

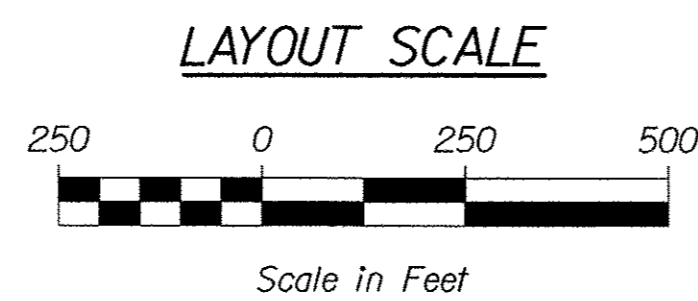
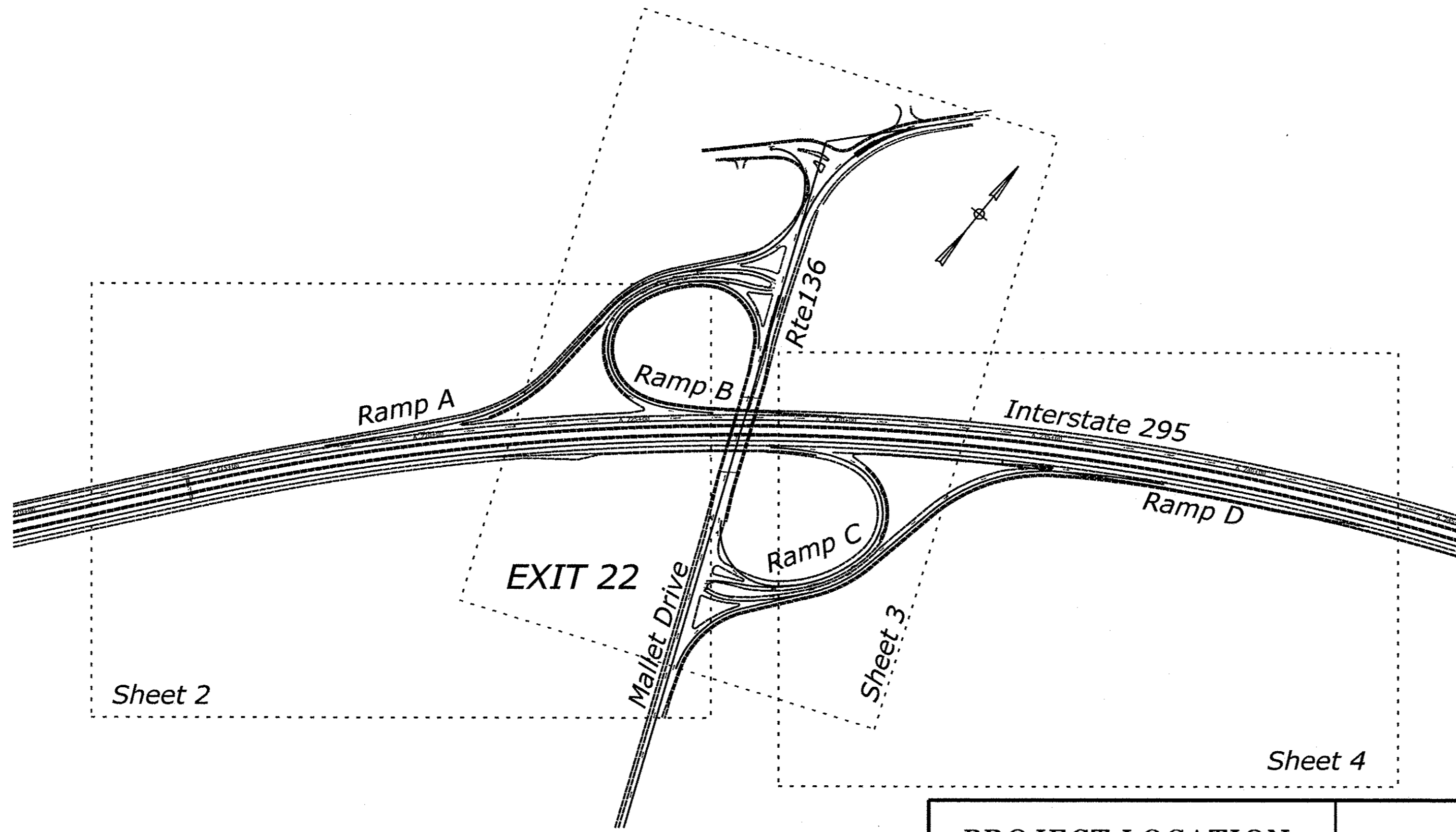
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



FREEPORT
CUMBERLAND COUNTY
Interstate 295
NHPP-2287(100)
HIGHWAY LIGHTING

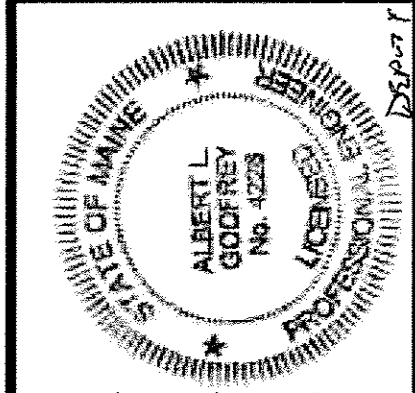
INDEX OF SHEETS

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Plans and Details	2 - 4
Foundation Details	5



PROJECT LOCATION:	Freeport, Interstate 295 at EXIT 22
PROGRAM AREA:	Multimodal Program
SCOPE OF WORK:	Highway Lighting - High Mast Light Poles, Lowering Devices, Foundations, Conduit, LED Luminaires, Wiring and Incidentals

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER: <i>John W. Desjardis</i>	<i>John W. Desjardis</i>	5-23-18
CHIEF ENGINEER: <i>John E. Bunker</i>	<i>John E. Bunker</i>	



<i>A. Godfrey</i>	SIGNATURE
4226	P.E. NUMBER
5/7/18	DATE

PROJECT INFORMATION	
PROGRAM	MULTIMODAL
PROJECT MANAGER	B. NICHOLS
DESIGNER	A. GODFREY
CONSULTANT	TERRA MAGNA SERVICES, INC.
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 22871.00 NHPP-2287(100)

FREEPORT
I - 295 at EXIT 22
TITLE SHEET

SHEET NUMBER
1
OF 5

Date: 5/7/2018

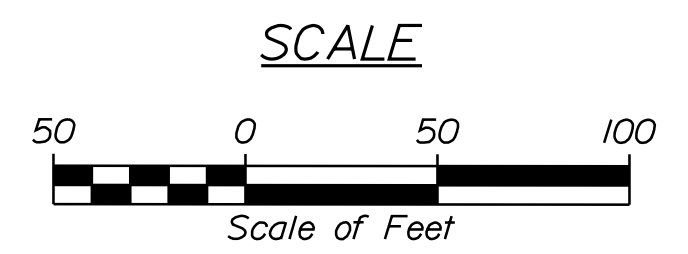
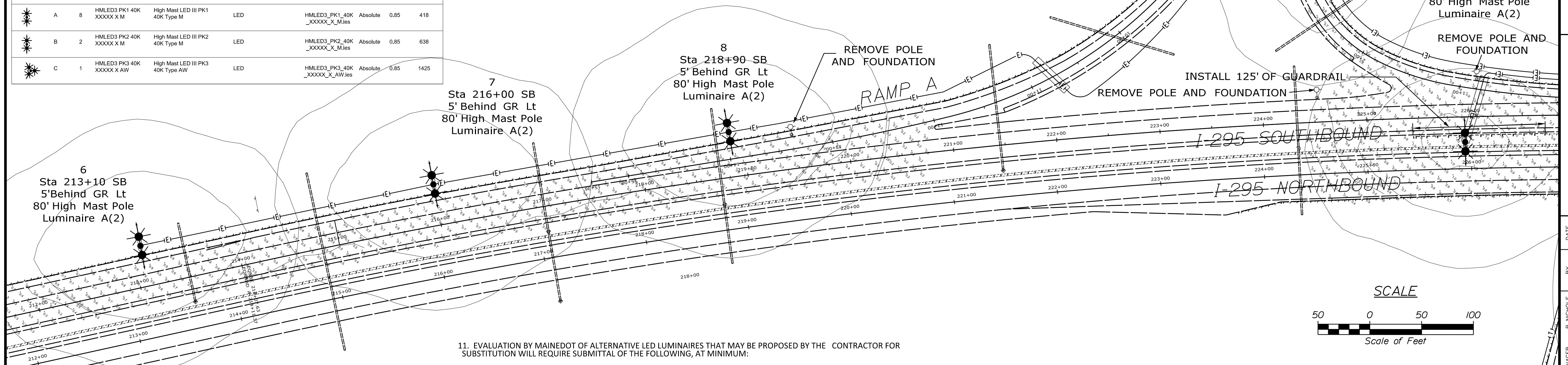
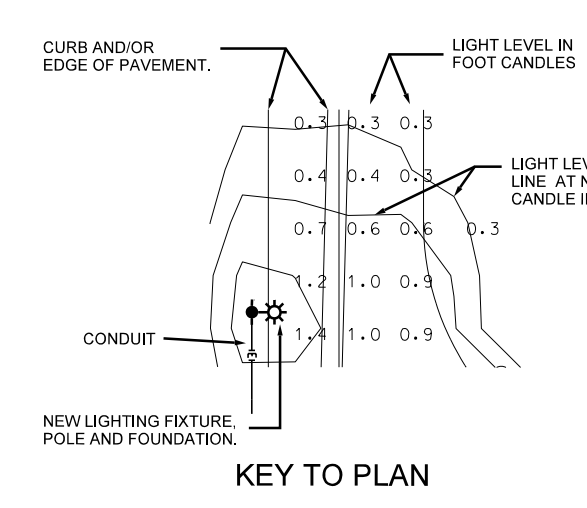
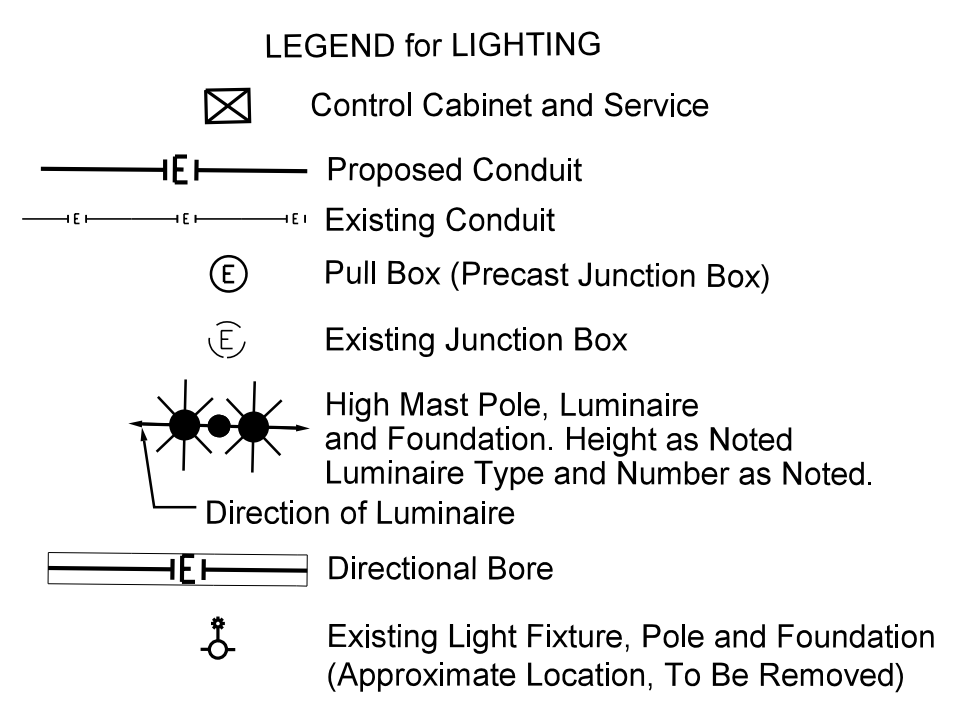
Username: common

Division: HIGHWAY

Filename: ...002_Lighting Plan Sht 1.dgn

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
I-295 SB at Ramp A	+	0.6 fc	1.0 fc	0.2 fc	5.0:1	3.0:1
I-295 at Ramps B-C	+	0.7 fc	1.2 fc	0.3 fc	4.0:1	2.3:1
I-295 NB at Ramp D	+	0.6 fc	0.9 fc	0.2 fc	4.5:1	3.0:1
Mallet at Ramps A-B	+	0.6 fc	1.3 fc	0.3 fc	4.3:1	2.0:1
Mallet at Ramps C-D	+	0.7 fc	1.1 fc	0.3 fc	3.7:1	2.3:1
Ramps A-B	+	0.6 fc	1.0 fc	0.3 fc	3.3:1	2.0:1
Ramps C-D	+	0.4 fc	0.9 fc	0.3 fc	3.0:1	1.3:1

LUMINAIRE SCHEDULE									
Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
*	A	8	HMLED3 PK1 40K XXXXX X M	High Mast LED III PK1 40K Type M	LED	HMLED3_PK1_40K _XXXXX_X_M.lies	Absolute	0.85	418
*	B	2	HMLED3 PK2 40K XXXXX X M	High Mast LED III PK2 40K Type M	LED	HMLED3_PK2_40K _XXXXX_X_M.lies	Absolute	0.85	638
*	C	1	HMLED3 PK3 40K XXXXX X AW	High Mast LED III PK3 40K Type AW	LED	HMLED3_PK3_40K _XXXXX_X_AW.lies	Absolute	0.85	1425



GENERAL NOTES - HIGHWAY LIGHTING

- SCOPE OF WORK - INSTALL HIGHWAY LIGHTING AS SHOWN ON THIS PLAN. INSTALL NEW CONDUIT, WIRING, FOUNDATIONS, HIGH MAST POLES AND LOWERING DEVICES, HIGH MAST L.E.D. LUMINAIRES AND RELATED HARDWARE. INSTALL NEW LIGHTING SERVICE CABINET.
- EXISTING INTERCHANGE LIGHTING SHALL REMAIN ACTIVE UNTIL THE NEW LIGHTING SYSTEM IS APPROVED BY MAINEDOT TO BE ACTIVATED.
- EXISTING LIGHT POLES AND LUMINAIRES SHALL BE CAREFULLY REMOVED AND DELIVERED TO MAINEDOT AFTER ACTIVATION OF THE NEW SYSTEM. EXISTING FOUNDATIONS SHALL BE REMOVED AS DIRECTED. ABANDON EXISTING CONDUIT.
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO APPLICABLE PROVISIONS OF THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND STANDARD DETAILS, NATIONAL ELECTRICAL CODE AND ANY REQUIREMENTS OF THE POWER COMPANY.
- THE CONTRACTOR SHALL FIELD VERIFY POLE LOCATIONS TO AVOID NATURAL AND BUILT SITE FEATURES THAT WOULD CONFLICT WITH PROPER INSTALLATION OF POLE FOUNDATIONS.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO ENSURE AWARENESS OF SITE CONDITIONS THAT COULD AFFECT THE BID.
- ALL LIGHTING CIRCUITS ARE TO BE PHOTOCELL ACTIVATED BY PHOTOCELL ON CONTROL CABINET.
- LIGHTING FIXTURE VOLTAGE SHALL BE 240 VOLTS. INSTALL NEW 240V SERVICE.
- LIGHTING FIXTURES SHALL BE IES FULL CUTOFF, LIGHT EMITTING DIODE (LED) FIXTURES. LED MODULES SHALL BE IP66 RATED.
- ALL FIXTURES SHALL BE GASKETED AND HAVE SURGE PROTECTION AND A DOUBLE FUSE KIT. ALL FIXTURES SHALL BE GRAY. THE LIGHTING LAYOUT WAS DONE USING HOLOPHANE HIGH MAST LED LUMINAIRES, CATALOG NUMBERS:
HMLED3 PK1 40K TYPE M, 16 LUMINAIRES ON 8 POLES (IES TYPE III DISTRIBUTION)
HMLED3 PK2 40K TYPE M, 4 LUMINAIRES ON 2 POLES (IES TYPE III DISTRIBUTION)
HMLED3 PK3 40K TYPE AW, 3 LUMINAIRES ON 1 POLE (IES TYPE V DISTRIBUTION)
LED COLOR TEMPERATURE FOR FIXTURES INSTALLED SHALL BE 4000K. IF DIFFERENT FIXTURES ARE PROPOSED, THEY SHALL BE IES FULL CUTOFF, TYPE 3 AND TYPE 5 IES DISTRIBUTION, LED LUMINAIRES. THE CONTRACTOR MUST DEMONSTRATE THAT THE PROPOSED FIXTURES WILL REASONABLY EQUAL THE LIGHT LEVELS AND DISTRIBUTIONS SHOWN ON THE PLANS, IN THE OPINION OF MAINEDOT. NO PROPOSED ALTERNATIVE LUMINAIRES WILL BE CONSIDERED UNLESS THE MANUFACTURER IS PRE-APPROVED BY MAINEDOT'S CHIEF ELECTRICIAN.

