0.45.
  3. Slump Limit: 4 inches, plus or minus 1 inch.
  4. Air Content:
    - a. Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.
5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

## 2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and ASTM C1116/C1116M, and furnish batch ticket information.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.
1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
  2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
  3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
  1. Daily access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
  4. Security and protection for test samples and for testing and inspection equipment at Project site.

### 3.3 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
  1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
  3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

### 3.4 INSTALLATION OF VAPOR RETARDER

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.
  1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
  2. Face laps away from exposed direction of concrete pour.
  3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
  4. Lap joints 6 inches and seal with manufacturer's recommended tape.
  5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
  6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
  7. Protect vapor retarder during placement of reinforcement and concrete.
    - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.

- B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder in accordance with manufacturer's written instructions.

### 3.5 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
  - 1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Engineer.
  - 2. Place joints perpendicular to main reinforcement.
    - a. Continue reinforcement across construction joints unless otherwise indicated.
    - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
  - 3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  - 4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  - 6. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - 7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
  - 8. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
  - 1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  - 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.

2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints:

1. Install dowel bars and support assemblies at joints where indicated on Drawings.
2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

F. Dowel Plates: Install dowel plates at joints where indicated on Drawings.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
  2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer in writing, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
1. If a section cannot be placed continuously, provide construction joints as indicated.
  2. Deposit concrete to avoid segregation.
  3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

- a. Do not use vibrators to transport concrete inside forms.
  - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
  - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
  - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Do not place concrete floors and slabs in a checkerboard sequence.
  - 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 3. Maintain reinforcement in position on chairs during concrete placement.
  - 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 5. Level concrete, cut high areas, and fill low areas.
  - 6. Slope surfaces uniformly to drains where required.
  - 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
  - 8. Do not further disturb slab surfaces before starting finishing operations.

### 3.7 FINISHING FORMED SURFACES

#### A. As-Cast Surface Finishes:

- 1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
  - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
  - b. Remove projections larger than 1 inch.
  - c. Tie holes do not require patching.
  - d. Surface Tolerance: ACI 117 Class D.
  - e. Apply to concrete surfaces not exposed to public view.
- 2. ACI 301 Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/4 inch.
  - c. Patch tie holes.
  - d. Surface Tolerance: ACI 117 Class B.
  - e. Locations: Apply to concrete surfaces exposed to public view, to receive a rubbed finish.
- 3. ACI 301 Surface Finish SF-3.0:
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/8 inch.

- c. Patch tie holes.
- d. Surface Tolerance: ACI 117 Class A.
- e. Locations: Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

B. Rubbed Finish: Apply the following to as cast surface finishes where indicated on Drawings:

1. Smooth-Rubbed Finish:

- a. Perform no later than one day after form removal.
- b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
- c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
- d. Maintain required patterns or variances as shown on Drawings.

2. Grout-Cleaned Rubbed Finish:

- a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
- b. Do not clean concrete surfaces as Work progresses.
- c. Mix 1 part portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
- d. Wet concrete surfaces.
- e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
- f. Maintain required patterns or variances as shown on Drawings.

C. Related Unformed Surfaces:

- 1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
- 2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.8 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish:

- 1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
- 2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.

3. Apply scratch finish to surfaces to receive concrete floor toppings or to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish:

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
2. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.
3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

D. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:

a. Slabs on Ground:

- 1) Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch and also no more than 1/16 inch in 2 feet.
- 2) Specified overall values of flatness,  $F_F$  25; and of levelness,  $F_L$  20; with minimum local values of flatness,  $F_F$  17; and of levelness,  $F_L$  15.
- 3) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  25; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  17.
- 4) Specified overall values of flatness,  $F_F$  45; and of levelness,  $F_L$  35; with minimum local values of flatness,  $F_F$  30; and of levelness,  $F_L$  24.
- 5) Specified overall values of flatness,  $F_F$  50; and of levelness,  $F_L$  25; with minimum local values of flatness,  $F_F$  40; and of levelness,  $F_L$  17.

b. Suspended Slabs:

- 1) Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.

- 2) Specified overall values of flatness,  $F_F$  25; and of levelness,  $F_L$  20; with minimum local values of flatness,  $F_F$  17; and of levelness,  $F_L$  15.
  - 3) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  20; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  15.
  - 4) Specified overall values of flatness,  $F_F$  45; and of levelness,  $F_L$  35; with minimum local values of flatness,  $F_F$  30; and of levelness,  $F_L$  24.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated on Drawings and/or where ceramic or quarry tile is to be installed by either thickset or thin set method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
1. Coordinate required final finish with Engineer before application.
  2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
  2. Coordinate required final finish with Engineer before application.
- G. Slip-Resistive Finish: Before final floating, apply slip-resistive aggregate finish to concrete stair treads, platforms, ramps as indicated on Drawings
1. Apply in accordance with manufacturer's written instructions and as follows:
    - a. Uniformly spread 25 lb/100 sq. ft. of dampened slip-resistive aggregate over surface in one or two applications.
    - b. Tamp aggregate flush with surface, but do not force below surface.
    - c. After broadcasting and tamping, apply float finish.
    - d. After curing, lightly work surface with a steel wire brush or an abrasive stone and water to expose slip-resistive aggregate.
- H. Dry-Shake Floor Hardener Finish: After initial floating, apply dry-shake floor hardener to surfaces in accordance with manufacturer's written instructions and as follows:
1. Uniformly apply dry-shake floor hardener at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer.
  2. Uniformly distribute approximately two-thirds of dry-shake floor hardener over surface by hand or with mechanical spreader, and embed by power floating.
  3. Follow power floating with a second dry-shake floor hardener application, uniformly distributing remainder of material, and embed by power floating.
  4. After final floating, apply a trowel finish.
  5. Cure concrete with curing compound recommended by dry-shake floor hardener manufacturer and apply immediately after final finishing.

### 3.9 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
  2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
  3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
1. Coordinate sizes and locations of concrete bases with actual equipment provided.
  2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
  3. Minimum Compressive Strength: 4000 psi at 28 days.
  4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
  5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
  6. Prior to pouring concrete, place and secure anchorage devices.
    - a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
    - b. Cast anchor-bolt insert into bases.
    - c. Install anchor bolts to elevations required for proper attachment to supported equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.
1. Cast-in inserts and accessories, as shown on Drawings.
  2. Screed, tamp, and trowel finish concrete surfaces.

### 3.10 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
  2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
  3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h, calculated in accordance with ACI 305.1, before and during finishing operations.
- B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
  2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
  3. If forms remain during curing period, moist cure after loosening forms.

4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
  - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
  - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
  - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
  - d. Water-Retention Sheetting Materials: Cover exposed concrete surfaces with sheetting material, taping, or lapping seams.
  - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
    - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
    - 2) Maintain continuity of coating and repair damage during curing period.

C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:

1. Begin curing immediately after finishing concrete.
2. Interior Concrete Floors:
  - a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
    - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
      - a) Lap edges and ends of absorptive cover not less than 12 inches.
      - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
    - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
      - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
      - b) Cure for not less than seven days.
    - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
      - a) Water.
      - b) Continuous water-fog spray.

- b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
    - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
    - b) Cure for not less than seven days.
  - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- c. Floors to Receive Polished Finish: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- d. Floors to Receive Chemical Stain:
  - 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install curing paper over entire area of floor.
  - 2) Install curing paper square to building lines, without wrinkles, and in a single length without end joints.
  - 3) Butt sides of curing paper tight; do not overlap sides of curing paper.

- 4) Leave curing paper in place for duration of curing period, but not less than 28 days.

e. Floors to Receive Urethane Flooring:

- 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
- 2) Rewet absorptive cover, and cover immediately with polyethylene moisture-retaining cover with edges lapped 6 inches and sealed in place.
- 3) Secure polyethylene moisture-retaining cover in place to prohibit air from circulating under polyethylene moisture-retaining cover.
- 4) Leave absorptive cover and polyethylene moisture-retaining cover in place for duration of curing period, but not less than 28 days.

f. Floors to Receive Curing Compound:

- 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
- 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
- 3) Maintain continuity of coating, and repair damage during curing period.
- 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.

g. Floors to Receive Curing and Sealing Compound:

- 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
- 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
- 3) Repeat process 24 hours later, and apply a second coat. Maintain continuity of coating, and repair damage during curing period.

### 3.11 TOLERANCES

- A. Conform to ACI 117.

### 3.12 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.
1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
  2. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
  3. Rinse with water; remove excess material until surface is dry.

4. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller in accordance with manufacturer's written instructions.

### 3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
  1. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

### 3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
  1. Repair and patch defective areas when approved by Engineer.
  2. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
    - a. Limit cut depth to 3/4 inch.
    - b. Make edges of cuts perpendicular to concrete surface.
    - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    - d. Fill and compact with patching mortar before bonding agent has dried.
    - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.
    - a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
    - b. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Engineer.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
  - a. Correct low and high areas.
  - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
  - a. Finish repaired areas to blend into adjacent concrete.
5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
  - a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  - b. Feather edges to match adjacent floor elevations.
6. Correct other low areas scheduled to remain exposed with repair topping.
  - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
  - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
  - a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
  - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
  - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
  - d. Place, compact, and finish to blend with adjacent finished concrete.
  - e. Cure in same manner as adjacent concrete.
8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.

- a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
  - b. Dampen cleaned concrete surfaces and apply bonding agent.
  - c. Place patching mortar before bonding agent has dried.
  - d. Compact patching mortar and finish to match adjacent concrete.
  - e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

### 3.15 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article. The scheduling and costs for all testing shall be the responsibility of the contractor.
  - 1. Testing agency to be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
  - 2. Testing agency to immediately report to Engineer, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  - 3. Testing agency to report results of tests and inspections, in writing, to Owner, Engineer, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
    - a. Test reports to include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
      - 1) Project name.
      - 2) Name of testing agency.
      - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
      - 4) Name of concrete manufacturer.
      - 5) Date and time of inspection, sampling, and field testing.
      - 6) Date and time of concrete placement.
      - 7) Location in Work of concrete represented by samples.
      - 8) Date and time sample was obtained.
      - 9) Truck and batch ticket numbers.
      - 10) Design compressive strength at 28 days.
      - 11) Concrete mixture designation, proportions, and materials.
      - 12) Field test results.
      - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
      - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- B. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size,

design air content, design slump at time of batching, and amount of water that can be added at Project site.

C. Inspections:

1. Headed bolts and studs.
2. Verification of use of required design mixture.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from beams and slabs.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
  - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C143/C143M:
  - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - b. Perform additional tests when concrete consistency appears to change.
3. Slump Flow: ASTM C1611/C1611M:
  - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - b. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete;
  - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C1064/C1064M:
  - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
  - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C31/C31M:

- a. Cast and laboratory cure two sets of two 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.
  - b. Cast, initial cure, and field cure two sets of three standard cylinder specimens for each composite sample.
- 8. Compressive-Strength Tests: ASTM C39/C39M.
  - a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
  - b. Test one set of two field-cured specimens at seven days and one set of two specimens at 28 days.
  - c. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
- 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor to evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
- 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- 12. Additional Tests:
  - a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
  - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
    - 1) Acceptance criteria for concrete strength to be in accordance with ACI 301, Section 1.6.6.3.
- 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 48 hours of completion of floor finishing and promptly report test results to Engineer.

### 3.16 PROTECTION

- A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.
7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

#### PART 4 - MEASUREMENT, QUANTITY & PAYMENT

Cost for work specified in this section shall be paid for under the bid form line items for which they are a part. Costs shall include all excavation, shoring, formwork, finishes, steel reinforcement, reinforcement accessories, concrete materials, admixtures, water stops, vapor barriers, treatments, curing materials, joint fillers, bonding agents, adhesives, repair materials, testing, and all related appurtenances as required per the contract documents.

END OF SECTION 033000

## SECTION 260450 - ELECTRICAL DEMOLITION & RENOVATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 REFERENCE CODES AND STANDARDS

- A. The work shall conform to:
  - 1. National Electrical Code
  - 2. State and Local Codes

### PART 2 - PRODUCTS

- 2.1 Materials used for this work shall be in accordance with the applicable specification sections in Division 16.

### PART 3 - EXECUTION

- 3.1 Provide demolition, relocation, and alteration of electrical construction as required.
  - A. The contractor shall notify the owner 48 hours in advance of any interruptions of electric service to any area of the building.
  - B. All interruptions of electric service shall be kept to a minimum. Where power is to be interrupted for longer than twenty (20) minutes, the work shall be done after normal business hours, and where necessary, temporary power shall be provided by means of additional temporary feeds or by means of a generator.
  - C. Should the electrical service be disrupted due to construction while the building is occupied the contractor shall provide temporary electrical power at no additional cost to the contract.
- 3.2 Check the locations of all existing electrical work, such as lighting fixtures, electrical conduit, wiring, fittings, controls, starters, and other electrical construction and provide the removing, relocating, rerouting, and reconnecting of this work due to demolition and new construction. Any existing apparatus or wiring device to be retained shall be

disconnected, relocated, and reinstalled as required, to allow for new wall, floor or ceiling finishes.

- 3.3 Methods of installation and standards of workmanship shall be in accordance with the applicable specification sections under Division 26.
- 3.4 Where existing equipment will remain in service during construction, provide rerouting and reconnection of electrical service as required.
- 3.5 Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- 3.6 Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- 3.7 Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches (50 mm), below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- 3.8 Remove demolished material from project site. Any particular equipment that the owner wants saved shall be stored as directed.
- 3.9 Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.
- 3.10 Feeders or circuits, whether spliced, extended, relocated or new, shall maintain amperage and continuity of that respective feeder or circuit.
- 3.11 Where new work interferes with existing work or other trades, relocate such existing work without additional cost. Approval by the Owner's Representative must be given before any relocation work can begin. The relocation work shall be done in a manner acceptable to the Owner. Engage Contractor of the appropriate trade to do the work.

END OF SECTION 260450

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL – MATERIALS AND METHODS GENERAL

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Raceways.
  - 2. Building wire and connectors.
  - 3. Supporting devices for electrical components.
  - 4. Electrical identification.
  - 5. Utility company electricity-metering components.
  - 6. Concrete equipment bases.
  - 7. Electrical demolition.
  - 8. Cutting and patching for electrical construction.

1.2 SUBMITTALS

- A. Product Data: For utility company electricity-metering components.
- B. Shop Drawings: Dimensioned plans and sections or elevation layouts and single-line diagram of electricity-metering component assemblies specific to this Project.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. The contractor shall be fully responsible for all coordination of the electrical work required to meet the design intent and the scope of work related to the project. This includes but not limited to all other trades, material handling, equipment rentals, tools, automobiles, parking and travel expenses, engineering review and consult, as-built drawings and any/all construction site requirements that are necessary to provide a turnkey electrical installation.
- C. The 'Basis of Design' is the product that is specified which supports the design data contained within the contract documents. Should the contractor elect to use an alternate manufacturer listed within the specifications the contractor is still required to meet the full intent and specifications and the contract documents. Any deviation of the contract documents will be the sole responsibility of the contractor to maintain specification requirements at no additional cost to the owner.
- D. It shall be the contractor's responsibility to acknowledge any long lead delivery items with written response from the manufacturer, at the time of Notice to Proceed. Should the contractor fail to inform the client and the A/E of any material or equipment delays at the time Notice to Proceed has been given, the contractor will take full responsibility in completing the project in the same allowed construction period, based on the approved construction schedule.

- E. The contractor shall be fully responsible for the coordination and installation of all electrical products as per the manufacturer's recommendations. Should the contractor alter or change the manufacturer's installation recommendations, the contractor shall submit a certified installation report from the manufacturer's representative stating the installation is acceptable. Any discrepancies in the installation shall be corrected per the manufacturer's requirements at no additional cost to the owner and before final closeout of the project.
- F. Devices for Utility Company Electricity Metering: Comply and coordinate with local utility company requirements and Specification Section 262713 – Electricity Metering.
- G. Comply with NFPA 70.

#### 1.4 COORDINATION

- A. The contractor shall be fully responsible for the coordination of all electrical work required to meet the design intent and the scope of work related to the project. This includes but not limited to all other trades, material handling, equipment rentals, rigging equipment, cranes, high reach man lifts, tools, automobiles, parking and travel expenses, engineering review and consult, as-built drawings and any/all construction site requirements that are necessary to provide a turnkey electrical installation.
- B. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
  - 1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.
- C. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.
- D. Coordinate electrical service connections to components furnished by utility companies.
  - 1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.
  - 2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.
- E. Devices for Utility Company Electricity Metering: Comply and coordinate with local utility company requirements and published standards.
- F. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.
- G. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.
- H. Where electrical identification markings and devices will be concealed by acoustical ceilings and similar finishes, coordinate installation of these items before ceiling installation.

- I. The contractor shall field verify all existing conductor phasing for each individual circuit feeder whether it be primary or secondary feeds to and from the new electrical equipment. The contractor is fully responsible for tagging and phasing all branch circuits. Any disruption or equipment failure caused by phase crossing shall be the full responsibility of the contractor to replace and or repair any/all damages that may occur at no additional cost.

#### 1.5 ITEMS NOT SHOWN OR SPECIFIED

- A. Any item of material not indicated on the drawings and/or not specified, but which is required for the complete and proper installation and/or operation of any part of the work, shall be provided as if indicated and specified, at no additional cost to the Owner.
- B. Any work not indicated on the drawings and/or not specified, but which is required for compliance with applicable codes and regulations, shall be provided as if indicated and specified, at no additional cost to the Owner.

### PART 2 - PRODUCTS

#### 2.1 RACEWAYS

- A. EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel, with compression fittings.
- B. FMC: Flexible metal conduit; zinc-coated steel.
- C. IMC: Intermediate metal conduit; ANSI C80.6, zinc-coated steel, with threaded fittings.
- D. LFMC: Liquidtight flexible metal conduit; zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket.
- E. RMC: Rigid metal conduit; galvanized rigid steel; ANSI C80.1.
- F. RNC: Rigid nonmetallic conduit; NEMA TC 2, Schedule 40 PVC, with NEMA TC3 fittings.
- G. Raceway Fittings: Specifically designed for raceway type with which used.

#### 2.2 WIRES, CABLES, AND CONNECTIONS

- A. Conductors, No. 10 AWG and Smaller: Solid or stranded copper.
- B. Conductors, Larger Than No. 10 AWG: Stranded copper.
- C. Insulation: Thermoplastic, rated 600 V, 75 deg C minimum, Type THW, THHN-THWN, or USE depending on application.
- D. Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.

#### 2.3 SUPPORTING DEVICES

- A. Material: Cold-formed steel, with corrosion-resistant coating.
- B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.
- C. Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch- (14-mm-) diameter slotted holes at a maximum of 2 inches (50 mm) o.c., in webs. Strength rating to suit structural loading.
- D. Nonmetallic Slotted Channel and Angle: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (203 mm) o.c. in at least one surface. Strength rating to suit structural loading.
- E. Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.
  - 1. Materials: Same as channels and angles, except metal items may be stainless steel.
- F. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.
- G. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- H. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.
- I. Expansion Anchors: Carbon-steel wedge or sleeve type.
- J. Toggle Bolts: All-steel springhead type.
- K. Powder-Driven Threaded Studs: Heat-treated steel.

## 2.4 ELECTRICAL IDENTIFICATION

- A. Identification Device Colors: Use those prescribed by ANSI A13.1, NFPA 70, and these Specifications.
- B. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick (25 mm wide by 0.08 mm thick).
- C. Tape Markers for Conductors: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- D. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.
- E. Underground Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape compounded for permanent direct-burial service, and with the following features:
  - 1. Not less than 6 inches wide by 4 mils thick (150 mm wide by 0.102 mm thick).

2. Embedded continuous metallic strip or core.
  3. Printed legend that indicates type of underground line.
- F. Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch (1.6-mm) minimum thickness for signs up to 20 sq. in. (129 sq. cm) and 1/8-inch (3.2-mm) minimum thickness for larger sizes. Engraved legend in black letters on white background.
- G. Warning and Caution Signs: Preprinted; comply with 29 CFR 1910.145, Chapter XVII. Colors, legend, and size appropriate to each application.
1. Interior Units: Aluminum, baked-enamel-finish, punched or drilled for mechanical fasteners.
  2. Exterior Units: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate with 0.0396-inch (1-mm), galvanized-steel backing. 1/4-inch (6-mm) grommets in corners for mounting.
- H. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

## 2.5 EQUIPMENT FOR UTILITY COMPANY'S ELECTRICITY METERING

- A. Comply with requirements of the local electrical power utility company for meter sockets and current transformer cabinet and as per Specification Section 262713 – Electricity Metering.
- B. Provide Cold Sequence Meter Protection Switch as required by the Local Utility Company.
- C. The contractor shall coordinate and provide any/all metering equipment for low and medium voltage equipment provisions not directly supplied by the local utility company.

## 2.6 CONCRETE BASES

- A. Provide 6" high concrete sub-bases for all floor mounted electrical equipment within spaces that are below exterior finished grade and/or in spaces that are installed where water or liquids may be dispersed from local equipment or building appurtenances.
- B. Where concrete bases are required, provide approved anchoring systems and methods to apply the base to the flooring and for the equipment being supported.

# PART 3 - EXECUTION

## 3.1 ELECTRICAL EQUIPMENT INSTALLATION

- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange, and install components and equipment to provide maximum possible headroom.
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

- C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
- D. Electrical equipment shall be installed at elevations where the disconnecting means is not greater than 6'-6" above the accessible, working floor elevation (unless noted otherwise).
- E. Right of Way: Give to raceways and piping systems installed at a required slope.

### 3.2 RACEWAY APPLICATION

#### A. Outdoor Installations:

- 1. Exposed: RMC.
- 2. Concealed: RNC.
- 3. Underground, Single Run: RNC.
- 4. Underground, Grouped: RNC.
- 5. Connection to Vibrating Equipment: LFMC.
- 6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4, unless otherwise indicated.

#### B. Indoor Installations:

- 1. Exposed: EMT except in wet or damp locations, use IMC.
- 2. Concealed in Walls or Ceilings: FMC.
- 3. In Concrete Slab: RNC.
- 4. Below Slab on Grade or in Crawlspace: RNC
- 5. Connection to Vibrating Equipment: FMC; except in wet or damp locations: LFMC.
- 6. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.

### 3.3 RACEWAY AND CABLE INSTALLATION

- A. Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.
- B. Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel.
- C. Use RMC elbows where RNC turns out of slab.
- D. Where required to provide a Rough-in Only device application concealed within the vertical walls the contractor shall provide the device work box and ¾" EMT raceway to above the ceiling with a 90-degree bend turned into the ceiling space and apply an open end plastic bushing or cap for future wiring application.
- E. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or woven polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wires.
- F. Connect motors and equipment subject to vibration, noise transmission, or movement with a maximum of 72-inches (1830-mm) flexible conduit. Install LFMC in wet or damp locations. Install separate ground conductor across flexible connections.

### 3.4 WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS

- A. Application: Use wiring methods specified below to the extent permitted by applicable codes as interpreted by authorities having jurisdiction.
- B. Exposed Feeders: Insulated single conductors in raceway.
- C. Concealed Feeders in Concrete: Insulated single conductors in PVC raceway.
- D. Exposed Branch Circuits Insulated single conductors in raceway.
- E. Concealed Branch Circuits: Insulated single conductors in FMC raceway.
- F. Underground Feeders and Branch Circuits: Insulated single conductors in raceway.
- G. Remote-Control Signaling and Power-Limited Circuits, Classes 1, 2, and 3: Insulated conductors in FMC raceway unless otherwise indicated.
- H. Provide PVC pipe sleeves for all non-fire rated interior masonry and below grade wall penetrations. Provide caulk/sealant for all wall penetrations installed.
- I. Provide Rigid metallic pipe sleeves for all fire rated masonry and exterior wall penetrations. Provide the rated fire caulk/sealant for all wall penetrations that match the rating of the fire wall.

### 3.5 WIRING INSTALLATION

- A. The contractor shall minimize all wire splices or taps. Should the need to provide splices or taps provide materials that are compatible with the connecting conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors.
- B. Unless specified otherwise the contractor shall not exceed four (4) current carrying conductors plus ground in a single raceway.

### 3.6 ELECTRICAL SUPPORTING DEVICE APPLICATION

- A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, slotted channel system components.
- B. Dry Locations: Steel materials.
- C. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb (90-kg) minimum design load for each support element.

### 3.7 SUPPORT INSTALLATION

- A. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

- B. Size supports for multiple raceway or cable runs so capacity can be increased by a 25 percent minimum in the future.
- C. Support individual horizontal single raceways with separate, malleable-iron pipe hangers or clamps.
- D. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used in existing walls or floors. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.
- E. Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:
  - 1. Wood: Wood screws or screw-type nails.
  - 2. Gypsum Board: Toggle bolts. Seal around sleeves with joint compound, both sides of wall.
  - 3. Masonry: Toggle bolts on hollow block and expansion bolts on solid block. Seal around sleeves with mortar, both sides of wall.
  - 4. New Concrete: Concrete inserts with machine screws and bolts.
  - 5. Existing Concrete: Expansion bolts or threaded studs driven by powder charge and provided with lock washers.
  - 6. Structural Steel: Welded threaded studs.
    - a. Comply with AWS D1.1 for field welding.
  - 7. Light Steel Framing: Sheet metal screws.
  - 8. Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
  - 9. Light Steel: Sheet-metal screws.
  - 10. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

### 3.8 FIRESTOPPING

- A. Apply firestopping to cable and raceway sleeves and other penetrations of fire-rated floor and wall assemblies to restore original undisturbed fire-resistance ratings of assemblies.

### 3.9 DEMOLITION

- A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions, and install new products of equal capacity, quality, and functionality.
- B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety and back to electrical panel source.
- C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches (50 mm) below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.

- D. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

### 3.10 TEMPORARY ELECTRICAL POWER / SERVICES

- A. Provide all necessary temporary electrical construction power by either a temporary service power pole or by portable generator to maintain adequate electrical power requirements for the duration of construction, at no additional cost to the project or owner.
- B. Should the project include demolition or disruption of an existing electrical service the contractor shall provide temporary back-up power source and connection that meets the demand requirements of the disturbed service at no additional cost to the project or owner.

### 3.11 CUTTING AND PATCHING

- A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.
- B. Repair, refinish and touch up disturbed finish materials and other surfaces to match adjacent undisturbed surfaces.

END OF SECTION 260500

## SECTION 260519 - CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

#### 1.3 SUBMITTALS

- A. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

#### 1.4 QUALITY ASSURANCE

- A. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled" as defined in NFPA 70, Article 100.
  - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
- B. Comply with NFPA 70.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver wires and cables according to NEMA WC 26.

#### 1.6 COORDINATION

- A. Coordinate layout and installation of cables with other installations.
- B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by Engineer.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

## 2.2 CONDUCTORS AND CABLES

- A. Manufacturers:
  - 1. American Insulated Wire Corp.; a Leviton Company.
  - 2. General Cable Corporation.
  - 3. Rome Cable Company.
- B. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.
- C. Conductor Material: Copper complying with NEMA WC 5 or 7; solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
- D. Conductor Insulation Types: Type THW, THHN-THWN, XHHW and SO complying with NEMA WC 5 or 7.
- E. Conductor Insulation Type: Type XHHW where used exterior and below grade or in extreme wet location areas.
- F. Multi-conductor Cable: Armored cable Type FAC, Metal-clad cable Type FMC, and Type SO with ground wire. Armor shall be steel interlocked covering in NEMA 1 applications.

## 2.3 CONNECTORS AND SPLICES

- A. Manufacturers:
  - 1. AFC Cable Systems, Inc.
  - 2. AMP Incorporated/Tyco International.
  - 3. Hubbell/Anderson.
  - 4. O-Z/Gedney; EGS Electrical Group LLC.
  - 5. 3M Company; Electrical Products Division.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

## 2.4 HEAT TRACE CABLES AND COMPONENTS

- A. Provide a heat trace freeze protection system for above ground piping with a minimum rating of -20°F. Basis of Design: Raychem by Tyco Thermal Controls.  
  
Other Approved Manufacturers:
  - 1. Nelson Heat Trace – Emerson Industrial Automation
- B. The Raychem XL-Trace System shall be provided with all required control monitoring devices and 30-mA ground fault protection device.
- C. System shall be UL listed and FM approved for non-hazardous locations. Where hazardous locations apply comply with all current NFPA and EPA requirements.

- D. The self regulating, Raychem 12XL2 (12 watt/ft) heating cable shall be permanently secured to the metallic pipes with Raychem GT-66 glass reinforced tape. The cable shall be minimum 20-amp, 208 volt rated.
- E. For above ground system include the following devices:
  - 1. Power Connector – RayClip-PC
  - 2. Electronic thermostat – Raychem model EC-TS-AM8.
  - 3. Splices – RayClic-S
  - 4. Tees – RayClic-T
  - 5. End seal – RayClic – E
  - 6. Provide all miscellaneous installation components required by the manufacturer for a turnkey installation.

### PART 3 - EXECUTION

#### 3.1 CONDUCTOR AND INSULATION APPLICATIONS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway, XHHW, single conductors in raceway.
- B. Exposed Feeders in raceway: Type THHN-THWN.
- C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in EMT, FAC or FMC raceway.
- D. Feeders Concealed in Concrete or below Slabs-on-Grade: Type THHN-THWN, single conductors in PVC raceway.
- E. Exposed Branch Circuits, including in Crawlspace: Type THHN-THWN, single conductors in raceway that meets the crawlspace environment (no FAC or FMC).
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway, Electrical Metallic Tubing Type EMT, Armored cable Type FAC, or Metal-clad cable Type FMC.
- G. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in PVC raceway.
- H. Branch circuit homeruns exposed: Type THHN-THWN, single conductors in EMT or RMC.
- I. Cord Drops and Portable Appliance Connections: Type SO, hard service cord sized in accordance with the overcurrent protection device (breaker or fuse size) ‘not’ the amperage rating of the appliance.
- J. Exposed Fire Alarm Circuits: Type THHN-THWN, in raceway or Power-limited, fire-protective, signaling circuit cable in steel armor spiral cover, colored red or labeled EMT.
- K. Exposed Fire Alarm Circuits where existing architecturally finished wall surfaces exist to remain, the contractor shall provide Surface Mounted Raceway (such as Wiremold).
- L. Class 1 Control Circuits: Type THHN-THWN, in raceway.

- M. Class 2 Control Circuits: Power-limited cable, concealed in building finishes (above acoustical ceilings and walls).

### 3.2 INSTALLATION

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means; including fish tape, cable, rope, and basket-weave wire/cable grips, which will not damage cables or raceway.
- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.
- E. Support cables according to Division 26 Section "Hangers & Supports".
- F. Provide an additional four hundred linear feet of cable/conductor and accessories of each type and size used on the project to accommodate any changes required to resolve interferences as directed by the Engineer.
- G. Seal around cables penetrating fire-rated elements according to Division 7 Section "Through-Penetration Firestop Systems."
- H. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."

### 3.3 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors.
  - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

### 3.4 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing:
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
  - 2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
  - 3. It is the electrical contractor's responsibility to confirm all wire and cable installations meet the necessary inspections and testing indicated in item 260519-3.4A paragraph #2 of this section. Should any failures be found during or immediately after construction the

contractor will be required to provide and third-party NETA testing agency to prepare a detailed inspection and approval report detailing all corrective measures at no additional cost. In addition, the contractor will be required to replace 100% of all damaged or failing installations at the contractor's expense. Should any work require replacement the contractor will be required to provide at no additional cost another NETA testing inspection to confirm corrective measures have been met.

- B. Test Reports: Prepare a written report to record the following should 260519-3.4A paragraph #3 be required:
1. Test procedures used.
  2. Test results that comply with requirements.
  3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

## SECTION 260526 - GROUNDING AND BONDING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes grounding of electrical systems and equipment. Requirements specified in this Section may be supplemented by requirements of other Sections.

#### 1.2 SUBMITTALS

- A. Product Data: For ground rods and chemical rods.
- B. Field quality-control test reports.

#### 1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled under UL 467 as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70; for overhead-line construction and medium-voltage underground construction, comply with IEEE C2.
- C. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

#### 1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Ground Rods-Provide an additional 4 ground rods of each type and size utilized on this project.
  - 2. Ground Conductors-Provide an additional 150 feet of each ground conductor type and size utilized on this project.
  - 3. Ground Connections-Provide an additional 4 connections of each type and size utilized on this project.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Apache Grounding/Erico Inc.
2. Boggs, Inc.
3. Chance/Hubbell.
4. Copperweld Corp.
5. Dossert Corp.
6. Erico Inc.; Electrical Products Group.
7. Framatome Connectors/Burndy Electrical.
8. Ideal Industries, Inc.
9. ILSCO.
10. Kearney/Cooper Power Systems.
11. Korns, C. C. Co.; Division of Robroy Industries.
12. Lightning Master Corp.
13. Lyncole XIT Grounding.
14. O-Z/Gedney Co.; a business of the EGS Electrical Group.
15. Racor, Inc.; Division of Hubbell.
16. Robbins Lightning, Inc.
17. Salisbury, W. H. & Co.
18. Superior Grounding Systems, Inc.
19. Thomas & Betts, Electrical.

