



BLITHEWOOD PARK PARKING LOT LIGHTING

Department of Parks, Recreation and Cemetery
WORCESTER, MASSACHUSETTS

BID DOCUMENTS
09-26-2025

PREPARED FOR:

CITY MANAGER
ERIC D. BATISTA

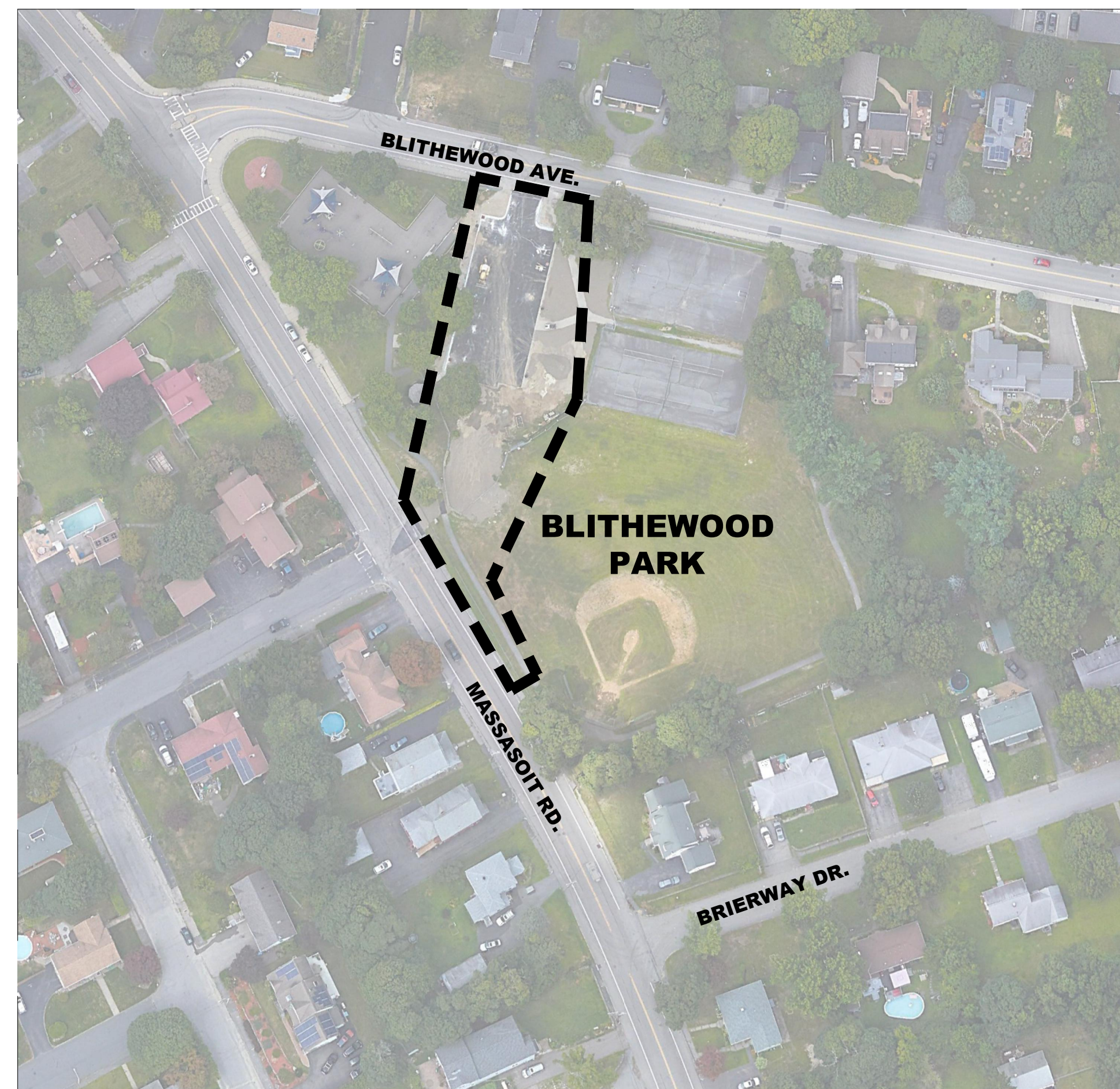
DEPARTMENT OF PARKS, RECREATION & CEMETERY
COMMISSIONER

ROBERT C. ANTONELLI, JR.