- EVALUATION BY MAINEDOT OF ALTERNATIVE LED LUMINAIRES THAT MAY BE PROPOSED BY THE CONTRACTOR FOR SUBSTITUTION WILL REQUIRE SUBMITTAL OF THE FOLLOWING, AT MINIMUM:
IES LM-79-08 ABSOLUTE TESTING REPORT FOR THE PROPOSED ALTERNATIVE LUMINAIRE;
IES LM-80-15 TESTING REPORT FOR LED CHIPS TO BE USED IN THE ALTERNATIVE LUMINAIRE, DOCUMENTING TESTING FOR A MINIMUM OF 8500 HOURS;
IES TM-21-11 REPORT FOR PROJECTED LONG TERM LUMEN MAINTENANCE, INCLUDING INCREMENTAL LUMEN DEPRECIATION TABLE AT 25 DEGREES CELSIUS TO A MINIMUM OF 50,000 HOURS;
IES PHOTOMETRIC FILE FROM THE MANUFACTURER FOR THE PROPOSED ALTERNATIVE LUMINAIRE;
PHOTOMETRIC PLOT, OVERLAID ON THE LAYOUT OF THE LUMINAIRE LOCATIONS FOR THIS SPECIFIC PROJECT, SHOWING LIGHT CONTOURS, ILLUMINATION STATISTICS FOR EACH OF THE LIGHTING GROUPS, AND VALUE OF LIGHT LOSS FACTOR USED IN THE ANALYSIS;
VALUES OF LLD, LDD, BALLAST FACTOR AND OTHER FACTORS USED FOR CALCULATION OF THE ASSUMED LIGHT LOSS FACTOR;
SPECIFICATION DATA REGARDING OPTICS, CHROMATIC COLOR TEMPERATURE, DRIVER, SURGE PROTECTION, HOUSING AND GASKETING.
- INSTALL LIGHTING FIXTURES ON HIGH MAST POLES. HEIGHTS OF POLES ARE NOTED ON THE PLANS. POLES SHALL BE GALVANIZED STEEL. POLES SHALL HAVE A MINIMUM OF SIX ANCHOR BOLTS.
- EACH HIGH MAST LIGHT STANDARD SHALL HAVE A LUMINAIRE LOWERING DEVICE SYSTEM FURNISHED AND INSTALLED. HOLOPHANE HMS TYPE 05 LOWERING DEVICE SYSTEM OR APPROVED EQUAL COMPATIBLE WITH THE APPROVED LUMINAIRES. SYSTEM SHALL INCLUDE A PORTABLE ELECTRIC POWER UNIT (ONE FOR ALL WIN 22871.00 HIGH MAST POLES) WITH REMOTE CONTROL FOR OPERATION OF THE LOWERING SYSTEM. WINCH ASSEMBLY SHALL BE INTERNAL TO POLE, UNLESS OTHERWISE APPROVED BY THE MAINEDOT CHIEF ELECTRICIAN.
- SECONDARY CIRCUIT WIRING SHALL BE COPPER STRANDED XHHW-2.
- NEW BURIED CONDUIT SHALL BE 2" MINIMUM, PVC SCHEDULE 40, EXCEPT CONDUIT UNDER PAVEMENT SHALL BE SCHEDULE 80 OR GREATER RATING. HYDRAULICALLY JACKED OR DIRECTIONAL BORED TO AT LEAST SIX FEET BEYOND THE EDGE OF PAVEMENT. CONDUIT FROM THE ELECTRICAL SERVICE TO THE CONTROL CABINET SHALL BE EITHER PVC CONDUIT ENCASED IN CONCRETE OR STEEL CONDUIT. IF PVC CONDUIT ENCASED IN CONCRETE IS USED, CONCRETE SHALL BE 3000 PSI MINIMUM STRENGTH AND A MINIMUM THICKNESS OF FOUR INCHES SURROUNDING THE CONDUIT. CONCRETE ENCASEMENT WILL BE INCIDENTAL TO PAYMENT FOR CONDUIT. MINIMUM BURIAL DEPTH FOR ALL CONDUIT SHALL BE 36".
- THE WIRE IN CONDUITS SHALL BE CONTINUOUS WITH NO SPLICES BETWEEN POLES. JUNCTION BOXES SHOWN ON THE PLANS ARE SHOWN IN APPROXIMATE LOCATIONS AND ARE INTENDED FOR USE ONLY AS PULL BOXES FOR WIRE PULLING ACCESS. ACTUAL NUMBER AND LOCATIONS MAY VARY AND SHALL BE SUBJECT TO APPROVAL OF THE RESIDENT PRIOR TO INSTALLATION.
- IF STRUCTURAL ROCK IS ENCOUNTERED DURING INSTALLATION OF FOUNDATIONS, PAYMENT FOREXCAVATION AND DOWELING REINFORCING INTO ROCK SHALL BE CONSIDERED INCIDENTAL TO FOUNDATION ITEMS.
- PAYMENT UNDER ITEM NO. 634.207, HIGH MAST LIGHT STANDARD, SHALL INCLUDE THE LUMINAIRE LOWERING DEVICE SYSTEM.
- PAYMENT UNDER ITEM 634.160, HIGHWAY LIGHTING, WILL INCLUDE ALL MATERIALS, LABOR AND EQUIPMENT NECESSARY TO PROVIDE A FULLY FUNCTIONING HIGHWAY LIGHTING SYSTEM, EXCEPT THOSE ITEMS TO BE PAID UNDER OTHER RELATED BID ITEMS IN THE CONTRACT.
- ALL LIGHT BASES SHALL HAVE A GROUND ROD LOCATED IN THE FOUNDATION THAT IS BONDED TO THE GROUNDING CONDUCTOR. PAYMENT FOR THE GROUND ROD SHALL BE INCLUDED IN ITEM 634.160, HIGHWAY LIGHTING.
- UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL FURNISH TO MAINEDOT A SET OF AS-BUILT PLANS FOR FUTURE REFERENCE AND SYSTEM MAINTENANCE.

- ALL CLEARING REQUIRED FOR THIS PROJECT WILL BE INCIDENTAL TO THE CONTRACT.
- PAYMENT FOR FOUNDATIONS WILL BE MADE UNDER ITEM NO. 626.37, SPECIAL FOUNDATION. SEE FOUNDATION PLANS FOR DETAILS.
- STATIONING SHOWN FOR LIGHTING RELATED ITEMS IS APPROXIMATE AND MAY BE ADJUSTED BY THE RESIDENT IN THE FIELD. NO SURVEY WAS PERFORMED FOR THIS CONTRACT. LIGHTING PLANS WERE DEVELOPED FROM AS-BUILT PLANS OF PREVIOUS PROJECTS. BASELINE STATIONING IS FROM PROJECT IN-01-1(15).
- INSTALL SERVICE AND MULTI CIRCUIT CONTROL CABINET AS SHOWN. THE CONTRACTOR SHALL ALSO INSTALL A METER DISCONNECT IN A SEPARATE NEMA 3R CABINET. CABINETS SHALL BE LOCKABLE. EACH SERVICE CABINET SHALL BE MARKED WITH ARC HAZARD TYPE 1, 2, 3 OR 4 AND THE APPROPRIATE PPE REQUIRED.
- REMOVE EXISTING SERVICE AND CONTROL CABINET.
- BUSHINGS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
- PULL WIRE SHALL BE INSTALLED IN ALL CONDUIT.
- ALL CONDUIT THREADS ARE TO BE RED-HEADED.
- ALL EXPOSED RIGID CONDUIT FITTINGS AND HARDWARE SHALL BE GALVANIZED, EXCEPT NON-CONDUCTIVE BUSHINGS FOR CONNECTION OF RIGID METAL CONDUIT TO ALUMINUM CABINETS.
- TEMPORARY FILL FOR CROSSING OF DITCHES WILL BE ALLOWED FOR EQUIPMENT ACCESS TO CONSTRUCT FOUNDATIONS AND TO ERECT HIGH MAST POLES. TEMPORARY PIPES SHALL BE INSTALLED IN TEMPORARY FILLS TO MAINTAIN DITCH FLOW. UPON COMPLETION OF WORK ON FOUNDATIONS AND ERECTION OF POLES REQUIRING FILL FOR ACCESS, TEMPORARY FILLS AND PIPE SHALL BE REMOVED, DITCHES SHALL BE LOAMED AND SEEDED WITH METHOD NO. 2, AND MULCHED. PAYMENT FOR WORK AND MATERIALS FOR TEMPORARY FILLS WILL BE INCIDENTAL TO THE CONTRACT.
- NEW GUARDRAIL TO BE INSTALLED IN THE I-295 SOUTHBOUND MEDIAN NEAR RAMP B SHALL MEET REQUIREMENTS OF THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). SEE SECTION 606 SPECIAL PROVISIONS FOR PAY ITEM NUMBERS AND DETAILS.
- EXISTING GUARDRAIL WILL BE ALLOWED TO BE TEMPORARILY REMOVED FOR ACCESS FOR INSTALLATION OF POLES AND FOUNDATIONS BEHIND GUARDRAIL. APPROPRIATE TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE USED AT AREAS OF GUARDRAIL REMOVAL. LENGTH OF GUARDRAIL REMOVED SHALL BE THE MINIMUM NECESSARY FOR ACCESS. GUARDRAIL SHALL BE RESET AS SOON AS PRACTICABLE. PAYMENT FOR GUARDRAIL REMOVAL AND RESETTING WILL BE MADE UNDER ITEM 606.36.
- REMOVAL OF EXISTING SERVICE, CABINET, LIGHT POLES AND FIXTURES WILL BE INCIDENTAL TO ITEM. 634.160.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NHPP - 2287(100)
WIN 22871.00
HIGHWAY PLANS

STATE OF MAINE
ALBERT L. GODFREY
REGISTERED PROFESSIONAL ENGINEER
NO. 10177
EXPIRES 12/31/2018

DATE: 5/7/18
SIGNATURE: 4226
P.E. NUMBER: 5/7/18
DATE

PROJ. MANAGER: B. NICHOLS
DATE: 12/17
BY: RAL
ALG & RAL
ALG
DESIGN-DETAILED
CHECKED-REVIEWED
DESIGN-DETAILED
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