## 2.2 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 16 Section "Conductors and Cables."
- B. Equipment Grounding Conductors: Insulated with green-colored insulation.
- C. Isolated Ground Conductors: Insulated with green-colored insulation with yellow stripe. On feeders with isolated ground, use colored tape, alternating bands of green and yellow tape to provide a minimum of three bands of green and two bands of yellow.
- D. Grounding Electrode Conductors: Stranded cable.
- E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
- F. Bare, Solid-Copper Conductors: ASTM B 3.
- G. Assembly of Bare, Stranded-Copper Conductors: ASTM B 8.
- H. Bare, Tinned-Copper Conductors: ASTM B 33.
- I. Copper Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
- J. Copper Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches (42 mm) wide and 1/16 inch (1.5 mm) thick.
- K. Tinned-Copper Bonding Jumper: Tinned-copper tape, braided copper conductors, terminated with copper ferrules; 1-5/8 inches (42 mm) wide and 1/16 inch (1.5 mm) thick.
- L. Ground Conductor for Overhead Distribution: No. 4 AWG minimum, soft-drawn copper.

- M. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulated spacer.
- N. Connectors: Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items. Compression type or exothermic-welded type, in kit form, selected per manufacturer's written instructions.

## 2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel.
- B. Ground Rods: Sectional type; copper-clad steel.
  - 1. Size: 3/4 by 120 inches (19 by 3000 mm) in diameter.
- C. Chemical Electrodes: Copper tube, straight or L-shaped, filled with nonhazardous chemical salts, terminated with a 4/0 bare conductor. Provide backfill material recommended by manufacturer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
- B. In raceways, use insulated equipment grounding conductors.
- C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections.
- D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
  - 1. Use insulated spacer; space 1 inch (25.4 mm) from wall and support from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
  - 2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the indicated height above the floor.
- E. Underground Grounding Conductors: Use tinned-copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches (600 mm) below grade or bury 12 inches (300 mm) above duct bank when installed as part of the duct bank.
- F. Equipment Grounding Conductors: Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
  - 1. Install insulated equipment grounding conductors in feeders and branch circuits.

2. Busway Supply Circuits: Install insulated equipment grounding conductor from the grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
  3. Computer Outlet Circuits: Install insulated equipment grounding conductor in branch-circuit runs from computer-area power panels or power-distribution units.
  4. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
  5. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure and install an insulated equipment grounding conductor. Isolate equipment grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
  6. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.
  7. Air-Duct Equipment Circuits: Install an insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners and heaters. Bond conductor to each unit and to air duct.
  8. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install an insulated equipment grounding conductor to each electric water heater, heat-tracing, and antifrost heating cable. Bond conductor to heater units, piping, connected equipment, and components.
  9. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
    - a. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6.4-by-50-by-300-mm) grounding bus.
    - b. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
  10. Metal Poles Supporting Outdoor Lighting Fixtures: Provide a grounding electrode in addition to installing an insulated equipment grounding conductor with supply branch-circuit conductors.
  11. Common Ground Bonding with Lightning Protection System: Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor and install in conduit.
- G. Metal Frame Grounding for Buildings: Drive a ground rod at the base of every corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart. Connect rod to column with an underground grounding conductor. Interconnect ground rods with a continuous underground conductor, extending around the perimeter of the building, 24 inches (600 mm) minimum from building foundation. Use tinned-copper conductor not less than No. 2/0 AWG for underground conductor and bury 18 inches (450 mm) below grade, minimum.

- H. Building Ground Rings: Provide a perimeter ground ring for the entire building as required per the National Electrical Code Article 250.66C.
- I. Bond all concrete encased electrode (foundation/footing reinforcing) Provide as required per National Electrical Code Article 250.66B.
- J. Ground Rods: Install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes.
  - 1. Drive ground rods until the tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
  - 2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds, except as otherwise indicated. Make connections without exposing steel or damaging copper coating.
- K. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- L. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers or supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.
- M. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
- N. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
- O. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.
- P. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps.
- Q. Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.
- R. Connections: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
  - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
  - 2. Make connections with clean, bare metal at points of contact.

3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
  6. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
  7. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
  8. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
  9. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
  10. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.
  11. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate the entire area of connection and seal against moisture penetration of insulation and cable.
- S. Overhead Line Grounding: Comply with IEEE C2 except where stricter requirements are indicated. Use 2 or more parallel ground rods if a single ground rod electrode resistance to ground exceeds 25 ohms.
1. Drive ground rods to a depth of 12 inches (300 mm) below finished grade in undisturbed earth.
  2. Ground Rod Connections: Use clamp-type connectors listed for the purpose for underground connections and connections to rods.
  3. Lightning Arresters: Separate arrester grounds from other grounding conductors.
  4. Secondary Neutral and Tank of Transformer: Interconnect and connect to grounding conductor.
  5. Protect grounding conductors on surface of wood poles with molding extended from grade level up to and through communication service and transformer spaces.
- T. Duct Banks: Install a grounding conductor with at least 50 percent ampacity of the largest phase conductor in the duct bank.
- U. Manholes and Handholes: Install a driven ground rod close to wall and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before manhole is placed and provide a No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing

through concrete floor with a double wrapping of pressure-sensitive tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.

- V. Connections to Manhole Components: Connect exposed-metal parts, such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits.
- W. Pad-Mounted Transformers and Switches: Install two ground rods and counterpoise circling pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Use tinned-copper conductor not less than No. 2 AWG for counterpoise and for taps to equipment ground pad. Bury counterpoise not less than 18 inches (450 mm) below grade and 6 inches (150 mm) from the foundation.

### 3.2 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing:
  - 1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
  - 2. Test completed grounding system at each location where a maximum ground-resistance level is indicated and at service disconnect enclosure grounding terminal. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE 81.
  - 3. Provide drawings locating each ground rod, ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results. Nominal maximum values are as follows:
    - a. Equipment Rated 500 kVA and Less: 10 ohms.
    - b. Equipment Rated 500 to 1000 kVA: 5 ohms.
    - c. Equipment Rated More Than 1000 kVA: 3 ohms.
    - d. Overhead Distribution Line Equipment: 25 ohms.
    - e. Substations and Pad-Mounted Switching Equipment: 5 ohms.
    - f. Manhole Grounds: 10 ohms.

END OF SECTION 260526

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Hangers and supports for electrical equipment and systems.
  - 2. Construction requirements for concrete bases.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of **five (5)** times the applied force.

#### 1.3 SUBMITTALS

- A. Product Data: For steel slotted support systems.
- B. Shop Drawings Show fabrication and installation details and include calculations for the following:
  - 1. Trapeze hangers. Include Product Data for components.
  - 2. Steel slotted channel systems. Include Product Data for components.
  - 3. Equipment supports.
- C. Welding certificates.

#### 1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with NFPA 70.

## PART 2 - PRODUCTS

### 2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Allied Tube & Conduit.
    - b. Cooper B-Line, Inc.; a division of Cooper Industries.
    - c. ERICO International Corporation.
    - d. GS Metals Corp.
    - e. Thomas & Betts Corporation.
    - f. Unistrut; Tyco International, Ltd.
  - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  - 3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
  - 4. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: **Steel** hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      - 1) Hilti Inc.
      - 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      - 3) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
  - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
    - 2) Empire Tool and Manufacturing Co., Inc.
    - 3) Hilti Inc.
    - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

## 2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 50 percent in future without exceeding specified design load limits.
  1. Secure raceways and cables to these supports with two-bolt conduit clamps and/or single-bolt conduit clamps using spring friction action for retention in support channel.

### 3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Wood: Fasten with lag screws or through bolts.
  - 2. To New Concrete: Bolt to concrete inserts.
  - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 4. To Existing Concrete: Expansion anchor fasteners.
  - 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
  - 6. To Light Steel: Sheet metal screws.
  - 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

### 3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Provide an additional 20 metal supports with required fasteners of each size and type used on the project to accommodate any changes required to resolve interferences or directed by the Engineer.
- D. Field Welding: Comply with AWS D1.1/D1.1M.

### 3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

- B. Use 4000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete".
- C. Anchor equipment to concrete base.
  - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
  - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

### 3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint with a brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

## SECTION 260533 – RACEWAYS & BOXES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
  - 1. Division 26 Section "Underground Ducts" for exterior ductbanks, manholes, and underground utility construction.
  - 2. Division 26 Section "Basic Electrical Materials and Methods" for supports, anchors, and identification products.
  - 3. Division 26 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.

#### 1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. ENT (PVC): Electrical nonmetallic tubing.
- C. FAC: Flexible armored conduit.
- D. FMC: Flexible metal conduit.
- E. IMC: Intermediate metal conduit.
- F. LFMC: Liquidtight flexible metal conduit.
- G. LFNC: Liquidtight flexible metal conduit.
- H. RMC: Rigid Metal Conduit.
- I. RNC (PVC): Rigid nonmetallic conduit.

#### 1.4 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings.

#### 1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

- B. Comply with NFPA 70.

## 1.6 COORDINATION

- A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

### 2.2 METAL CONDUIT AND TUBING

- A. Manufacturer:
  - 1. AFC Cable Systems, Inc.
  - 2. Alflex Inc.
  - 3. Anamet Electrical, Inc.; Anaconda Metal Hose.
  - 4. Electri-Flex Co.
  - 5. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
  - 6. LTV Steel Tubular Products Company.
  - 7. Manhattan/CDT/Cole-Flex.
  - 8. O-Z Gedney; Unit of General Signal.
  - 9. Wheatland Tube Co.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. IMC: ANSI C80.6.
- D. EMT and Fittings: ANSI C80.3.
  - 1. Fittings: Compression type up to 1-1/2 in. conduit, 2 in. and larger use set screw type.
- E. FMC: Zinc-coated steel.
- F. LFMC: Flexible steel conduit with PVC jacket.
- G. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

## 2.3 NONMETALLIC CONDUITS AND FITTINGS

### A. Nonmetallic Conduit:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. AFC Cable Systems; a part of Atkore International.
  - b. Anamet Electrical, Inc.
  - c. Arco Corporation.
  - d. CANTEX INC.
  - e. CertainTeed Corporation.
  - f. Lamson & Sessions.
  - g. RACO; Hubbell.
  - h. Thomas & Betts Corporation; A Member of the ABB Group.

### B. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1. ENT: Comply with NEMA TC 13 and UL 1653.
2. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
3. LFNC: Comply with UL 1660.

### C. Nonmetallic Fittings:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. AFC Cable Systems; a part of Atkore International.
  - b. Anamet Electrical, Inc.
  - c. Arco Corporation.
  - d. CANTEX INC.
  - e. CertainTeed Corporation.
  - f. Lamson & Sessions.
  - g. RACO; Hubbell.
  - h. Thomas & Betts Corporation; A Member of the ABB Group.
2. Fittings, General: Listed and labeled for type of conduit, location, and use.
3. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
4. Fittings for LFNC: Comply with UL 514B.
5. Pipe Solvents and Adhesives: As recommended by conduit manufacturer.

## 2.4 METAL WIREWAYS

### A. Manufacturer:

1. Hoffman.

2. Square D.

- B. Material and Construction: Sheet metal sized and shaped as indicated, NEMA 1 or 3R.
- C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, plastic edge covers, and other fittings to match and mate with wireways as required for complete system.
- D. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.
- E. Wireway Covers: Screw cover type, Flanged and gasketed type at exterior.
- F. Finish: Manufacturer's standard enamel finish.

2.5 SURFACE RACEWAYS

- A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with the manufacturer's standard grey finish coat.
  - 1. Manufacturer:
    - a. Legrand
    - b. Panduit.
- B. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.
- C. Surface Non-Metallic Raceways: Polyvinyl with snap-on covers. Finish with manufacturer's light ivory color. Note, see drawings for locations where acceptable, provide metallic unless noted otherwise.
  - 1. Manufacturer:
    - a. Hubbell Inc.
    - b. Legrand
    - c. Panduit
- D. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.
  - 1. Single channel polyvinyl (raceway for branch circuit power and/or low potential services shall be Premise Trak (Latching) as manufactured by Hubbell.
  - 2. The two-piece single channel shall consist of a base section, 5 feet length, latching snap on cover, 0.38 in 2 channel base. Provide 1-gang or 2-gang boxes as required. Apply channel with mechanical fasteners. Adhesives and tapes are NOT acceptable.
  - 3. Two channel polyvinyl raceway for branch circuit power and low potential services shall be Wall Trak as manufactured by Hubbell.
  - 4. The two-piece, two channel raceway shall consist of a base section, 5 feet length, latching snap on cover, 0.81 in 2 and 0.79 in 2 channel bases. Provide 1-gang or 2-gang boxes as required. Apply base with mechanical fasteners. Adhesives and tapes are NOT acceptable.

## 2.6 BOXES, ENCLOSURES, AND CABINETS

### A. Manufacturer:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. Emerson/General Signal; Appleton Electric Company.
3. Erickson Electrical Equipment Co.
4. Hoffman.
5. Hubbell, Inc.; Killark Electric Manufacturing Co.
6. O-Z/Gedney; Unit of General Signal.
7. RACO; Division of Hubbell, Inc.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Com.; Adalet-PLM Division.
10. Spring City Electrical Manufacturing Co.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

### B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

### C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

### D. Floor Boxes: Cast metal, fully adjustable, rectangular.

### E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

### F. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

### G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.

### H. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

## 2.7 FACTORY FINISHES

### A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard gray paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

## PART 3 - EXECUTION

### 3.1 RACEWAY APPLICATION

#### A. Outdoors:

1. Exposed: Rigid galvanized steel: RMC or IMC.

2. Concealed: Rigid galvanized steel or IMC.
3. Underground, Single Run: RMC or RNC.
4. Underground, Grouped: RMC or RNC.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or 4.

B. Indoors:

1. Exposed: EMT, surface metal raceway.
2. Concealed: EMT, FAC, FMC.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
4. Damp or Wet Locations: Rigid galvanized steel conduit.
5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
  - a. Damp or Wet Locations: NEMA 250, Type 4.

C. Minimum Raceway Size: 3/4-inch trade size (DN 21)

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

### 3.2 INSTALLATION

- A. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- B. Complete raceway installation before starting conductor installation.
- C. Support raceways as specified in Division 26 Section "Hangers & Supports."
- D. Install temporary closures to prevent foreign matter from entering raceways.
- E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
- F. Provide an additional one hundred feet of raceway and accessories of each type and size used on the project to accommodate any changes required to resolve interferences as directed by the Engineer.
- G. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- H. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
  1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.

- I. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches (50 mm) of concrete cover.
  - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
  - 2. Space raceways laterally to prevent voids in concrete.
  - 3. Run conduit larger than 1-inch trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
  - 4. Change from nonmetallic tubing to Schedule 40 nonmetallic conduit, rigid steel conduit, or IMC before rising above the floor.
- J. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
  - 1. Run parallel or banked raceways together on common supports.
  - 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- K. Join raceways with fittings designed and approved for that purpose and make joints tight.
  - 1. Use insulating bushings to protect conductors.
- L. Terminations:
  - 1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
  - 2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- M. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.
- N. Telephone and Signal System Raceways, 2-Inch Trade Size (DN 53) and Smaller: In addition to the above requirements, install raceways in maximum lengths of 150 feet (45 m) and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.
- O. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  - 2. Where otherwise required by NFPA 70.

- P. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
- Q. Flexible Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semi recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.
- R. Provide five additional boxes (floor, junction, etc.) and accessories of each size and type used on the project to accommodate any changes required to resolve interferences as directed by the Engineer.
- S. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
- T. Set floor boxes level and flush with finished floor surface.
- U. Set floor boxes level. Trim after installation to fit flush with finished floor surface.
- V. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

### 3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

### 3.4 CLEANING

- A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION 260533

## SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Metal conduits and fittings, including GRC and PVC-coated steel conduit.
2. Rigid nonmetallic duct.
3. Flexible nonmetallic duct.
4. Duct accessories.
5. Polymer concrete handholes and boxes with polymer concrete cover.

#### 1.2 DEFINITIONS

- A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.
- B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.
- C. Duct Bank:
  1. Two or more ducts installed in parallel, with or without additional casing materials.
  2. Multiple duct banks.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
  1. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:
    - a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
    - b. Include duct entry provisions, including locations and duct sizes.
    - c. Include cover design.
    - d. Include grounding details.
    - e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Duct and Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures. Drawings shall be signed and sealed by a qualified professional engineer.
- B. Product Certificates: For concrete and steel used in precast concrete handholes, as required by ASTM C 858.
- C. Source quality-control reports.
- D. Field quality-control reports.

#### 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

### PART 2 - PRODUCTS

#### 2.1 METAL CONDUIT AND FITTINGS

- A. GRC: Comply with ANSI C80.1 and UL 6.
- B. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

#### 2.2 RIGID NONMETALLIC DUCT

- A. Underground Plastic Utilities Duct: Type EPC-40-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.
- B. Acceptable Manufacturer:
  - 1. ARNCO Corp
  - 2. Cantex Inc.
  - 3. Certain Teed Corp.
  - 4. Condux Internations, Inc.
  - 5. Crown Line Plastics
  - 6. ElecSys, Inc.
  - 7. Electri-Flex Co.
  - 8. Lamson & Sesions
  - 9. National Pipe & Plastics
  - 10. Or equal
- C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.
- D. Solvents and Adhesives: As recommended by conduit manufacturer.

## 2.3 FLEXIBLE NONMETALLIC DUCTS

- A. HDPE Duct: Type EPEC-40 HDPE, complying with NEMA TC 7 and UL 651A.
  - 1. ABB, Electrification Products
  - 2. ARNCO Corp.
  - 3. National Pipe & Plastics
  - 4. Premier Conduit
  - 5. Or equal
- B. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

## 2.4 DUCT ACCESSORIES

- A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.
  - 1. ABB, Electrification Products
  - 2. Allied Tube & Conduit
  - 3. Cantex Inc.
  - 4. IPEX USA LLC
  - 5. PenCell Plastics
  - 6. Underground Devices, Inc.
  - 7. Or equal
- B. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

## 2.5 POLYMER CONCRETE HANDHOLES AND BOXES WITH POLYMER CONCRETE COVER

- A. Description: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two.
- B. Acceptable Manufacturers:
  - 1. Armorcast Products Co.
  - 2. MacLean Highline
  - 3. Oldcastle Infrastructure
  - 4. Quazite, Hubbell Inc. (Basis of Design)
- C. Standard: Comply with SCTE 77. Comply with tier requirements in "Underground Enclosure Application" Article.
- D. Color: Gray.
- E. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.

- F. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
- G. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
- H. Cover Legend: Molded lettering, "ELECTRIC."
- I. Direct-Buried Wiring Entrance Provisions: Knockouts equipped with insulated bushings or end-bell fittings, selected to suit box material, sized for wiring indicated, and arranged for secure, fixed installation in enclosure wall.
- J. Duct Entrance Provisions: Duct-terminating fittings shall mate with entering duct for secure, fixed installation in enclosure wall.
- K. Handholes shall have factory-installed inserts for cable racks and pulling-in irons.

## 2.6 SOURCE QUALITY CONTROL

- A. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
  - 1. Strength tests of complete boxes and covers shall be by an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
  - 2. Testing machine pressure gages shall have current calibration certification, complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.
- B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.

### 3.2 UNDERGROUND DUCT APPLICATION

- A. Duct for Electrical Feeders 600 V and Less: RNC Type EPC-40-PVC, concrete-encased unless otherwise indicated.
- B. Duct for Electrical Feeders 600 V and Less: RNC Type EPC-40-PVC, direct-buried unless otherwise indicated.

- C. Duct for Electrical Branch Circuits: RNC Type EPC-40-PVC, direct-buried unless otherwise indicated.
- D. Bored Underground Duct: Type EPEC-40 HDPE unless otherwise indicated.
- E. Underground Ducts Crossing Paved Paths and Walks direct-buried unless otherwise indicated.
- F. Underground Ducts Crossing: Driveways, Roadways and Railroads: RNC Type EPC-40 PVC, encased in reinforced concrete.
- G. Stub-ups: Concrete-encased RNC and GRC.

### 3.3 EARTHWORK

- A. Excavation and Backfill: Comply with Section 312000 "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restoration: Replace area immediately after backfilling is completed.
- C. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Section 329200 "Turf and Grasses" and Section 329300 "Plants."
- E. Cut and patch existing pavement in the path of underground duct, duct bank, and underground structures according to "Cutting and Patching" Article in Section 017300 "Execution."

### 3.4 DUCT AND DUCT-BANK INSTALLATION

- A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.
- B. Install duct according to NEMA TCB 2.
- C. Slope: Pitch duct a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from a high point between two manholes, to drain in both directions.
- D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 36" when used for Fiber Optic Cable, both horizontally and vertically, at other locations unless otherwise indicated.
- E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.
- F. Installation Adjacent to High-Temperature Steam Lines: Where duct is installed parallel to underground steam lines, perform calculations showing the duct will not be subject to

environmental temperatures above 40 deg C. Where environmental temperatures are calculated to rise above 40 deg C, and anywhere the duct crosses above an underground steam line, install insulation blankets listed for direct burial to isolate the duct bank from the steam line.

- G. End Bell Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches (250 mm) o.c. for 5-inch (125-mm) duct, and vary proportionately for other duct sizes.
- H. Terminator Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inches (150 mm) o.c. for 4-inch (100-mm) duct, and vary proportionately for other duct sizes.
- I. Building Wall Penetrations: Make a transition from underground duct to GRC at least 10 feet (3 m) outside the building wall, without reducing duct line slope away from the building and without forming a trap in the line. Use fittings manufactured for RNC-to-GRC transition. Install GRC penetrations of building walls as specified in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."
- J. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15-psig (1.03-MPa) hydrostatic pressure.
- K. Pulling Cord: Install 200-lbf- (1000-N-) test nylon cord in empty ducts.
- L. Concrete-Encased Ducts and Duct Bank:
  - 1. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes less than 6 inches (150 mm) in nominal diameter.
  - 2. Width: Excavate trench 12 inches (300 mm) wider than duct on each side.
  - 3. Width: Excavate trench 3 inches (75 mm) wider than duct on each side.
  - 4. Depth: Install so top of duct envelope is at least 24 inches (600 mm) below finished grade in areas not subject to deliberate traffic, and at least 30 inches (750 mm) below finished grade in deliberate traffic paths for vehicles unless otherwise indicated.
  - 5. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
  - 6. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet (6 m) of duct. Place spacers within 24 inches (600 mm) of duct ends. Stagger spacers approximately 6 inches (150 mm) between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
  - 7. Elbows: Use manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.
  - 8. Elbows: Use manufactured GRC elbows for stub-ups, at building entrances, and at changes of direction in duct run.
  - 9. Reinforcement: Reinforce concrete-encased duct where crossing disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.

10. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
11. Concrete Cover: Install a minimum of 3 inches (75 mm) of concrete cover between edge of duct to exterior envelope wall, 2 inches (50 mm) between duct of like services, and 4 inches (100 mm) between power and communications ducts.
12. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.
13. Pouring Concrete: Comply with requirements in "Concrete Placement" Article in Section 033000 "Cast-in-Place Concrete." Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.

M. Direct-Buried Duct and Duct Bank:

1. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Section 312000 "Earth Moving" for preparation of trench bottoms for pipes less than 6 inches (150 mm) in nominal diameter.
2. Width: Excavate trench 12 inches (300 mm) wider than duct on each side.
3. Width: Excavate trench 3 inches (75 mm) wider than duct on each side.
4. Depth: Install top of duct at least 18 inches (900 mm) below finished grade unless otherwise indicated.
5. Set elevation of bottom of duct bank below frost line.
6. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
7. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet (6 m) of duct. Place spacers within 24 inches (600 mm) of duct ends. Stagger spacers approximately 6 inches (150 mm) between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
8. Elbows: Install manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct direction unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
9. Install manufactured GRC elbows for stub-ups, at building entrances, and at changes of direction in duct.
10. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches (100 mm) over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Section 312000 "Earth Moving" for installation of backfill materials.
  - a. Place minimum 3 inches (75 mm) of sand as a bed for duct. Place sand to a minimum of 6 inches (150 mm) above top level of duct.
  - b. Place minimum 6 inches (150 mm) of engineered fill above concrete encasement of duct.

- N. Underground-Line Warning Tape: Bury conducting underground line specified in Section 260553 "Identification for Electrical Systems" no less than 12 inches (300 mm) above all concrete-encased duct and duct banks and approximately 6" below grade. Align tape parallel to and within 3 inches (75 mm) of centerline of duct bank. Provide an additional warning tape for each 12-inch (300-mm) increment of duct-bank width over a nominal 18 inches (450 mm). Space additional tapes 12 inches (300 mm) apart, horizontally.

### 3.5 INSTALLATION OF HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of duct, and seal joint between box and extension as recommended by manufacturer.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas and trafficways, set cover flush with finished grade. Set covers of other handholes 1 inch (25 mm) above finished grade.
- D. Install handholes and boxes with bottom below frost line, <Insert depth of frost line below grade at Project site> below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in enclosure.
- F. Field cut openings for duct according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.
- G. For enclosures installed in asphalt paving and brick masonry pavers and subject to occasional, nondeliberate, heavy-vehicle loading, form and pour a concrete ring encircling, and in contact with, enclosure and with top surface screeded to top of box cover frame. Bottom of ring shall rest on compacted earth.
  - 1. Concrete: 3000 psi (20 kPa), 28-day strength, complying with Section 033000 "Cast-in-Place Concrete," with a troweled finish.
  - 2. Dimensions: 10 inches wide by 12 inches deep (250 mm wide by 300 mm deep).

### 3.6 GROUNDING

- A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

### 3.7 FIELD QUALITY CONTROL

#### A. Perform the following tests and inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch- (300-mm-) long mandrel equal to duct size minus 1/4 inch (6 mm). If obstructions are indicated, remove obstructions and retest.
3. Test handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."

#### B. Correct deficiencies and retest as specified above to demonstrate compliance.

#### C. Prepare test and inspection reports.

### 3.8 CLEANING

#### A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

#### B. Clean internal surfaces of manholes, including sump.

1. Sweep floor, removing dirt and debris.
2. Remove foreign material.

END OF SECTION 260543

## SECTION 260553 – ELECTRICAL IDENTIFICATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction.

#### 1.3 SUBMITTALS

- A. Provide product data information on products used.

#### 1.4 QUALITY ASSURANCE

- A. Comply with ANSI C2.
- B. Comply with NFPA 70.
- C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

### PART 2 - PRODUCTS

#### 2.1 RACEWAY AND CABLE LABELS

- A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
  - 1. Color: Black letters on orange field.
  - 2. Legend: Indicates voltage and service.
- B. Adhesive Labels: Preprinted, flexible, self-adhesive vinyl with legend overlaminated with a clear, weather- and chemical-resistant coating.
- C. Pretensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the line it identifies and arranged to stay in place by pretensioned gripping action when placed in position.
- D. Consider alternatives before specifying self-adhesive products in the paragraph below. See Editing Instruction No. 1 in the Evaluations.
- E. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide (0.08 mm thick by 25 to 51 mm wide).
- F. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.

1. Not less than 6 inches wide by 4 mils thick (152 mm wide by 0.102 mm thick).
  2. Compounded for permanent direct-burial service.
  3. Embedded continuous metallic strip or core.
  4. Printed legend indicating type of underground line.
- G. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- H. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch- (0.4-mm-) thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.

## 2.2 NAMEPLATES AND SIGNS

- A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.
- B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. in. (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.
1. Engraved legend with black letters on white face.
  2. Punched or drilled for mechanical fasteners.
- C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.
- D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch (1-mm) galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting.
- E. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

## 2.3 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.
1. Minimum Width: 3/16 inch (5 mm).
  2. Tensile Strength: 50 lb (22.3 kg) minimum.
  3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
  4. Color: According to color-coding.
- B. Paint: Formulated for the type of surface and intended use.
1. Primer for Galvanized Metal: Single-component acrylic vehicle formulated for galvanized surfaces.
  2. Primer for Concrete Masonry Units: Heavy-duty-resin block filler.
  3. Primer for Concrete: Clear, alkali-resistant, binder-type sealer.

4. Enamel: Silicone-alkyd or alkyd urethane as recommended by primer manufacturer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.
- C. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before applying.
- E. Circuits with More Than 600 V: Identify raceway and cable with "DANGER--HIGH VOLTAGE" in black letters 2 inches (51 mm) high, stenciled with paint at 10-foot (3-m) intervals over a continuous, painted orange background. Identify the following:
  1. Entire floor area directly above conduits running beneath and within 12 inches (305 mm) of a basement or ground floor that is in contact with earth or is framed above unexcavated space.
  2. Wall surfaces directly external to conduits concealed within wall.
  3. All accessible surfaces of concrete envelope around conduits in vertical shafts, exposed in the building, or concealed above suspended ceilings.
  4. Entire surface of exposed conduits.
- F. Install painted identification according to manufacturer's written instructions and as follows:
  1. Clean surfaces of dust, loose material, and oily films before painting.
  2. Prime surfaces using type of primer specified for surface.
  3. Apply one intermediate and one finish coat of enamel.
- G. Color Banding Raceways and Exposed Cables: Band exposed and accessible raceways of the systems listed below:
  1. Bands: Pretensioned, wraparound plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches (51 mm) wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.
  2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
  3. Apply the following colors to the systems listed below:
    - a. Fire Alarm System: Red.
    - b. Fire-Suppression Supervisory and Control System: Red and yellow.
    - c. Combined Fire Alarm and Security System: Red and blue.

- d. Security System: Blue and yellow.
  - e. Mechanical and Electrical Supervisory System: Green and blue.
  - f. Telecommunication System: Green and yellow.
- H. Caution Labels for Indoor Boxes and Enclosures for Power and Lighting: Install pressure-sensitive, self-adhesive labels identifying system voltage with black letters on orange background. Install on exterior of door or cover.
- I. Circuit Identification Labels on Boxes: Install labels externally.
  - 1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.
  - 2. Concealed Boxes: Plasticized card-stock tags.
  - 3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.
- J. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches (400 mm) overall, use a single line marker. Install line marker for underground wiring, both direct-buried cables and cables in raceway.
- K. Color-Coding of Secondary Phase Conductors: Use the following colors for service feeder, and branch-circuit phase conductors:
  - 1. 208/120-V Conductors:
    - a. Phase A: Black.
    - b. Phase B: Red.
    - c. Phase C: Blue.
  - 2. 480/277-V Conductors:
    - a. Phase A: Brown.
    - b. Phase B: Orange.
    - c. Phase C: Yellow
  - 3. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:
    - a. Colored, pressure-sensitive plastic tape in half-lapped turns for 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply the last two turns of tape with no tension to prevent possible unwinding. Use 1-inch- (25-mm-) wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
    - b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches (76 mm) from the terminal and spaced 3 inches (76 mm) apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.
- L. Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.

1. Legend: 1/4-inch- (6.4-mm-) steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
  2. Tag Fasteners: Nylon cable ties.
  3. Band Fasteners: Integral ears.
- M. Apply identification to conductors as follows:
1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
  2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding to identify circuits' voltage and phase.
  3. Multiple Control and Communication Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.
- N. Apply warning, caution, and instruction signs as follows:
1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
  2. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8-inch- (9-mm-) high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- O. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high lettering on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment using mechanical fasteners:
1. Panelboards, electrical cabinets, and enclosures.
  2. Access doors and panels for concealed electrical items.
  3. Electrical switchgear and switchboards.
  4. Emergency system boxes and enclosures.
  5. Disconnect switches.
  6. Enclosed circuit breakers.
  7. Motor starters.
  8. Push-button stations.
  9. Power transfer equipment.
  10. Contactors.
  11. Remote-controlled switches.
  12. Control devices.
  13. Transformers.
  14. Power-generating units.
  15. Telephone switching equipment.
  16. Clock/program master equipment.
  17. Fire alarm master station or control panel.

END OF SECTION 260553

## SECTION 262726 - WIRING DEVICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes receptacles, connectors, switches, and finish plates.

#### 1.3 DEFINITIONS

- A. GFCI or GFI: Ground-Fault Circuit Interrupter.
- B. SPD: Surge Protection Device
- C. TVSS: Transient Voltage Surge Suppressor.

#### 1.4 SUBMITTALS

- A. Product Data: For each product specified.
- B. Shop Drawings: Legends for receptacles and switch plates.
- C. Samples: For devices and device plates for color selection and evaluation of technical features.
- D. Maintenance Data: For materials and products to be included in maintenance manuals specified in Division 1.

#### 1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- B. Comply with NEMA WD 1.
- C. Comply with NFPA 70.

#### 1.6 COORDINATION

- A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

- 1. Cord and Plug Sets: Match equipment requirements.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Deliver extra materials to Owner.

- 1. Floor Service-Outlet Assemblies: One for every 20, but not less than one.
  - 2. Toggle switches with occupancy sensors: One for each five installed but not less than two.
  - 3. TVSS Receptacles: One for each eight installed, but not less than two.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- 1. Wiring Devices:
    - a. Hubbell, Inc.; Wiring Devices Div.
    - b. Killark Electric Manufacturing Co.
    - c. Leviton Manufacturing Co., Inc.
    - d. Pass & Seymour/Legrand; Wiring Devices Div.
  - 2. Wiring Devices for Hazardous (Classified) Locations:
    - a. Crouse-Hinds Electrical Co.; Distribution Equipment Div.
    - b. Killark Electric Manufacturing Co.
    - c. Pyle-National, Inc.; an Amphenol Co.
  - 3. Multioutlet Assemblies:
    - a. Airey-Thompson Co.
    - b. Legrand/Wiremold Division.