PREPARED BY:

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ELECTRICAL ENGINEER
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CONSTRUCTION & ENGINEERING, INC.
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ROCKLAND, MA 02370
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LOCATION MAP
10 BLITHEWOOD AVE.
WORCESTER, MA

DRAWING INDEX

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E-2.1	ELECTRICAL DETAILS

Sheet No.:
L-0.0

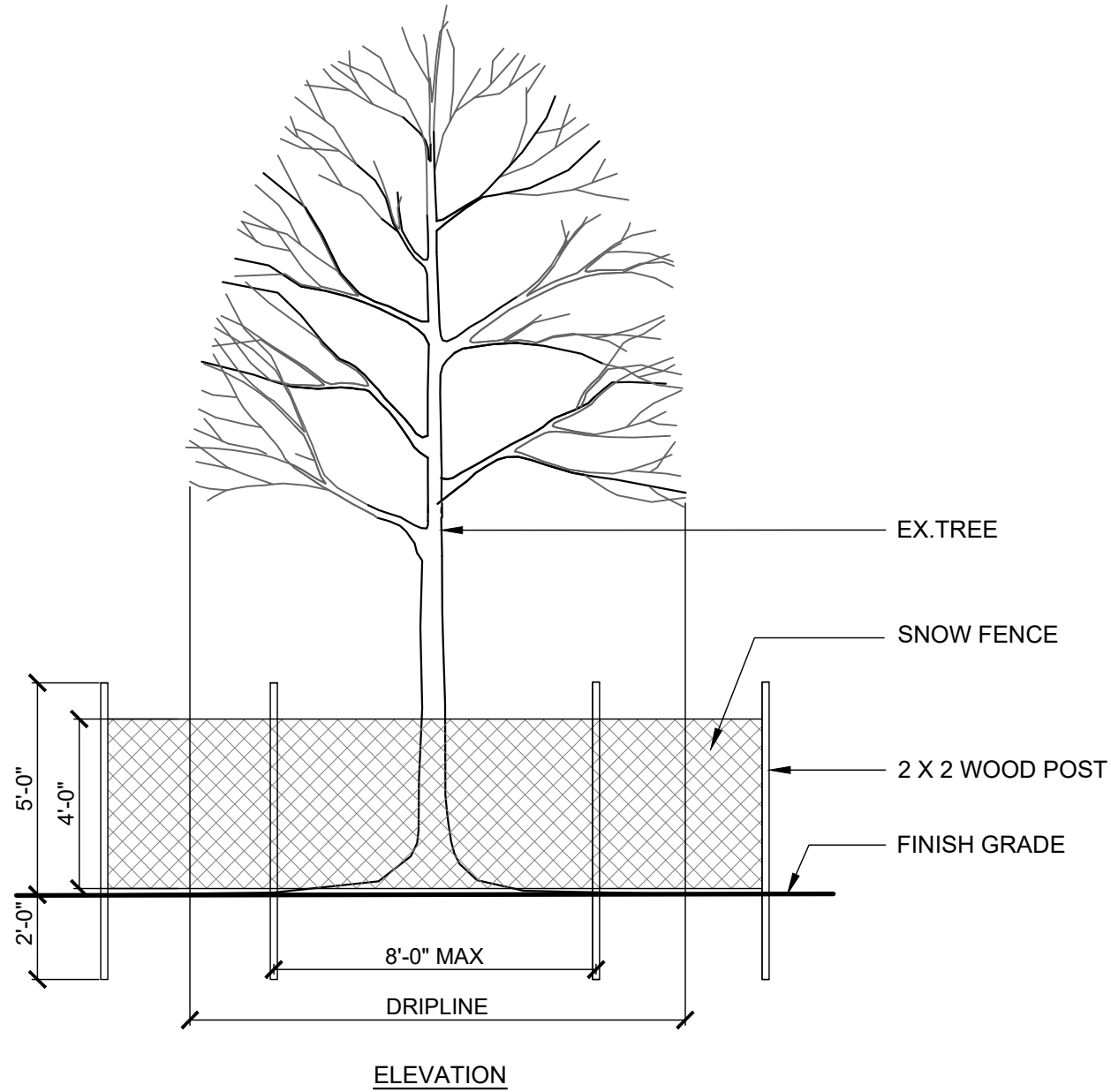
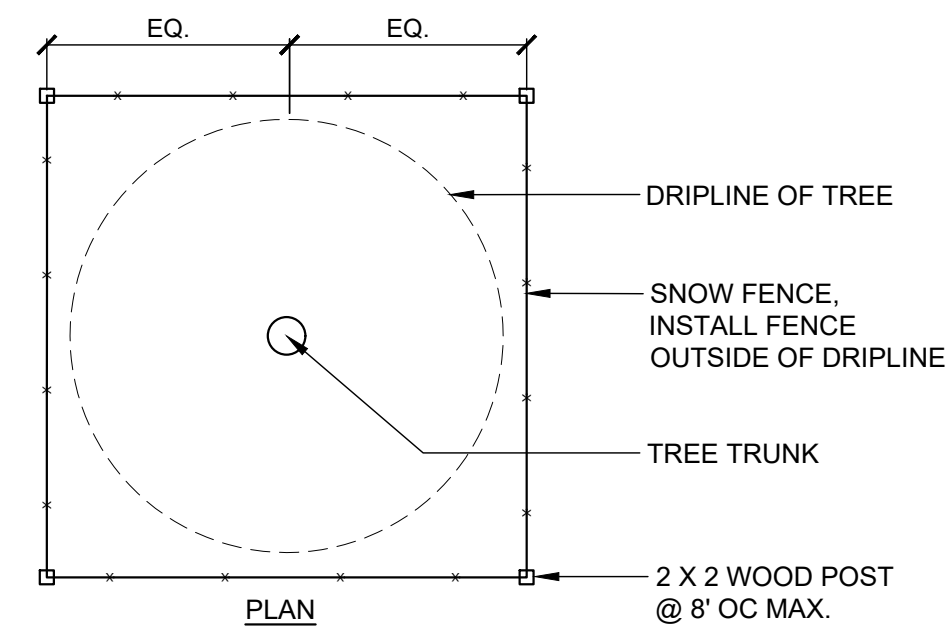
COVER SHEET