FREEMPT
I - 295 at EXIT 22
PLANS

SHEET NUMBER
2
OF 5

Date: 5/7/2018

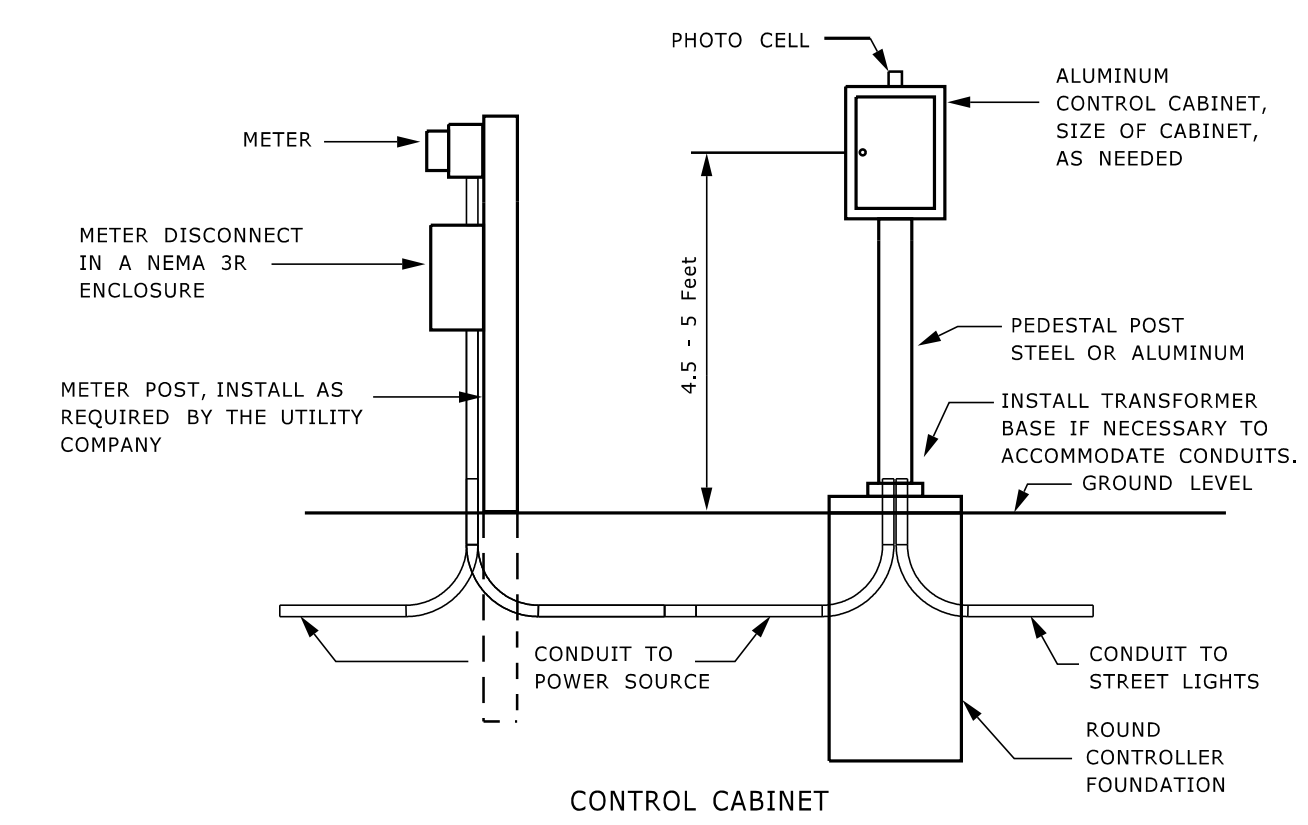
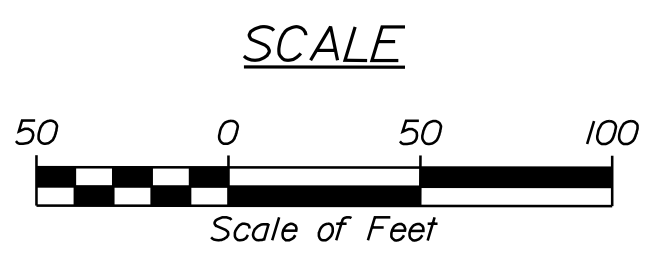
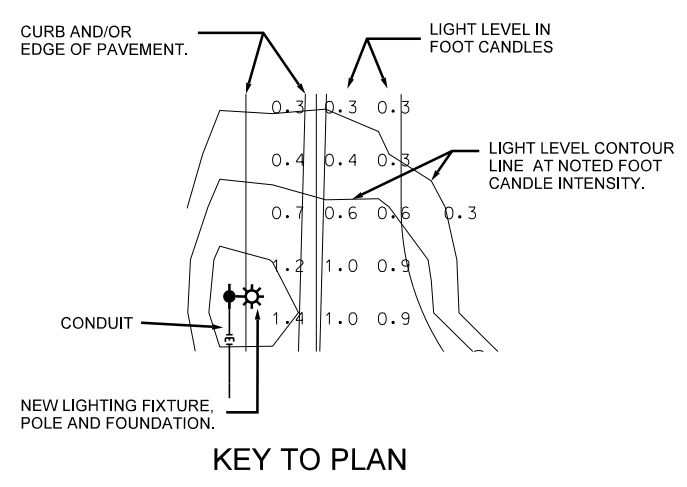
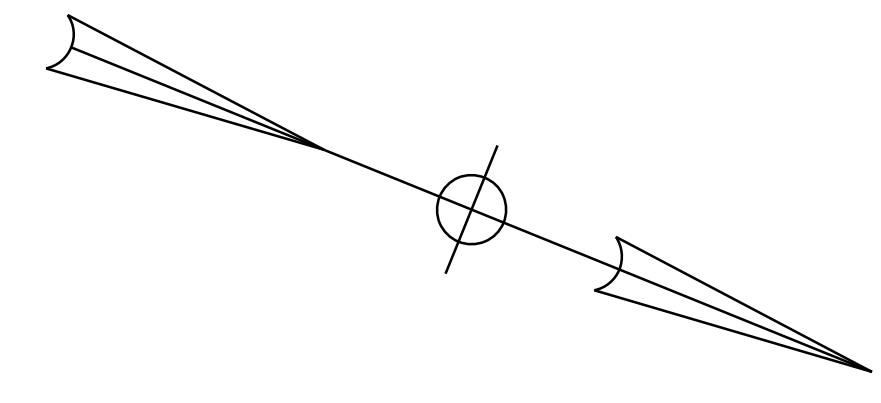
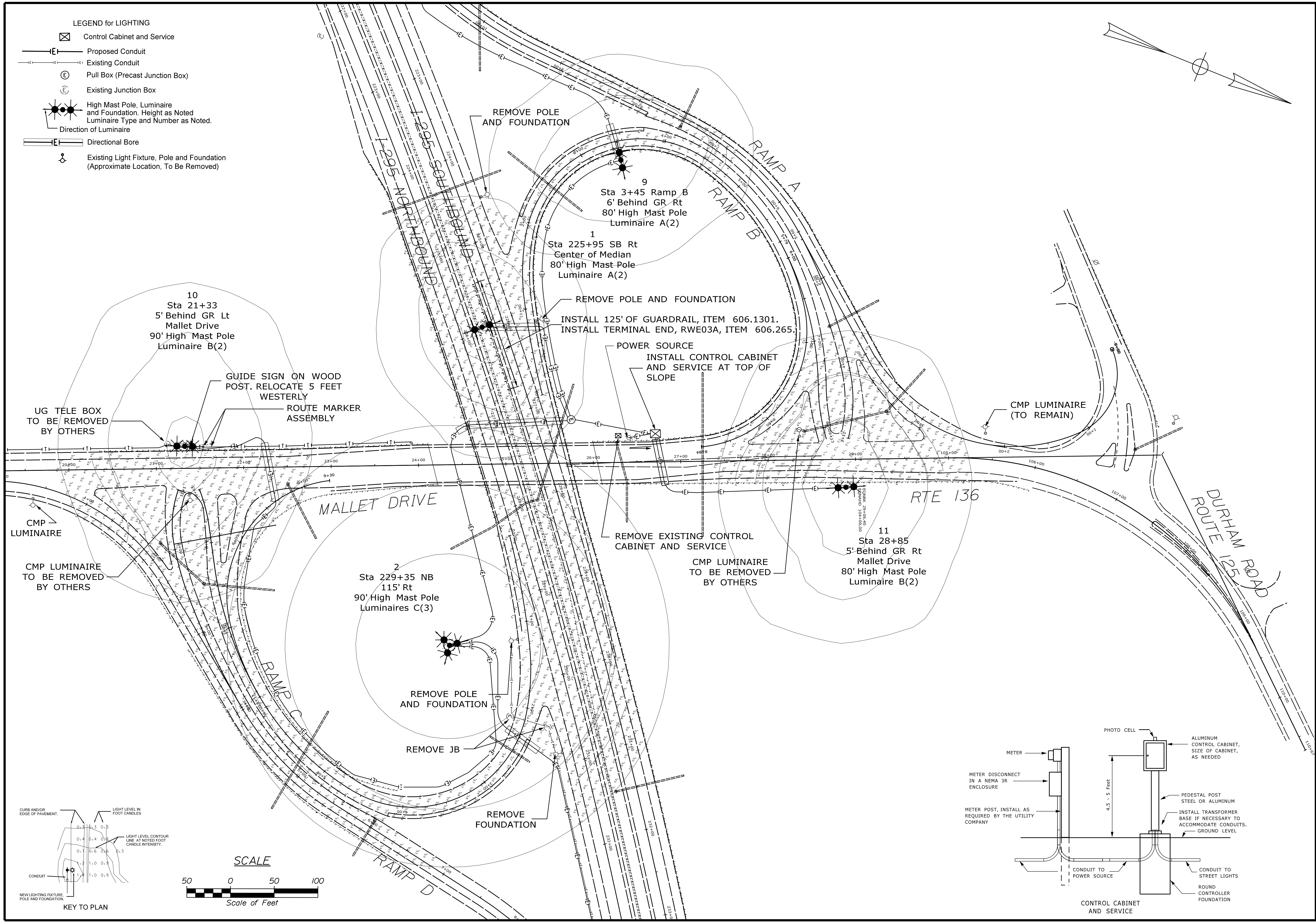
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Division: HIGHWAY

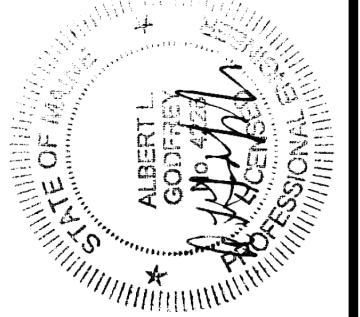
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LEGEND for LIGHTING

- Control Cabinet and Service
- Proposed Conduit
- Existing Conduit
- Pull Box (Precast Junction Box)
- Existing Junction Box
- High Mast Pole, Luminaire and Foundation. Height as Noted. Luminaire Type and Number as Noted.
- Direction of Luminaire
- Directional Bore
- Existing Light Fixture, Pole and Foundation (Approximate Location, To Be Removed)



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NHP-2287(100)



SIGNATURE: ALBERT L. COFFEY
4226
P.E. NUMBER: 5/7/18
DATE

PROJ. MANAGER	B. NICHOLS	BY	DATE
DESIGN-DETAILED	ALG & RAL	ALG	12/17
CHECKED-REVIEWED	ALG	ALG	12/17
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

FREEPORT
I - 295 at EXIT 22
PLANS

SHEET NUMBER
3
OF 5

HIGHWAY PLANS

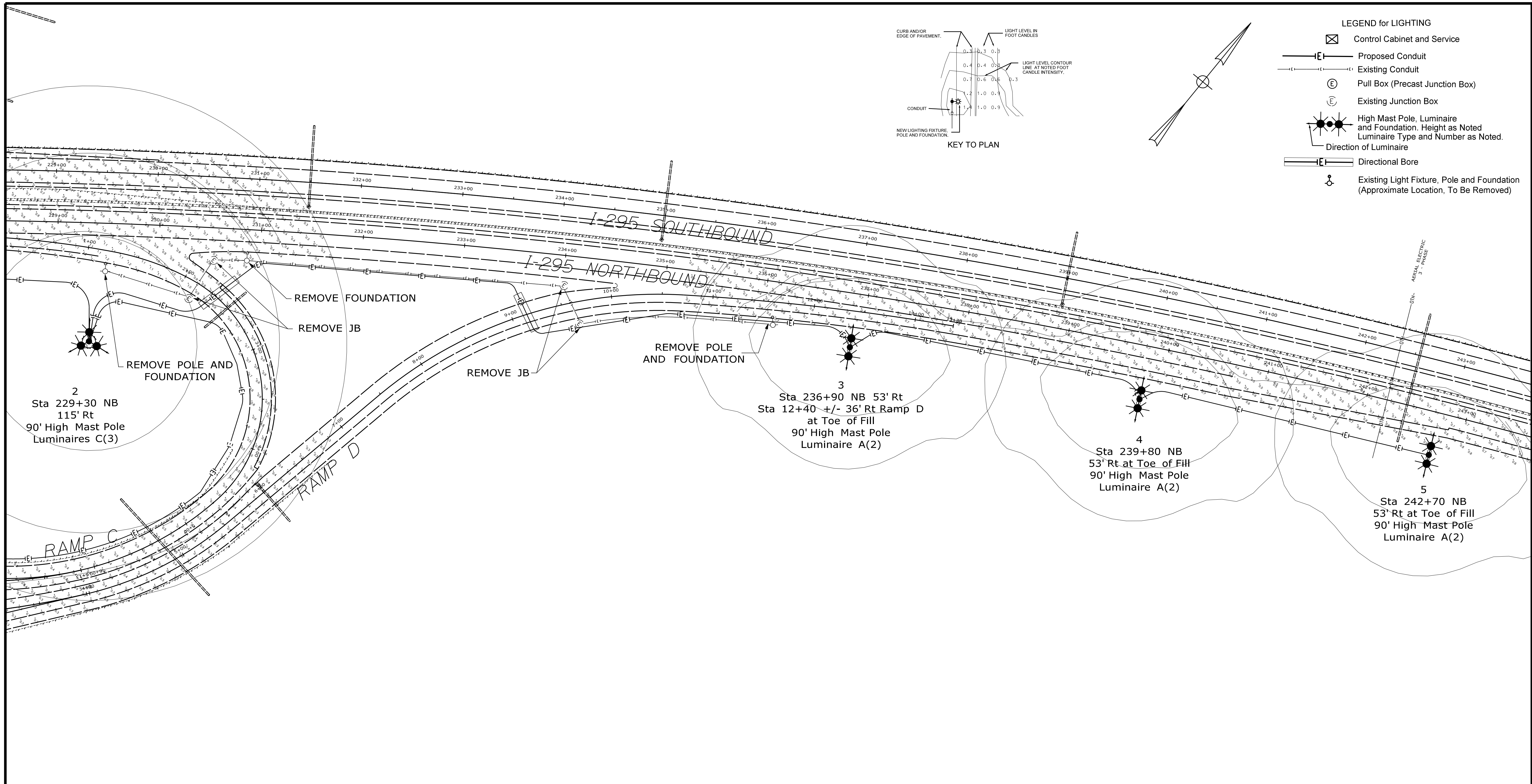
WIN 22871.00

Date: 5/7/2018

Username: common

Division: HIGHWAY

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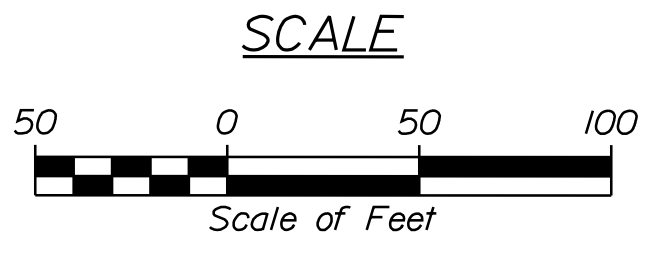


CONDUIT SUMMARY

Circuit 2, I - 295, Northerly of Mallet Dr.				Wire Size #4 Stranded Copper XHHW-2, 240 Volts
Station	Pole	Breakaway	Distance	Remarks
Control Cabinet Sta 26+55 Lt Mallet Dr.	—	—	515'	Thru JB
Sta 229+30 NB Rt	2	—	850'	
Sta 236+90 NB Rt	3	—	290'	
Sta 239+80 NB Rt	4	—	290'	
Sta 242+70 NB Rt	5	—		
Sta 229+30 NB Rt	2	—	860'	
Sta 21+30 Lt Mallet Dr	10	—		
Control Cabinet Sta 26+55 Lt Mallet Dr.	—	—	270'	
Sta 28+85 Rt Mallet Dr	11	—		

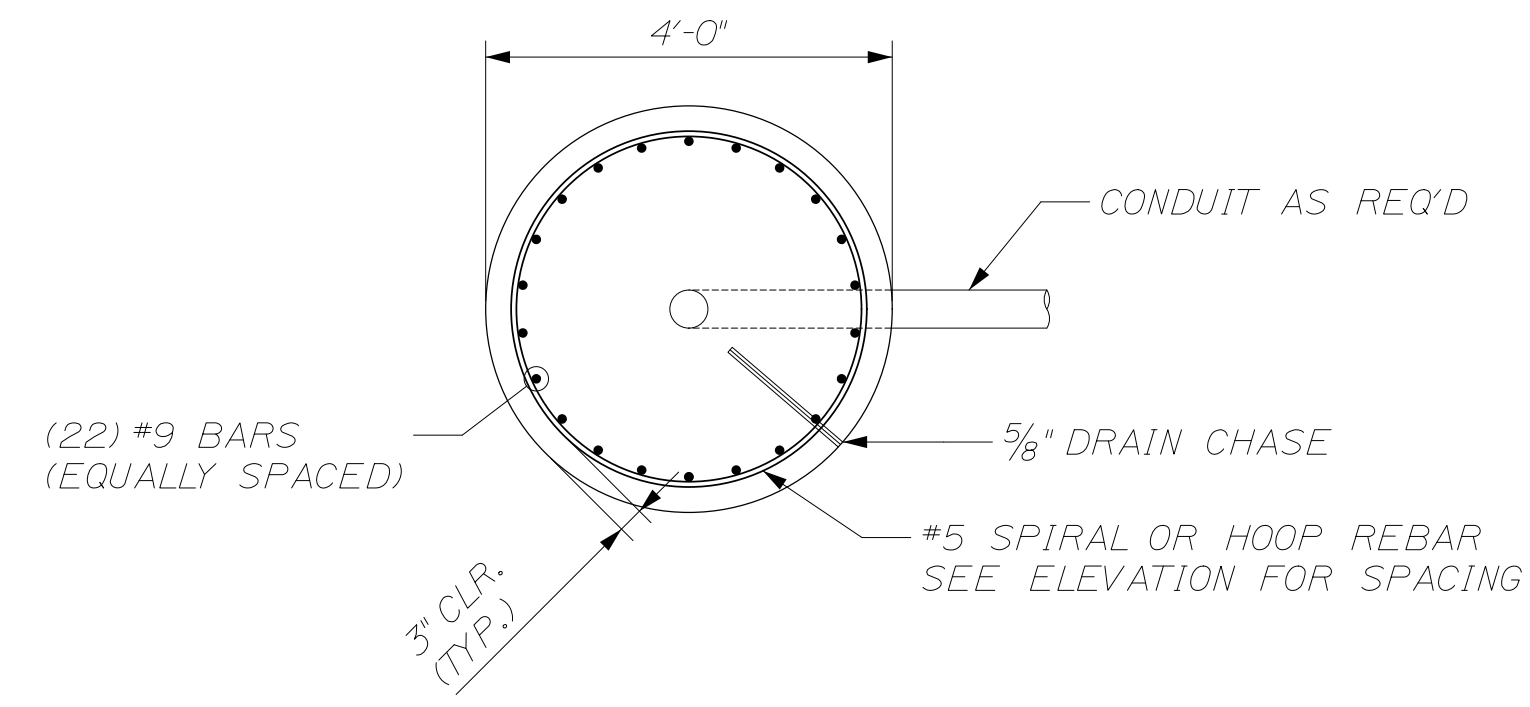
CONDUIT SUMMARY

Circuit 1, I - 295 Southerly of Mallet Dr.				Wire Size #6 Stranded Copper XHHW-2, 240 Volts
Station	Pole	Breakaway	Distance	Remarks
Control Cabinet Sta 26+55 Lt Mallet Dr.	—	—	275'	Thru JB
Sta 225+96 SB Rt, Median	1	—		
Control Cabinet Sta 26+55 Lt Mallet Dr.	—	—	445'	Thru JB
Sta 4+55 Rt Ramp B	9	—	670'	
Sta 218+90 SB Lt	8	—	290'	
Sta 216+00 SB Lt	7	—	290'	
Sta 213+10 SB Lt	6	—		