### 2.2 RECEPTACLES

- A. Straight-Blade and Locking Receptacles: Heavy-Duty grade.
- B. GFCI Receptacles: Feed-through type, with integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a 2-3/4-inch- (70-mm-) deep outlet box without an adapter.

- C. Isolated-Ground Receptacles: Equipment grounding contacts connected only to the green grounding screw terminal of the device with inherent electrical isolation from mounting strap.
  - 1. Devices: Listed and labeled as isolated-ground receptacles.
  - 2. Isolation Method: Integral to receptacle construction and not dependent on removable parts.
- D. TVSS Receptacles: Duplex type, NEMA WD 6, Configuration 5-20R, with integral TVSS in line to ground, line to neutral, and neutral to ground.
  - 1. TVSS Components: Multiple metal-oxide varistors; rated a nominal clamp level of 500 transient-suppression voltage and minimum single transient pulse energy dissipation of 140 J line to neutral, and 70 J line to ground and neutral to ground.
  - 2. Active TVSS Indication: Light visible in face of device to indicate device as "active" or "no longer active."
  - 3. Identification: Distinctive marking on the face of device denotes TVSS-type unit.
- E. Industrial Heavy-Duty Receptacle: Comply with IEC 309-1.
- F. Hazardous (Classified) Location Receptacles: Comply with NEMA FB 11.

## 2.3 PENDANT CORD/CONNECTOR DEVICES

- A. Description: Matching, locking type, plug and receptacle body connector, NEMA WD 6, Configurations L5-20P and L5-20R, Heavy-Duty grade.
  - 1. Body: Nylon with screw-open cable-gripping jaws and provision for attaching external cable grip.
  - 2. External Cable Grip: Woven wire-mesh type made of high-strength galvanized-steel wire strand, matched to cable diameter, and with attachment provision designed for corresponding connector.

## 2.4 CORD AND PLUG SETS

- A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.
  - 1. Cord: Rubber-insulated, stranded-copper conductors, with type SOW-A jacket. Green-insulated grounding conductor, and equipment-rating ampacity plus a minimum of 30 percent.
  - 2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

## 2.5 CORD REELS

- A. A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with type SOW-A jacket. Green-insulated grounding conductor, and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: GFCI type device, Nylon body. Match cord and receptacle type for connection.
3. Reel: 15 Amp rated, 125V, with 25 linear feet of retractable cable (Hubbell model #HBL45123C). Provide mounting assembly as required for complete installation.

## 2.6 SWITCHES

- A. Snap (toggle) Switches: Heavy-duty, quiet type (single, 3-way and 4-way).
  1. Switch: 20 A, 120/277-V ac.
  2. Switch with occupancy sensing: 20 A, 120/277-V ac. Passive infrared compatible with LED and CFL lamps, adjustable time delay of 20 seconds to 30 minutes, 0 – 1000 watt lighting control, manual bypass control.

## 3.1 WALL PLATES

- A. Single and combination types match corresponding wiring devices.
  1. Plate-Securing Screws: Metal with head color to match plate finish.
  2. Material for Finished Spaces: 0.04-inch- (1-mm-) thick, Type 302, satin-finished stainless steel.
  3. Material for Unfinished Spaces: Galvanized steel.

## 3.2 MULTIOUTLET ASSEMBLIES

- A. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
- B. Raceway Material: Metal, with manufacturer's standard finish.
- C. Raceway Material: Nonmetal.(accepted in office areas only)
- D. Wire: No. 12 AWG.

## 3.3 FLOOR BOXES FOR ON-GRADE AND ABOVE-GRADE CONCRETE FLOORS

- 1 Configurations: Boxes shall be available in one-, two-, or three-gang configurations or a single unit with two to eleven independent wiring compartments and available in stamped steel, epoxy coated stamped steel, nonmetallic and cast-iron versions. Boxes shall be available in deep and shallow versions. Boxes shall provide pre- and post-pour adjustments. Multiple gang boxes shall also provide a removable barrier between

the individual compartments for greater capacity when required. Refer to Drawings for size and types.

- a. Acceptable Product: Resource RFB4 Series Boxes for Concrete Floors by Legrand/Wiremold.
- b. Acceptable Product: Resource RFB4E-OG Series Shallow Epoxy Coated Stamped Steel Floor Boxes for Concrete Floors by Legrand/Wiremold.

2 Cover:

- a. Acceptable Product: FloorPort FPCT, FPBT, and FPFPT Series Covers: Manufactured of die-cast aluminum or die-cast zinc, and available in brushed aluminum finish and powder-coated paint finishes (black, gray, bronze, nickel, and brass). Activation covers shall be available in flanged and flangeless versions. Covers shall be available with options for tile or carpet inserts, or flush covers. The cover's hinge shall allow for the cover to open 180 degrees. The furniture feed covers shall come equipped with one 1-inch (25 mm) trade size screw plug opening and one combination 1-1/4 inches (32 mm) and 2 inches (52 mm) trade size screw plug.
  - 1) Flanged covers shall be 7-3/4 inches L by 6-9/16 inches W (197 mm by 167 mm).
  - 2) Flangeless covers shall be 6-3/4 inches L by 5-9/16 inches W (171 mm by 142 mm).

3 Metallic Floor Boxes:

- a. Material: Stamped steel and painted with a fusion-bonded epoxy; box interior and exterior painted; 1-3/8 inches (35 mm) pre-pour adjustment; 3/4 inch (19 mm) post-pour adjustment.
- b. Material: Epoxy coated cast iron; box interior and exterior painted; 1-3/4 inches (44 mm) pre-pour adjustment; 1/2 inch (13 mm) post-pour adjustment.
- c. Box Type: Rectangular.
- d. Service: Multiple.

3.4 MISCELLANEOUS WIRING CONNECTIONS AND COMPONENTS

- A. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
- B. Raceway Material: Metal, with manufacturer's standard finish.
- C. Raceway Material: Nonmetal.(accepted in office areas only)
- D. Wire: not less than the manufacturer's recommendation unless noted otherwise.
- E. Security Devices: Provide all wiring devices and connections as specified by the manufacturer and the contract documents. Unless otherwise noted.

- F. IT Devices: Provide all wiring devices and connections as specified by the manufacturer and the contract documents. Unless otherwise noted.
- G. Audio Visual Devices: Provide all wiring devices and connections as specified by the manufacturer and the contract documents Unless otherwise noted.

### 3.5 FINISHES

- A. Color: Manufacturers standard, as selected by Architect.

## PART 3 - EXECUTION

### 4.1 INSTALLATION

- A. Install devices and assemblies plumb and secure.
- B. Install wall plates when painting is complete.
- C. Install wall dimmers to achieve indicated rating after derating for ganging as instructed by manufacturer.
- D. All receptacles used for garage installations shall be GFIC type wiring devices.
- E. Do not share neutral conductor on load side of dimmers.
- F. Provide ten additional wiring devices (receptacles, TVSS, wallplates, switches, etc.) and accessories of each size and type used on the project to accommodate any changes required to resolve interferences.
- G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
- H. Protect devices and assemblies during painting.
- I. Adjust locations at which floor service outlets and telephone/power service poles are installed to suit arrangement of partitions and furnishings.

### 4.2 IDENTIFICATION

- A. Comply with Division 16 Section "Electrical Identification."
- B. Comply with Division 16 Section "Basic Electrical Materials and Methods."
  - 1. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.

2. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on the face of plate and durable wire markers or tags within outlet boxes.

#### 4.3 CONNECTIONS

- A. Connect wiring device grounding terminal to outlet box with bonding jumper.
- B. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
- C. Isolated-Ground Receptacles: Connect to isolated-ground conductor routed to designated isolated equipment ground terminal of electrical system.
- D. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.

#### 4.4 FIELD QUALITY CONTROL

- A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.
- B. Check TVSS receptacle indicating lights for normal indication.
- C. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
- D. Replace damaged or defective components.

#### 4.5 CLEANING

- A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 262726

**SUPPLEMENTARY SPECIFICATIONS**  
**FOR THE VO-TECH TURF FIELD PROJECT**  
**IN SCOTCH PLAINS TOWNSHIP**  
**COUNTY OF UNION**

**AUTHORIZATION OF CONTRACT**  
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The contract for this project is authorized by the provisions of local public contracts law, NJSA 40A: 11-1 et seq.

**SPECIFICATIONS TO BE USED**  
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The electronic version of the 2019 Standard Specifications for Road and Bridge Construction, effective September 1, 2019 as referenced in Baseline Document Change announcement BDC19S-01 of the New Jersey Department of Transportation and as amended herein, shall govern the construction of this project.

**WAGE RATES**  
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The contractor shall pay the minimum wage rates determined by the New Jersey Department of Labor.

State wage rates may be obtained from the New Jersey Department of Labor (Telephone: 609-292-2259) or by accessing the Department of Labor's web site at:

[http://lwd.dol.state.nj.us/labor/wagehour/wagehour\\_index.html](http://lwd.dol.state.nj.us/labor/wagehour/wagehour_index.html).

The State wage rates in effect at the time of award will be made a part of this Contract, pursuant to Chapter 150, Laws of 1963 (NJSA 34:11-56.25, *et seq.*).

In the event it is found that any employee of the contractor or any subcontractor covered by the contract, has been paid a rate of wages less than the minimum wage required to be paid by the contract, the contracting agency may terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work, as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable to the contracting agency for any excess costs occasioned thereby.

## **GENERAL**

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Award of contract and subletting will not be permitted to, materials will not be permitted from, and use of equipment will not be permitted that is owned and/or operated by, firms and individuals included in the report of suspensions, debarments and disqualifications of firms and individuals as maintained by the Department of the Treasury, General Services Administration, CN-039, Trenton NJ 08625 (609-292-5400).

Payment for a pay item in the proposal includes all the compensation that will be made for the work of that item as described in the contract documents unless the "basis of payment" clause provides that certain work essential to that item will be paid for under another pay item.

Whenever any section, subsection, subpart or subheading is amended by such terms as changed to, deleted or added it is construed to mean that it amends that section, subsection, subpart or subheading of the 2019 Standard Specifications unless otherwise noted.

Whenever reference to page number is made, it is construed to refer to the 2019 Standard Specifications unless otherwise noted.

Henceforth in this supplementary specification whenever reference to the State, Department, ME, RE or Inspector is made, it is construed to mean the particular municipality or county executing this contract.

Whenever reference to Title 27 is made, it is construed to mean Title 40.

## **SECTION 100 - GENERAL PROVISIONS**

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The following sections of the standard specifications are deleted:

### **SECTION 101 - GENERAL INFORMATION**

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### **SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS**

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### **SECTION 103 - AWARD AND EXECUTION OF CONTRACT**

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### **SECTION 104 - SCOPE OF WORK**

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### **SECTION 105 - CONTROL OF WORK**

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### **SECTION 106 - CONTROL OF MATERIAL**

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### **SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

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### **SECTION 108 - PROSECUTION AND PROGRESS**

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### **SECTION 109 - MEASUREMENT AND PAYMENT**

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These sections of the standard specifications are changed to the requirements of the contracting agency contained here in these contract construction specifications document.

## **DIVISION 150 - CONTRACT REQUIREMENTS**

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The following sections of the standard specifications are deleted:

**SECTION 151 - PERFORMANCE BOND AND PAYMENT BOND**

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**SECTION 152 - INSURANCE**

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**SECTION 153 - PROGRESS SCHEDULE**

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**SECTION 154 - MOBILIZATION**

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**SECTION 155 - CONSTRUCTION FIELD OFFICE**

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**SECTION 156 - MATERIALS FIELD LABORATORY**

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**SECTION 157 - CONSTRUCTION LAYOUT AND MONUMENTS**

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**SECTION 161 - FINAL CLEANUP**

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These sections of the standard specifications are changed to the requirements of the contracting agency contained here in these contract construction specifications.

## **SECTION 158 - SOIL EROSION AND SEDIMENT CONTROL AND WATER QUALITY CONTROL**

### **158.04 MEASUREMENT AND PAYMENT**

The list of pay items is deleted and the following is added:

Various temporary soil erosion and sediment control and water quality control devices will not be measured for payment.

Separate payment will not be made for temporary soil erosion and sediment control and water quality control and dust control, but the cost will be included in the various items in the proposal.

## SECTION 159 - TRAFFIC CONTROL

### 159.03.08 Traffic Direction

#### B. Police.

This section is deleted and the following is added:

No police officers will be required for the work within the project limits.

### 159.04 MEASUREMENT AND PAYMENT

The list of pay items is deleted and the following is added:

<u>Item</u>	<u>Pay Unit</u>
TRAFFIC CONTROL	LUMP SUM

The paragraphs after the list of pay items are deleted and the following is added:

Payment for traffic control devices on a lump-sum basis will be made at 50 percent of the contract bid price upon delivery, placement and approval with the balance prorated over the duration of the contract.

## **DIVISION 200 - EARTHWORK**

### **SECTION 201 - CLEARING SITE**

#### **201.04 MEASUREMENT AND PAYMENT**

The following is added:

Payment for the item “clearing site” in excess of \$17,500.00 will not be made until completion of the project.

## SECTION 202 – EXCAVATION

### 202.04 MEASUREMENT AND PAYMENT

The following is added:

This work shall also include earthwork, being defined as stripping, grading, filling, cutting and the general movement of topsoil and/or earth to provide the final grades as shown on the contract drawings.

### 202.04 MEASUREMENT AND PAYMENT

The list of pay items is deleted and the following is added:

<u>Item</u>	<u>Pay Unit</u>
EARTHWORK	LUMP SUM

The following is added:

Separate payment will not be made for soil aggregate fill material and borrow topsoil of any kind associated with the pay item “Earthwork,” but the cost shall be included in the price bid for earthwork.

## DIVISION 400 - SURFACE COURSES

### SECTION 401 - HOT MIX ASPHALT (HMA) COURSES

#### 401.03.07 HMA Courses

THIS SUBSECTION IS REPLACED BY THE FOLLOWING:

#### H. Air Void Requirements.

Pavement lots are defined as approximately 15,000 square yards of pavement in Surface area. If pavement lot area is less than 5000 square yards, the Regional District Local Aid Office may waive the air voids requirements.

The RE will designate an independent testing agency (Laboratory) to perform the quality assurance sampling, testing and analysis. The Laboratory is required to be accredited by the AASHTO Accreditation Program ([www.amrl.net](http://www.amrl.net)). The Laboratory's accreditation must include AASHTO T 166 and AASHTO T 209.

The Laboratory Technician who performs the quality assurance sampling shall be certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Plant Technologist, Level 1.

The Laboratory will determine air voids from 5 (Five) 6 inch diameter cores taken from each lot in random locations within the traveled way and at least one core in each travel lane. The Laboratory will determine air voids of cores from the values for the maximum specific gravity of the mix and the bulk specific gravity of the core. The Laboratory will determine the maximum specific gravity of the mix according to NJDOT B-3 and AASHTO T 209, except that minimum sample size may be waived in order to use a 6-inch diameter core sample. The Laboratory will determine the bulk specific gravity of the compacted mixture by testing each core according to AASHTO T 166.

The Laboratory will calculate the in-place air voids of each completed lot outside the acceptable range of 2 percent air voids to 8 percent air voids.

The RE will assess a reduction in lot due to nonconformance to air voids according to the following Table.

Reduction for Nonconformance to Air Voids Requirements	
Lot Average Air Void Value	Reduction Per Lot
0.0 to 1.9	10
2.0 to 8.0	0
8.1 to 9.0	5
9.1 to 10.0	15
10.1 to 12.0	30
Over 12.0	Remove & Replace

If the average air voids for the lot is greater than 12.0 percent, remove and replace the lot. The replacement work is subject to the same requirements as the initial work.

THIS SUBSECTION IS REPLACED BY THE FOLLOWING:

**I. Thickness Requirements.**

Thickness requirements will apply when full-depth, uniform-thickness HMA pavement construction is shown.

Pavement lots are defined as approximately 15,000 square yards of pavement area. The Engineer will not include areas consisting of different HMA mixtures or thicknesses in the same lot. If thickness lot area is less than 5000 square yards, the Regional District Local Aid Office may waive the thickness requirements.

The RE will designate an independent testing agency (Laboratory) to perform the quality assurance sampling, testing and analysis. The Laboratory is required to be accredited by the AASHTO Accreditation Program ([www.amrl.net](http://www.amrl.net)). The Laboratory's accreditation must include AASHTO T 166 and AASHTO T 209.

The Laboratory Technician who performs the quality assurance sampling shall be certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Plant Technologist, Level 1.

The Laboratory will test for thickness using the full-depth cores taken for surface course air voids, evaluated according to NJDOT B-4. The Laboratory will base acceptance on total thickness and thickness of the surface course.

1. **Total Thickness.** The Laboratory will calculate the percent defective (PD) as the percentage of the lot that is less than the design thickness. The Department will base total thickness acceptance on the percentage of the lot estimated to fall below the specified thickness as follows:

- a. **Sample Mean ( $\bar{X}$ ) and Standard Deviation (S) of the N Test Results ( $X_1, X_2, \dots, X_N$ ).**

$$\bar{X} = \frac{(X_1 + X_2 + \dots + X_N)}{N}$$

$$S = \sqrt{\frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \dots + (X_N - \bar{X})^2}{N - 1}}$$

- b. **Quality Index ( $Q_L$ ).**

$Q_L = (\bar{X} - T_{des})/S$ , and  $T_{des}$  is the design thickness.

- c. **Percent Defective (PD).** Using NJDOT ST for the appropriate sample size, determine the percentage of material (PD) falling below the design thickness associated with  $Q_L$  (lower limit).
  - d. **Reduction in Payment.** The Department will determine the reduction in payment based on the quantity of the surface course multiplied by the percent reduction in payment from Table 401.03.03-5.

**Table 401.03.03-5 Reduction in Payment for Nonconformance to Requirements for Total Thickness**

Percent Defective	Percent Reduction
0 to 25.0	0
25.1 to 30.0	2
30.1 to 35.0	5
35.1 to 40.0	10

40.1 to 45.0	20
Over 45.0	Remove & Replace

- e. **Removal and Replacement.** If the lot PD  $\geq 45$ , remove and replace, or mill and overlay, the lot. The replacement work is subject to the same requirements as the initial work.
2. **Surface Course Thickness.** The Laboratory will evaluate the surface course solely to determine whether a remove-and-replace or an overlay condition exists, not for pay adjustment. The Laboratory will calculate the percent defective (PD) as the percentage of the lot that is less than the allowable thickness for the nominal maximum aggregate used in the surface course. The Laboratory will accept pavement lots with PD  $\leq 25$  and will reject pavement lots with PD  $> 25$ .

The Laboratory will base surface thickness acceptance on the percentage of the lot estimated to fall below the allowable thickness as follows:

- a. **Sample Mean ( $\bar{X}$ ) and Standard Deviation (S) of the N Test Results ( $X_1, X_2, \dots, X_N$ ).** Calculate using the formula as specified in 401.03.03.I.1.
- b. **Quality Index (Q).**

$$Q_L = (\bar{X} - T_{all})/S, \text{ where } T_{all} \text{ is the minimum allowable thickness from Table 407.03.07}$$

<b>Table 407.03.07 Surface Course Thickness Requirements</b>	
<b>HMA Mix Design Size Designation</b>	<b>Minimum Allowable Compacted Lift Thickness (<math>T_{all}</math>)</b>
4.75 MM	0.75 inch
9.5 MM	1.00 inch
12.5 MM	1.25 inches
19 MM	2.00 inches

- c. **Percent Defective.** Using NJDOT ST for the appropriate sample size, determine the percentage of material (PD) falling below the allowable thickness associated with  $Q_L$  (lower limit).
- d. **Removal and Replacement.** If the surface course fails to meet the acceptance requirement with a  $PD \leq 25$ , the Department will require removal and replacement of the lot. The replacement work is subject to the same requirements as the initial work.

**REPLACE 407.03.07. J WITH THE FOLLOWING:**

- J. Ride Quality Requirements.** The Department may evaluate the HMA surface course placed in travel lanes using the International Roughness Index (IRI) according to ASTM E 1926. Other areas will be tested with a ten-foot straight edge. The Department will use the measured IRI and straight edge to compute pay adjustment (PA). The PA will be negative for defective work.

The RE will designate an independent testing agency to perform the ride quality testing and analysis. The testing agency is required to comply with certification requirements according to NJDOT R-1.

The Department will calculate the Pay Adjustment (PA) as specified in Table 407.03.07-7 and will base PA on lots of 0.01mile length for each travel lane.

1. Smoothness Measurement.

The testing agency will test the longitudinal profile of the HMA surface course for ride quality with a Class 1 Inertial Profiling System according to AASHTO MP 11 approved according to AASHTO PP 49.

The testing agency will test the full extent of the pavement in the direction of travel in each wheel path. The single IRI value reported for each 0.01-mile lot of pavement is the average of 3 runs.

2. Other Areas.

In addition to the above, a 10-foot straightedge shall be used for the following areas: transverse profile of the finished riding surface, longitudinal and transverse profile of shoulders and ramps, utility hardware, drainage inlets and manholes, and any other areas so designated in the Special Provisions. Any areas that have more than a 1/4-inch deviation between any two contact points of the straightedge shall be corrected by the Contractor using infrared heating to rework the material in a manner approved by the Engineer. Following correction, the area will be retested to verify compliance, each individual non-complying location will be assessed \$250 negative PA.

3. Control Testing.

Perform control testing during HMA placement to ensure compliance with the ride quality requirements specified in Table 407.03.07-7.

4. Preparation for IRI Testing.

Provide the necessary traffic control when the testing agency performs IRI testing. Perform required mechanical sweeping of the surface course before IRI testing. To facilitate auto triggering on laser profilers, place a single line of preformed traffic marking tape perpendicular to the roadway baseline 300 feet before the beginning of each lane to be tested.

5. Acceptance.

The Engineer will determine acceptance and make payment adjustments based on the following:

i. Pay Adjustment.

The pay equations in Table 407.03.07-7 express the pay adjustment in dollars per lot of 0.01 mile. For lots of any other length, the Engineer will scale the pay adjustment up or down in proportion to the actual length of the lot. IRI numbers are in inches per mile.

**Table 407.03.07-7 Pay Equations for IRI Ride Quality for 0.01 Mile**

Local Roadways with Posted Speed $\geq$ 45 MPH	IRI $\leq$ 100	PA = \$0
	100 < IRI $\leq$ 170	PA = (IRI - 100) $\times$ (- \$1.43)
	IRI > 170	Remove & Replace
Local Roadways with Posted Speed < 45 MPH	IRI $\leq$ 120	PA = \$0
	120 < IRI $\leq$ 220	PA = (IRI - 120) $\times$ (- \$1.00)
	IRI > 220	Remove & Replace

ii. Retest provision

After testing, if the IRI exceeds the Remove and Replace value (RRV) in Table 407.03.07-7, the testing agency will retest the lot. The testing agency will average the IRI values from the initial test and the retest to determine the final result.

iii. Removal and Replacement.

If the average IRI is greater than the RRV after a retest is performed, remove and replace the lot. Any replacement work is subject to the same requirements as the initial work. If only a small percentage (less than 8 percent) of paving lots falls under the RRV, the RE may allow the Contractor to submit a plan for corrective action. If the Contractor's plan for corrective action is not approved, the RE may require removal and replacement, or may allow the lot to remain in place and the lot will be subject to the pay adjustment as computed in Table 407.03.07-7. If the Contractor's plan for corrective action is approved and the lot is reworked, the testing agency will test and evaluate it as a new lot that must meet the same requirements as the initial work.

## **DIVISION 600 - MISCELLANEOUS CONSTRUCTION**

### **SECTION 601 - PIPE**

#### **602.04 MEASUREMENT AND PAYMENT**

The following is added:

Separate payment will not be made for cleanouts, but the cost shall be included in the price bid for “24” High Density Polyethylene Pipe”.

## SECTION 602 - DRAINAGE STRUCTURES

### 602.04 MEASUREMENT AND PAYMENT

The following items are added:

<i>Item</i>	<i>Pay Unit</i>
R-TANK HD #1, COMPLETE	LUMP SUM
R-TANK HD #2, COMPLETE	LUMP SUM
OUTLET STRUCTURE 1	UNIT
OUTLET STRUCTURE 2	UNIT
DOGHOUSE MANHOLE, 4' DIAMETER	UNIT

The following is added:

All labor and materials associated with the installation of each of the R-Tanks, including but not limited to geogrid, stone, backfill material, inspection ports, geotextile fabric, and any other component associated with the installation of the R-Tank system shall be included in the unit price bid for that particular item.

## SECTION 606 - SIDEWALKS, DRIVEWAYS AND ISLANDS

### 606.04 MEASUREMENT AND PAYMENT

The following item is added:

<i>Item</i>	<i>Pay Unit</i>
CONCRETE PAD, REINFORCED, 6" THICK	SQUARE YARD

The following is added:

All labor and materials associated with the installation of the concrete pad reinforced, including but not limited to reinforcement and concrete, shall be included in the unit price bid for that particular item.

## SECTION 607 - CURBS

### 607.04 MEASUREMENT AND PAYMENT

The following item is added:

<i>Item</i>	<i>Pay Unit</i>
PRECAST CONCRETE WHEEL STOP	UNIT

The following is added:

Payment for the removal and disposal of any existing curb and all adjacent site restoration, unless payment is otherwise provided for under other pay items, will be included in the unit price bid for 9" x 18" Concrete Vertical Curb.

## **SECTION 612 – SIGNS**

### **612.01 DESCRIPTION**

THE FOLLOWING IS ADDED:

The work shall also include the installation of signpost reflector strips.

### **612.04 MEASUREMENT AND PAYMENT**

THE FOLLOWING IS ADDED:

Separate payment will not be made for the reflector post panel. All costs associated with this work shall be included in the unit price bid for “REGULATORY AND WARNING SIGN.”

The following section is added:

### **SECTION 613 – SITE/SPORT APPURTENANCES**

#### **613.01 DESCRIPTION**

This work shall consist of labor, materials, and equipment necessary for the furnishing and installation of Backstop, Tension Netting System, Dugouts, Foul Poles, Pitcher's Mounds, Bases, Home Plate, Player Benches, Bleachers, Distance Banners, Soccer Goals, Soccer Corner Flags, Waste Receptacles, Picnic Tables, Bollards, Storage Shed, and Drinking Fountain. This work shall include but not be limited to installation of sport appurtenances and related anchoring hardware as shown on the plans and as specified herein.

The Contractor shall submit shop drawings of all equipment to the Engineer for approval prior to ordering the equipment.

#### **613.02 MATERIALS**

The following items, or approved equal, shall be installed:

<u>Item</u>	<u>Description</u>
62' Wide Arched Baseball Backstop	Steelcraft Model #AB-62P5 as manufactured by Steelcraft Products, 1975 Lincoln Avenue, Pasadena, California, 91103, or approved equal.
Tension Ball Safety Netting System, 30' High	Ball Safety System Model No. TNPPUC as manufactured by Sportsfield Specialties, or approved equal.
Modular Dugout	Model No. GD10X24 as manufactured by Sportsfield Specialties, or approved equal.
Foul Pole, 30' High	30' High Foul Pole Model FPW630 as manufactured by Sportsfield Specialties, or approved equal.
Portable Pitcher's Mound, Game Use, with Storage Cart	Model No. LGPRTPTCH-BR-SYN as manufactured by Sportsfield Specialties, or approved equal.
Baseball Field Home Plate and Bases	TurfBase Models TBHP and TBS as manufactured by Sportsfield Specialties, or approved equal.
Portable Pitcher's Mound, Bullpen Use	Model No. PPBPBIT as manufactured by Sportsfield Specialties, or approved equal.
Player Bench, 21' Long	Model No. PBS-10 as manufactured by Jaypro Sports, LLC, 976 Hartford Turnpike, Waterford, CT 06385, 800-243-0533, or approved equal.

Bleachers	5-Row Bleacher System with Center Aisle as manufactured by Dant Clayton, 1500 Bernheim Lane, Louisville, KY 40210, (800) 626-2177, or approved equal.
Distance Banners	Weatherproof Vinyl Coated Nylon Banners as manufactured by DF Supply, Inc., 8500 Hadden Road, Twinsburg, Ohio 44087, 888-378-1017, Model No. ODM27X36, or approved equal.
Soccer Goal with Mobility Kit	Model No. SG721R as manufactured by Sportsfield Specialties, or approved equal.
Soccer Corner Flags, Set of 4	Model No. SG6B1404 as manufactured by Sportsfield Specialties, or approved equal.
Waste Receptacle	Model #84-32-FTO, as manufactured by DuMor Site Furnishings, or approved equal.
Standard Picnic Table	6' Picnic Table with Seats, 77 Series PL, as manufactured by DuMor, Inc., P.O. Box 142, Mifflintown, PA 17059-0142, or approved equal.
ADA Accessible Picnic Table	ADA Accessible Picnic Table with Seats, Model 77-68-1 PL, as manufactured by DuMor, Inc., P.O. Box 142, Mifflintown, PA 17059-0142, or approved equal.
12' x 20' Storage Shed, Complete	12' Wide by 20' Long, Cape Cod Style Timber Shed with T1-11 Siding, Asphalt Singles, and Gable Vents, as manufactured by South Jersey Sheds & Gazebos, 749 Ramah Road, Millville, New Jersey 08332, 1-856-447-5150, or approved equal.
Drinking Fountain	Elkay Two-Level Drinking Fountain: Freestanding, 64" Height, 31" Depth, ADA Compliant as manufactured by Grainger, Inc., 1001 Hadley Road, South Plainfield, NJ 07080, 1-800-472-4643, or approved equal.

#### 613.03 CONSTRUCTION

Sport appurtenances shall be installed in locations as shown on the plans, and in accordance with the manufacturer's requirements. The Contractor shall be responsible for protection of all sport field appurtenances until final acceptance by the Owner. All manufacturer guarantees shall be given to the Owner.

#### 613.04 MEASUREMENT AND PAYMENT

All site/sport appurtenances will be measured by the unit. The prices bid for the respective items shall include all labor, materials and equipment necessary for the furnishing and installation of sport field appurtenances. This includes, but is not limited to, all necessary

excavation, installation of sport field appurtenance, concrete footings, related anchoring hardware, fill, and all else necessary therefore and incidental thereto.

<u>Item</u>	<u>Pay Unit</u>
62' WIDE ARCHED BASEBALL BACKSTOP	UNIT
TENSION BALL SAFETY NETTING	
SYSTEM, 30' HIGH	UNIT
MODULAR DUGOUT	UNIT
FOUL POLE, 30' HIGH	UNIT
PORTABLE PITCHER'S MOUND, GAME	
USE, WITH STORAGE CART	UNIT
BASEBALL FIELD HOME PLATE AND	
BASES	UNIT
PORTABLE PITCHER'S MOUND, BELLPEN	
USE	UNIT
PLAYER BENCH, 21' LONG	UNIT
BLEACHERS	UNIT
DISTANCE BANNERS	UNIT
SOCCER GOAL WITH MOBILITY KIT	UNIT
SOCCER CORNER FLAGS, SET OF 4	UNIT
WASTE RECEPTACLE	UNIT
STANDARD PICNIC TABLE	UNIT
ADA ACCESSIBLE PICNIC TABLE	UNIT
BOLLARD	UNIT
12' X 20' STORAGE SHED, COMPLETE	UNIT
DRINKING FOUNTAIN	UNIT

## **DIVISION 650 – UTILITIES**

### **SECTION 651 – WATER**

#### **651.04 MEASUREMENT AND PAYMENT**

The following items are added:

<i>Item</i>	<i>Pay Unit</i>
HOSE BIB WITH LOCK BOX	UNIT
3" WATER VALVE	UNIT

## **DIVISION 700 – ELECTRICAL**

### **SECTION 701 – GENERAL ITEMS**

#### **701.04 MEASUREMENT AND PAYMENT**

The list of pay items is deleted and the following is added:

<i>Item</i>	<i>Pay Unit</i>
SITE LIGHTING AND ELECTRICAL WORK	LUMP SUM

The following is added:

The pay item “Site Lighting and Electrical Work” shall include all materials and labor required to expand the existing on-site electrical service to include all improvements shown on the plans. This shall include the installation of new light poles and relocation of existing light poles and sports field lighting. All new wiring shall be installed in PVC conduit and meet all applicable codes.

## **DIVISION 800 – LANDSCAPING**

### **SECTION 804 – TOPSOIL SPREADING**

#### **804.04 MEASUREMENT AND PAYMENT**

The following is added:

Separate payment will not be made for the stripping of topsoil. All costs shall be included in the price bid for TOPSOIL SPREADING, 5" THICK.

## **SECTION 811 - PLANTING**

### **811.04 MEASUREMENT AND PAYMENT**

The pay item Plant Establishment Period is deleted.

Separate payment will not be made for Plant Establishment Period, but the cost shall be included in the price bid for plantings of the various kinds and sizes. The Plant Establishment Period shall be two (2) years from the date of project completion.