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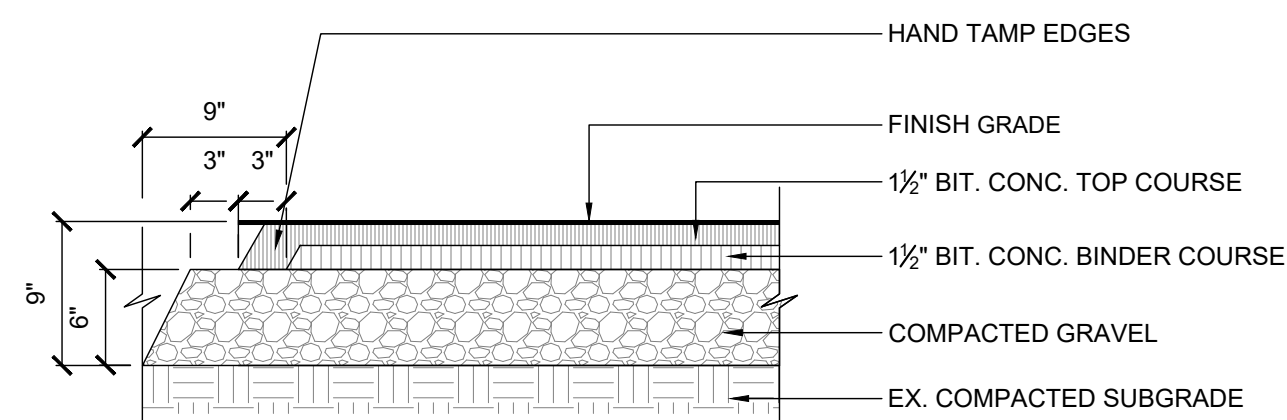
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	09.26.25	N/A	SD		