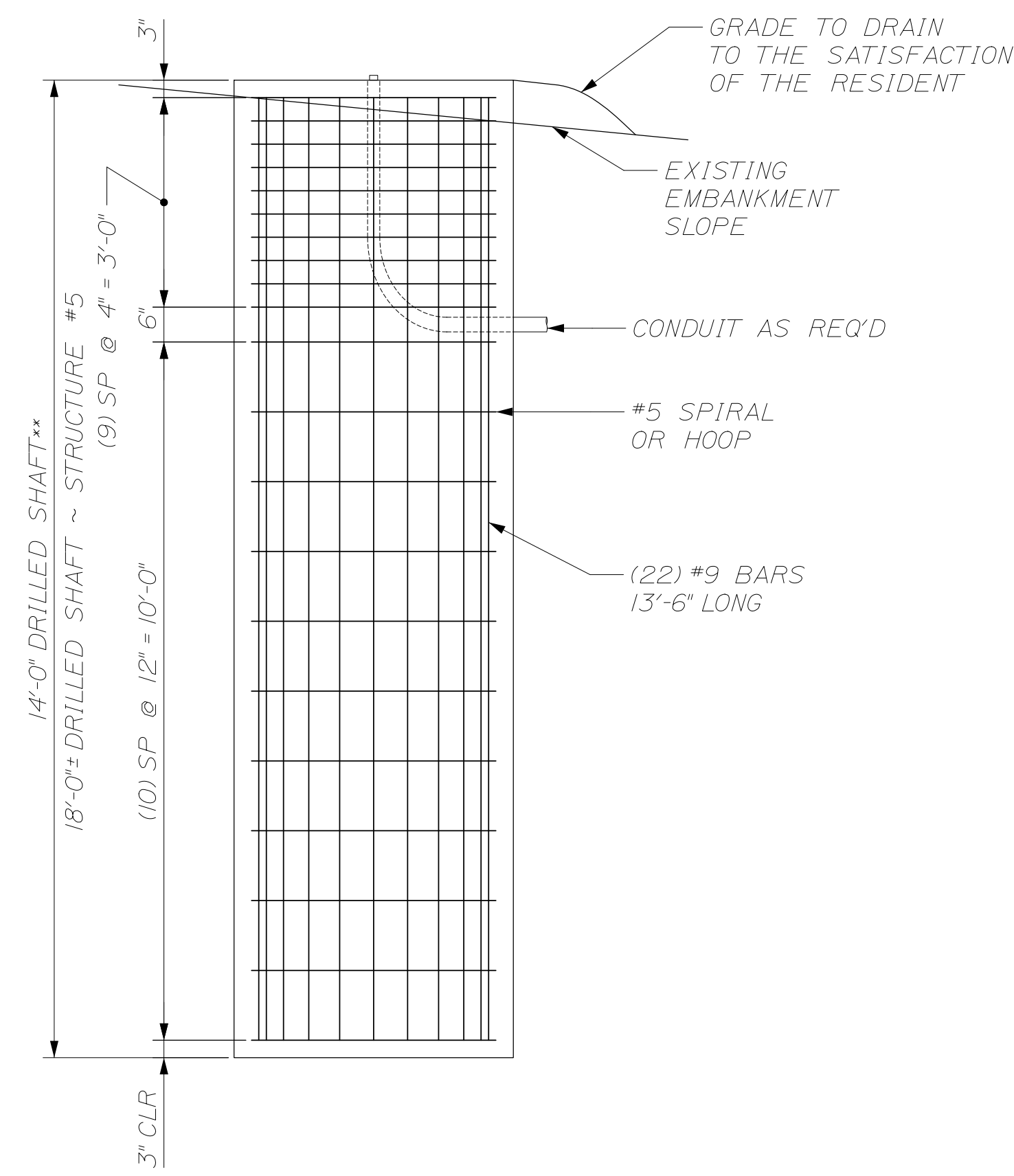


STATE OF MAINE DEPARTMENT OF TRANSPORTATION		NHP-2287(100)		WIN 22871.00	HIGHWAY PLANS
		SIGNATURE 4226		DATE 5/7/18	
PROJ. MANAGER	BY	DATE			
DESIGN-DETAILED	ALG & RAL	12/17			
CHECKED-REVIEWED	ALG	12/17			
DESIGN-DETAILED					
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					
<p style="font-size: 2em; font-weight: bold;">FREEPORT</p> <p style="font-size: 2em; font-weight: bold;">I - 295 at EXIT 22</p> <p style="font-size: 2em; font-weight: bold;">PLANS</p>					
SHEET NUMBER					
4					
OF 5					

HIGH MAST LIGHTING POLE DRILLED SHAFT FOUNDATION



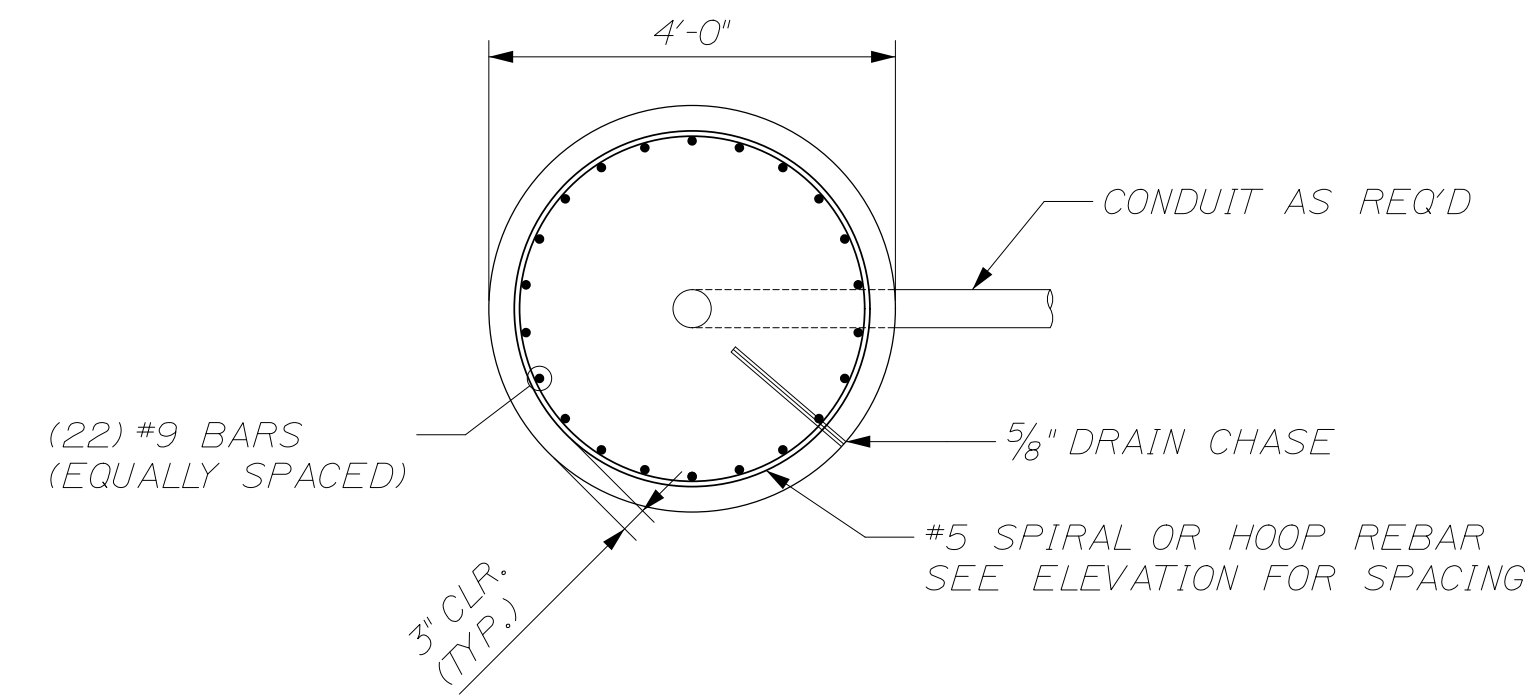
DRILLED SHAFT PLAN
SCALE: 1/2"=1'-0"



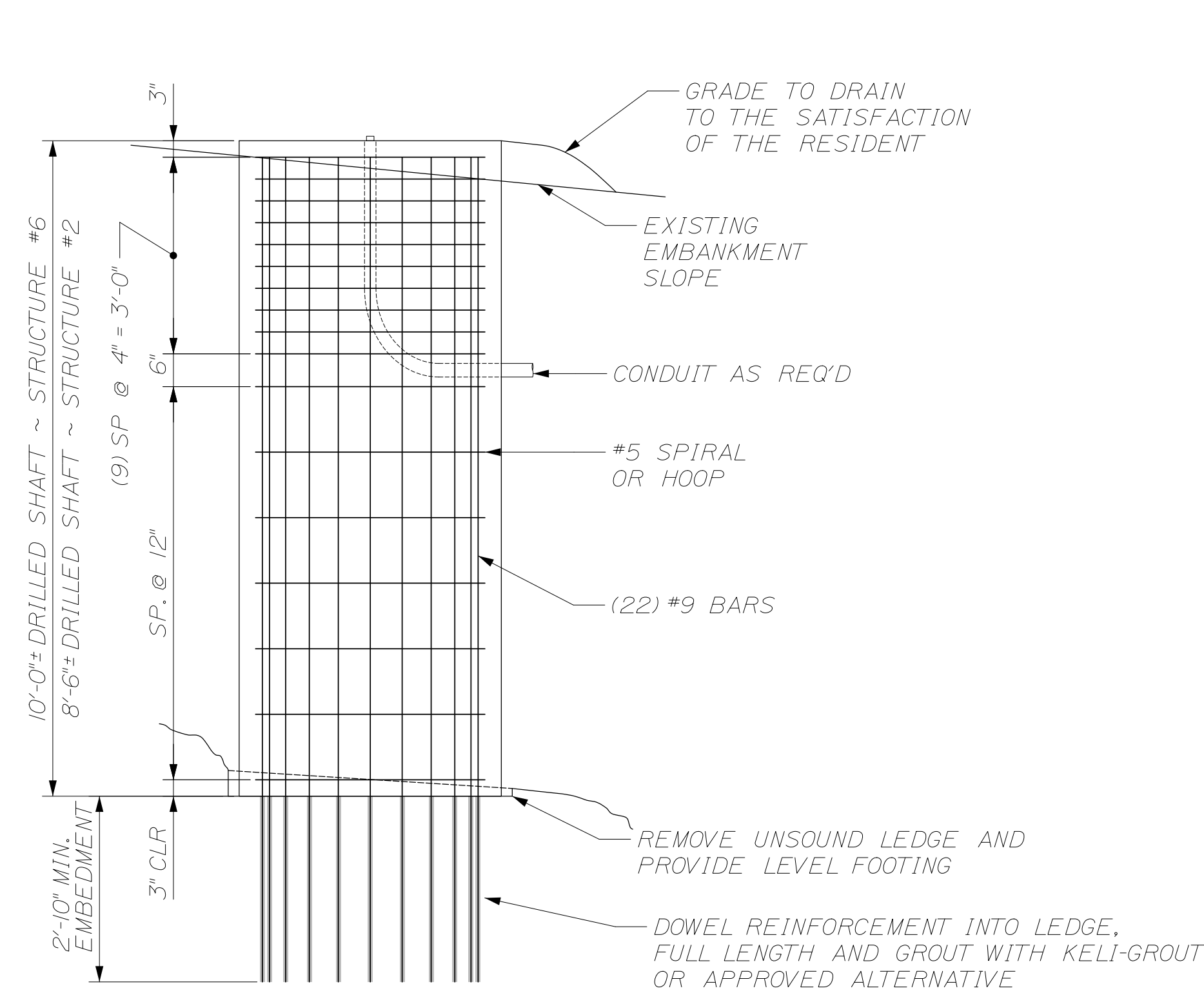
DRILLED SHAFT ELEVATION

SCALE: 1/2"=1'-0"
* SEE PINNED DRILLED SHAFT DETAILS FOR STRUCTURES #2 & #6
** 18' MIN. FOUNDATION REQ'D FOR STRUCTURE #5

HIGH MAST LIGHTING POLE PINNED DRILLED SHAFT FOUNDATION



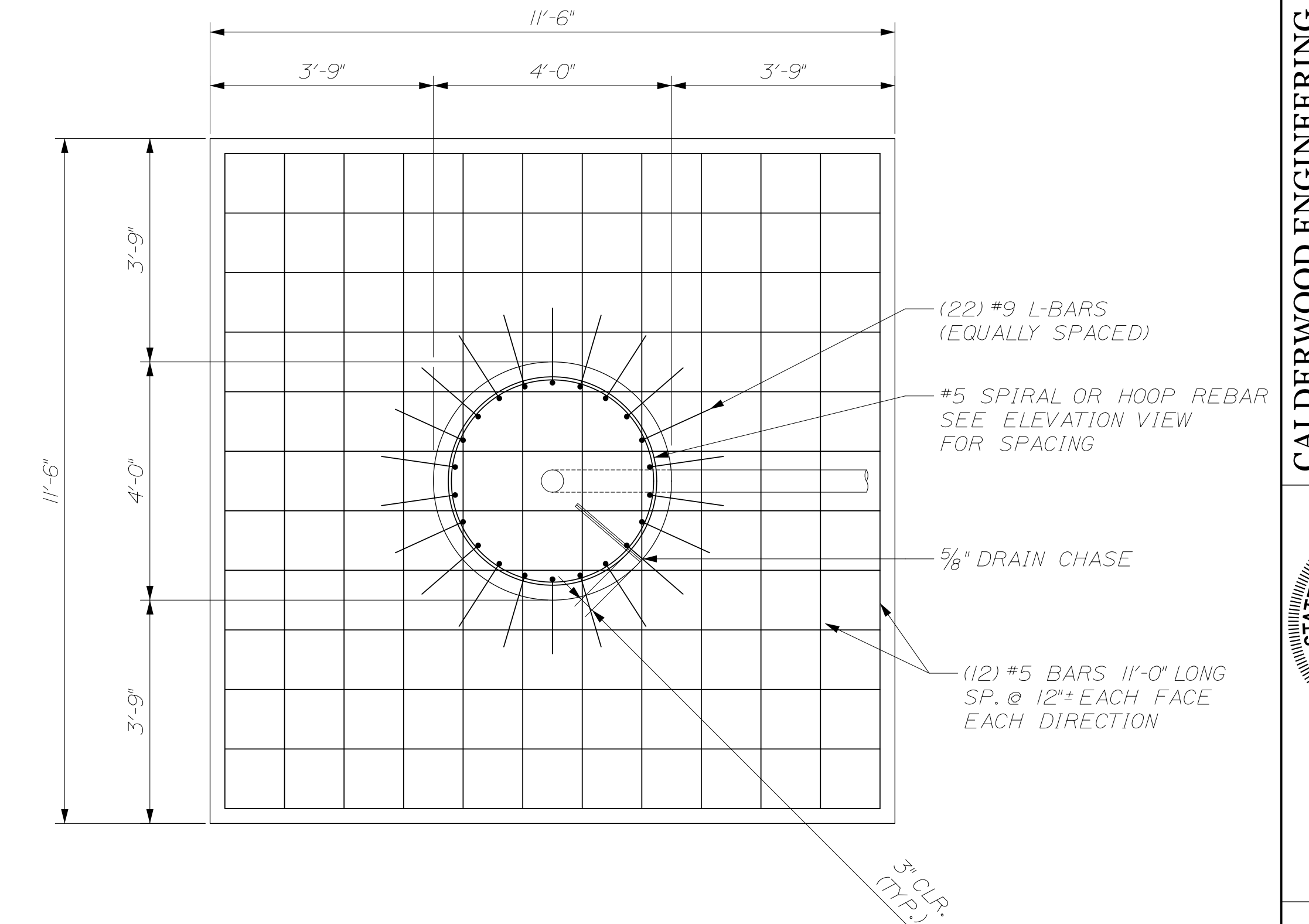
PINNED DRILLED SHAFT PLAN
SCALE: 1/2"=1'-0"