## **SECTION 902 - ASPHALT**

### **902.02.03 Mix Design**

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Unless otherwise approved by the Engineer, only one source of supply for hot mix asphalt surface course may be used on the project.

## SECTION 909 – LANDSCAPING MATERIALS

### 917.01 Topsoil

The entire section is deleted and the following is added:

Topsoil shall be loamy sand, sandy loam, clay-loam, loam, silt loam, or other soil approved by the Engineer. It shall be natural, fertile soil capable of sustaining vigorous plant growth and shall be of a uniform quality, free from subsoil, slag, cinders, stones 1 inch or larger in any dimension, lumps of soil, sticks, roots, trash, or other extraneous, undesirable materials. Topsoil shall also be free of viable plants or plant parts of Bermuda grass, quackgrass, Johnson grass, nut sedge, poison ivy, Canada thistle, or similar material. The contractor shall have all topsoil tested by a reputable laboratory with resulting documentation submitted to the Engineer.

- A. If testing reveals that the topsoil does not conform to the requirements of this section, the contractor shall be responsible for adjusting the ph range and/or percent of organic matter by means of approved additives.
- B. Topsoil shall meet the following requirements:
  - 1. ph range - 5.0 to 7.0.
  - 2. Organic matter - four (4) percent (loss on ignition).
  - 3. Soluble salts no higher than 500 parts per million.
  - 4. Sieve Analysis:

Sieve Size	Percent Passing
1"	100%
½"	97%
#10	60-80%
#40	40-60%
#60	40-60%
#100	10-30%
#200	10-20%

- C. When topsoil, stockpiled on site, is to be reused, soil debris to include roots, sods, stones, clay lumps, and other extraneous materials harmful to plant growth shall be removed prior to reuse.
- D. Materials stripped from the following sources shall not be considered suitable for use as topsoil:
  - 1. Soils having less than 4.1 ph value.
  - 2. Chemically contaminated soils.
  - 3. Areas from which the original surface has been stripped and/or covered over such as borrow pits, open mines, demolition sites, dumps, and sanitary landfills.
  - 4. Wet excavation.

END OF SUPPLEMENTARY SPECIFICATIONS



**COUNTY OF UNION**  
**BOARD OF COUNTY COMMISSIONERS**

# VO-TECH TURF FIELD PROJECT

**BA#51-2024; UNION COUNTY ENGINEERING PROJECT #2021-009**

LIST OF UTILITIES AND EMERGENCY CONTACT INFORMATION	
<b>FIRE DEPARTMENT:</b>	<b>SCOTCH PLAINS FIRE DEPARTMENT</b> 430 SENDER PLACE, SCOTCH PLAINS, NJ 07076 908-322-6700
<b>POLICE DEPARTMENT:</b>	<b>SCOTCH PLAINS POLICE DEPARTMENT</b> 430 PARK AVENUE BERKELEY HEIGHTS, NJ 07076 908-322-7100
<b>PUBLIC WORKS:</b>	<b>SCOTCH PLAINS DEPARTMENT OF PUBLIC WORKS</b> 2445 PLAINFIELD AVENUE SCOTCH PLAINS, NJ 07076 908-233-6707
<b>SEWER:</b>	<b>SCOTCH PLAINS SEWER UTILITY</b> 2445 PLAINFIELD AVENUE SCOTCH PLAINS, NJ 07076 908-233-6707
<b>WATER:</b>	<b>NEW JERSEY AMERICAN WATER COMPANY</b> 213 CARRIAGE LANE DELRAN, NJ 08075 856-547-1700
<b>ELECTRIC:</b>	<b>JERSEY CENTRAL POWER &amp; LIGHT</b> ELECTRIC T & D 300 MADISON AVENUE MORRISTOWN, NJ 07960 800-662-3115
<b>CABLE:</b>	<b>COMCAST</b> 1250 HADDONFIELD-BERLIN ROAD CHERRY HILL, NJ 08034 800-266-2278
<b>GAS:</b>	<b>PSE&amp;G</b> GAS T & D 48 MIDDLE AVENUE SUMMIT, NJ 07901 800-350-7734
<b>TELEPHONE:</b>	<b>VERIZON COMMUNICATIONS</b> 1620 US HIGHWAY 22 WATCHUNG, NJ 07069 866-644-4532



## PROJECT LOCATION MAP

SCALE: 1" = 1000'

THE ELECTRONIC VERSION OF THE 2019 NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, EFFECTIVE SEPTEMBER 1, 2019, AS REFERENCED IN BASELINE DOCUMENT CHANGE ANNOUNCEMENT BDC19S-01, UNLESS MODIFIED WITHIN THE TECHNICAL SPECIFICATIONS OF THIS CONTRACT, SHALL GOVERN.

THE NEW JERSEY DEPARTMENT OF TRANSPORTATION "STANDARD ROADWAY CONSTRUCTION\TRAFFIC CONTROL\BRIDGE CONSTRUCTION DETAILS" BOOKLET DATED 2007 AND "ELECTRICAL BUREAU STANDARD DETAILS, 2007" AND ALL BASELINE DOCUMENT CHANGES MADE TO THESE CONSTRUCTION DETAILS, SHALL GOVERN, EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.

SHEET INDEX	
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C-2	LEGEND
C-3	GENERAL NOTES AND ESTIMATE & DISTRIBUTION OF QUANTITIES
C-4	EXISTING TOPOGRAPHIC CONDITIONS PLAN
C-5	DEMOLITION PLAN
C-6	SITE PLAN
C-7	GRADING PLAN
C-8	DRAINAGE & UTILITY PLAN
C-9	SOIL EROSION & SEDIMENT CONTROL PLAN
C-10	SOIL EROSION & SEDIMENT CONTROL NOTES
C-11	SOIL EROSION & SEDIMENT CONTROL DETAILS
C-12	CONSTRUCTION DETAILS
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ES-1.1	ELECTRICAL DEMOLITION SITE PLAN
ES-2.1	ELECTRICAL SITE PLAN
E-2.1	SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)
E-2.2	SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)
E-2.3	SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)
E-2.4	SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)
E-2.5	SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)
E-3.1	ELECTRICAL SCHEDULES AND DETAILS
E-3.2	ELECTRICAL DETAILS
E-3.3	ELECTRICAL DETAILS

2024 BOARD OF COUNTY COMMISSIONERS AND OFFICIALS:

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LOURDES M. LEON, VICE CHAIR  
JAMES E. BAKER, JR.  
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MICHELE S. DELISFORT  
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ALEXANDER MIRABELLA  
REBECCA WILLIAMS  
EDWARD T. OATMAN, COUNTY MANAGER  
RICARDO MATIAS, P.E., C.M.E., C.F.M., COUNTY ENGINEER  
VICTORIA DURBIN-DRAKE, PARKS AND RECREATION DIRECTOR



***New Jersey One Call***  
**CALL BEFORE YOU DIG**  
**811 or 1-800-272-1000**  
**IT'S THE LAW**

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT NJ ONE CALL PRIOR TO THE START OF CONSTRUCTION. CALL FOR MARKOUTS THREE (3) FULL BUSINESS DAYS IN ADVANCE AND BEGIN EXCAVATION WITHIN 10 DAYS. ALL CONTRACTORS ON-SITE MUST HAVE THEIR OWN MARKOUT.

# SCOTCH PLAINS TOWNSHIP UNION COUNTY, NEW JERSEY

**OCTOBER, 2024**



**REMINGTON  
& VERNICK  
ENGINEERS**

2059 SPRINGDALE ROAD  
CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM

Certification of Authorization: 24 GA 28003300  
**Excellence • Innovation • Service**

Jessie D. Hauber  
DATE: 10-09-2024

**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID.

ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT EXTENDED OR REPEATEDLY ADAPTED FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO REMINGTON & VERNICK ENGINEERS AND AFFILIATES. THEREFORE, OWNER SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON & VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

[illegible]

TITLE SHEET

COUNTY OF UNION  
VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP	UNION COUNTY	NEW JERSEY
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<u>DRAWN BY:</u> RLR	<u>DESIGN BY:</u> RLR	<u>CHECKED BY:</u> DAH	<u>SCALE:</u> AS NOTED
<u>DATE:</u> 04/16/2024		<u>SHEET No.:</u>  C-1	
<u>JOB No.:</u> 2000F028			

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**NOTE: ALL SYMBOLS MAY NOT BE USED**

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-2	
<u>JOB No. :</u> 2000F028			

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO THE START OF THE CONSTRUCTION, ANY ERRORS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
2. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. ALL PAVED AND CONCRETE AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO THE START OF CONSTRUCTION.
5. ALL GRASSED OR WOODED AREAS DISTURBED DURING CONSTRUCTION SHALL BE TOPSOILED AND SEEDED.
6. ALL FILL SHALL BE PLACED IN 12" LAYERS AND THOROUGHLY COMPACTED TO THE SATISFACTION OF THE ENGINEER. IF BORROW FILL IS REQUIRED, IT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT HIS OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT HE DAMAGES.
8. APPROXIMATE DEPTH OF ALL WATER MAIN IS  $\pm$  4 FEET.
9. APPROXIMATE DEPTH OF ALL GAS MAIN IS  $\pm$  3 FEET.
10. ALL CONSTRUCTION DETAILS NOT SHOWN SHALL BE IN ACCORDANCE WITH N.J.D.O.T. STANDARDS AS DETAILED IN:

- INCLUDING ALL APPLICABLE BASELINE DOCUMENT CHANGES AND APPENDICES. THESE DETAILS MAY BE PURCHASED THROUGH THE N.J.D.O.T. PLANS AND SPECIFICATION CENTER AT:

(TELEPHONE: 1-609-530-2098)

22. ALL UTILITY CROSSINGS/OFFSETS SHALL INCLUDE COMPACTED STABILIZATION MATERIAL FOR FULL LENGTH OF CROSSING.

23. TRAFFIC CONTROL INCLUDING ALL DEVICES SHALL BE PAID UNDER THE APPROPRIATE ITEMS, AND SHALL BE IN ACCORDANCE WITH THE MOST CURRENT M.U.T.C.D. AND N.J.D.O.T. DETAILS.

24. SEPARATE PAYMENT WILL NOT BE MADE FOR EXCAVATION, DEWATERING, FITTINGS, PIPE BEDDING, SHEETING, BRACING, SHORING, INLET CONNECTIONS, TRAPS, AND SUITABLE BACKFILL MATERIAL INVOLVED IN ALL PIPE AND ASSOCIATED STRUCTURES REMOVAL, RECONSTRUCTION AND INSTALLATION, BUT THE COST SHALL BE INCLUDED IN THE VARIOUS ITEMS OF THE PROPOSAL REGARDLESS OF DEPTH.

25. THE CONTRACTOR SHALL EXERCISE PARTICULAR CARE, ESPECIALLY AT INTERSECTIONS AND GUTTER LINES, IN CONSTRUCTION OF PAVEMENT TO PROVIDE POSITIVE FLOWING STORMWATER. ANY AREAS WHERE WATER IS IMPOUNDED SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.

26. PAYMENT FOR OBSTRUCTION REMOVAL SUCH AS TREE ROOTS AND EXISTING INFRASTRUCTURE WHICH MAY INTERFERE WITH THE PROPOSED CONSTRUCTION, SHALL BE INCLUDED IN THE ITEM "CLEARING SITE".

27. AT ALL LIMITS OF PAVING (L.O.P.) THE CONTRACTOR SHALL SAWCUT, TACK COAT AND SEAL TO MATCH EXISTING PAVEMENT. SEPARATE MEASUREMENT AND PAYMENT FOR ALL THIS WORK SHALL NOT BE MADE AND ALL COSTS SHALL BE INCLUDED IN THE VARIOUS ITEMS OF THE BID.

28. ALL TREE REMOVALS ARE TO BE VERIFIED BY THE ENGINEER PRIOR TO REMOVAL. ALL TREE PLANTINGS ARE APPROXIMATE WITH FINAL LOCATIONS TO BE ESTABLISHED IN THE FIELD.

29. THE CONTRACTOR SHALL UTILIZE A QUALIFIED ARBORIST FOR ALL TREE TRIMMINGS.

30. INLET SEDIMENT PROTECTION SHALL BE INSTALLED AT ALL EXISTING AND PROPOSED INLETS AND CATCH BASINS SHOWN ON THE PLANS. SEPARATE PAYMENT FOR ALL ASSOCIATED COSTS WILL NOT BE MADE, BUT SHALL BE INCLUDED UNDER VARIOUS ITEMS OF THE PROPOSAL.

31. ALL RCP SHALL BE LINED ON THE INTERIOR WITH A COAT OF TAR EPOXY SEAL COAT WITH A MINIMUM OF 4 MILS IN THICKNESS (DRY FILM THICKNESS).

32. ALL NEW MANHOLES AND INLETS SHALL HAVE AN EXTERIOR COATING OF CARBOLINE COAL TAR EPOXY 300ML OR APPROVED EQUAL, TWO COATS. EACH MANHOLE BASE SHALL BE PROVIDED WITH CIRCULAR OPENINGS AT THE REQUIRED LOCATIONS AND ELEVATIONS FOR THE PROPER CONNECTION OF ALL PIPES. THE FLEXIBLE CONNECTIONS SHALL BE A-LOK FLEXIBLE CONNECTOR BY A-LOK PRODUCTS, OR APPROVED EQUAL.

33. EACH INLET BOX SHALL BE PROVIDED WITH CIRCULAR OPENINGS AT THE REQUIRED LOCATIONS AND ELEVATIONS FOR THE PROPER CONNECTION OF ALL PIPES. THE CIRCULAR CONNECTIONS SHALL BE SEALED WITH A FLEXIBLE SEAL ASSEMBLY SUCH AS G3-FLEXIBLE CONNECTOR BY A-LOK PRODUCTS, INC OR APPROVED EQUAL.

34. THE CONTRACTOR SHALL REMOVE ALL EXISTING IRRIGATION SYSTEM COMPONENTS THAT INTERFERE WITH PROPOSED SITE IMPROVEMENTS. SEPARATE PAYMENT WILL NOT BE MADE, BUT SHALL BE INCLUDED IN THE ITEM "CLEARING SITE".

35. THE PAY ITEM "EARTHWORK" IS DEFINED AS STRIPPING, GRADING, FILLING, CUTTING AND THE GENERAL MOVEMENT OF TOPSOIL AND/OR EARTH TO PROVIDE FOR THE FINAL GRADES AS SHOWN ON THE CONTRACT DRAWINGS.

36. SEPARATE PAYMENT WILL NOT BE MADE FOR BORROW EXCAVATION, BORROW TOPSOIL, OR EXCAVATION OF ANY KIND ASSOCIATED WITH THE PAY ITEM "EARTHWORK", BUT THE COST SHALL BE INCLUDED IN THE PRICE BID FOR "EARTHWORK".

37. THE PAY ITEM "SITE LIGHTING AND ELECTRICAL WORK" SHALL INCLUDE ALL MATERIALS AND LABOR REQUIRED TO EXPAND THE EXISTING ON-SITE ELECTRICAL SERVICE TO INCLUDE ALL IMPROVEMENTS SHOWN ON THE PLANS. THIS SHALL INCLUDE THE INSTALLATION OF NEW LIGHT POLES AND RELOCATION OF EXISTING LIGHT POLES AND SPORTS FIELD LIGHTING. ALL NEW WIRING SHALL BE INSTALLED IN PVC CONDUIT AND MEET ALL APPLICABLE CODES.

38. ALL STONE USED IN THE CONSTRUCTION OF THE SYNTHETIC TURF FIELD BASE SHALL BE CLEAN, WASHED STONE.

39. FURNISHING AND INSTALLATION OF THE SYNTHETIC TURF IS NOT INCLUDED IN THIS CONTRACT.

1. IMPLEMENT SOIL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
2. IMPLEMENT STANDARD MEASURE FOR CONSTRUCTION RELATED NOISE AND AIR QUALITY IMPACT CONTROLS.
3. BEST MANAGEMENT PRACTICE WILL BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING STORM WATER INLETS AND ENVIRONMENTALLY SENSITIVE AREAS.

**BASE BID**

ITEM NO.	DESCRIPTION	UNITS	PLAN QUANTITY	IF & WHERE DIRECTED	BID QUANTITY
1	TRAFFIC CONTROL	LS	1	0	1
2	CLEARING SITE	LS	1	0	1
3	EARTHWORK	LS	1	0	1
4	DENSE GRADED AGGREGATE BASE COURSE, 4" THICK	SY	859	91	950
5	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	SY	1720	180	1900
6	HOT MIX ASPHALT 19M64 BASE COURSE, 3" THICK	TON	297	33	330
7	HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK	TON	202	28	230
8	TACK COAT	GAL	258	32	290
9	CHAIN LINK FENCE, PVC-COATED STEEL, 6' HIGH, BLACK	LF	1126	114	1240
10	CHAIN LINK FENCE, PVC-COATED STEEL, 8' HIGH, BLACK	LF	310	40	350
11	GATE, CHAIN LINK FENCE, PVC-COATED STEEL, 4' WIDE	UN	7	2	9
12	GATE, CHAIN LINK FENCE, PVC-COATED STEEL, 16' WIDE	UN	2	0	2
13	NO ITEM	-	0	0	0
14	CONCRETE SIDEWALK, 4" THICK	SY	298	32	330
15	CONCRETE PAD, REINFORCED, 6" THICK	SY	561	59	620
16	PRECAST CONCRETE WHEEL STOP	UN	6	0	6
17	9" X 18" CONCRETE VERTICAL CURB	LF	932	108	1040
18	14" X 16" CONCRETE VERTICAL CURB	LF	1585	165	1750
19	TRAFFIC STRIPES, 4"	LF	622	68	690
20	TRAFFIC STRIPES, 12"	LF	35	5	40
21	TRAFFIC MARKINGS SYMBOLS	SF	350	35	385
22	REGULATORY & WARNING SIGN	SF	46.75	5.25	52
23	62" WIDE ARCHED BASEBALL BACKSTOP	UN	1	0	1
24	TENSION BALL SAFETY NETTING SYSTEM, 30' HIGH	LF	600	60	660
25	MODULAR DUGOUT	UN	2	0	2
26	FOUL POLE, 30' HIGH	UN	2	0	2
27	PORTABLE PITCHER'S MOUND, GAME USE, WITH STORAGE CART	UN	1	0	1
28	BASEBALL FIELD HOME PLATE AND BASES	UN	1	2	3
29	PORTABLE PITCHER'S MOUND, BULLPEN USE	UN	2	0	2
30	PLAYER BENCH, 21' LONG	UN	4	2	6
31	BLEACHERS	UN	2	0	2
32	DISTANCE BANNERS	UN	6	0	6
33	SOCCER GOAL WITH MOBILITY KIT	UN	2	0	2
34	SOCCER CORNER FLAGS, SET OF 4	UN	2	1	3
35	WASTE RECEPTACLE	UN	3	1	4
36	STANDARD PICNIC TABLE	UN	4	0	4
37	ADA ACCESSIBLE PICNIC TABLE	UN	2	0	2
38	BOLLARD	UN	19	1	20
39	12' X 20' STORAGE SHED, COMPLETE	UN	1	0	1
40	DRINKING FOUNTAIN	UN	1	0	1
41	HOSE BIB WITH LOCK BOX	UN	1	0	1
42	3" DUCTILE IRON WATER PIPE, CLASS 52	LF	724	76	800
43	3" WATER VALVE	UN	1	0	1
44	TOPSOIL SPREADING, 5" THICK	SY	7000	700	7700
45	FERTILIZING AND SEEDING, TYPE A-3	SY	7000	700	7700
46	SYNTHETIC TURF FIELD BASE WITH UNDERDRAIN SYSTEM	SF	113056	11344	124400
47	SITE LIGHTING AND ELECTRICAL WORK	LS	1	0	1
48	NO ITEM	-	0	0	0
49	R-TANK HD #1, COMPLETE	LS	1	0	1
50	R-TANK HD #2, COMPLETE	LS	1	0	1
51	24" REINFORCED CONCRETE PIPE, CLASS III	LF	299	31	330
52	24" HIGH DENSITY POLYETHYLENE PIPE	LF	882	88	970
53	OUTLET STRUCTURE 1	UN	1	0	1
54	OUTLET STRUCTURE 2	UN	1	0	1
55	MANHOLE, 4' DIAMETER	UN	6	0	6
56	DOGHOUSE MANHOLE, 4' DIAMETER	UN	1	0	1
57	RETAINING WALL	SF	261	39	300

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PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID

ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY TO REMINGTON & VERNICK ENGINEERS AND AFFILIATES, AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON & VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

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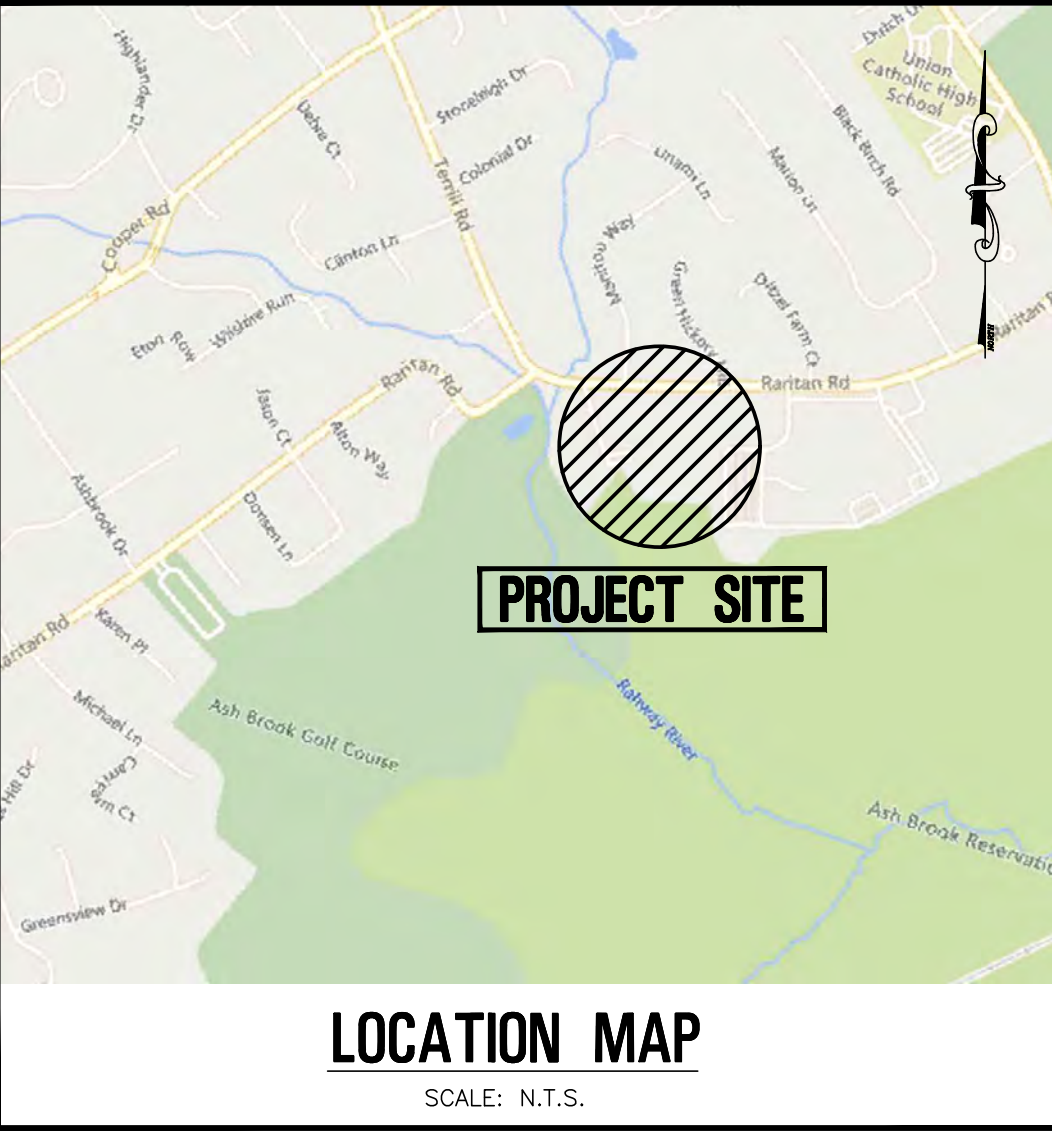
# GENERAL NOTES AND ESTIMATE & DISTRIBUTION OF QUANTITIES

COUNTY OF UNION

VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  <div style="font-size: 2em; text-align: center;">C-3</div>	
<u>JOB No. :</u> 2000F028			



DATE: 10-09-2024  
CHARLES E. ADAMSON  
NJ PROFESSIONAL LAND SURVEYOR LIC. No. 426

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID

ALL DOCUMENTS PREPARED BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES ARE INSTRUMENTS CARRIED OUT IN SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT TO BE INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT OUR WRITTEN VERIFICATION OR ADAPTATION BY REMINGTON & VERNICK ENGINEERS AND AFFILIATES FOR SUCH PURPOSES INTENDED BY THE OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO REMINGTON & VERNICK ENGINEERS AND AFFILIATES; AND OWNERS SHALL INDEMNIFY AND HOLD HARMLESS REMINGTON & VERNICK ENGINEERS AND AFFILIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

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# EXISTING TOPOGRAPHIC CONDITIONS PLAN

COUNTY OF UNION

SCOTCH PLAINS TOWNSHIP UNION COUNTY NEW JERSEY

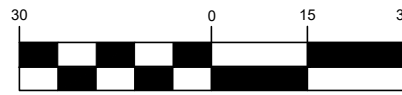
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<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-4	
<u>JOB No. :</u> 2000F028			

THE AUSTRIAN ECONOMY	DATE	NAME
1. The Austrian economy is characterized by a high degree of competition and a strong emphasis on innovation and research and development.	10/10/2023	John Doe
2. The Austrian economy is also characterized by a high degree of social and environmental responsibility, with a strong emphasis on sustainability and ethical business practices.	10/10/2023	John Doe
3. The Austrian economy is also characterized by a high degree of government intervention, with a strong emphasis on social welfare and public services.	10/10/2023	John Doe
4. The Austrian economy is also characterized by a high degree of international trade and investment, with a strong emphasis on global cooperation and collaboration.	10/10/2023	John Doe
5. The Austrian economy is also characterized by a high degree of cultural and linguistic diversity, with a strong emphasis on multiculturalism and intercultural communication.	10/10/2023	John Doe

### SURVEY NOTES & REFERENCES:

1. THE HORIZONTAL DATUM IS BASED ON THE NEW JERSEY STATE PLANE COORDINATE SYSTEM (NAD-1983 / 2011 ADJ.) AND THE VERTICAL DATUM IS BASED ON NAVD-1988 / GEOID 2018 (ADD 1.00 FEET TO THESE ELEVATIONS TO CONVERT TO NGVD-1929 DATUM).
2. PROPERTY AND RIGHT-OF-WAY LINES SHOWN ON THESE PLANS ARE APPROXIMATE LOCATIONS BASED ON THE CURRENT TAX MAPS OF THE TOWNSHIP OF SCHOENHARTS PLANNING UNIT, COUNTY OF MIDDLESEX, NEW JERSEY. PROPERTY AND RIGHT-OF-WAY LINES ARE SHOWN FOR GRAPHICAL INFORMATION ONLY AND HAVE NOT BEEN FIELD VERIFIED.
3. EXISTING TOPOGRAPHIC CONDITIONS WERE SURVEYED BY REMINGTON & VERNICK ENGINEERS UNDER THE SUPERVISION OF CHARLES E. ADAMSON, N.J.P.L.S. LICENSE NO. 42627. THE SURVEY WORK WAS COMPLETED ON MARCH 29, 2024.
4. THIS PLAN AND SURVEY DOES NOT CERTIFY TO THE LOCATION, BOTH HORIZONTAL AND VERTICAL OF ANY UNDERGROUND UTILITY OR STRUCTURE THAT WAS NOT EXPOSED FOR DIRECT MEASUREMENT.

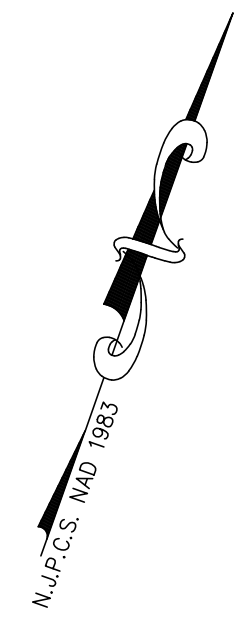
GRAPHIC SCALE



( IN FEET )  
1 inch = 30 ft



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*Jessica D. Hauber*  
DATE: *10-09-2024*  
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

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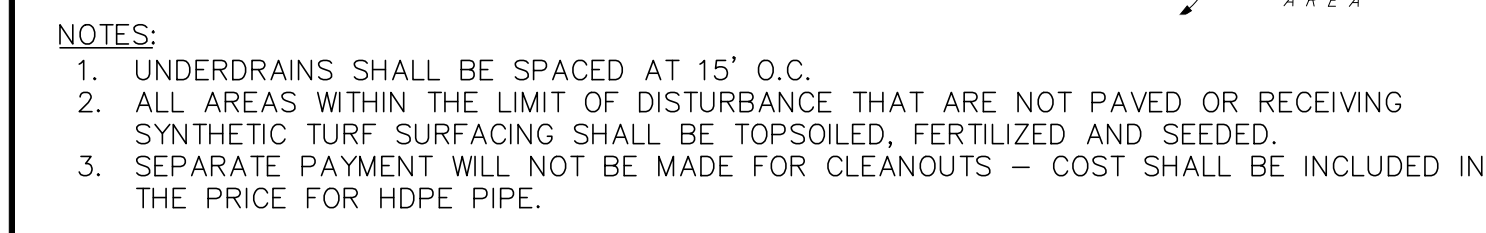
SCOTCH PLAINS TOWNSHIP	UNION COUNTY	NEW JERSEY
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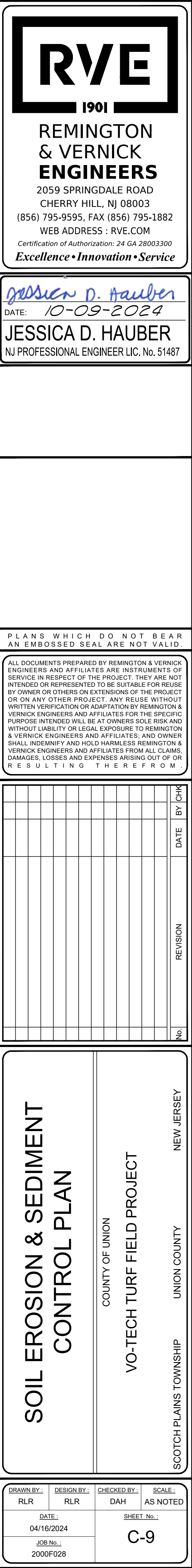
**GRAPHIC SCALE**



( IN FEET )  
1 inch = 30 ft.

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-7	
<u>JOB No. :</u> 2000F028			

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1. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREA WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE. ACCORDING NJ STATE STANDARDS.
4. PERMANENT VEGETATION SHALL BE SEED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
6. ALL SUB-BASE COVER WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZED STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
7. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY CUTS/ELEMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE. ACCORDING TO THE NJ STATE STANDARDS.
8. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1).
9. TRAFFIC CONTROL STANDARDS REQUIRED THE INSTALLATION OF A 50"x30"x6" PAD OF 1-1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
10. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PERFORM, A SUITABLE EQUIVALENT, OR ADDITIONAL VEGETATIVE MATERIAL COULD BE REMOVED OR TREATED IN SUCH A WAY THAT THAT 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.
11. IN THE NJSA 4-24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES, ALL SITE WORK FOR THE SITE PLANS AND ALL WORK ADDED AND INDIVIDUALS MUST BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONS.
13. ANY CHANGED TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
15. MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
16. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
18. HYDRO SEEDING IS A TWO-STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROPOSED CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS DESIGNED TO OPTIMIZE SEEDING DATED AS LISTED IN THE NJ STANDARDS.
19. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATION TO MINIMIZE SOIL TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.