**BLITHEWOOD PARK
PARKING LOT LIGHTING
WORCESTER, MA**

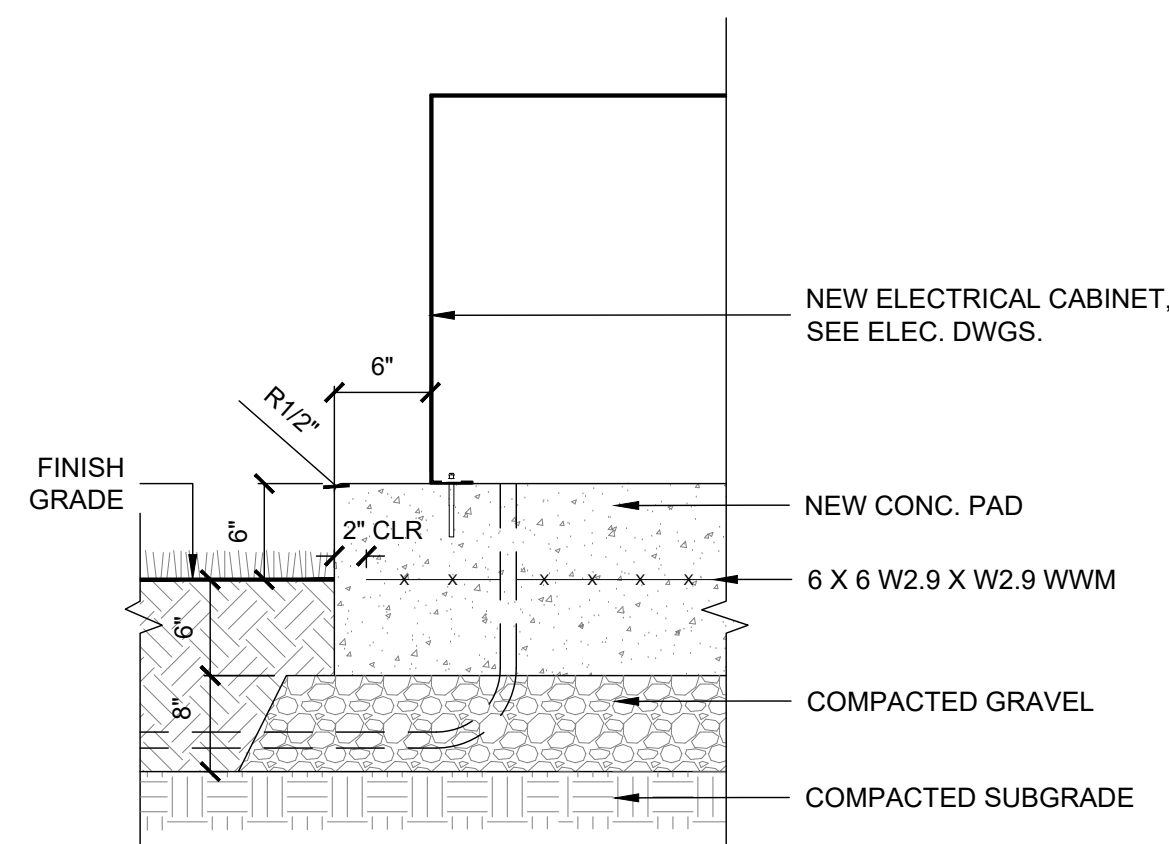
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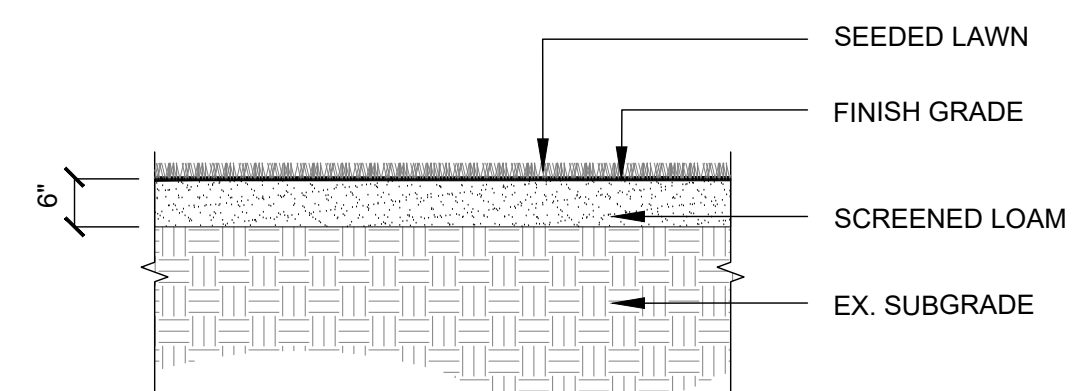
2 TREE PROTECTION FENCE - SECTION
SCALE: 1"=1'-0"