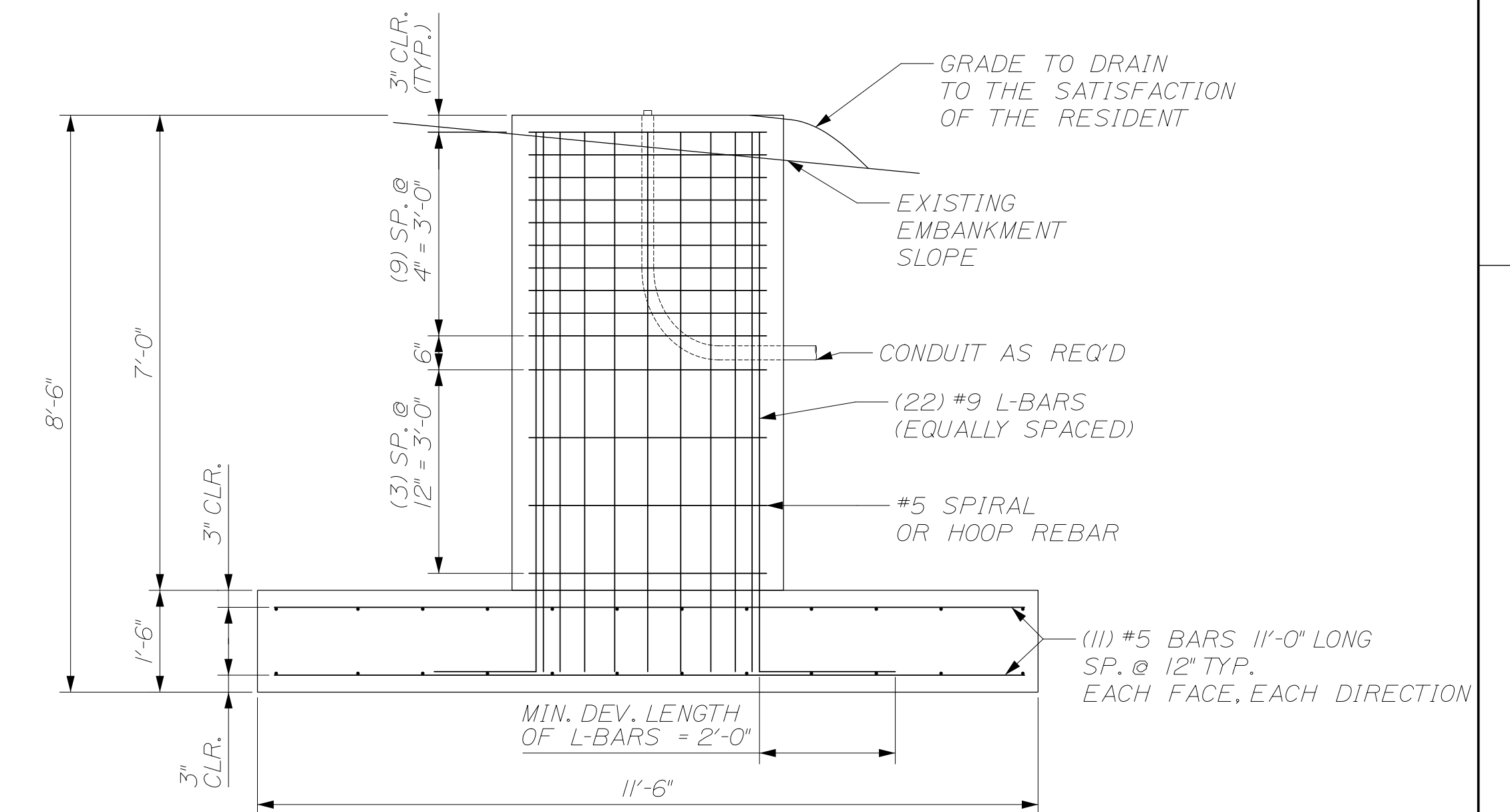
PINNED DRILLED SHAFT ELEVATION

SCALE: 1/2"=1'-0"
* PINNED DRILLED SHAFT FOR STRUCTURES #2 & #6 ONLY

HIGH MAST LIGHTING POLE SPREAD FOOTING FOUNDATION



SPREAD FOOTING PLAN
SCALE: 1/2"=1'-0"



SPREAD FOOTING ELEVATION

SCALE: 1/2"=1'-0"
SPREAD FOOTING OPTION AT STRUCTURES #2, #3, #4, & #5 ONLY

NOTES

- ALL REINFORCING STEEL IS TO BE GRADE 60 AND CONFORM TO MaineDOT STD SPECIFICATION REQUIREMENTS ALONG WITH ANY PROJECT SPECIFIC SUPPLEMENTALS OR SPECIAL PROVISIONS
- ALL REBAR SHALL HAVE 3' CLEAR UNLESS OTHERWISE NOTED
- FOR DRILLED SHAFT W/ PINNED FOUNDATION, MINIMUM EMBEDMENT OF 2'-10" FOR #9 BARS
- FOR SPREAD FOOTING, #9 L-BARS SHALL HAVE A MINIMUM LEG OF 2'-0"
- FOUNDATION DESIGN BASED ON AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS 1ST EDITION, 2015. 120 MPH DESIGN WIND SPEED.
DESIGN VALUES ABOUT BASE OF POLE
MOMENT = 190 KIP-FT
SHEAR = 3,600 LBS
AXIAL = 8,800 LBS
- THESE PLANS ARE NOT INTENDED TO BE WORKED ALONE BUT ARE INTENDED TO BE WORKED WITH THE CONTRACT DETAILS FOR HIGHWAY LIGHTING FREEPORT, I-295 AT EXIT 22, MaineDOT WIN# 22871.00
- SHOULD THERE BE A DISCREPANCY BETWEEN THESE DETAILS OR DESIGN VALUES AND ACTUAL OBSERVED FIELD CONDITIONS REPORT IT TO THE HIGH MAST LIGHTING FOUNDATION ENGINEER OF RECORD IMMEDIATELY
- DO NO PROCEED WITH ANY DEPENDENT WORK UNTIL ANY SUCH DISCREPANCY IS RESOLVED TO THE SATISFACTION OF THE HIGH MAST LIGHTING FOUNDATION ENGINEER OF RECORD
- IN LIEU OF DRILLED SHAFT OR PINNED DRILLED SHAFT, SPREAD FOOTING FOUNDATION MAY BE USED AT STRUCTURES #2, #3, #4, & #5 ONLY

STRUCTURE #	LOCATION
1	Sta. 225+95, 25' Rt./ I-295 SB
2	Sta. 229+30, 115' Rt./ I-295 NB
3	Sta. 236+90, 53' Rt./ I-295 NB
4	Sta. 239+80, 53' Rt./ I-295 NB
5	Sta. 242+70, 53' Rt./ I-295 NB
6	Sta. 213+10, 35' Lt./ I-295 SB
7	Sta. 216+00, 36' Lt./ I-295 SB
8	Sta. 218+90, 40' Lt./ I-295 SB
9	Sta. 3+45, 20' Rt./ RAMP B
10	Sta. 21+33, 25' Lt./ MALLETT DR. (RT 136)
11	Sta. 28+85, 28' Rt./ MALLETT DR. (RT 136)

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD. RICHMOND, ME 04357 PH: (207) 737-2007 FAX: (207) 737-2008



PREPARED FOR: MAINE DEPARTMENT OF TRANSPORTATION
14077 P.E. NUMBER AUG 2017 DATE

DESIGN DETAIL	DATE
CHECKED/REVIEWED	APRIL 2017
BY	CNW

REVISIONS	FIELD CHANGES
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	

FREEPORT I-295 at EXIT 22
HIGH MAST LIGHTING FOUNDATION DETAILS

SHEET NUMBER

5



MDOT PROJECT WIN 22871.00

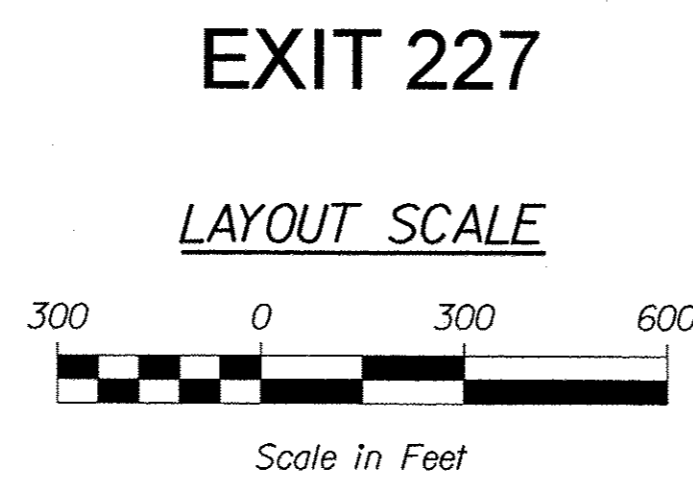
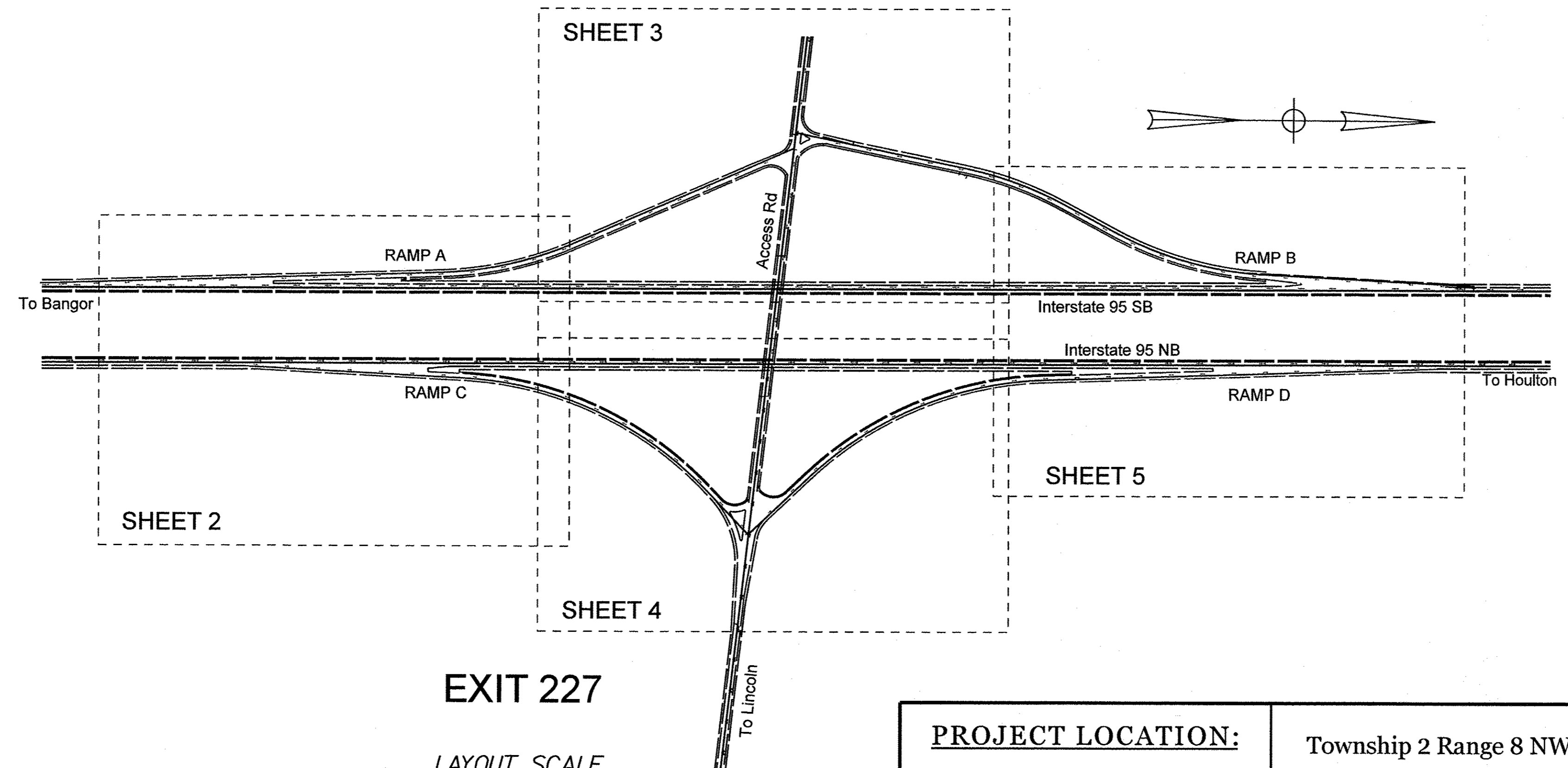
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



Township 2 Range 8 NWP
PENOBSCOT COUNTY
NHPP-2301(400)
HIGHWAY LIGHTING

INDEX OF SHEETS

Description	Sheet No.
Title Sheet	1
Plan and Details	2 - 5
Foundation Details	6



PROJECT LOCATION:	Township 2 Range 8 NWP, Intersate 95 at EXIT 227
PROGRAM AREA:	MULTIMODAL PROGRAM
SCOPE OF WORK:	Highway Lighting - High Mast Light Poles, Foundations, LED Luminaires, Conduit, Wiring and Incidentals

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER: <i>Sean Wilentz</i>		5-23-18
CHIEF ENGINEER: <i>J. E. Barber</i>		

SIGNATURE: <i>A. Godfrey</i>	P.E. NUMBER: 4226
DATE: 5/7/18	

PROJECT INFORMATION	
PROGRAM	MULTIMODAL
PROJECT MANAGER	B. NICHOLS
DESIGNER	A. GODFREY
CONSULTANT	TERRA MAGNA SERVICES, INC.
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 23014.00 NHPP-2301(400)	T2R8 NWP
I - 95 at EXIT 227	TITLE SHEET

SHEET NUMBER	1
OF 6	

Filename: ... \HIGHWAY\MSTA\001_Title_01.dgn Division: HIGHWAY Username: common Date: 5/7/2018

Date: 5/7/2018

Username: common

Division: HIGHWAY

Filename: ... \MSTA\003_LightingPlanSht 2.dgn

CONDUIT SUMMARY

Circuit 1, I - 95 and Ramps A - C				Wire Size #3 Stranded Copper XHHW-2, 240 Volts	
Station	Pole	Breakaway	Distance	Remarks	11 Amps
Control Cabinet Sta 60+50 Rt. Access Rd	—	—	1370'		
5+80 Rt Ramp C	2		375'		
2+15 Rt Ramp C	1		415'		
16+70 Rt Ramp A	7		395'		
20+50 Rt Ramp A	8				