1. IMMEDIATELY PRIOR TO SEEDING THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.)
2. INSPECT SITE JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED IN ACCORDANCE WITH ABOVE.
3. IMMEDIATELY PRIOR TO TOPSOILING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAD BEEN SOIL COMPACTION. THIS WILL HELP INSURE A GOOD BOND BETWEEN THE TOPSOIL AND THE SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.)
4. SOIL COMPACTION RESULTING FROM LAND GRADING ACTIVITIES CAN IMPACT THE INFILTRATION RATE OF THE SOIL. RESTORATION OF COMPACTED SOILS THROUGH DEEP TILLAGE (6" TO 12") AND THE ADDITION OF ORGANIC MATTER MAY BE REQUIRED IN PLANNED PERVIOUS AREAS TO ENHANCE THE INFILTRATION RATE OF THE DISTURBED SOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLE, IRRIGATION SYSTEMS, ETC.)
5. TO PREVENT COMPACTION OF THE SUBSOIL WHICH WILL REDUCE ITS INFILTRATION CAPACITY, BASINS SHOULD BE OVER EXCAVATED WITH LIGHT EARTH MOVING EQUIPMENT, PREFERABLY WITH TRACKS OR OVER-SIZED TIRES RATHER THAN NORMAL RUBBER TIRES. ONCE THE FINAL CONSTRUCTION PHASE IS REACHED, THE FLOOR OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND SMOOTHER LOVER WITH A LEVELING DRAG OR EQUIVALENT GRADING EQUIPMENT.
6. FOR BASINS, ANNUAL TILLING OPERATIONS SHOULD MAINTAIN INFILTRATION CAPACITY. THESE TILLED AREAS SHOULD BE RE-VEGETATED IMMEDIATELY TO PREVENT EROSION. TOP SOILING CAN BE USED TO BREAKUP CLOGGED SURFACE LAYERS FOLLOWED BY REGRADING AND LEVELING. SAND OR ORGANIC MATTER CAN BE TILLED INTO THE BASIN FLOOR TO PROMOTE A RESTORED INFILTRATION CAPACITY. SEDIMENT REMOVAL PROCEDURES SHOULD NOT BE UNDERTAKEN UNTIL THE BASIN IS THOROUGHLY DRY. THE TOP LAYER SHOULD BE REMOVED BY LIGHT EQUIPMENT TO PREVENT COMPACTION. THE REMAINING SOIL CAN BE RETILLED AND DISTURBED VEGETATION REPLANTED.

<u>SOIL TEXTURE</u>	<u>TONS/ACRE</u>	<u>LBS./1000 SQ. FT.</u>
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45



DATE: 10-09-2024  
JESSICA D. HAUBER  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID

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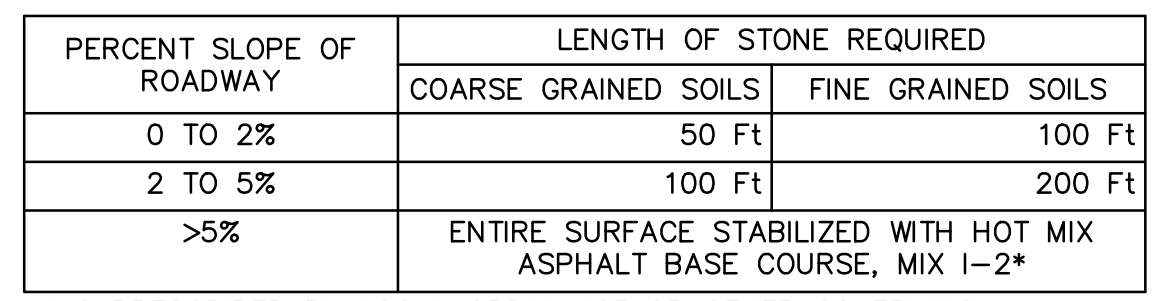
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## SOIL EROSION & SEDIMENT CONTROL DETAILS

COUNTY OF UNION  
VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP	UNION COUNTY	NEW JERSEY
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<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTE
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-11	
<u>JOB No. :</u> 2000F028			



\*AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

NOTE:

1. WIDTH SHALL BE 20' AND LOCATION SHALL BE AS DIRECTED BY THE OWNER.
2. FILTER FABRIC TO BE TYPAR STYLE 3341, OR APPROVED EQUAL.

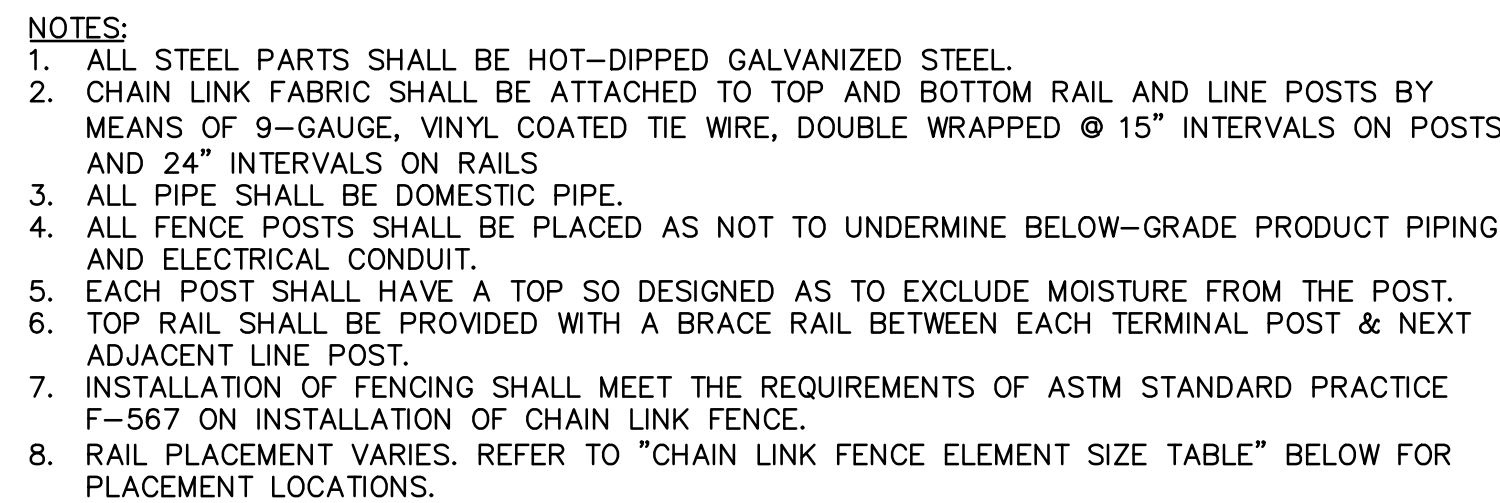
### STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

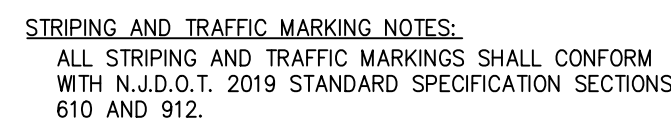
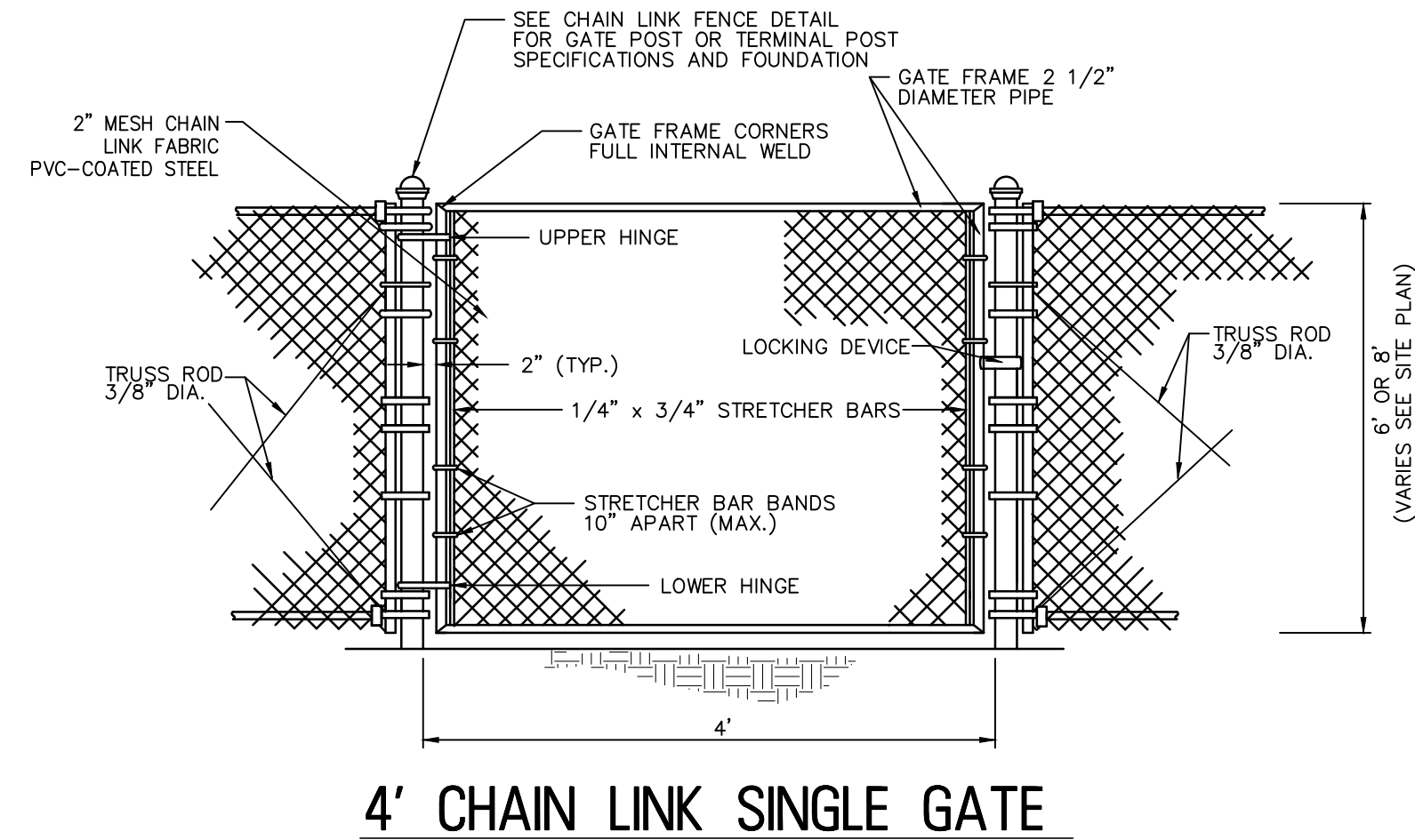


### SOIL COMPACTION EXEMPTION NOTE

AS DETERMINED BY THE STATE POLICY MAP, THE PROJECT AREA FALLS WITHIN THE METROPOLITAN PLANNING AREA (PA1). UNDER EXISTING CONDITIONS, THE SITE IS NOT COVERED IN WOODY VEGETATION NOR REGROWTH. IN ACCORDANCE WITH NEW JERSEY STANDARDS FOR LAND GRADING (REVISED 2017), NON WOODY VEGETATED PA1 AREAS FALL UNDER THE SOIL COMPACTION EXEMPTION LIST AS A "URBAN REDEVELOPMENT" AND IS DEFINED BY NJDEP AS "PREVIOUSLY DEVELOPED".



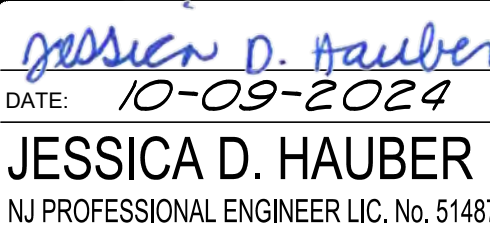
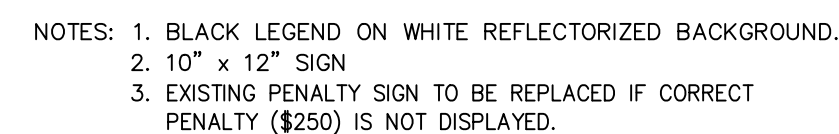
CHAIN LINK FENCE  
N.T.S.



N.T.S.



N.T.S



PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID

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## CONSTRUCTION DETAILS

COUNTY OF UNION

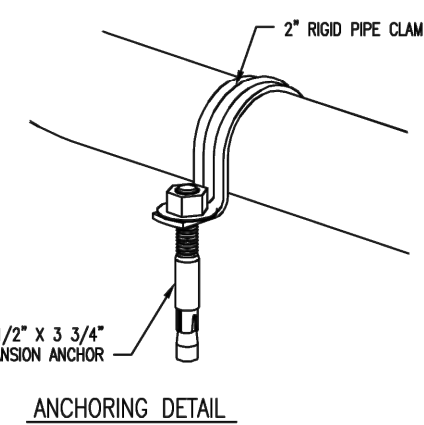
VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u> C-12	
<u>JOB No. :</u> 2000F028			



1. PICNIC TABLE SHALL BE ADA ACCESSIBLE PICNIC TABLE WITH SEATS, MODEL 77-68-1 PL, AS MANUFACTURED BY DUMOR, INC., P.O. BOX 142, MIFFLINTOWN, PA, 17059-0142, OR APPROVED EQUAL.
2. COLOR SHALL BE BLACK FRAME WITH REDWOOD RECYCLED PLASTIC.
3. ALL STEEL MEMBERS COATED WITH ZINC RICH EPOXY THEN FINISHED WITH PESTYESTER POWDER COATING.
4. PICNIC TABLES SHALL BE SURFACE MOUNTED TO CONCRETE PAD.
5. INSTALLATIONS TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. ALL HARDWARE REQUIRED FOR INSTALLATION SHALL BE INCLUDED IN THE PRICE.



### ADA ACCESSIBLE PICNIC TABLE

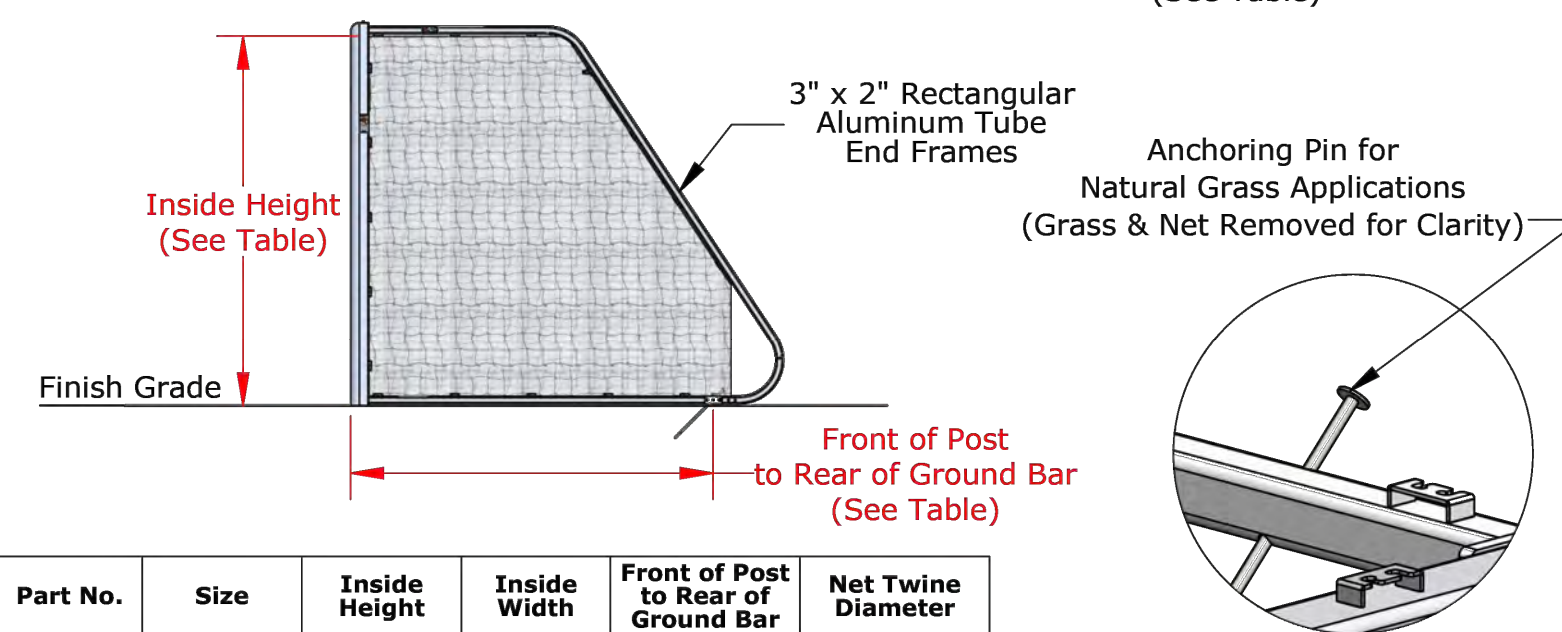
N.T.S.



1. PICNIC TABLE SHALL BE 6' PICNIC TABLE WITH SEATS, 72 SEAT, AS MANUFACTURED BY DUNN, INC., P.O. BOX 142, MITCHELL, PA, 15705-0142, OR APPROVED EQUAL.
2. COLOR SHALL BE BLACK FRAME WITH REDWOOD RECYCLED PLASTIC SLATS.
3. ALL STEEL MEMBERS COATED WITH ZINC RICH EPOXY THEN FINISHED WITH POLYESTER POWDER COATING.
4. PLASTIC TABLES SHALL BE SURFACE MOUNTED TO CONCRETE PAD.
5. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. ALL HARDWARE REQUIRED FOR INSTALLATION SHALL BE INCLUDED IN THE PRICE.



N.T.S.



NOTES:

1. SOCCER GOAL SHALL BE MODEL NO. SG721R AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, OR APPROVED EQUAL.
2. SGMOBILE INTEGRATED SOCCER GOAL WHEEL KIT AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, OR APPROVED EQUAL, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SOCCER GOAL WITH MOBILITY KIT.

YOUTH SOCCER GOAL

N.T.S.



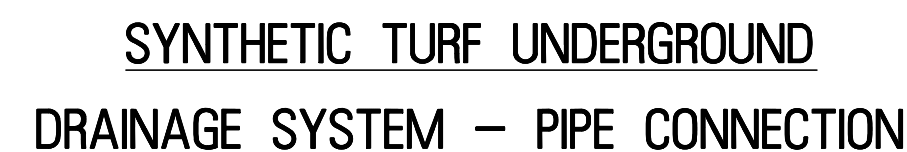
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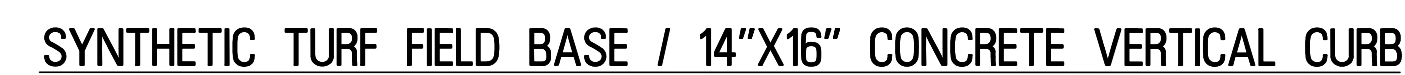
1. EXPANSION JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 10' APART AND FILLED WITH CELLULAR COMPRESSION MATERIAL AS SPECIFIED, AND RECESSED 1/4" FROM FACE AND TOP OF CURB. EXPANSION JOINTS TO BE INCLUDED IN THE UNIT PRICE BID FOR 9"x18" CONCRETE VERTICAL CURB.
2. SEE PLANS FOR PAVEMENT REQUIREMENTS ADJACENT TO CURB.

### 9" X 18" CONCRETE CURB DETAIL

N.T.S.



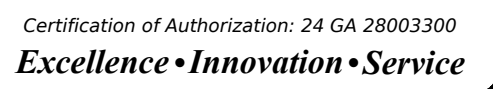
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N.T.S.



N.T.S



DATE: 10-09-2024

**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

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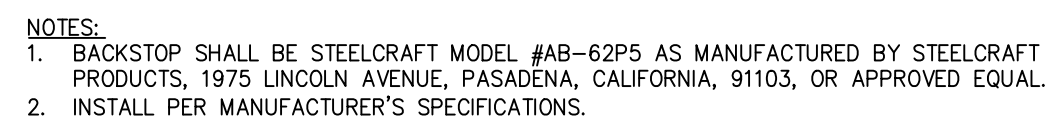
## CONSTRUCTION DETAILS

COUNTY OF UNION

VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  <div style="font-size: 2em; text-align: center;">C-13</div>	
<u>JOB No. :</u> 2000F028			



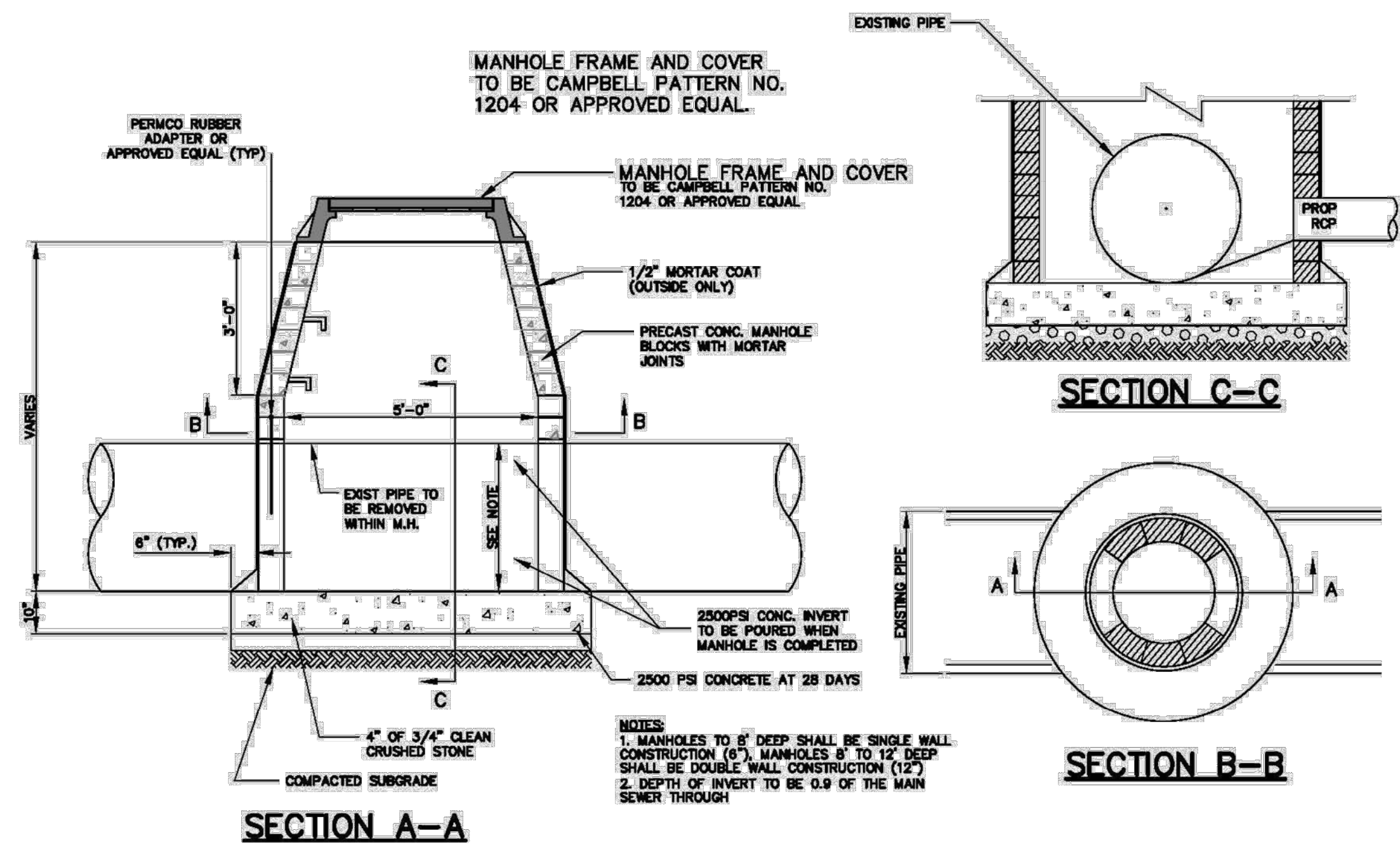
N.T.S.



PARTS	ITEM	QUANT	DESCRIPTION
	A	1	CENTER FRONT TOP SECTION: 2-7/8" OD GALV PIPE X W/ INTERNAL FITTINGS ON EACH END AND 1 STUB FITTINGS WELDED AT CENTER TO RECEIVE THE CENTER VERTICAL RIB.
	B	4	LEFT AND RIGHT SIDE FRONT ARCH TOP SECTIONS MADE OF 2-7/8" OD GALV PIPE. BOTTOM END EXTENDS INTO FOOTING
	C	15	HORIZONTAL STIFFENERS (BRACES): 2-3/8" OD @ 4-9" GALV PIPE.
	D	120	2-7/8" TENSION BANDS
	E	34	SOCKET SET SCREWS
	F	80	2" X 1/2" X 5-1/2" W/ CHAIN LINK FABRIC
	G	120	5/16" X 1-1/4" CC BOLT W LOCK NUT
	H	18	10 #1 TENSION BARS
	I	2	ANCHORS
	J	50	9-1/2" STEEL TIE WIRES

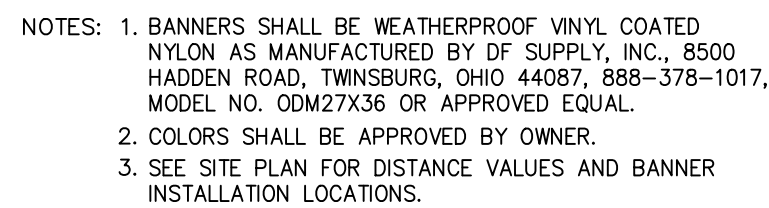
## INSTRUCTIONS

1. INSTALL FRONT ARCH SIMILAR TO FRONT ARCH OF THE BASE BACKSTOP. THE EXTENSION ARCH IS TO BE 5'-4 1/2" IN FRONT OF THE BASE BACKSTOP.
2. INSERT THE TOP FRONT BRACE IN THE STUB ON THE FRONT BASE ARCH AND THE EXTENSION ARCH. TIGHTEN THE SET SCREWS.
3. THE EXTENSION BRACES ARE TO BE SPACED AT APPROXIMATELY 4'-9" C-C. PLACE A BRACE BAND AT THIS SPACING TO RECEIVE THE EIGHT REMAINING FRONT BRACES.
4. PLACE THE SUBSTRATE BRACE BANDS AT THE FRONT OF THE FRONT BRACE TO THE BRACE BANDS USING HARDWARE PROVIDED. ADJUST TO MAKE THE FRONT ARCH PERPENDICULAR AND TIGHTEN SET SCREWS.
5. PLACE TENSION BANDS AT APPROXIMATELY 5'-0" SPACING. PLACE THE CHAIN LINK FABRIC ON THE TOP OF THE EXTENSION AND ATTACH TO THE TENSION BARS/BANDS.