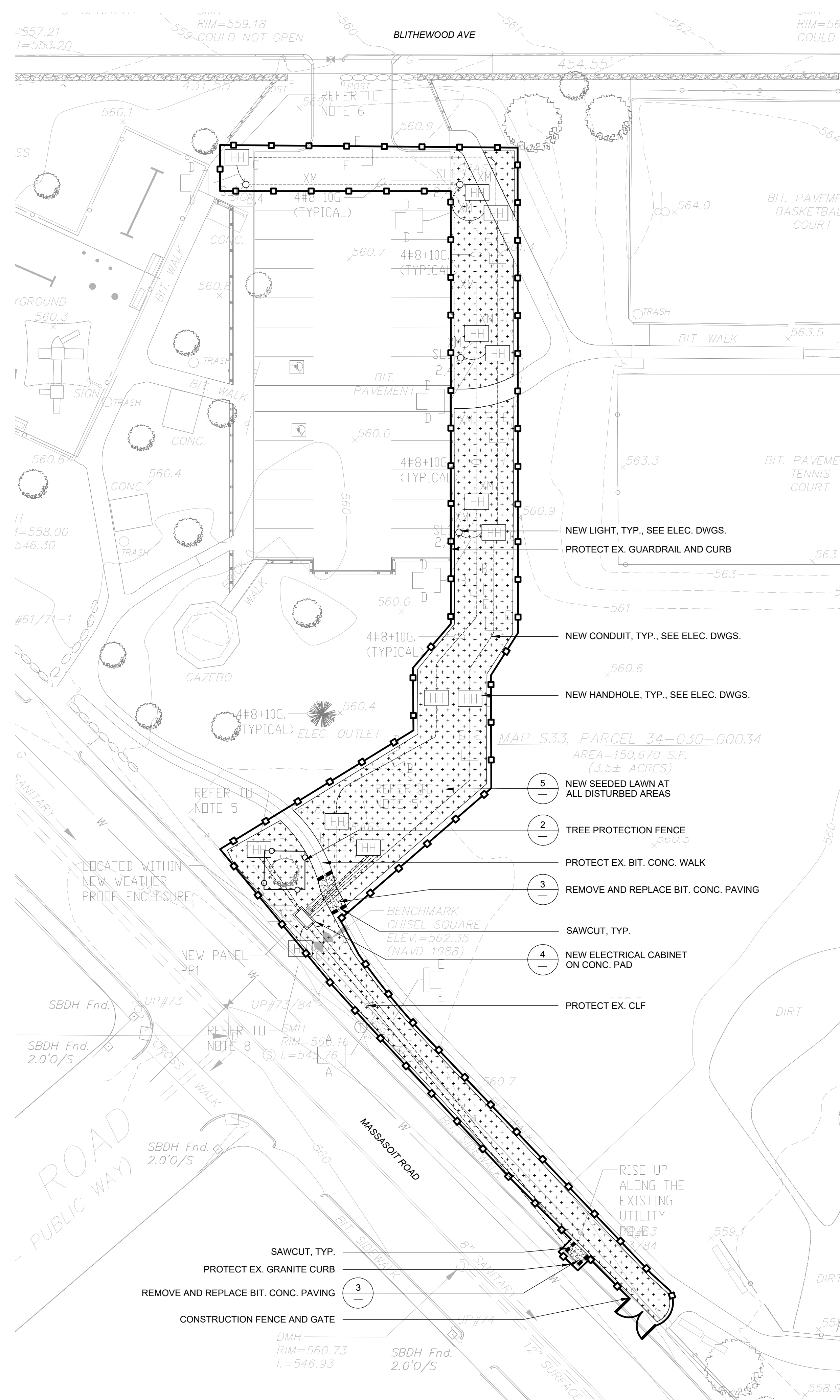
3 BITUMINOUS CONCRETE PAVING - SECTION
SCALE: 1"=1'-0"