CONDUIT SUMMARY

Circuit 2, I - 95, Ramps B - D and Access Rd				Wire Size #2 Stranded Copper XHHW-2, 240 Volts	
Station	Pole	Breakaway	Distance	Remarks	16 Amps
Control Cabinet Sta 60+50 Rt. Access Rd	—	—	320'		
58+12 Lt Access Rd	9	—	145'		
1+60 Rt Ramp D	JB	—	1330'		
14+90 Rt Ramp D	3	—	380'		
18+70 Rt Ramp D	4	—	405'		
6+10 Rt Ramp B	6	—	360'		
2+50 Rt Ramp B	5	—			
1+60 Rt Ramp D	JB	—	1190'		
45+62 Lt Access Rd	10	—			

REMOVE POLE AND AERIAL SERVICE

REMOVE POLE AND AERIAL SERVICE

REMOVE POLE AND AERIAL SERVICE

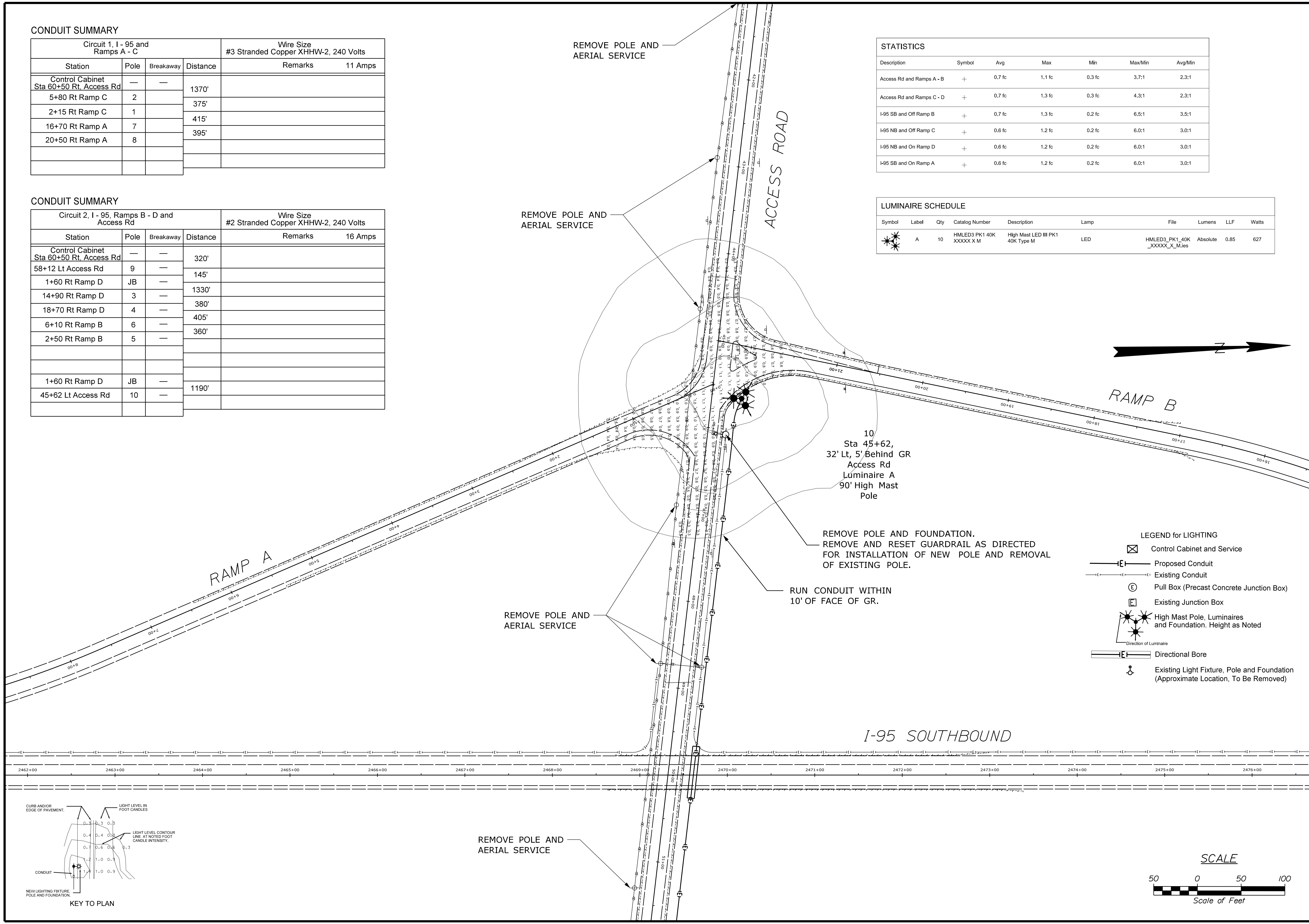
REMOVE POLE AND AERIAL SERVICE

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Access Rd and Ramps A - B	+	0.7 fc	1.1 fc	0.3 fc	3.7:1	2.3:1
Access Rd and Ramps C - D	+	0.7 fc	1.3 fc	0.3 fc	4.3:1	2.3:1
I-95 SB and Off Ramp B	+	0.7 fc	1.3 fc	0.2 fc	6.5:1	3.5:1
I-95 NB and Off Ramp C	+	0.6 fc	1.2 fc	0.2 fc	6.0:1	3.0:1
I-95 NB and On Ramp D	+	0.6 fc	1.2 fc	0.2 fc	6.0:1	3.0:1
I-95 SB and On Ramp A	+	0.6 fc	1.2 fc	0.2 fc	6.0:1	3.0:1

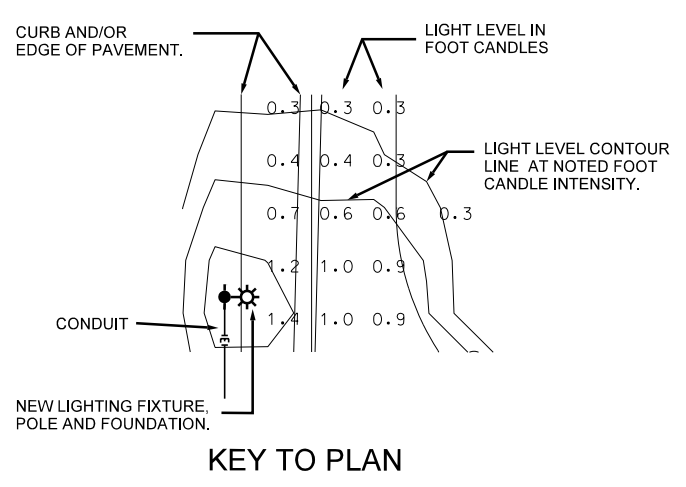
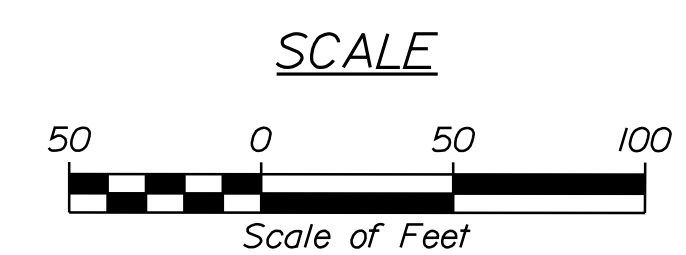
LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
✳	A	10	HMLED3 PK1 40K XXXXX X M	High Mast LED III PK1 40K Type M	LED	HMLED3_PK1_40K_XXXXX_X_M.lis	Absolute	0.85	627



LEGEND for LIGHTING

- Control Cabinet and Service
- Proposed Conduit
- Existing Conduit
- Pull Box (Precast Concrete Junction Box)
- Existing Junction Box
- High Mast Pole, Luminaires and Foundation. Height as Noted
- Direction of Luminaire
- Directional Bore
- Existing Light Fixture, Pole and Foundation (Approximate Location, To Be Removed)



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NHP-2301(400)
WIN 23014.00
HIGHWAY PLANS

ALBERT L. GODFREY
REGISTERED PROFESSIONAL ENGINEER
NO. 10075
MAINE

SIGNATURE: 4226
P.E. NUMBER: 5/7/18
DATE

PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/17	ALG & RAL	
CHECKED-REVIEWED	12/17	ALG	
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

T2R8 NWP
I - 95 at EXIT 227
PLANS

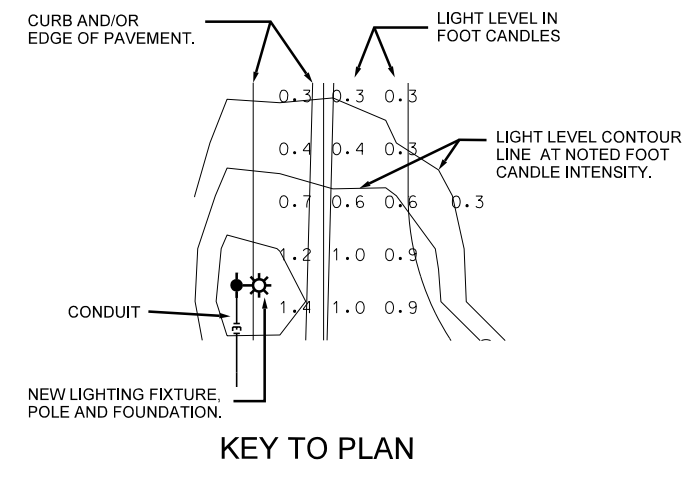
SHEET NUMBER
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OF 6

Date: 5/7/2018

Username: common

Division: HIGHWAY

Filename: ... \MSTA\004_LightingPlanSht 3.dgn



REMOVE POLE AND AERIAL SERVICE

I-95 NORTHBOUND

REMOVE POLE AND AERIAL SERVICE

REMOVE POLE AND FOUNDATION

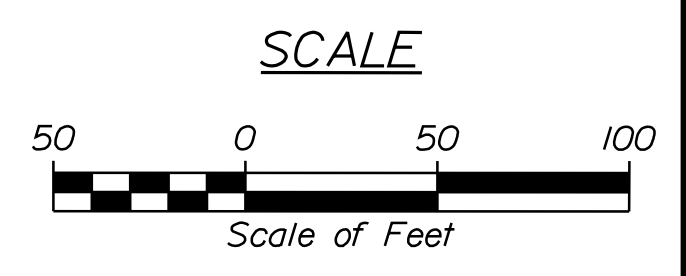
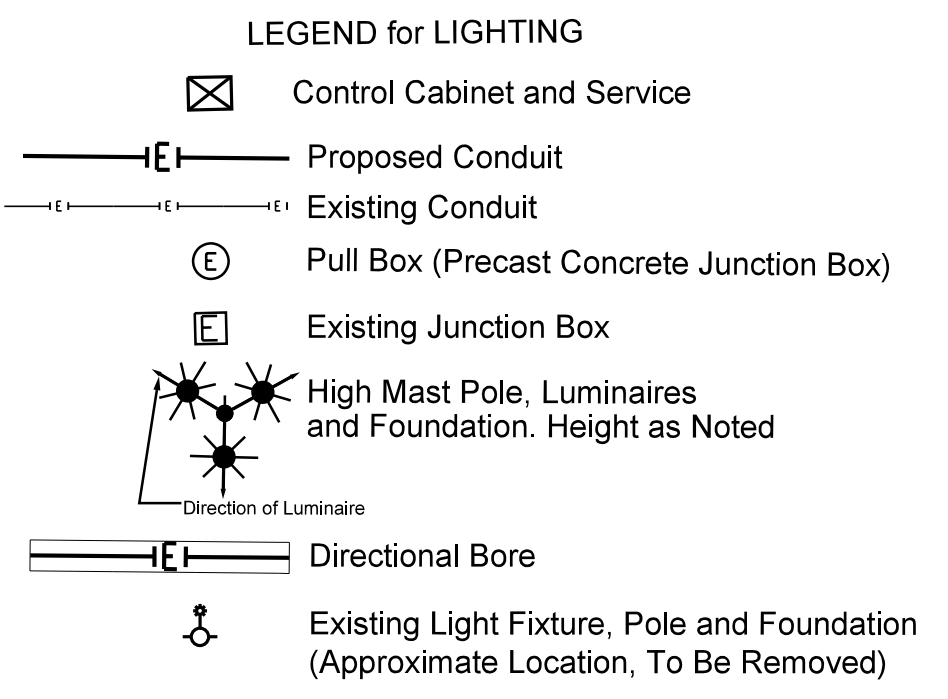
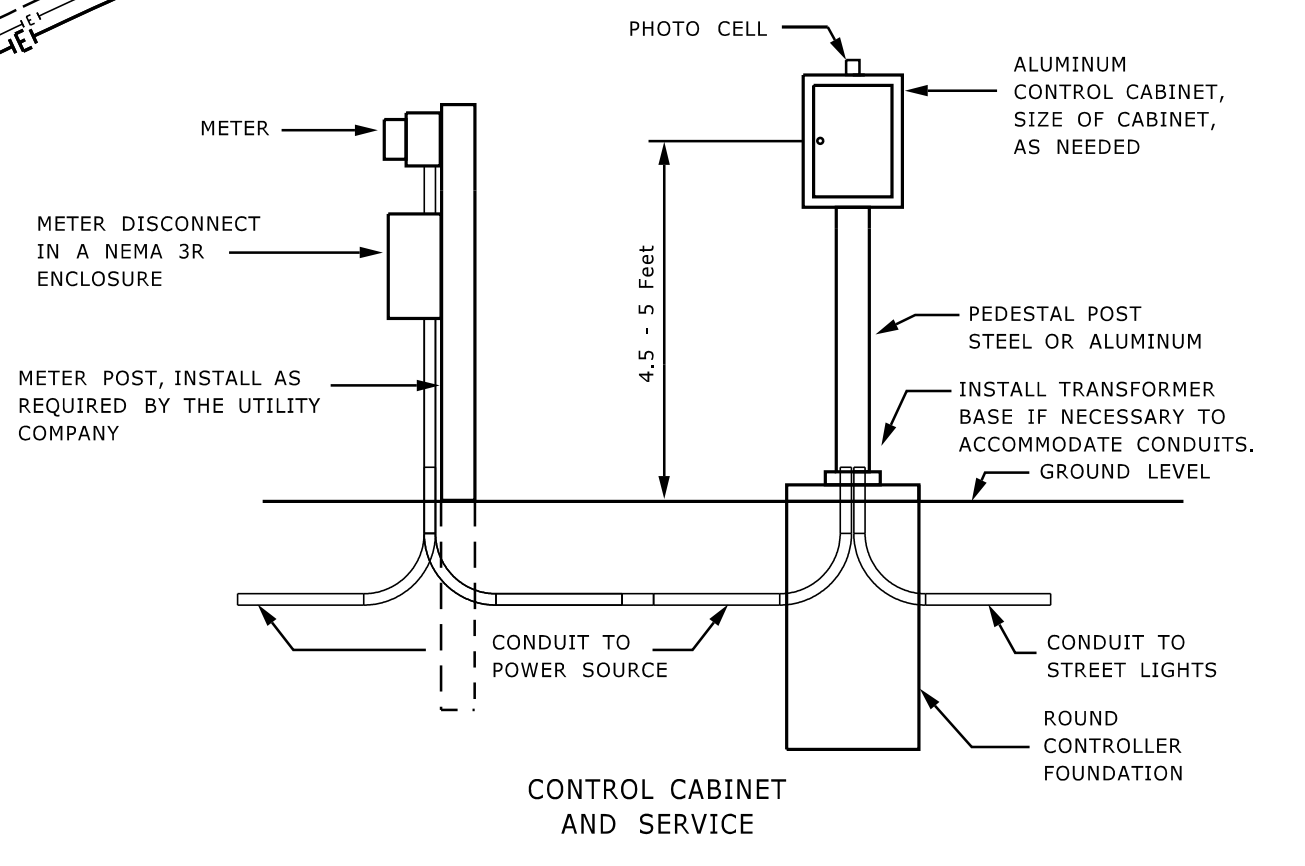
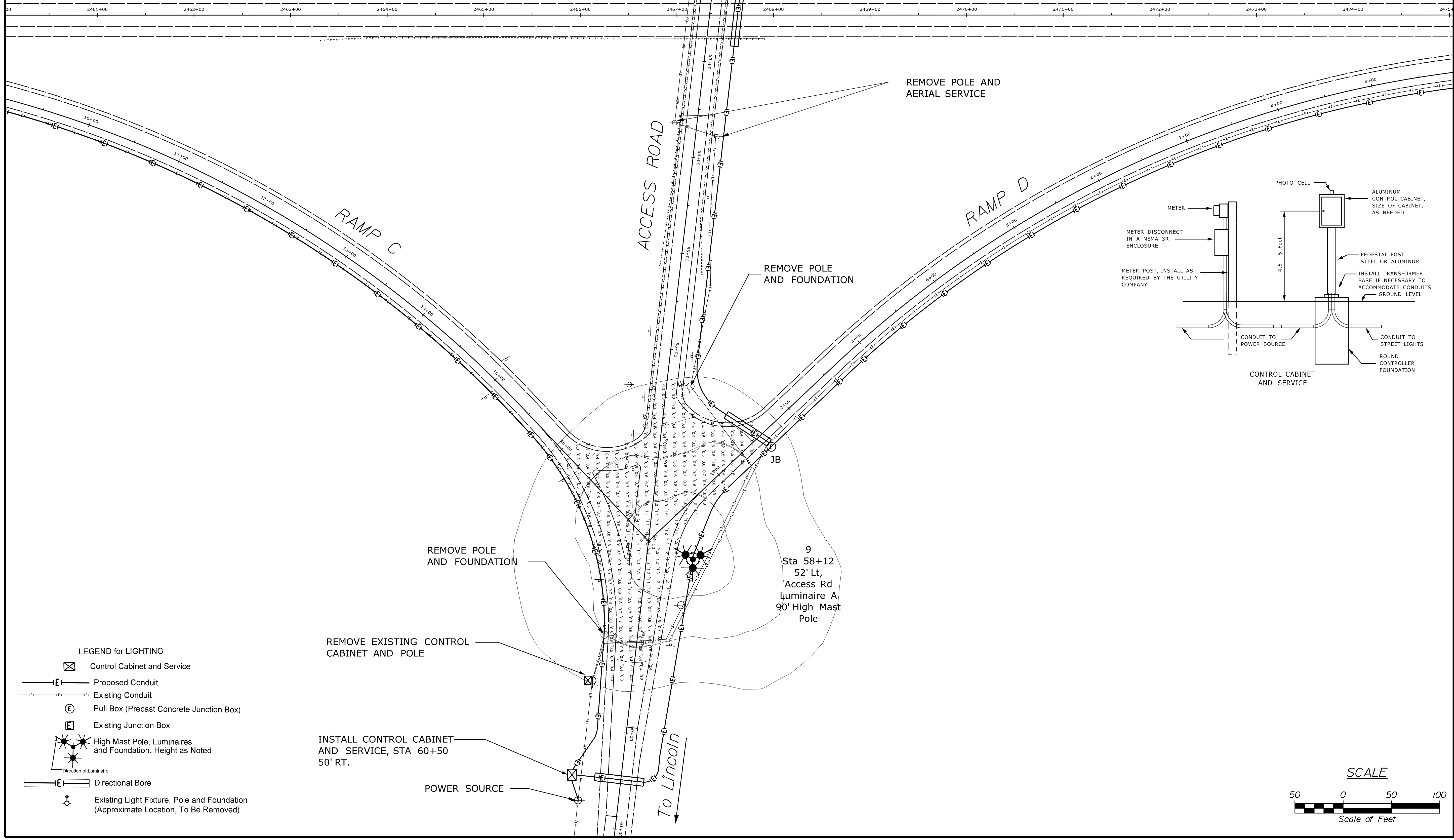
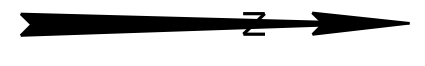
REMOVE POLE AND FOUNDATION