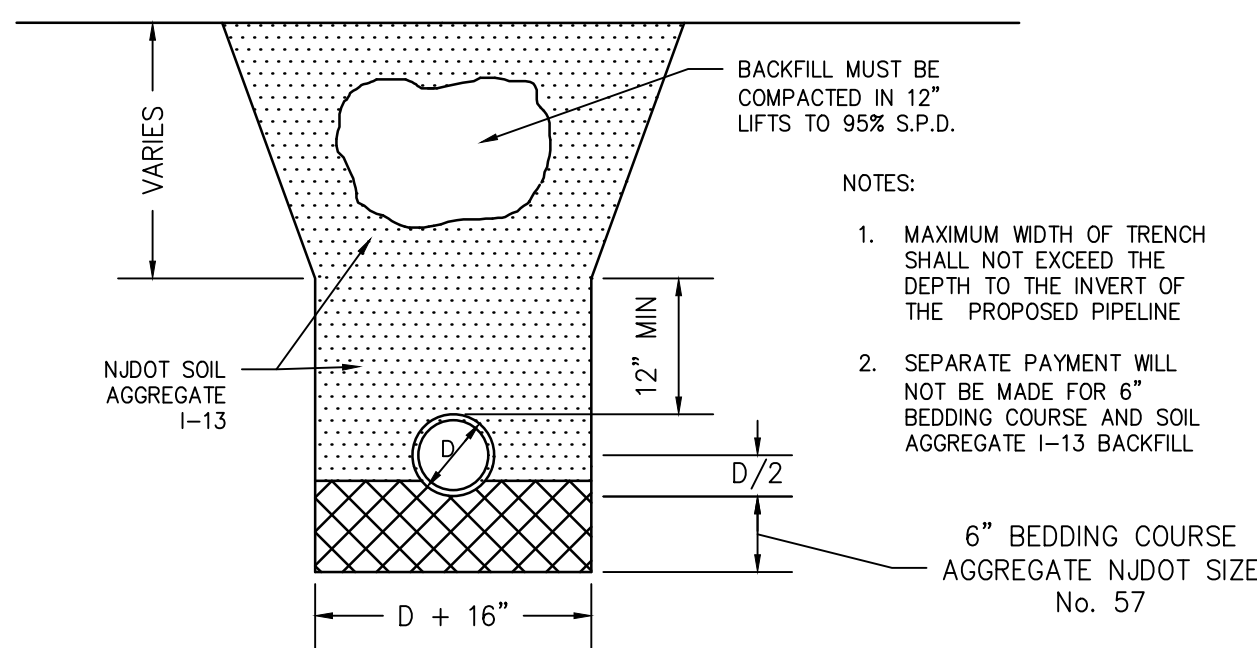


**NOT TO SCALE**

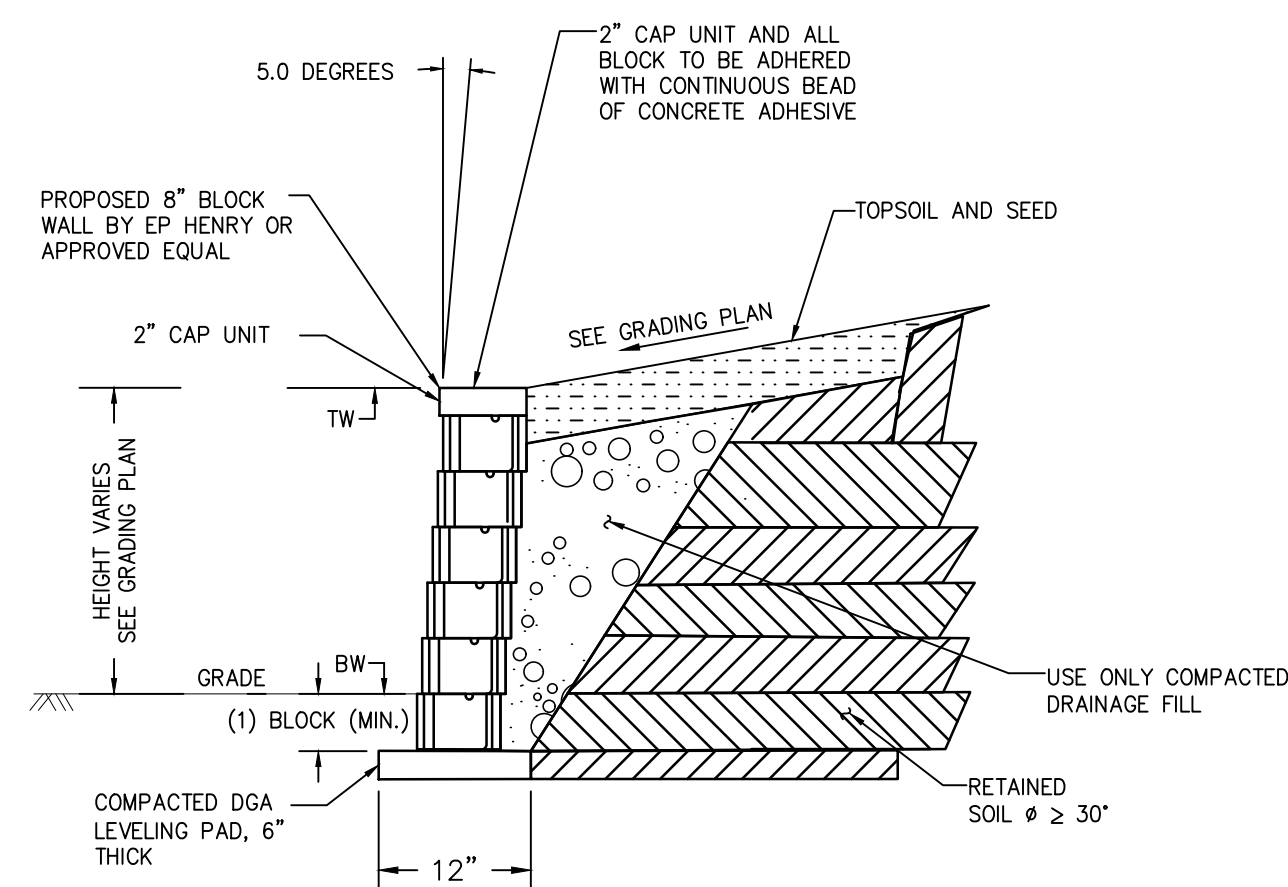
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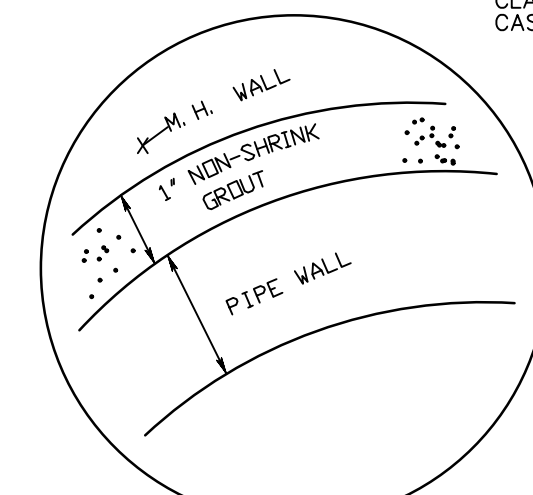
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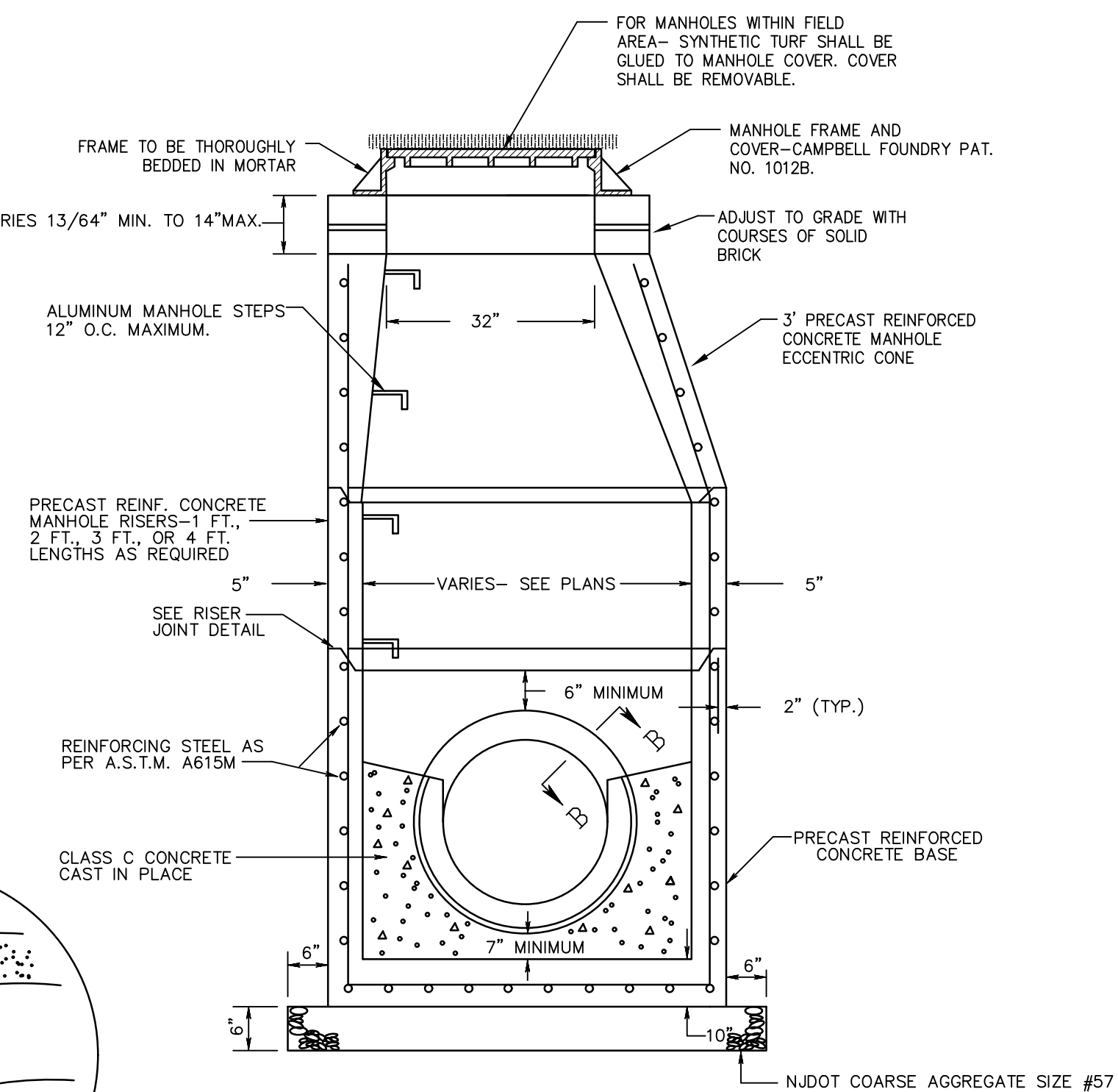
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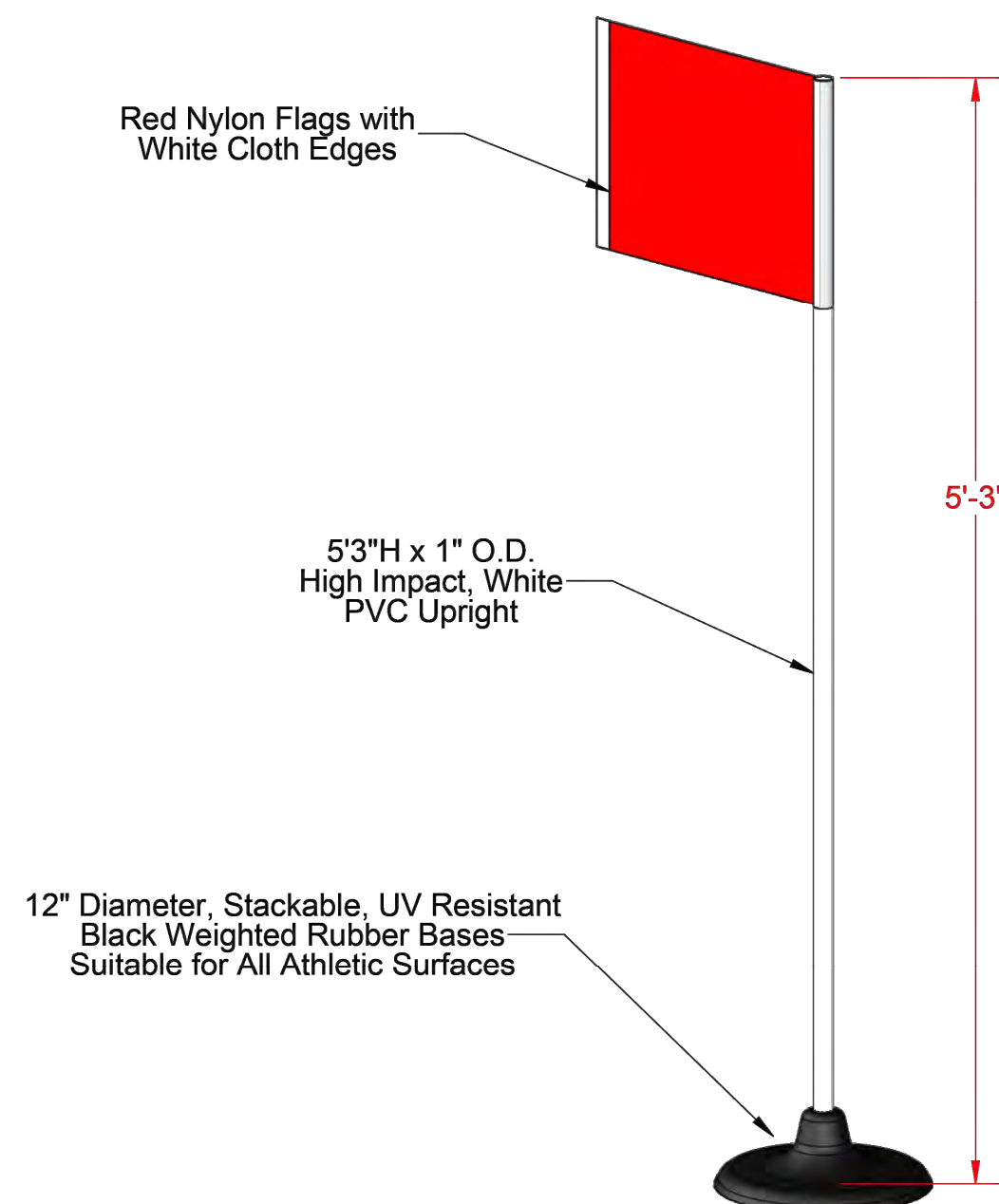
N.T.S



N.T.S.



41155 State Highway 10, PO Box 231, Delhi, NY 13753 CALL: 888-975-3343 FAX: 607-746-8488



**PROPRIETARY AND CONFIDENTIAL**

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SG6B1404 - Set of Four (4)  
Goal® Premier Soccer Corner Flags

Not To Scale	Sportsfield Specialties Inc 105554.1-22120
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NOTE: SOCCER CORNER FLAGS, SET OF 4 SHALL BE MODEL NO. SG6B1404 AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, OR APPROVED EQUAL.

N.T.S.

Jessien D. Hauber

DATE: 10-09-2024

JESSICA D. LAUBER

JESSICA D. HAUBER

NJ PROFESSIONAL ENGINEER LIC. No. 5

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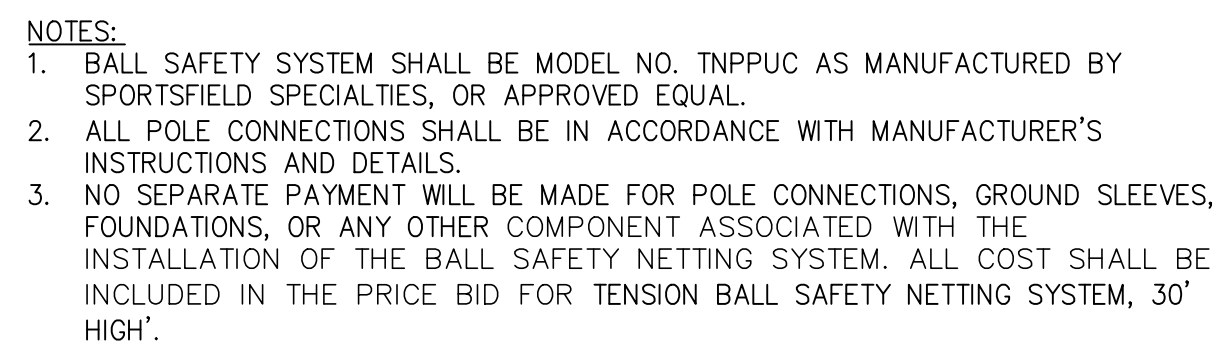
## CONSTRUCTION DETAILS

COUNTY OF UNION

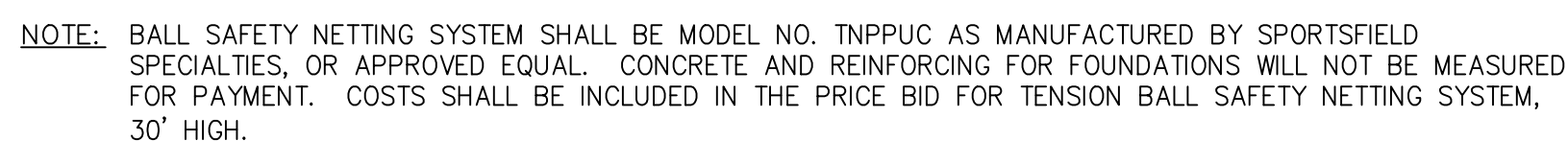
SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

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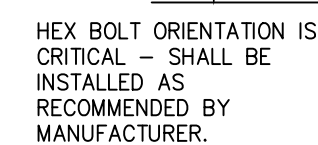
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<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-14	
<u>JOB No. :</u> 2000F028			



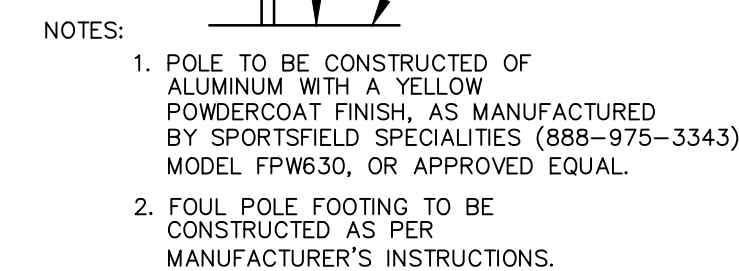
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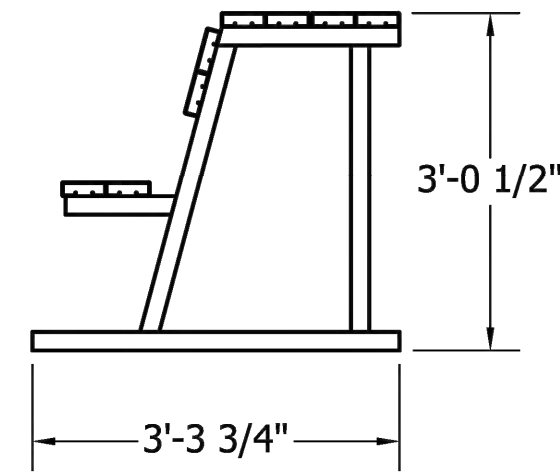


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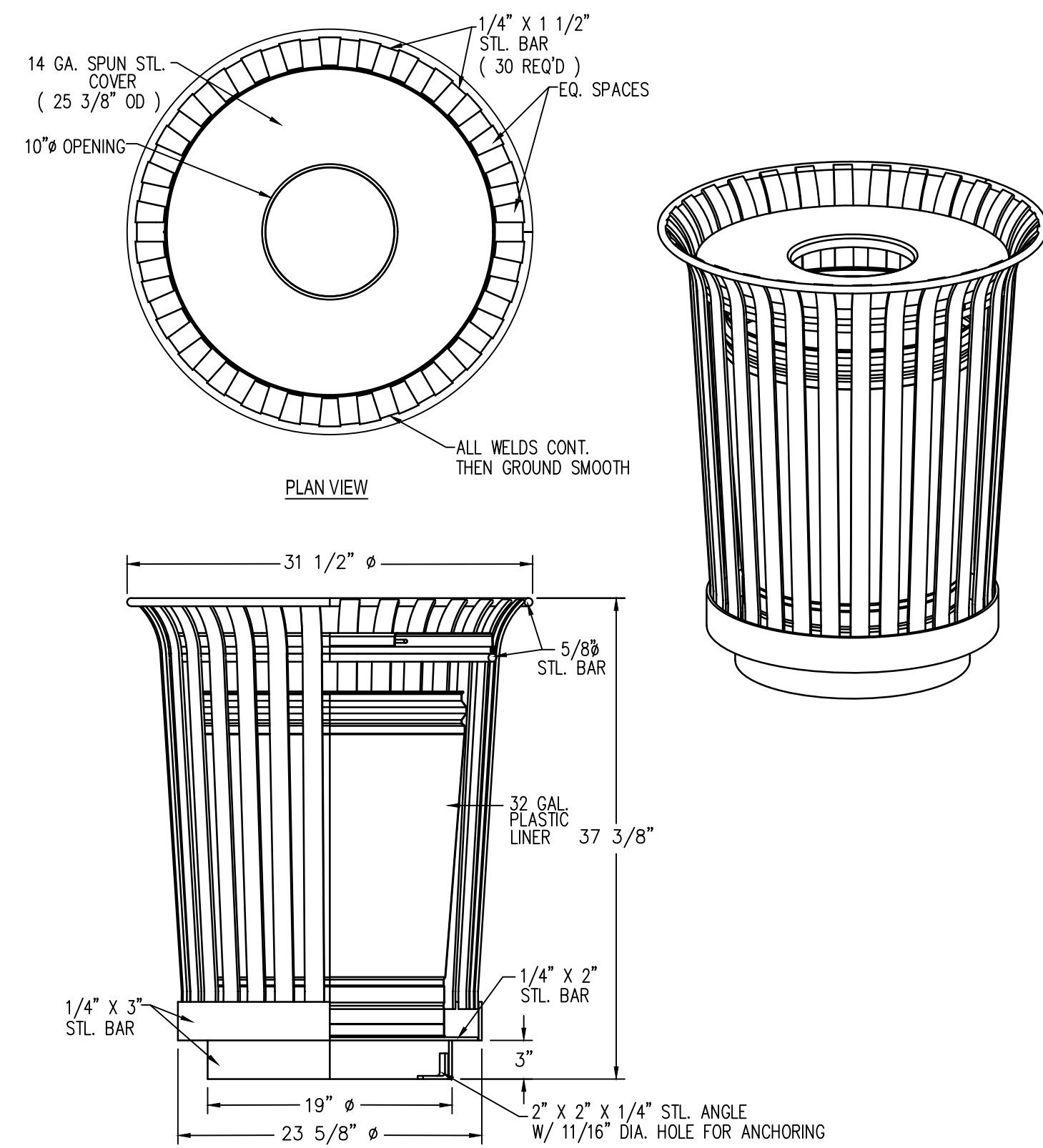


N.T.S.



IK  
L

**PLAYER BENCH**  
N.T.S.



**WASTE RECEPTACLE DETAIL**  
N.T.S.

1. PLAYER BENCHES SHALL BE MODEL NO. PBS-10 AS MANUFACTURED BY JAYPRO SPORTS, LLC, 976 HARTFORD TURNPIKE, WATERFORD, CT 06385, 800-243-0533, OR APPROVED EQUAL.
2. PLAYER BENCHES IN DUGOUTS SHALL BE SURFACE MOUNTED 21' LONG WITH SEAT BACK AND SHELF.
2. PLAYER BENCHES FOR SOCCER FIELD SHALL BE PORTABLE 21' LONG WITH SEAT BACK AND SHELF.
3. COLORS SHALL BE APPROVED BY OWNER PRIOR TO ORDERING.

*Jessica D. Hauber*  
DATE: *10-09-2024*  
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

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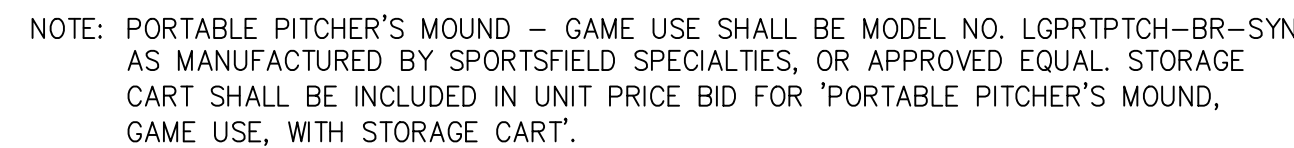
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## CONSTRUCTION DETAILS

COUNTY OF UNION

SCOTCH PLAINS TOWNSHIP UNION COUNTY NEW JERSEY

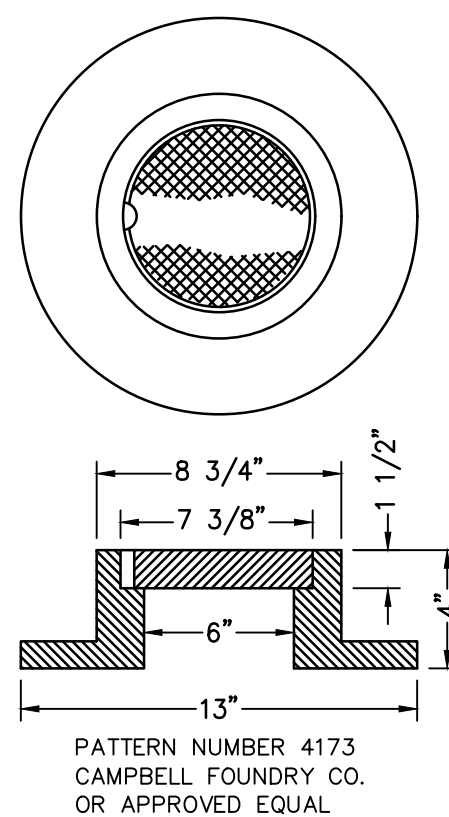
<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-16	
<u>JOB No. :</u> 2000F028			



The diagram illustrates a cleanout installation. At the top, a 'LIGHT DUTY 6" DIA. ACCESS FRAME OF COVER' is shown at 'GRADE' level. A 'BRASS PLUG' is inserted into the top of a vertical pipe. The pipe is labeled '4" HDPE PIPE'. Below the grade, the pipe passes through 'COMPACTED GRADE'. The pipe then turns at a '45° BEND' (labeled 'PROVIDE HDPE 45° BEND') and continues as a 'P.V.C. WYE' (labeled 'PROVIDE P.V.C. WYE'). The wye connects to a horizontal sewer pipe. The horizontal pipe has an arrow indicating 'FLOW' direction. Below the horizontal pipe is a '6" BEDDING COURSE' of 'AGGREGATE N.J.DOT SIZE No. 57'. A 'CLEANOUT' label points to the vertical pipe section above the grade.

NOTE: FOR CLEANOUTS IN GRASSED AREAS, TERMINATE VERTICAL PIPE AT GRADE LEVEL AND PROVIDE THREADED CAP.

N.T.S



N.T.S

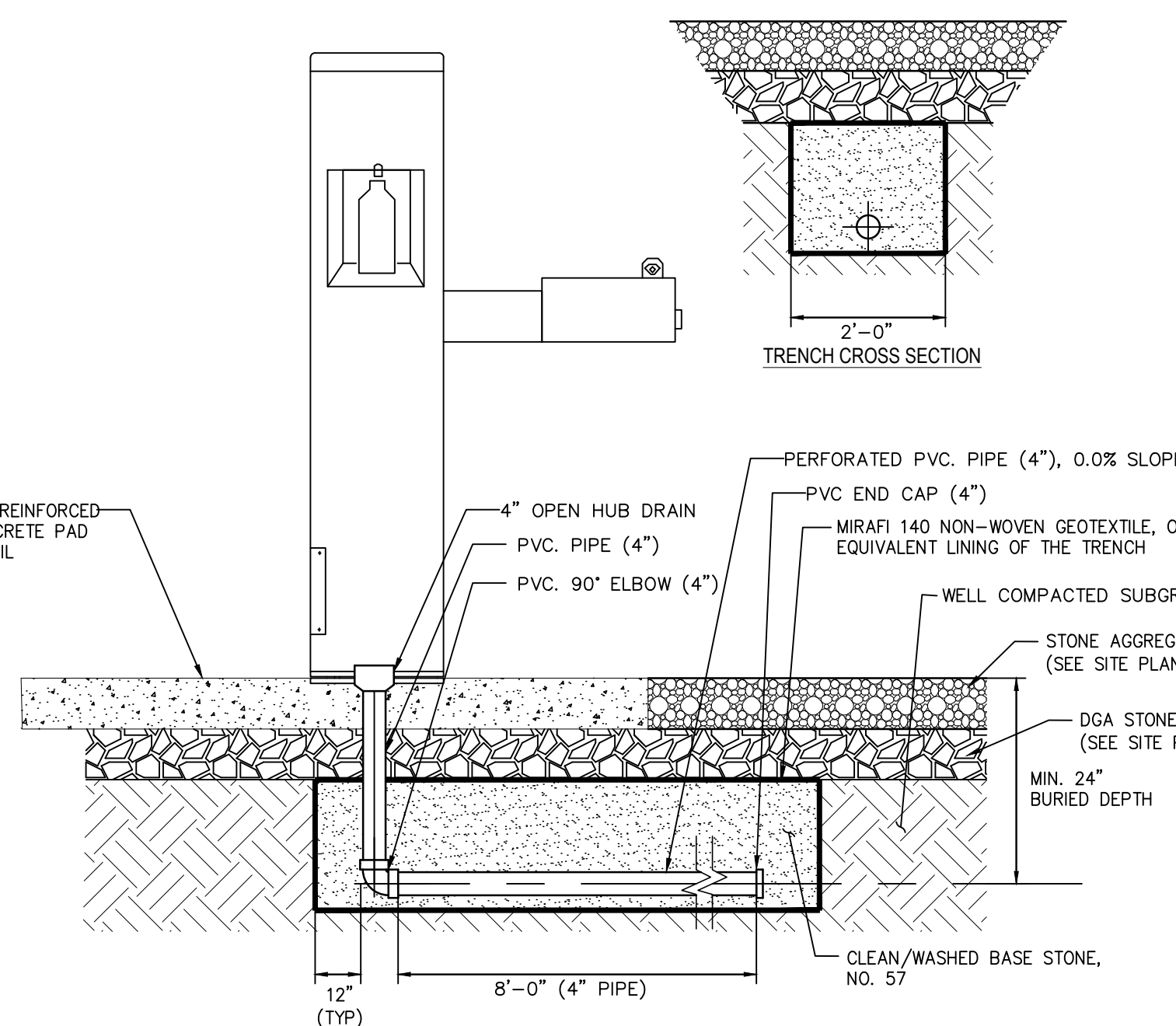


N.T.S.



NOTES:

1. MAXIMUM WIDTH OF TRENCH SHALL NOT EXCEED THE DEPTH TO THE INVERT OF THE PROPOSED PIPELINE.
2. SEPARATE PAYMENT WILL NOT BE MADE FOR RESTORATIONS OF VARIOUS KINDS ASSOCIATED WITH THE WATER SERVICE INSTALLATION.

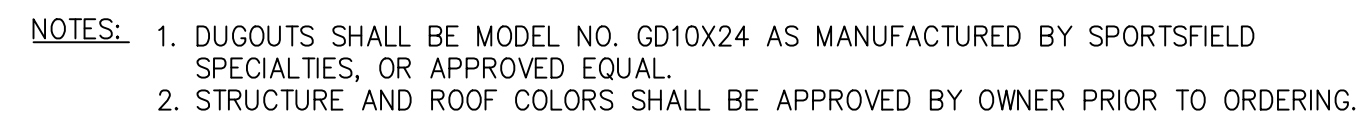


- NOTES:**
1. QUANTITY OF #57 STONE AND GEOTEXTILE SHALL BE INCLUDED IN THE PRICE FOR THE DRINKING FOUNTAIN. NO SEPARATE PAYMENT FOR DRAIN WILL BE MADE.
  2. DO NOT SCALE DRAWINGS.
  3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
  4. CONTRACTOR SHALL INSTALL WATER CONNECTION THROUGH CONCRETE PAD ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

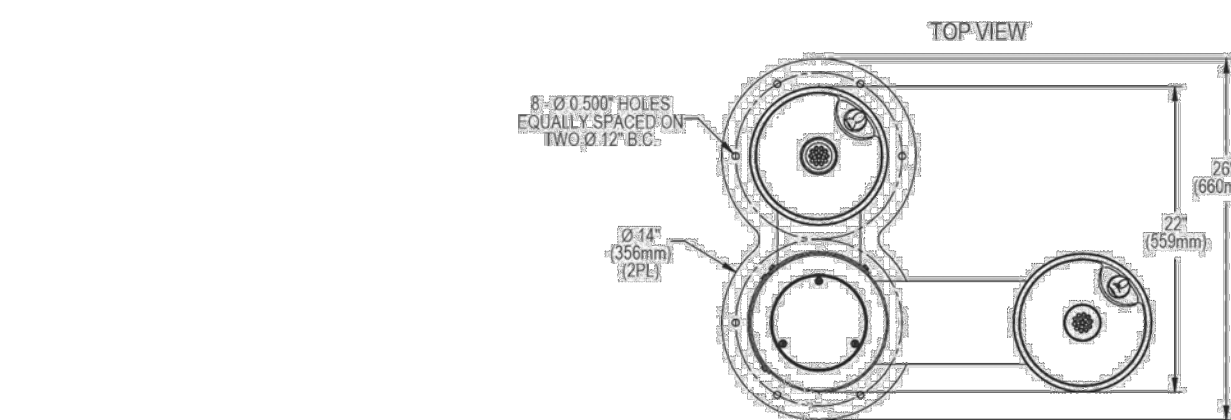
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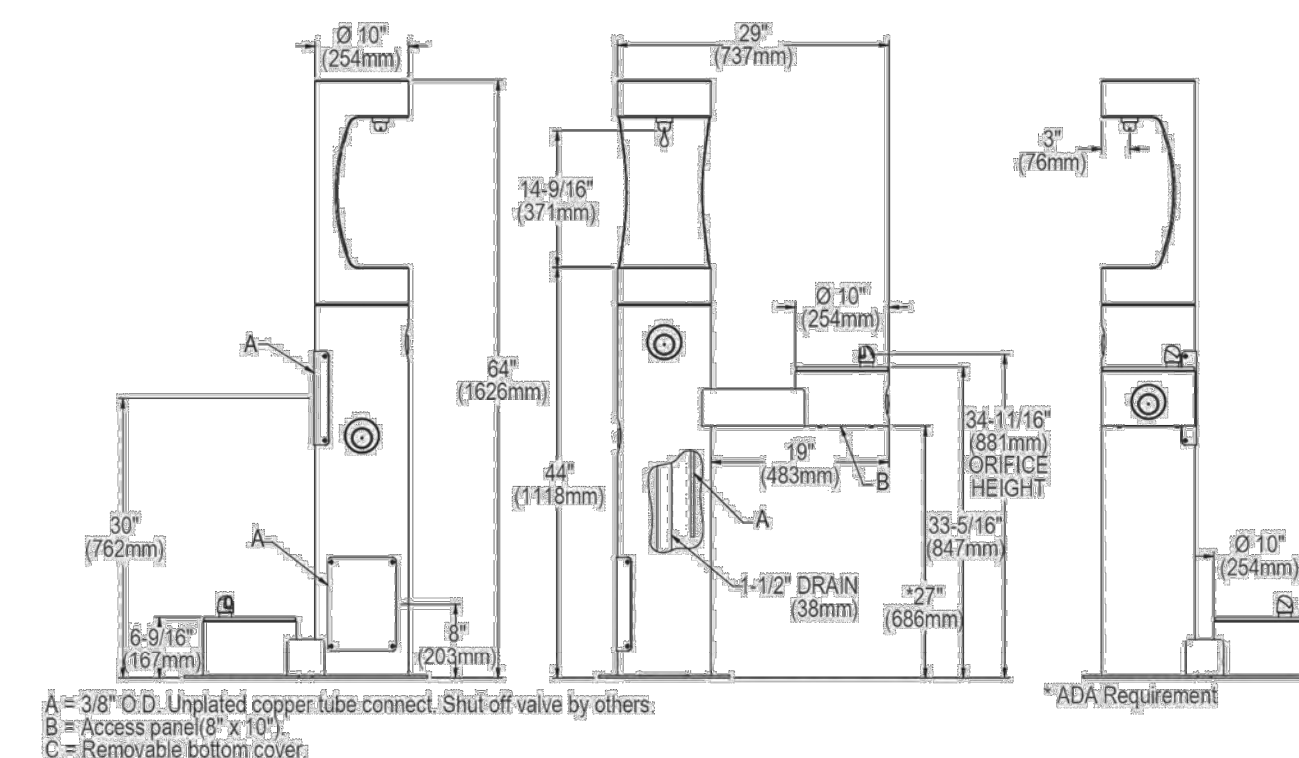
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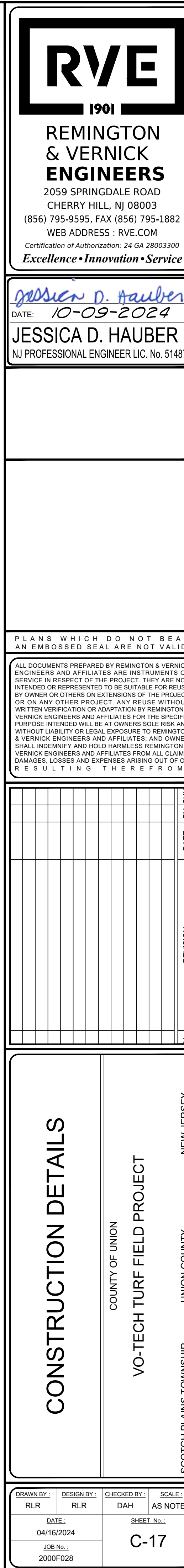
### FRONT & SIDE VIEWS



- NOTES:

1. FOUNTAIN SHALL BE ELKAY TWO-LEVEL DRINKING FOUNTAIN, FREESTANDING, 64" HEIGHT, 31" DEPTH, ADA COMPLIANT AS MANUFACTURED BY GRAINGER, INC., 1001 HADLEY ROAD, SOUTH PLAINFIELD, NJ 07080, TEL: (1)800 472-4643, OR APPROVED EQUAL.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. COST FOR FOUNTAIN DRAIN LINES SHALL BE INCLUDED IN THE PRICE BID FOR THE FOUNTAIN.
4. BOTTLE FILLER OPTION SHALL BE INCLUDED IN THE PRICE BID OF THE FOUNTAIN AND SHALL BE ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
5. FOUNTAIN SHALL BE MOUNTED ON REINFORCED CONCRETE PAD AT LOCATION SHOWN ON SITE.
6. COLOR SHALL BE SELECTED BY OWNER.

N.T.S



## CONSTRUCTION DETAILS

COUNTY OF UNION

VO-TECH TURF FIELD PROJECT

SCOTCH PLAINS TOWNSHIP UNION COUNTY NEW JERSEY

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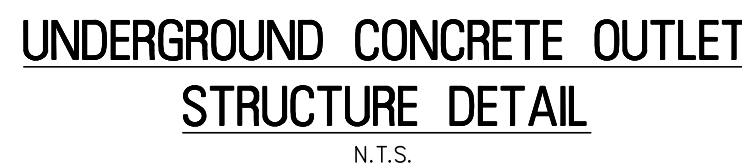
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

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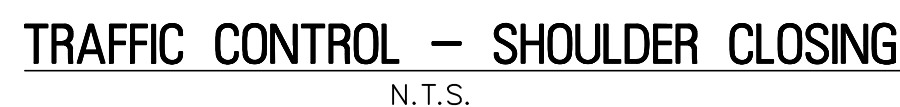
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C-18



RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS						RECOMMENDED SPACING ALONG TANGENTS
REGULATORY APPROACH SPEED OF TRAFFIC  MILES/HOUR	MINIMUM TAPER RATIO IN LENGTH PER FOOT OF WIDTH	MINIMUM TAPER LENGTH L - FOR LANE WIDTHS			MAXIMUM DEVICE (B) SPACING ALONG TAPERS IN FEET	MAXIMUM DEVICE (D) SPACING ALONG TANGENTS IN FEET
		10'	11'	12'		
25	10.5:1	105	115	125	25	50
30	15:1	150	165	180	30	60
35	20.5:1	205	225	245	35	70
40	27:1	270	300	325	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
60	60:1	600	660	720	60	120
65	65:1	650	715	780	65	130





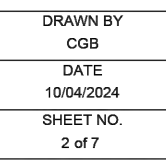
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

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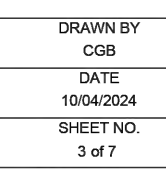
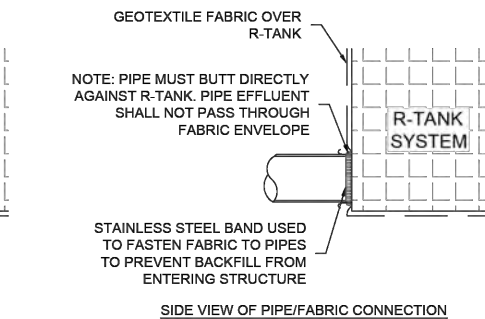
NEW JERSEY  
SILS

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

<u>DRAWN BY :</u> RLR	<u>DESIGN BY :</u> RLR	<u>CHECKED BY :</u> DAH	<u>SCALE :</u> AS NOTED
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  C-19	
<u>JOB No. :</u> 2000F028			

[illegible]

DATE	INITIALS	DESCRIPTIONS

R-TANK SECTION VIEW

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

S	DRAWN BY CGB
	DATE 10/04/2024
	SHEET NO.

NOTES:

1. R-TANKS SHALL BE MANUFACTURED BY FERGUSON WATERWORKS.
2. NO SEPARATE PAYMENT WILL BE MADE FOR GEOGRID, STONE, BACKFILL MATERIAL, INSPECTION PORTS, GEOTEXTILE FABRIC, AND/OR ANY OTHER COMPONENT ASSOCIATED WITH THE INSTALLATION OF THE R-TANK SYSTEMS. ALL COST SHALL BE INCLUDED IN THE PRICE BID FOR EACH INDIVIDUAL R-TANK.

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ELECTRICAL SYMBOLS

(ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT)

	2'x4' LED LIGHT FIXTURE (A – INDICATES FIXTURE TYPE)
	2'x4' EMERGENCY LED LIGHT FIXTURE (AE – INDICATES FIXTURE TYPE)
	2'x2' LED LIGHT FIXTURE
	2'x2' EMERGENCY LED LIGHT FIXTURE
	5'x4' LED LIGHT FIXTURE
	5'x4' EMERGENCY LED LIGHT FIXTURE
	DOWNLIGHT LIGHT FIXTURE
	EMERGENCY DOWNLIGHT LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	WALL MOUNTED EMERGENCY LIGHT FIXTURE
	EXIT SIGN (SHADED AREA INDICATES FACE) (ARROW INDICATES DIRECTION) (XW – WALL MOUNTED) (XC – CEILING MOUNTED)
	DUAL HEAD EMERGENCY BATTERY BACKUP
	DUAL REMOTE HEADS
	SWITCH, SINGLE POLE TOGGLE
	SWITCH, 3-WAY TOGGLE
	SWITCH, 4-WAY TOGGLE
	SWITCH, DIMMER
	SWITCH, KEY OPERATED
	SWITCH, PILOT LIGHT
	SWITCH, LOW VOLTAGE
	FRACTIONAL HP STARTER
	SWITCH, BLUETOOTH REMOTE
	OCCUPANCY SENSOR – P – PASSIVE INFRARED U – ULTRASONIC D – DUAL TECHNOLOGY
	SITE LIGHT
	UTILITY POLE
	DAYLIGHT SENSOR
	RECEPTACLE, DUPLEX – (K – KEY LOCKING STEEL COVER) (S – SURGE PROTECTOR) (L – LOCKING COVER) (+ – MOUNT 8" ABOVE COUNTER) (T – TAMPER PROOF) (U – DUPLEX WITH USB PORT)
	RECEPTACLE, QUAD
	RECEPTACLE, SINGLE
	RECEPTACLE, GFI – (WP-WEATHERPROOF IN-USE COVER)
	RECEPTACLE, EMERGENCY
	RECEPTACLE, SPECIAL (NEMA CONFIGURATION INDICATED)
	RECEPTACLE, DUPLEX FLOOR MOUNT (POKE-THRU)
	RECEPTACLE, CEILING MOUNTED
	FLOOR BOX WITH (2) DUPLEX RECEPTACLES
	DUPLEX RECEPTACLE AND CATV RECEPTACLE
	JUNCTION BOX
	JUNCTION BOX, FLOOR MOUNTED
	JUNCTION BOX, TELEPHONE
	JUNCTION BOX, DATA
	JUNCTION BOX, TELEPHONE/DATA
	JUNCTION BOX, POWER
	ELECTRIC FLUSH VALVE TRANSFORMER JUNCTION BOX – ABOVE CEILING
	PANEL BOARD – SURFACE MOUNTED
	PANEL BOARD – FLUSH MOUNTED
	CIRCUIT BREAKER IN ENCLOSURE
	CIRCUIT BREAKER
	LOW VOLTAGE DRAWOUT BREAKER
	MEDIUM VOLTAGE DRAWOUT BREAKER
	DELTA CONFIGURATION
	WYE CONFIGURATION
	ELECTRICALLY INTERLOCKED
	ELECTRIC UTILITY METER
	INTERMEDIATE DISTRIBUTION FRAME
	MAIN DISTRIBUTION FRAME
	CURRENT TRANSFORMER
	GENERATOR
	TRANSFORMER
	POTENTIAL TRANSFORMER

	MV SWITCH GEAR
	GROUND ROD (10' x 3/4")
	MOTOR
	NON-FUSED DISCONNECT SWITCH – XXX/XXX/XX – INDICATES (RATED FRAME AMPS/FUSE AMPS/VOLTS/# OF POLES)
	FUSED DISCONNECT SWITCH XXX/XXX/XXX/XX – INDICATES (RATED FRAME AMPS/FUSE AMPS/VOLTS/# OF POLES)
	COMBINATION STARTER/DISCONNECT SWITCH
	MAGNETIC STARTER
	KEY OPERATED CONTROL STATION
	MAGNETIC CONTACTOR
	PHOTOCELL
	TIME CLOCK SWITCH
	RELAY
	HAND DRYER
	GROUNDING ELECTRODE
	NON FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	FUSED POTENTIAL TRANSFORMER
	AUTOMATIC TRANSFER SWITCH L – LOAD N – NORMAL POWER E – EMERGENCY POWER
	LIGHTNING ARRESTER
	SURGE PROTECTIVE DEVICE WITH DISCONNECT
	HEAT TRACE CABLING
	RESISTOR TEMPERATURE DEVICE
	EXPOSED RACEWAY
	LOW VOLTAGE WIRING
	CONDUIT CONCEALED IN WALLS OR CEILING
	EMERGENCY CIRCUIT
	CONDUIT CONCEALED IN OR UNDER FLOOR OR UNDERGROUND
	NON-SWITCHED CIRCUIT
	HOMERUN – CIRCUIT & PANEL AS INDICATED (2#12 + 1#12G, 3/4"C, UNLESS OTHERWISE NOTED)
	CABLE TRAY
	SURFACE RACEWAY, WIREMOLD
	FIRE ALARM PULL STATION
	FIRE ALARM STROBE LIGHT – (Xxcd – CANDELA RATING)
	FIRE ALARM SPEAKER (SUBSCRIPT 'C' INDICATE CEILING MOUNTED)
	FIRE ALARM/BELL
	COMBINATION FIRE ALARM SPEAKER/STROBE – (Xxcd – CANDELA RATING) (CEILING)
	COMBINATION FIRE ALARM SPEAKER/STROBE – (Xxcd – CANDELA RATING)
	FIRE ALARM CODE BLUE
	PHOTO-ELECTRIC TYPE SMOKE DETECTOR
	HEAT DETECTOR (COMBINATION FT/RR U.O.N., AC-ABOVE CEILING.)
	COMBINATION HEAT/SMOKE DETECTOR
	PHOTO-ELECTRIC TYPE DUCT SMOKE DETECTOR
	FIRE ALARM CONTROL PANEL
	REMOTE ANNUNCIATOR PANEL
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	FIRE ALARM GONG
	FIRE ALARM ANNUNCIATION PANEL
	DIGITAL ALARM COMMUNICATOR TRANSMITTER
	CARBON MONOXIDE TYPE DUCT DETECTOR (WP – WEATHERPROOF)
	CARBON MONOXIDE DETECTOR
	PTZ CAMERA (AUDITORIUM)
	LIGHTING SYSTEM (AUDITORIUM)
	PEOPLE COUNTER SENSOR
	PUSH BUTTON CONTROLLER

	NITROGEN DIOXIDE DETECTOR
	CARBON DIOXIDE DETECTOR
	EMERGENCY GAS SHUTOFF
	EMERGENCY BOILER SHUTOFF
	EMERGENCY ELECTRIC SHUTOFF
	REMOTE KEY PAD
	ELECTRONIC DOOR LOCK
	MAGNETIC DOOR HOLDER
	KEY FOB
	PANIC ALARM BUTTON
	SECURITY/VIDEO CAMERA (WP – WEATHERPROOF) (PTZ – PAN, TILT, ZOOM)
	WIRELESS OCCUPANCY SENSOR
	WIRELESS RELAY SWITCH
	WIRELESS ACCESS CONTROL
	WIRELESS ACCESS POINT
	CARD READER
	ELECTRONIC DOOR CONTACT
	REQUEST TO EXIT
	INFRARED SENSOR
	MOTION SENSOR
	AIR PHONE INTERCOM SYSTEM
	CCTV CAMERA ASSEMBLY W/ DOME COVER
	DUAL CCTV CAMERA ASSEMBLY W/ DOME COVER
	SECURITY MOTION SENSOR
	VOIP OUTLET
	DATA OUTLET – (6 – # OF DROPS)
	COMBINATION VOIP AND DATA OUTLET
	SOUND SYSTEM WALL PHONE
	MASS NOTIFICATION SPEAKER
	SPEAKER – CEILING MOUNTED
	SPEAKER – WALL MOUNTED
	CLOCK/SPEAKER – WALL MOUNTED
	MICROPHONE
	SOUND VOLUME CONTROL
	INTERCOM
	CLOCK/SPEAKER BAFFLE
	HORN LOUDSPEAKER (WP – WEATHERPROOF)
	WALL MOUNTED CLOCK
	BEAM DETECTOR
	PRISM REFLECTOR
	MOTOR STARTER WITH THERMAL OVERLOAD RELAY
	INDICATES EXISTING TO BE DEMOLISHED
	DENOTES POINT OF CONNECTION OF EXISTING TO NEW
	EQUIPMENT DESIGNATION TAG
	SITE LIGHTING (MUSCO LIGHTING SYSTEM)

GENERAL NOTES

- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, THE SPECIFICATIONS FOR GROUNDING, THE CONTRACT DRAWINGS, FEDERAL, STATE AND LOCAL CODES AND TO THE SATISFACTION OF THE ENGINEER. ALL GROUNDING CONNECTIONS TO BE MADE BY THE CADDWELD PROCESS OR EQUAL.
- ALL CONDUITS AND ELECTRICAL EQUIPMENT ARE SHOWN DIAGRAMMATICALLY AND MAY BE ALTERED TO SUIT FIELD CONDITIONS PENDING ENGINEER'S APPROVAL.
- ALL PLANS ELEVATIONS AND CLEARANCES SHALL BE CHECKED IN THE FIELD PRIOR TO INSTALLATION TO AVOID ALL OBSTRUCTIONS.
- ALL JUNCTION BOXES SHALL BE OF SUFFICIENT SIZE TO PROVIDE FREE SPACE FOR ALL CONDUCTORS ENCLOSED IN THE BOX AND SHALL BE SIZED WITH THE LATEST N.E.C. ARTICLE 314.
- ALL DIMENSIONS ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
- CONTRACTOR SHALL CHECK FOR OBSTRUCTIONS AND CLEAN OUT ALL CONDUITS PRIOR TO PULLING IN CABLES.
- PHASING OF ALL ELECTRICAL CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR AND SHALL BE MADE IN ACCORDANCE WITH THE LOCAL UTILITY COMPANY REQUIREMENTS.
- ALL HOLES THROUGH STRUCTURE TO ACCOMMODATE ELECTRICAL CONDUITS SHALL BE CORE DRILLED AND SEALED WITH NON-SHRINK GROUTING COMPOUND. WHERE RACEWAYS PASS THROUGH FLOORS AND FIRE RATED WALLS AND/OR PARTITIONS, CONTRACTOR SHALL FURNISH UL RATED FIREPROOFING MATERIAL TO BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND RESTORE ORIGINAL FIRE RATING.
- CONTRACTOR SHALL FURNISH STRUCTURAL SUPPORT FOR ALL EQUIPMENT. FOR SURFACE MOUNTED EQUIPMENT, SUCH AS PANELBOARDS, STARTERS, SAFETY SWITCHES AND THE LIKE, PROVIDE "UNISTRUT" WITH CORROSION RESISTANT MOUNTING HARDWARE.
- NO CONDUIT SMALLER THAN 3/4" SHALL BE USED UNLESS OTHERWISE SPECIFIED.
- ALL JOINTS BETWEEN DISSIMILAR METALS SHALL BE COATED WITH A LITHIUM BASED THREAD LUBRICANT.
- RACEWAYS SHALL BE PROVIDED WITH AN APPROVED EXPANSION-DEFLECTION FITTINGS WHERE CROSSING BUILDING CONSTRUCTION EXPANSION JOINTS AND WHERE NECESSARY TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.
- FURNISH AND INSTALL CONCRETE PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- PRIOR TO SUBMITTING PROPOSALS, BIDDERS ARE INSTRUCTED TO REVIEW PLANS AND SPECIFICATIONS OF ALL CONCURRENT WORK TO DETERMINE QUANTITIES OF LABOR AND MATERIAL NECESSARY TO INSTALL, CONNECT, AND TEST MATERIAL FURNISHED UNDER THESE SPECIFICATIONS. ANY ADDITIONAL LABOR AND MATERIAL REQUIRED DUE TO FAILURE OF THE CONTRACTOR TO FOLLOW THESE INSTRUCTIONS, SHALL BE FURNISHED AT NO ADDITIONAL COST TO THE OWNER.

ABBREVIATIONS

%	PERCENT
&	AND
°	DEGREE
° F.	FAHRENHEIT DEGREES
1/C	SINGLE CONDUCTOR
A.I.C.	AMPERES INTERRUPTING CAPACITY
A.T.C.	AUTOMATIC TEMPERATURE CONTROL
A.T.S.	AUTOMATIC TRANSFER SWITCH
A/C	AIR CONDITION
AC	ALTERNATING CURRENT
ADDL.	ADDITIONAL
AF	AMPERE FRAME
A-F	AMPERE FUSE
AFCL	ARC FAULT CIRCUIT INTERRUPTER
AFF/A.F.F.	ABOVE FINISHED FLOOR
AFG/A.F.G.	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMP., A.	AMPERE
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
AT	AMPERE TRIP
ASY.	ASYMMETRICAL
AUX.	AUXILIARY
B.F.C.	BELOW FINISHED CEILING
BKR	BREAKER
BLDG.	BUILDING
BSMT.	BASEMENT
C/C	CONDUIT
C OF U/CFU	COEFFICIENT OF UTILIZATION
C.T., CT	CURRENT TRANSFORMER
CB, CIR. BKR., C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT., CIR, CIRC.	CIRCUIT
CL.	CLOSET
CLG.	CEILING
CO./Co.	COMPANY
COAX.	COAXIAL CABLE
COL.	COLUMN
COMP.	COMPLETE
CONC.	CONCRETE
CONDR.	CONDUCTOR
CONN.	CONNECTED, CONNECTOR
CONST.	CONSTRUCTION
CONT.	CONTINUATION
CONTR.	CONTRACTOR
COORD.	COORDINATE
CORR.	CORRIDOR
CPU	CENTRAL PROCESSING UNIT
Cu	COPPER
CU	CONDENSING UNIT
CU. FT.	CUBIC FEET
CW	CLOCKWISE
DEM	DEMAND
DIA.	DIAMETER
DISC.	DISCONNECT SWITCH
DIV.	DIVISION
DN.	DOWN
DPST	DOUBLE POLE SINGLE THROW
DRAW., DWG.	DRAWING
E.C.	ELECTRICAL CONTRACTOR
E.F., EF	EXHAUST FAN
E.H.	ELECTRIC HEATER
E.P.R.	ETHYLENE PROPYLENE RUBBER
E.A.	EACH WAY
EHT	ELECTRICAL HEAT TRACING CABLE
ELEC. CLO.	ELECTRICAL CLOSET
ELEC./ELECT.	ELECTRIC
ELEV./EL.	ELEVATION/ELEVATOR
EM	EMERGENCY POWER PACK COMPLETE
EMT	ELECTRICAL METALLIC TUBING
ENCL.	ENCLOSURE
ENT.	ENTRANCE
EMERG.	EMERGENCY
EQUIP.	EQUIPMENT
EST.	ESTIMATE
EX./E	EXISTING
EXT.	EXTERNAL/EXTERIOR
E.O.	ELECTRICALLY OPERATED
F.A.	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
F.E.	FIRE EXTINGUISHER
F.O.	FIBER OPTIC
FDN.	FOUNDATION
FIG.	FIGURE
FIN.	FINISH/FINISHED
FIXT.	FIXTURE
FL.	FLOOR
FLA	FULL LOAD AMPERES
FLEX.	FLEXIBLE
F.L.M.C.	FLEXIBLE LIQUIDTIGHT METALLIC CONDUIT
FLUOR.	FLUORESCENT
FC	FOOTCANDLE
FT.	FAULT TRIP
FEET	FEET

FU.	FUSE/FUSED
G.C.	GENERAL CONTRACTOR
GA.	GAGE/GAUGE
GALVN.	GALVANIZED
GEN.	GENERATOR
GFCL	GROUND FAULT CIRCUIT INTERRUPTER
GF	GROUND FAULT INTERRUPTER
GRD.	GROUND
GRD., GND., G	GROUND
GTD	GENERATOR TRANSFER DEVICE
H.I.D.	HIGH INTENSITY DISCHARGE
H.O.A.	HAND OFF AUTO
H.P.S.	HIGH PRESSURE SODIUM
HEX.	HEXAGON
HH	HANDHOLE
HORIZ.	HORIZONTAL
H.P./HP.	HORSEPOWER
HPF	HIGH POWER FACTOR
HT.	HEIGHT
HHW	HOT WATER HEATER
HZ.	HERTZ
IMC	INTERMEDIATE CONDUIT
INC.	INCANDESCENT
INSUL.	INSULATION/INSULATED
ISOL.	ISOLATED
ISP	INTERNET SERVICE PROVIDER
IS	INTRINSICALLY SAFE
IT	INFORMATION TECHNOLOGY
ISAP	INTRUSION ALARM PANEL
IAPK	INTRUSION ALARM KEYPAD
JB, J	JUNCTION BOX
KAIC	THOUSAND AMPERES INTERRUPTING CAPACITY
KVAR	KILOVAR
KO	KNOCKOUT
KW	KILOWATT
KCMIL	THOUSAND CIRCULAR MILS
KWH	KILOWATT HOUR
KHZ	KILOHERTZ
kV	KILOVOLT
KVA	KILOVOLT-AMPERE
LG.	LENGTH
LF.	LINEAR FEET
LG.	LONG
LRA	LOCKED ROTOR AMPERES
LT.	LIGHT
L.TG.	LIGHTING
ML.O.	MAIN LUGS ONLY
M/C	MULTI-CONDUCTOR
MANUF., MFR.	MANUFACTURER
MAX.	MAXIMUM
M.B./MB	MAIN BREAKER
M.C.B./MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MDM	MAIN DISTRIBUTION SWITCHBOARD
MOP	MAIN DISTRIBUTION PANEL
MECH.	MECHANICAL
MET.	METALLIC
MF	MAINTENANCE FACTOR
MG	MOTOR GENERATOR
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTD.	MOUNTED
MTG.	MOUNTING
NC	NOT IN CLOSURE
NEC/N.E.C.	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOC.
N.I.C./NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No., #	NUMBER
N.T.S./NTS	NOT TO SCALE
N.F.	NIGHT LIGHT CIRCUIT
NON FUSED	NON FUSED
OHV	OVERHEAD VOLTAGE
P	POLE
PC	PHOTOCELL
P.I.L.C.	PAPER INSULATED LEAD COVERED
PB, P	PULL BOX, BREAKER OR SWITCH POLE
PNL	PANELBOARD
PORC.	PORCELAIN
PRI.	PRIMARY
PDE	POWER OVER ETHERNET
PTD.	PAINTED
PVC	POLYVINYLCHLORIDE
R	RADIUS
RAP	REMOTE ANNUNCIATOR PANEL
R.C.SW.	REMOTE CONTROL SWITCH
REBAR.	REINFORCING BAR
REC.	RECESSED, RECEPTACLE
RECEPT.	RECEPTACLES
REQ'D	REQUIRED
REV.	REVISE/REVISION
RF	RADIO FREQUENCY
RGA	REMOTE GENERATOR ANNUNCIATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RM.	ROOM
RT	ROOFTOP
S.F.	SQUARE FEET
S.S.	STAINLESS STEEL
SECT.	SECONDARY
SEP.	SEPARATE
SERV.	SERVICE
SHT.	SHEET

SIG.	SIGNAL
SK.	SKETCH
SN	SOLID NEUTRAL
SPECS.	SPECIFICATIONS
SPD	SURGE PROTECTIVE DEVICE
SQ.	SQUARE
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
STA.	STATION
SURF.	SURFACE
SUSP.	SUSPENDED
SW.	SWITCH
SWBD.	SWITCHBOARD
SYM.	SYMMETRICAL
T/T.	TELECOMMUNICATION
T.C./TC	TIME CLOCK
TEL.	TELEPHONE
THRU	THROUGH
TP	TWISTED PAIR

TRANS./XFMR	TRANSFORMER
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UH	UNIT HEATER
UL	UNDERWRITING LABORATORIES
ULPS	UNINTERRUPTIBLE POWER SOURCE
V	VOLTAGE, VOLTS
VD	VOLTAGE DROP
VERT.	VERTICAL
V.I.F./VIF	VERIFY IN FIELD
VS.	VERSUS
W	WIRE
W.I.	WROUGHT IRON
W/	WITH
W/O	WITHOUT
WD.	WIDE
WP	WEATHER PROOF
XLPE	CROSSLINKED POLYETHYLENE

STANDARD MOUNTING HEIGHTS

MOUNTING HEIGHTS FOR EQUIPMENT SHALL BE AS LISTED BELOW UNLESS OTHERWISE SPECIFICALLY LABELED. (UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE CENTERLINE OF BOXES.)	
SWITCHES	3'-8" A.F.F.
TELEPHONE – WALL TYPE	3'-8" A.F.F.
TELEPHONE – DESK TYPE	1'-6" A.F.F.
RECEPTACLE – GENERAL OFFICE	1'-6" A.F.F.
RECEPTACLE – MECHANICAL ROOMS	3'-0" A.F.F.
FIRE ALARM GONG OR SPEAKER	6'-8" TO BOTTOM OF GONG OR SPEAKER
FIRE ALARM PULL STATION	3'-8" A.F.F. TO CENTER OF PULL
FIRE ALARM STROBE LIGHT	6'-8" A.F.F. TO BOTTOM OF STROBE
MOTION SENSOR	6'-5" A.F.F.
PANELBOARDS	6'-0" TO TOP OF CIRCUIT BREAKER MAX.
EXIT LIGHT	ABOVE DOORS (MIN. 7'-6" A.F.F. CLEAR)
KEY PAD (REMOTE)	3'-8" A.F.F.
DATA OUTLET	1'-6" A.F.F.
VOLUME CONTROL/CALL SWITCH	3'-8" A.F.F.
TIMER (NON-ADA)	4'-6" A.F.F.

WIRE & CONDUIT SIZING SCHEDULE

AMPS	CKT. TYPE	WIRE SIZE (AWG/KCMIL)		EQUIPMENT GROUND	SUPPLY SIDE BONDING JUMPER	NO. OF WIRES & CONDUIT SIZE IN INCHES		
		CONDUCTOR & NEUTRAL				A 2W+G	B 3W+G	C 4W+G
15	1	14		14	8	3/4	3/4	3/4
20	2	12		12	8	3/4	3/4	3/4
30	3	10		10	8	3/4	3/4	3/4
40	4	8		10	8	3/4	3/4	3/4
50	5	6		10	8	3/4	1	1
60	6	4		10	8	1	1-1/4	1-1/4
70	7	4		8	8	1	1-1/4	1-1/4
80	8	3		8	8	1-1/4	1-1/4	1-1/4
90	9	2		8	8	1-1/4	1-1/4	1-1/2
100	10	1		6	6	1-1/4	1-1/2	2
125	11	1		6	6	1-1/4	1-1/2	2
150	12	1/0		6	6	1-1/2	2	2
175	13	2/0		6	4	2	2	2
200	14	3/0		6	4	2	2	2-1/2
225	15	4/0		2	2	2	2-1/2	2-1/2
250	16	250 KCMIL		2	2	2	2-1/2	2-1/2
275	17	300 KCMIL		2	2	2	2-1/2	2-1/2
300	18	350 KCMIL		2	2	2	2-1/2	3
325	19	400 KCMIL		1/0	1/0	2	2-1/2	3
350	20	500 KCMIL		1/0	1/0	2-1/2	3	3-1/2
400	21	(2) 4/0		(2) 2	(2) 1/0	---	(2) 2	(2) 2-1/2
500	22	(2) 250 KCMIL		(2) 2	(2) 1/0	---	(2) 2	(2) 2-1/2
600	23	(2) 350 KCMIL		(2) 1	(2) 2/0	---	(2) 2-1/2	(2) 3
700	24	(2) 500 KCMIL		(2) 1/0	(2) 2/0	---	(2) 3	(2) 3-1/2
800	25	(3) 300 KCMIL		(3) 1/0	(3) 2/0	---	(3) 2-1/2	(3) 3
1000	26	(3) 400 KCMIL		(3) 2/0	(3) 2/0	---	(3) 3	(3) 3
1100	27	(3) 500 KCMIL		(3) 3/0	(3) 2/0	---	(3) 3	(3) 3-1/2
1200	28	(4) 350 KCMIL		(4) 3/0	(4) 2/0	---	(4) 2-1/2	(4) 3
1500	29	(4) 500 KCMIL		(4) 4/0	(4) 2/0	---	(4) 3	(4) 3-1/2
1600	30	(5) 400 KCMIL		(5) 4/0	(5) 2/0	---	(5) 3	(5) 3
1900	31	(5) 500 KCMIL		(5) 250	(5) 2/0	---	(5) 3	(5) 3-1/2
2000	32	(6) 400 KCMIL		(6) 250	(6) 2/0	---	(6) 3	(6) 3-1/2
2500	33	(7) 500 KCMIL		(7) 350	(7) 2/0	---	(7) 3	(7) 3-1/2
3000	34	(8) 500 KCMIL		(8) 400	(8) 2/0	---	(8) 3	(8) 3-1/2



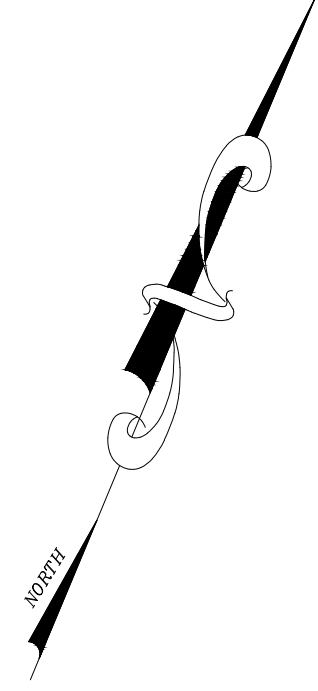
TE: 10-11-2024  
KAVAN R. SMITH  
PROFESSIONAL ENGINEER LIC. No. 5679

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[illegible]

UNION COUNTY VO-TECH  
FIELD IMPROVEMNETS

<u>DRAWN BY:</u> <b>P.B.</b>	<u>DESIGN BY:</u> <b>P.B.</b>	<u>CHECKED BY:</u> <b>K.R.S.</b>	<u>SCALE:</u> <b>AS NOTED</b>
<u>DATE:</u> 04/16/2024		<u>SHEET No.:</u> <b>ES-1.1</b>	
<u>JOB No.:</u> 2000F028			



1. ALL NOTES, SYMBOLS, AND ABBREVIATIONS ON DRAWING E-1.0 APPLY TO THIS DRAWING.
2. THIS DRAWING IS DIAGRAMMATIC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM EXISTING SITE CONDITIONS AND INSTALLATION CLEARANCES PRIOR TO SHOP DRAWING SUBMISSIONS AND INSTALLATION. SHOULD THE CONTRACTOR DETERMINE THAT THE INSTALLATION OF ANY ELECTRICAL COMPONENT IS RESTRICTED OR NOT ABLE TO BE INSTALLED IN THE SUGGESTED LOCATION, THE CONTRACTOR SHALL DEMOLISH THE INSTALLATION ACCORDINGLY AND IN COMPLIANCE WITH THE MOST RECENTLY ADOPTED NATIONAL ELECTRICAL CODE APPROVED BY THE AUTHORITY HAVING JURISDICTION AT NO ADDITIONAL COST.
3. CONTRACTOR SHALL DEMOLISH EXISTING REMOTE SPOT LIGHTING CONTROLLER AND REFURBISH EXISTING SPOTS LIGHTING FIXTURE MOUNTED ON EXISTING SPOT LIGHTING POLE. CONTRACTOR SHALL DEMOLISH ALL ASSOCIATED ELECTRICAL WIRES, RACEWAYS, SWITCHES, ETC. ENTIRELY BACK TO SOURCE ELECTRICAL PANEL.
4. CONTRACTOR SHALL DEMOLISH EXISTING SPOTS LIGHTING POLES, FIXTURES, CONTROLLER, FOUNDATIONS, AND ALL ASSOCIATED ELECTRICAL WIRES, RACEWAYS, SWITCHES, ETC. ENTIRELY BACK TO SOURCE ELECTRICAL PANEL.
5. CONTRACTOR SHALL DEMOLISH EXISTING MUSCO LIGHTING CONTROL CABINET AND ASSOCIATED CIRCUIT WIRING ENTIRELY BACK TO SOURCE ELECTRICAL PANEL. CONTRACTOR SHALL FIELD VERIFY IF EXISTING REMOVALS ARE SALVAGEABLE FOR REUSE. PREPARE LOCATIONS FOR NEW WORK. REFER TO SHEET E-3.1.
6. CONTRACTOR SHALL DEMOLISH EXISTING LIGHT POLES, FIXTURES, FOUNDATIONS, AND ALL ASSOCIATED ELECTRICAL WIRES, RACEWAYS, SWITCHES, ETC. ENTIRELY BACK TO SOURCE ELECTRICAL PANEL.