REMOVE EXISTING CONTROL CABINET AND POLE

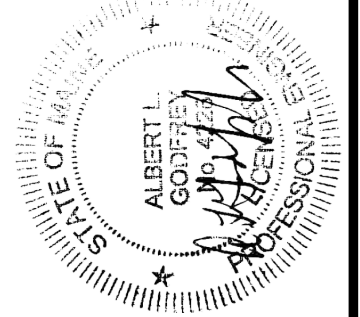
INSTALL CONTROL CABINET AND SERVICE, STA 60+50 50' RT.

POWER SOURCE

9 Sta 58+12 52' Lt, Access Rd Luminaire A 90' High Mast Pole



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NHP-2301(400)



SIGNATURE
4226
P.E. NUMBER
5/7/18
DATE

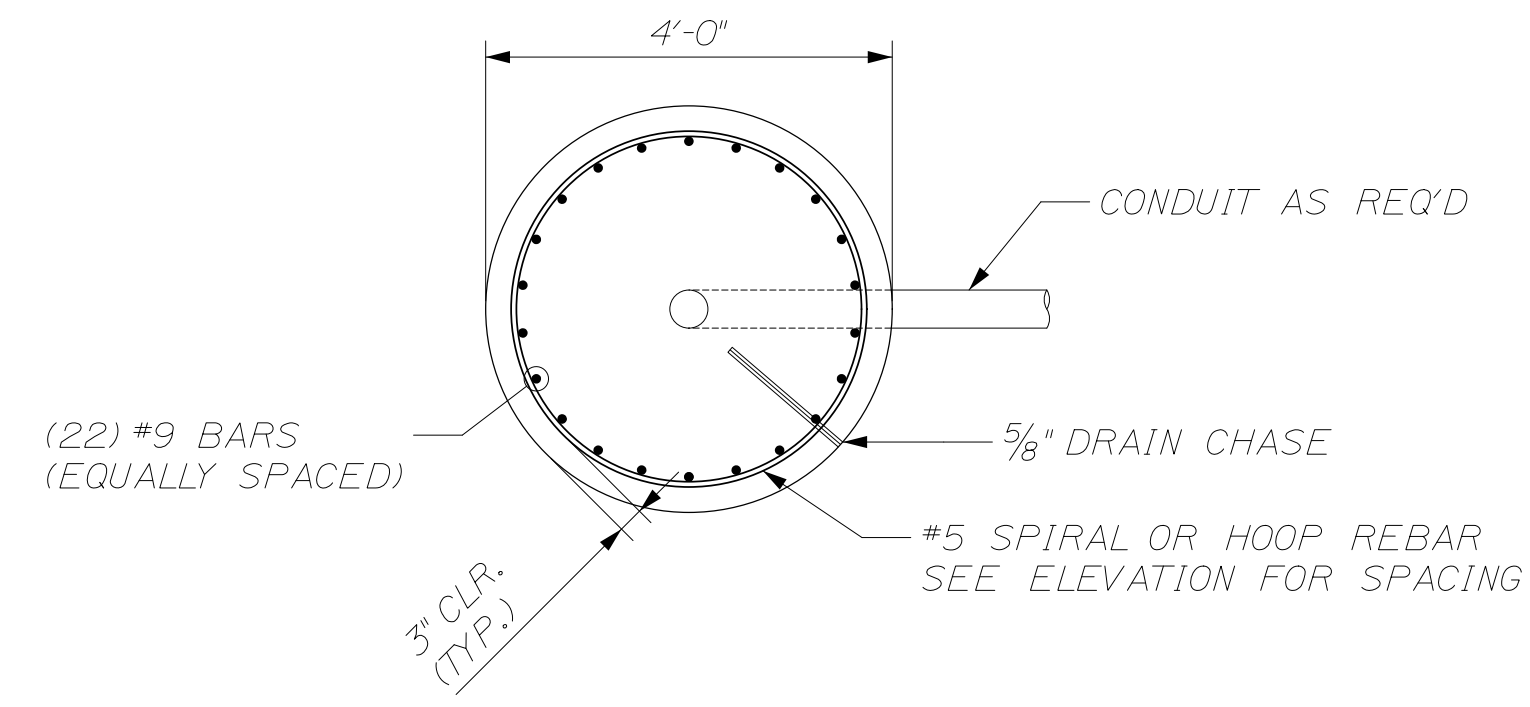
PROJ. MANAGER	DATE	BY
DESIGN-DETAILED	11/17	ALG
CHECKED-REVIEWED	12/17	ALG
DESIGN-DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

T2R8 NWP
I - 95 at EXIT 227
PLANS

SHEET NUMBER
4
OF 6

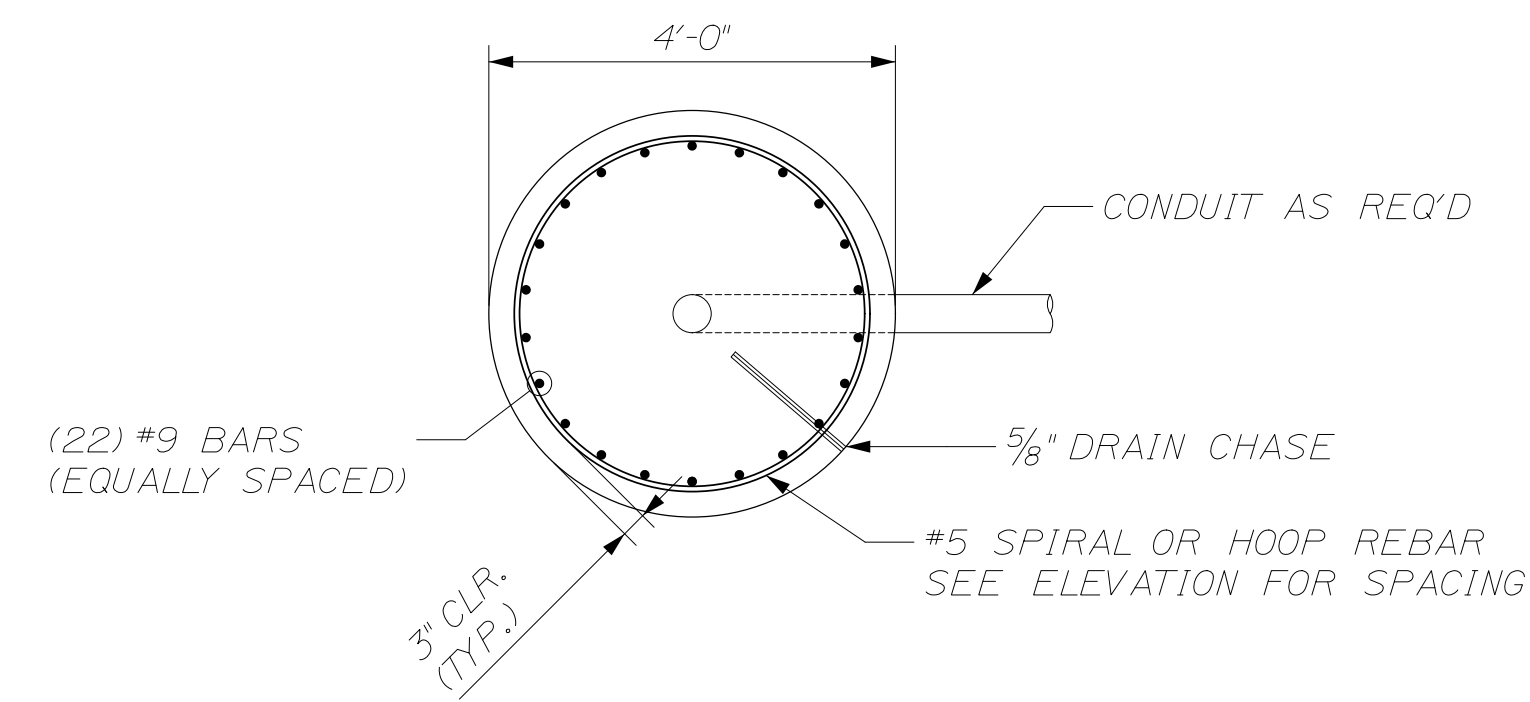
WIN
23014.00
HIGHWAY PLANS

HIGH MAST LIGHTING POLE DRILLED SHAFT FOUNDATION

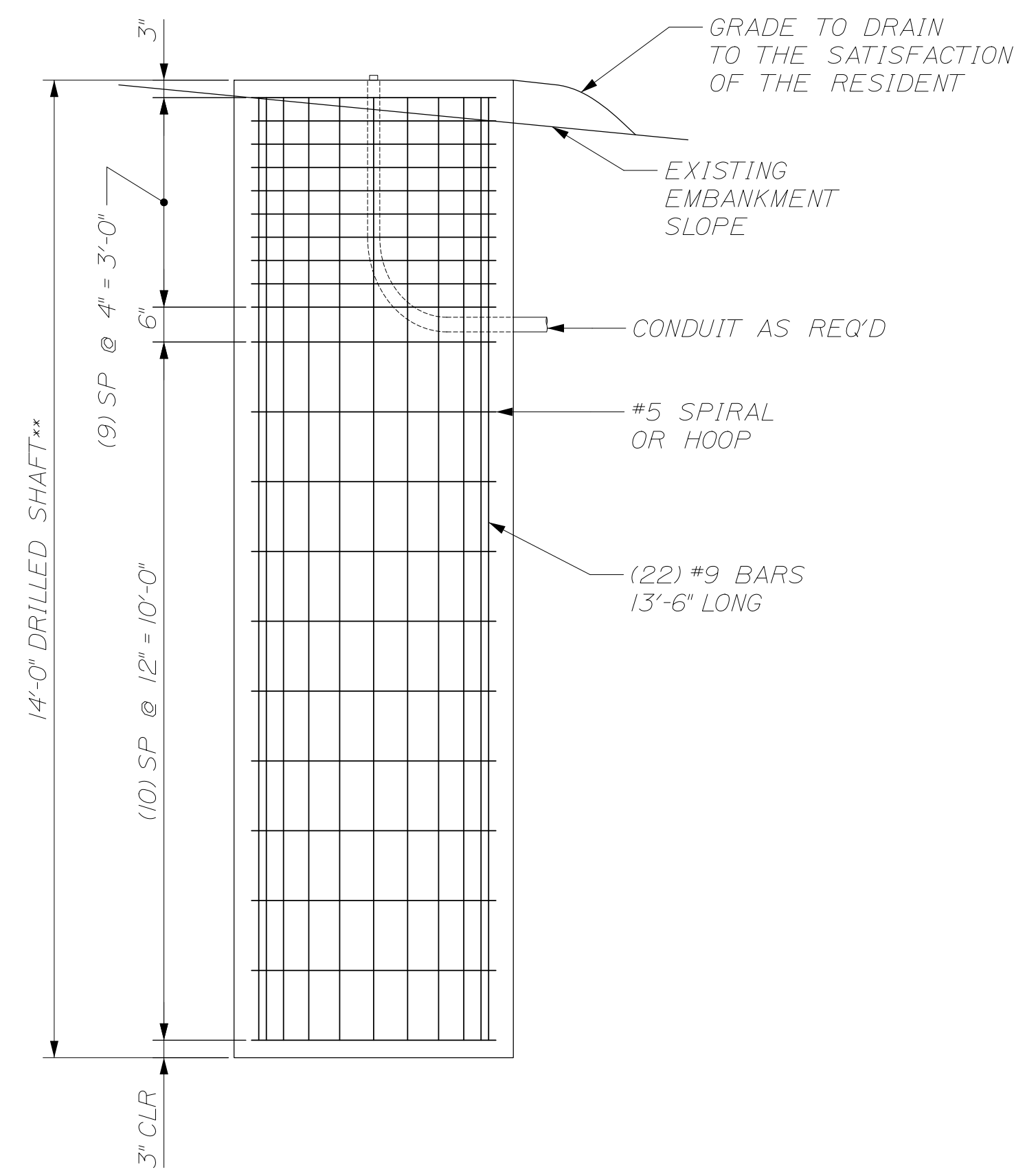


DRILLED SHAFT PLAN
SCALE: 1/2"=1'-0"

HIGH MAST LIGHTING POLE PINNED DRILLED SHAFT FOUNDATION

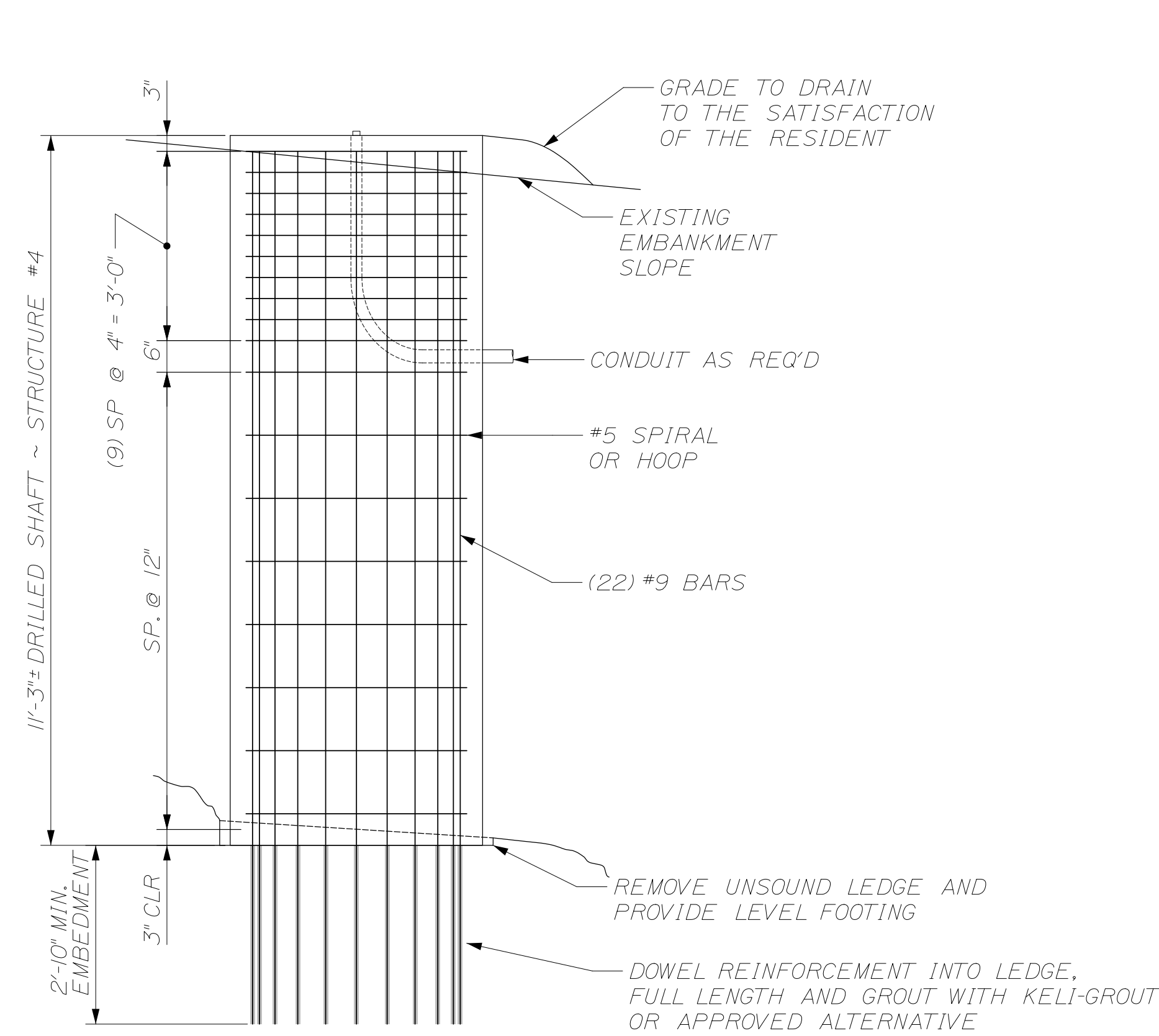


PINNED DRILLED SHAFT PLAN
SCALE: 1/2"=1'-0"



DRILLED SHAFT ELEVATION

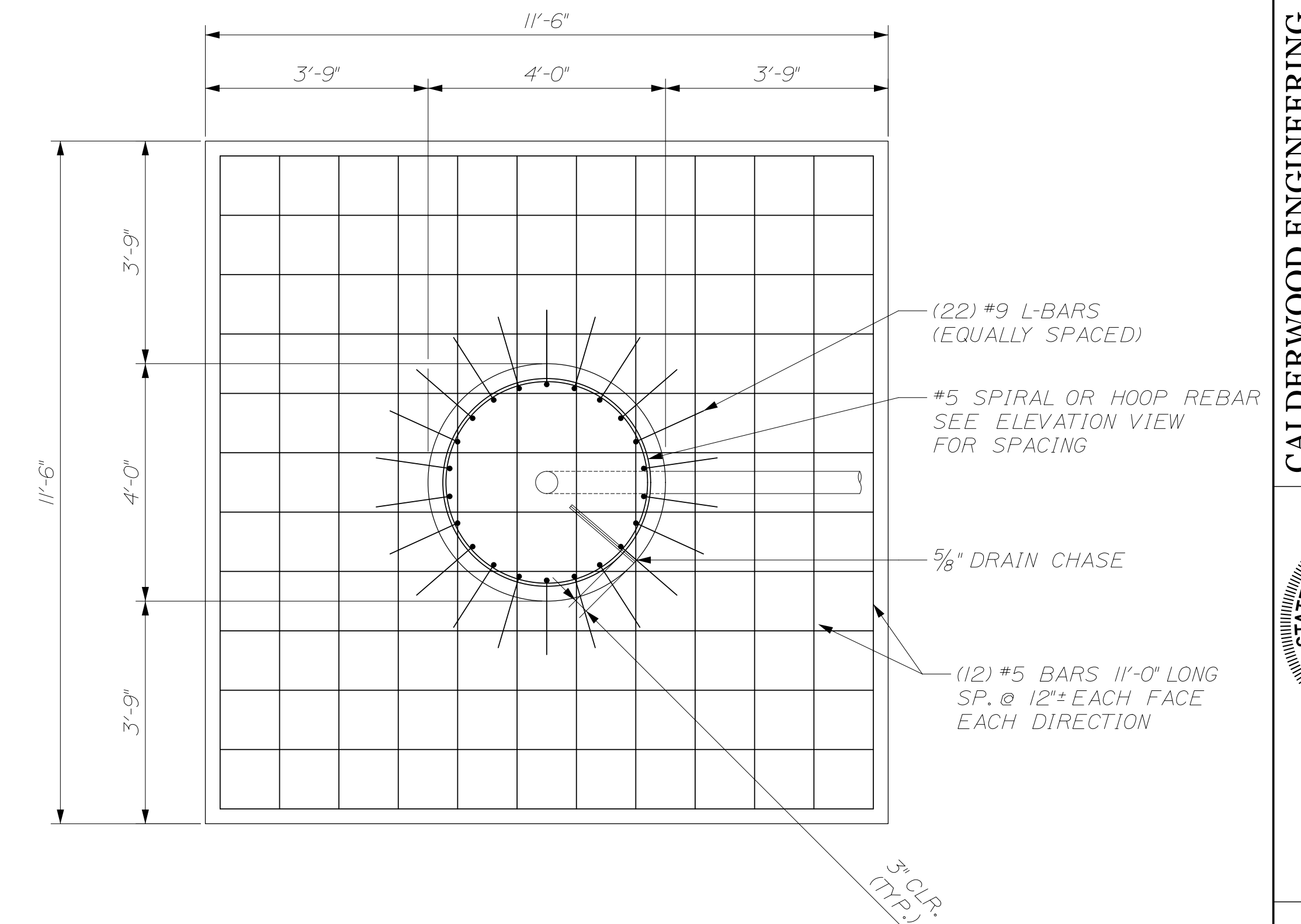
SCALE: 1/2"=1'-0"
* SEE PINNED DRILLED SHAFT DETAILS FOR STRUCTURES #4
NOTE: STRUCTURE #10 SHALL BE DRILLED SHAFT



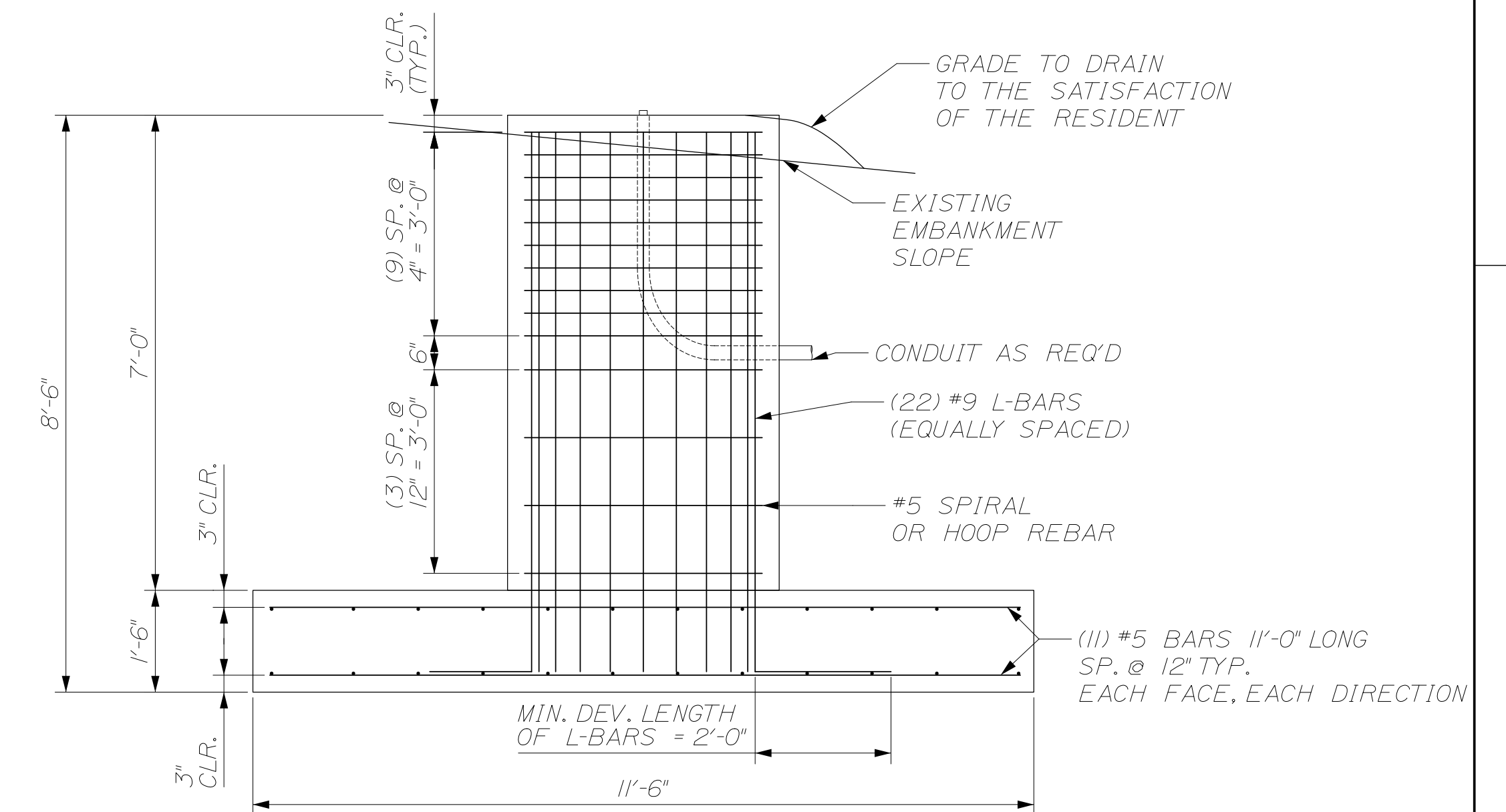
PINNED DRILLED SHAFT ELEVATION

SCALE: 1/2"=1'-0"
* PINNED DRILLED SHAFT FOR STRUCTURE #4 ONLY

HIGH MAST LIGHTING POLE SPREAD FOOTING FOUNDATION



SPREAD FOOTING PLAN
SCALE: 1/2"=1'-0"



SPREAD FOOTING ELEVATION

SCALE: 1/2"=1'-0"
* SPREAD FOOTING OPTION AT STRUCTURES #1, #2, #3, #4, #5, #6, #7, #8, & #9 ONLY

NOTES

- ALL REINFORCING STEEL IS TO BE GRADE 60 AND CONFORM TO MaineDOT STD SPECIFICATION REQUIREMENTS ALONG WITH ANY PROJECT SPECIFIC SUPPLEMENTALS OR SPECIAL PROVISIONS
- ALL REBAR SHALL HAVE 3" CLEAR UNLESS OTHERWISE NOTED
- FOR DRILLED SHAFT W/ PINNED FOUNDATION, MINIMUM EMBEDMENT OF 2'-10" FOR #9 BARS
- FOR SPREAD FOOTING, #9 L-BARS SHALL HAVE A MINIMUM LEG OF 2'-0"
- FOUNDATION DESIGN BASED ON AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS 1ST EDITION, 2015. 120 MPH DESIGN WIND SPEED.
DESIGN VALUES ABOUT BASE OF POLE
MOMENT = 190 KIP-FT
SHEAR = 3,600 LBS
AXIAL = 8,800 LBS
- THESE PLANS ARE NOT INTENDED TO BE WORKED ALONE BUT ARE INTENDED TO BE WORKED WITH THE CONTRACT DETAILS FOR HIGHWAY LIGHTING TOWNSHIP 2 RANGE 8, 1-95 AT EXIT 227, MaineDOT WIN# 23014,00
- SHOULD THERE BE A DISCREPANCY BETWEEN THESE DETAILS OR DESIGN VALUES AND ACTUAL OBSERVED FIELD CONDITIONS REPORT IT TO THE HIGH MAST LIGHTING FOUNDATION ENGINEER OF RECORD IMMEDIATELY
- DO NOT PROCEED WITH ANY DEPENDENT WORK UNTIL ANY SUCH DISCREPANCY IS RESOLVED TO THE SATISFACTION OF THE HIGH MAST LIGHTING FOUNDATION ENGINEER OF RECORD
- IN LIEU OF DRILLED SHAFT OR PINNED DRILLED SHAFT, SPREAD FOOTING FOUNDATION MAY BE USED AT STRUCTURES #1, #2, #3, #4, #5, #6, #7, #8, & #9 ONLY

STRUCTURE #	LOCATION
1	Sta. 2+15, 48' Rt./ RAMP C
2	Sta. 5+80, 48' Rt./ RAMP C
3	Sta. 14+90, 45' Rt./ RAMP D
4	Sta. 18+70, 40' Rt./ RAMP D
5	Sta. 2+50, 40' Rt./ RAMP B
6	Sta. 6+10, 40' Rt./ RAMP B
7	Sta. 16+70, 44' Rt./ RAMP A
8	Sta. 20+50, 44' Rt./ Ramp A
9	Sta. 58+12, 52' Lt./ ACCESS RD.
10	Sta. 45+62 3/2' Lt./ ACCESS RD.

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD. RICHMOND, ME 04357 PH: (207) 737-2007 FAX: (207) 737-2008



PREPARED FOR: MAINE DEPARTMENT OF TRANSPORTATION
P.E. NUMBER: _____ DATE: _____

DESIGN DETAIL	DATE	BY	DATE
CHECKED/REVIEWED	APRIL 2017	CNW	
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

TOWNSHIP 2 RANGE 8 NWP
1-95 at EXIT 227

HIGH MAST LIGHTING
FOUNDATION DETAILS

SHEET NUMBER

6