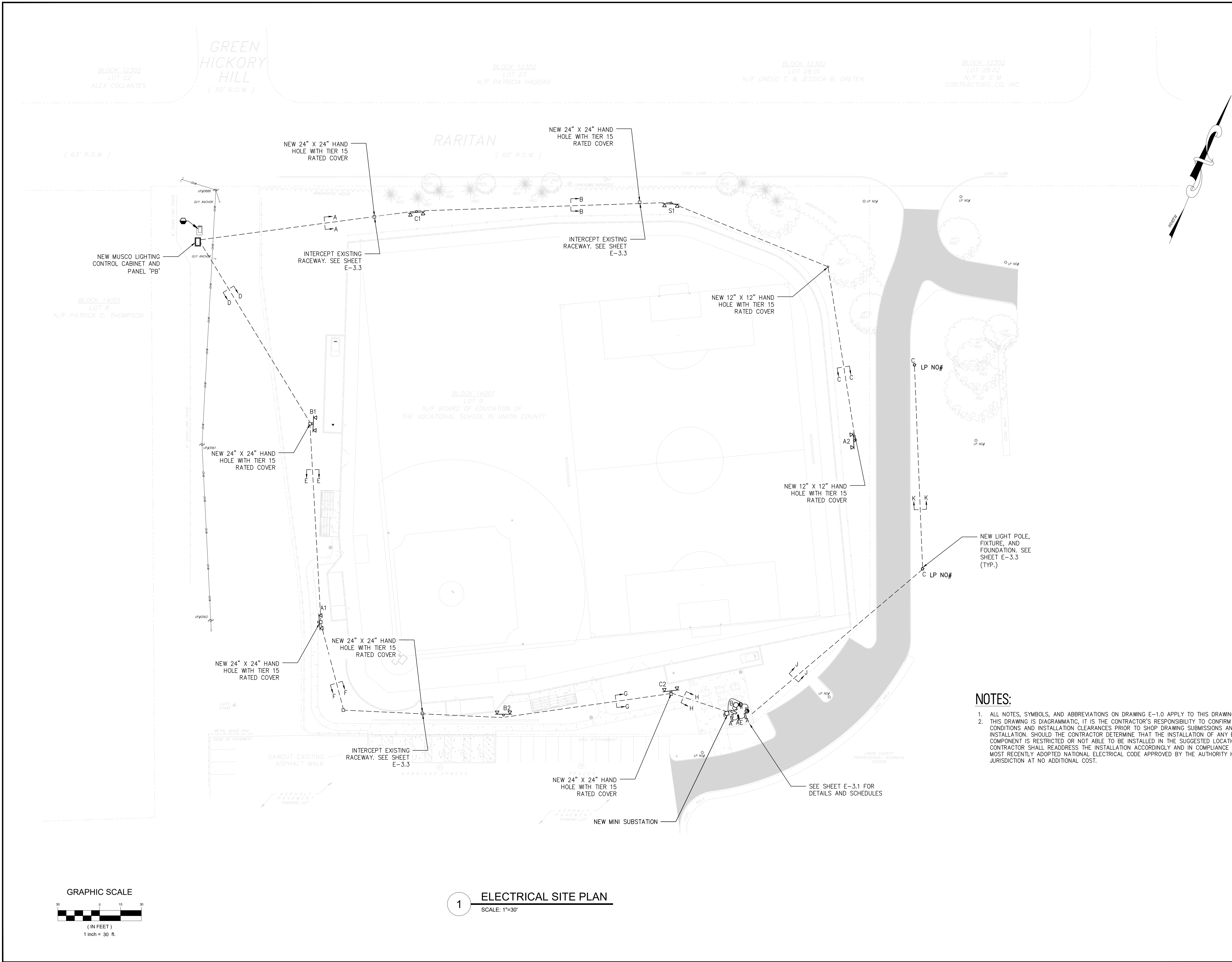
DATE: 10-11-2024  
KAVAN R. SMITH  
PROFESSIONAL ENGINEER LIC. No. 56794

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[illegible]

UNION COUNTY VO-TECH  
FIELD IMPROVEMENTS

<u>DRAWN BY:</u> <b>P.B.</b>	<u>DESIGN BY:</u> <b>P.B.</b>	<u>CHECKED BY:</u> <b>K.R.S.</b>	<u>SCALE:</u> <b>AS NOTED</b>
<u>DATE:</u> 04/16/2024		<u>SHEET No.:</u> <b>ES-2.1</b>	
<u>JOB No.:</u> 2000F028			







**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

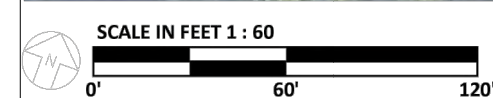
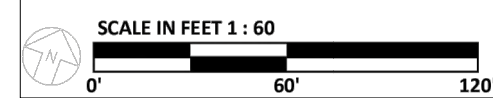
**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 567

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[illegible]

UNION COUNTY  
UNION COUNTY VO-TECH  
FIELD IMPROVEMENTS  
UNION COUNTY  
SCOTCH PLAINS TOWNSHIP  
NEW JERSEY

<u>DRAWN BY :</u> <b>P.B.</b>	<u>DESIGN BY :</u> <b>P.B.</b>	<u>CHECKED BY :</u> <b>K.R.S.</b>	<u>SCALE :</u> <b>AS NOTED</b>
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u> <b>E-2.2</b>	
<u>JOB No. :</u> 2000F028			



**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 5 year depreciable factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 567

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SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)	UNION COUNTY	UNION COUNTY VO-TECH FIELD IMPROVEMENTS	UNION COUNTY	NEW JERSEY
			SCOTCH PLAINS TOWNSHIP	

<u>DRAWN BY :</u> <b>P.B.</b>	<u>DESIGN BY :</u> <b>P.B.</b>	<u>CHECKED BY :</u> <b>K.R.S.</b>	<u>SCALE :</u> <b>AS NOTED</b>
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u> <b>E-2.3</b>	
<u>JOB No. :</u> 2000F028			

SCALE IN FEET 1 : 60

**Installation Requirements:** Results assume  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

**Installation Requirements:** Results assume  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 567

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SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)	UNION COUNTY UNION COUNTY VO-TECH FIELD IMPROVEMENTS	NEW JERSEY
	UNION COUNTY SCOTCH PLAINS TOWNSHIP	

<u>DRAWN BY :</u> <b>P.B.</b>	<u>DESIGN BY :</u> <b>P.B.</b>	<u>CHECKED BY :</u> <b>K.R.S.</b>	<u>SCALE :</u> <b>AS NOTED</b>
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  <b>E-2.4</b>	
<u>JOB No. :</u> 2000F028			

SCALE IN FEET 1 : 60

A horizontal scale bar with alternating black and white segments. It is marked with '0'', '60'', and '120'' at the bottom. Above the bar, the text 'SCALE IN FEET 1 : 60' is written.

**Installation Requirements:** Results assume  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26



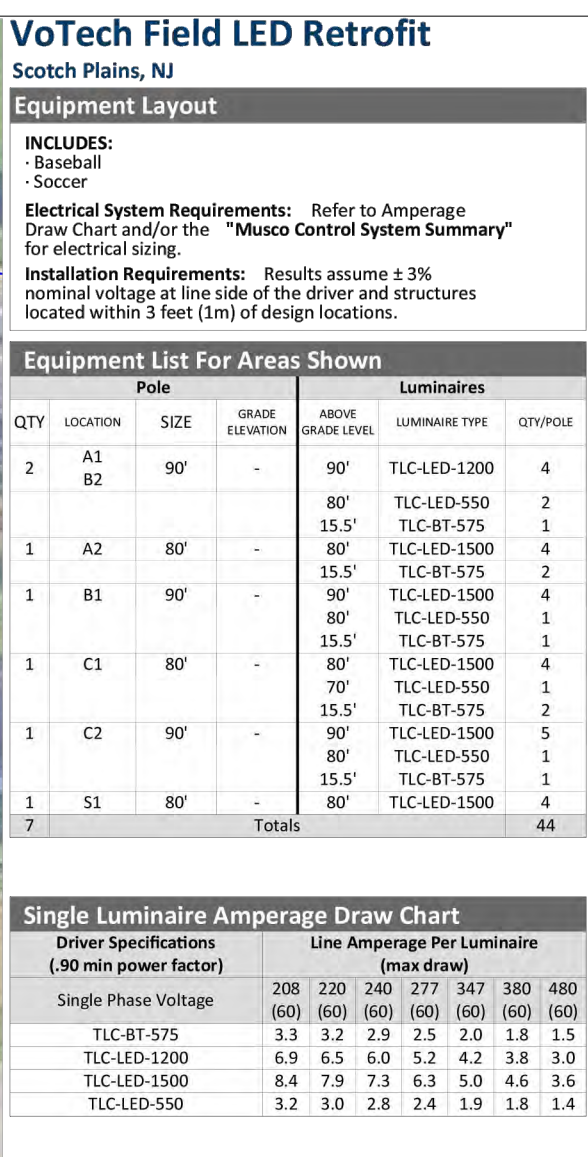
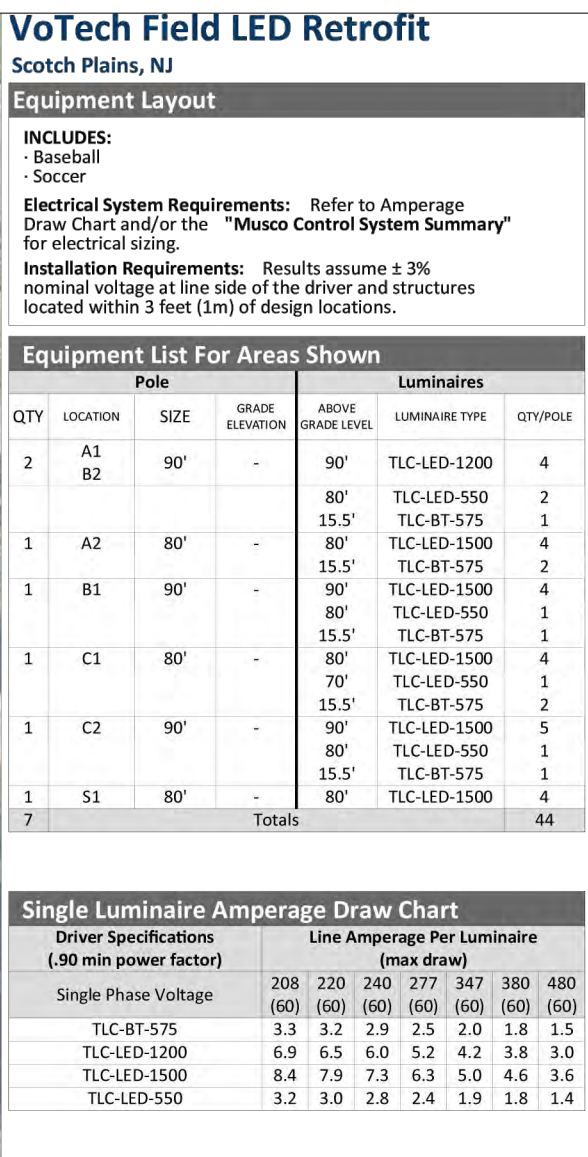
**JESSICA D. HAUBER**  
NJ PROFESSIONAL ENGINEER LIC. No. 5148

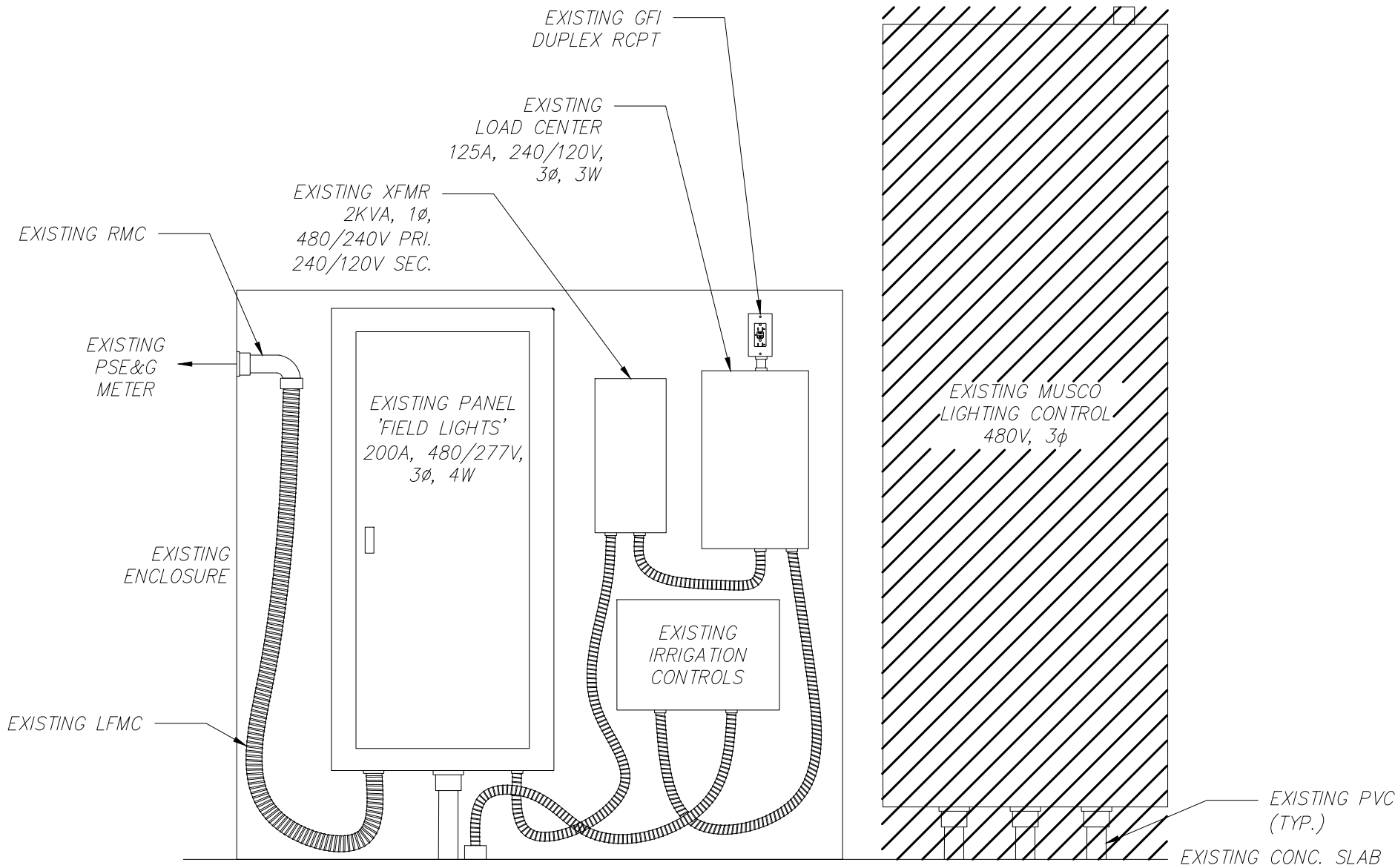
**KAVAN R. SMITH**  
NJ PROFESSIONAL ENGINEER LIC. No. 567

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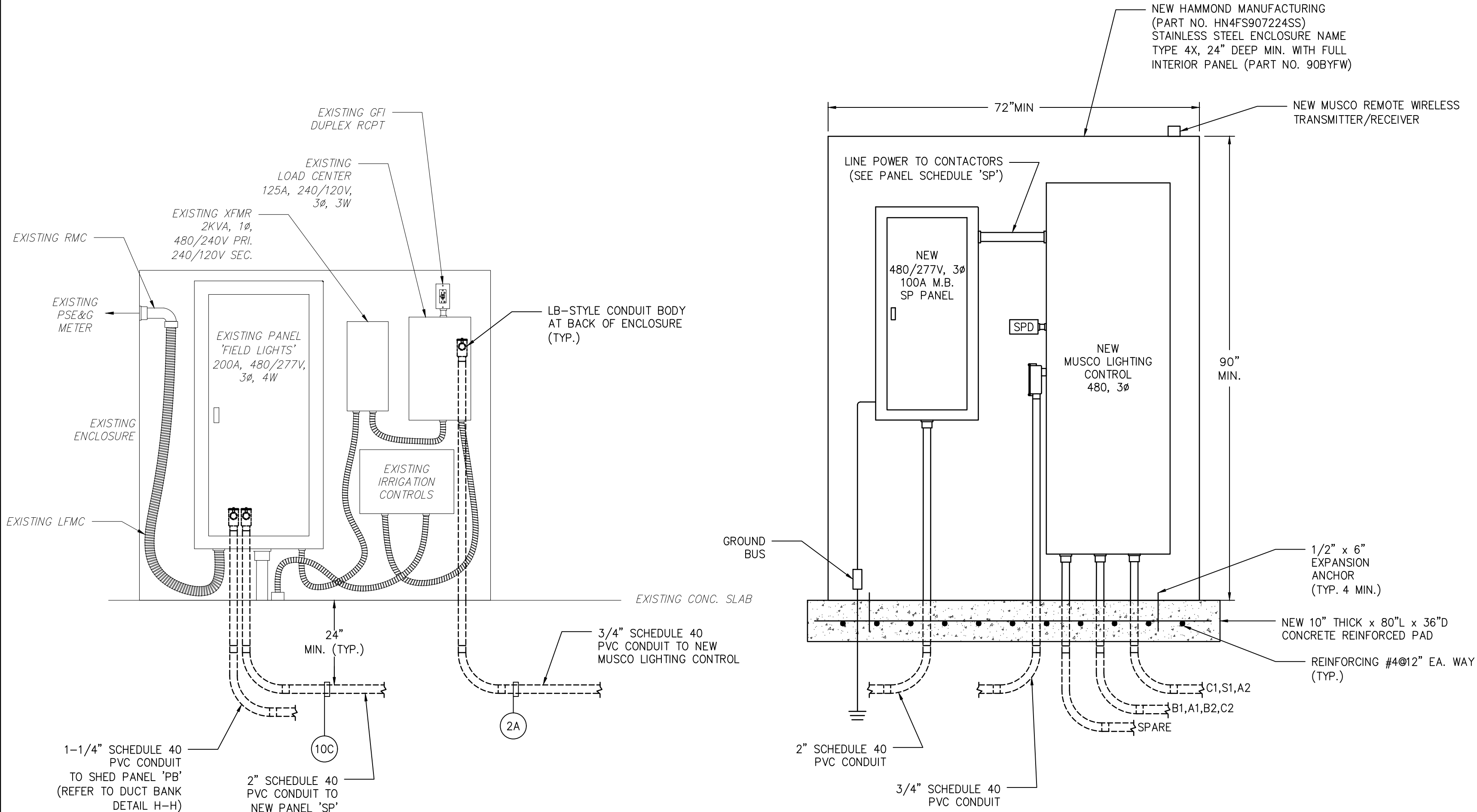
SPORTS LIGHTING PHOTOMETRIC (FOR REFERENCE ONLY)	UNION COUNTY	UNION COUNTY VO-TECH FIELD IMPROVEMENTS	UNION COUNTY	NEW JERSEY
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<u>DRAWN BY :</u> <b>P.B.</b>	<u>DESIGN BY :</u> <b>P.B.</b>	<u>CHECKED BY :</u> <b>K.R.S.</b>	<u>SCALE :</u> <b>AS NOTED</b>
<u>DATE :</u> 04/16/2024		<u>SHEET No. :</u>  <b>E-2.5</b>	
<u>JOB No. :</u> 2000F028			

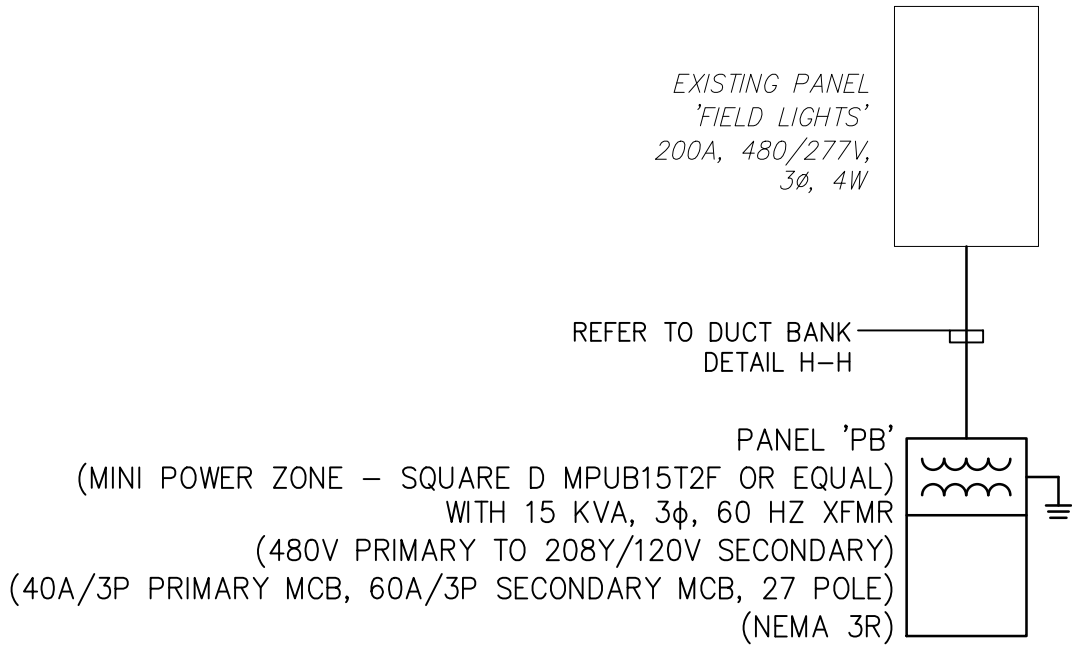




1 DEMOLITION ELEVATION DETAIL  
SCALE: N.T.S



2 NEW ENCLOSURE ELEVATION DETAIL  
SCALE: N.T.S



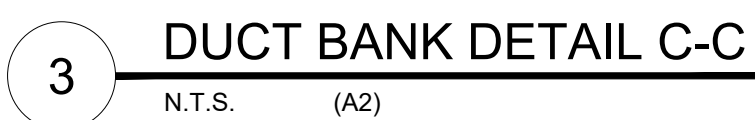
3 PROPOSED SHED SINGLE LINE  
SCALE: N.T.S

EXISTING PANEL: 'FIELD LIGHTS' (SIEMENS CAT. NO. P1E30FX200ATS)																													
VOLTAGE: 480Y/277V, 3ø, 4W+G					X	MCB	200A/3P	POLES: 30			AIC RATING: EXISTING																		
MAIN BUS: 250A					MLO			MTG: SURFACE			LOCATION: FIELD LIGHT CABINET																		
CKT #	CIRCUIT	BREAKER	BRANCH	CIRCUIT	DESCRIPTION	REMARKS	REMARKS	KVA PER PHASE			DESCRIPTION	BRANCH CIRCUIT	CIRCUIT BREAKER	CKT #															
								A	B	C																			
1														2															
3	30				SPARE	NOTES 1, 2	NOTES 1, 2		5.00		SHED PANEL 'PB'	(*)	3	40															
5										5.00				4															
7														6															
9	30		3		SPARE	NOTES 1, 2	NOTES 1, 2		21.90		SPORTS LIGHTING PANEL	10C	3	100															
11										21.90				8															
13														10															
15	30		3		SPARE	NOTES 1, 2	NOTES 1, 2				SPARE		3	30															
17														12															
19														14															
21	30		3	EXISTING	EXISTING LOAD	NOTES 1, 2	NOTES 1, 2				SPARE		3	30															
23														20															
25								EXIST			EXISTING LOAD	EXISTING	2	15															
27	30		3	EXISTING	EXISTING LOAD	NOTES 1, 2			EXIST					28															
29											SPARE		1	30															
								0.00	0.00	0.00																			
								26.90	26.90	26.90																			
97 TOTAL CONNECTED LOAD (AMPS)														TOTAL CONNECTED LOAD (KVA)														80.20	
NOTES: 1. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY, UPDATE DIRECTORY, AND PROVIDE COMPATIBLE CIRCUIT BREAKER WITHIN EXISTING PANEL. 2. REPLACE EXISTING CIRCUIT BREAKER TO EXISTING LIGHTING CIRCUIT TO SUPPORT NEW REPLACEMENT FIELD LIGHTING. * REFER TO DUCT BANK DETAIL H-H.																													

EXISTING PANEL: LOAD CENTER (SQUARE D CAT. NO. QO148L125GS)														
VOLTAGE: 120/208V, 1ø, 3W+G					MCB		POLES: 4			AIC RATING: EXISTING				
MAIN BUS: 125A					Y MLO		MTG: SURFACE			LOCATION: FIELD LIGHT CABINET				
CKT #	CIRCUIT	BREAKER	BRANCH	DESCRIPTION	REMARKS	REMARKS	KVA PER PHASE			DESCRIPTION	BRANCH	CIRCUIT BREAKER		CKT #
							A	B	C			CIRCUIT	POLE	
1	20	1	EXISTING	EXISTING LOAD	EXIST		EXIST			EXISTING LOAD	EXISTING	1	20	2
1	20	1	EXISTING	EXISTING LOAD			NOTE 1	EXIST	1.50	MUSCO CONTROL	2A	1	20	4
					0.00	0.00			0.00	1.50				
7 TOTAL CONNECTED LOAD (AMPS)					TOTAL CONNECTED LOAD (kVA) 1.50									
NOTES: 1. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY, UPDATE DIRECTORY, AND PROVIDE COMPATIBLE CIRCUIT BREAKER WITHIN EXISTING PANEL. 2. REPLACE EXISTING CIRCUIT BREAKER TO EXISTING LIGHTING CONTROL CIRCUIT TO SUPPORT NEW REPLACEMENT FIELD LIGHTING.														

NEW PANEL: 'SP'																			
VOLTAGE: 480Y/277V, 3ø, 4W+G						X			MCB 100A/3P			POLES: 30				AIC RATING: 22,000			
MAIN BUS: 100A						MLO			MTG: SURFACE				LOCATION: ENCLOSURE						
CKT #	CIRCUIT TRIP	BREAKER POLE	BRANCH CIRCUIT	DESCRIPTION	REMARKS	REMARKS	KVA PER PHASE			DESCRIPTION	BRANCH CIRCUIT	CIRCUIT BREAKER POLE	TRIP	CKT #					
							A	B	C										
1							2.51							2					
3	30	3	5C	A1			2.51							4					
5								2.51						6					
7							2.96							8					
9	30	3	5C	A2			2.96							10					
11								2.96						12					
13							2.96							14					
15	30	3	5C	B1			2.96							16					
17								2.96						18					
19							2.51							20					
21	30	3	5C	B2			2.51							22					
23								2.51						24					
25							2.96							26					
27	30	3	5C	C1			2.96							28					
29								2.96						30					
							13.90	13.90	13.90										
										7.78	7.78	7.78							
							TOTAL CONNECTED LOAD (AMPS)				TOTAL CONNECTED LOAD (KVA)				65.04				
							78												

NEW PANEL: 'PB' (SQUARE D CAT NO. MPUB15T2F)																	
VOLTAGE: 208Y/120V, 3ø, 4W+G						X MCB 60A/3P			POLES: 27				AIC RATING: 18,000				
MAIN BUS: 60A						MLO			MTG: SURFACE				LOCATION: SHED				
CKT #	CIRCUIT	BREAKER	BRANCH	CIRCUIT	DESCRIPTION	REMARKS	REMARKS	KVA PER PHASE			DESCRIPTION	BRANCH CIRCUIT	CIRCUIT BREAKER	CKT			
								A	B	C							
1	20	1	2A		POLE LIGHT			0.78			SPACE		1	2			
3	20	1	2A		POLE LIGHT			0.78			SPACE		1	4			
5	20	1	2A		EXTERIOR LIGHT				0.78		SPACE		1	6			
7	20	1	2A		RECEPTACLES			0.36			SPACE		1	8			
9	20	1	2A		INTERIOR LIGHTS				0.10		SPACE		1	10			
11	20	1			SPARE						SPACE		1	12			
13	20	1			SPARE						SPACE		1	14			
15	20	1			SPARE						SPACE		1	16			
17	20	1			SPARE						SPACE		1	18			
19	20	1			SPARE						SPACE		1	20			
21	20	1			SPARE						SPACE		1	22			
23	20	1			SPARE						SPACE		1	24			
25	20	1			SPARE						SPACE		1	26			
27	20	1			SPARE												
								1.14	0.88	0.78					0.00	1.00	0.00
8 TOTAL CONNECTED LOAD (AMPS)														2.80 TOTAL CONNECTED LOAD (kVA)			



DATE: 10-11-2024  
KAVAN R. SMITH  
PROFESSIONAL ENGINEER LIC. No. 56794

PLANS WHICH DO NOT BEAR  
AN EMBOSSED SEAL ARE NOT VALID.

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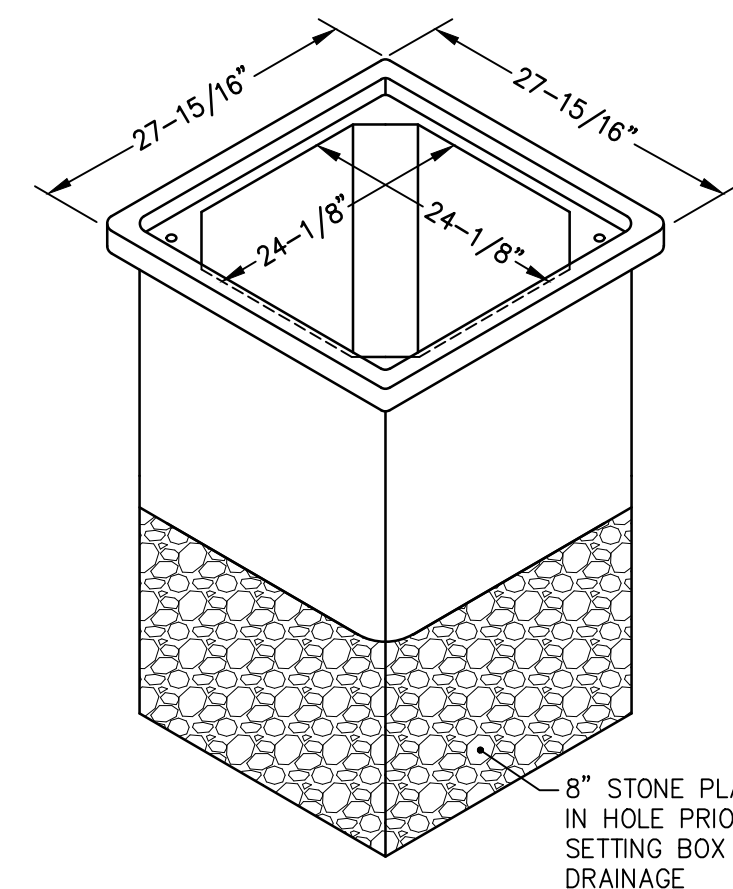
[illegible]

## ELECTRICAL DETAILS

UNION COUNTY VO-TECH  
FIELD IMPROVEMENTS

SCOTCH PLAINS TOWNSHIP  
UNION COUNTY  
NEW JERSEY

<u>DRAWN BY:</u> <b>P.B.</b>	<u>DESIGN BY:</u> <b>P.B.</b>	<u>CHECKED BY:</u> <b>K.R.S.</b>	<u>SCALE:</u> <b>AS NOTED</b>
<u>DATE:</u> 04/16/2024		<u>SHEET No.:</u> <b>E-3.2</b>	
<u>JOB No.:</u> 2000F028			



3/8-16 UNC STAINLESS STEEL HEX HEAD BOLT W/ WASHER (2)

12-7/8"

12-7/8"

3/4"

.5 COF SKID RESISTANT SURFACE

14-3/4"

14-3/4"

12"

12"

A

8" STONE PLACED IN HOLE PRIOR TO SETTING BOX FOR DRAINAGE

SEE SHEET E-2.1  
FOR POLE HEIGHT

POLETOP LUMINAIRE ASSEMBLY

GALVANIZED STEEL POLE

ELECTRICAL COMPONENTS ENCLOSURE

10FT. (3M)

2FT. (600MM)

GROUND LEVEL

REFER TO MUSCO SPORTS LIGHTING  
SUPPLIER FOR CONCRETE BASE DETAILS  
AND POLE FABRICATION (TYPICAL)

PRECAST CONCRETE BASE

PRECAST CONCRETE BASE

FRONT VIEW

SIDE VIEW

4"

STRAIGHT SMOOTH

HADCO PART NO.  
P195-14-A-Z-N-T4

1'-0"

3 1/4"

1'-0 1/8"

Ø 7 1/2"

Ø 4"

4" DIA.  
AREA FOR  
CONDUIT

HAND  
HOLE

GROUND LUG WELDED TO POLE

45° CHAMFER ALL AROUND 1" GRADE

#3 CIRCULAR TIES 12" O.C.

#3 VERTICAL REBAR (TYP.)

CONCRETE BASE 4000 PSI SONOTUBE FORM

ANCHOR BOLTS  
(4) 3/4"x24"+3" HOOK  
(FULLY GALVANIZED NUT AND (1) GALVANIZED WASHER PER BOLT)

1-1/2" COVER 3/4" PVC SCHEDULE 40 CONDUIT

8'-0" DEEP GROUND ROD

Diagram illustrating a new weatherproof splice kit connection for lighting conductors. The diagram shows a cross-section of the ground with the following components and labels:

- EXISTING LIGHTING POLE FOUNDATION**: The base structure on the left.
- NEW LIGHTING CONDUCTORS**: Two conductors running horizontally from the foundation.
- EXISTING CONDUIT**: The conduit connected to the foundation.
- NEW HAND HOLE**: A new opening in the ground for access.
- NEW WEATHERPROOF SPLICE KIT CONNECTION**: A splice kit connecting the new conductors to the existing conduit.
- NEW SCHEDULE 40 PVC CONDUIT**: A new conduit section extending from the splice kit.
- FINISHED GRADE**: The ground surface level, indicated by a dashed line.

The logo features the letters "RVE" in a large, bold, serif font, enclosed within a thick black rectangular border. Below this, the year "1901" is displayed in a smaller, bold, serif font, also within the border. The text "REMINGTON & VERNICK ENGINEERS" is centered below the border in a bold, sans-serif font. Further down, the address "2059 SPRINGDALE ROAD" and "CHERRY HILL, NJ 08003" are listed in a sans-serif font. Below the address, the phone number "(856) 795-9595, FAX (856) 795-1882" and the website "WEB ADDRESS : RVE.COM" are provided. At the bottom, a line of text reads "Certification of Authorization: 24 GA 28003300". The entire advertisement is framed by a double-line border.

**RVE**

**1901**

**REMINGTON  
& VERNICK  
ENGINEERS**

2059 SPRINGDALE ROAD  
CHERRY HILL, NJ 08003  
(856) 795-9595, FAX (856) 795-1882  
WEB ADDRESS : RVE.COM

*Certification of Authorization: 24 GA 28003300*

***Excellence • Innovation • Service***

DATE: \_\_\_\_\_  
JESSICA D. HAUBER  
NJ PROFESSIONAL ENGINEER LIC. No. 51487

DATE: 10-11-2024  
KAVAN R. SMITH  
NJ PROFESSIONAL ENGINEER LIC. No. 56794

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[illegible]

## ELECTRICAL DETAILS

SCOTCH PLAINS TOWNSHIP	UNION COUNTY	NEW JERSEY
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<u>JOB No.:</u> 2000F028			