4 ELECTRICAL CABINET ON CONCRETE PAD - SECTION
SCALE: 1"=1'-0"



5 LOAM AND SEED DETAIL
SCALE: NTS



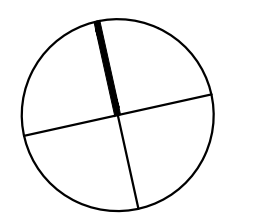
1 LANDSCAPE PLAN
SCALE: 1"=20'-0"



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DATE REVISION

REVISIONS



NORTH



STAMP

BLITHEWOOD PARK
PARKING LOT LIGHTING
WORCESTER, MA

PROJECT

LANDSCAPE PLAN
AND DETAILS

DRAWING TITLE

CONTRACT NO.

DATE 09.26.25

DRAWN SD

CKD RD

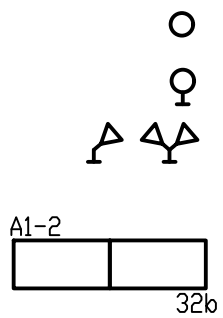
SCALE AS SHOWN

L-1.0

SHEET NO.

LIGHTING FIXTURES

(REFER TO SCHEDULE FOR TYPE AND MOUNTING)



INCANDESCENT FLUORESCENT OR H.I.D. LIGHT FIXTURE.
WALL MOUNTED FIXTURE
REMOTE MOUNTED EMERGENCY FIXTURE.
FIXTURE KEYING SYSTEM A1 =
FIXTURE TYPE
32= CIRCUIT #
b= SWITCH CONTROL

SWITCHES

(TYPICALLY MTD 48" AFF - UNID.)

S

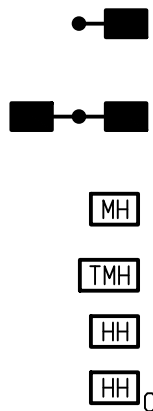
SINGLE POLE SWITCH.

WIRE AND RACEWAYS



WIRING AND RACEWAY - NO. OF DIAGONAL LINES INDICATES NO. #12 AWG. ABSENCE OF LINES INDICATES 2 #12 AWG - UNLESS NOTED OTHERWISE. 'G' INDICATES INSULATED GROUND WIRE.
HOMERUN TO PANEL - NO. OF ARROWS INDICATES NO. OF 20AMP/ 1 POLE CIRCUITS TO PANEL - UNLESS NOTED OTHERWISE.
EMERGENCY ONLY WIRING - MIN 2#10 AWG HOMERUN TO EMERG. BATTERY IN SEPARATE 1/2" CONDUIT
NORMAL EMERGENCY WIRING - MIN. 2#10 AWG TO RUN IN SEPARATE 1/2" CONDUIT.
FIRE ALARM WIRING - *4F*SOLID INDICATES 4 #14 THHN SOLID IN 1/2" MIN. SIZE CONDUIT.
SOUND SYSTEM WIRING - *1S* INDICATES ONE SPEAKER CABLE, ETC.
TELEPHONE SYSTEM RACEWAY WITH PULLWIRE - *1T* INDICATES 3/4"C
TELEPHONE SYSTEM RACEWAY WITH PULLWIRE - *2T* INDICATES 1"C
TELEPHONE SYSTEM RACEWAY WITH PULLWIRE - *3T* INDICATES 1 1/4"C
LOW VOLTAGE SWITCHING SYSTEM WIRING.
UNDERGROUND PRIMARY ELECTRIC SERVICE
UNDERGROUND SECONDARY ELECTRIC SERVICE
UNDERGROUND TELEPHONE SERVICE
UNDERGROUND CABLE TV SERVICE

SITE SYMBOLS

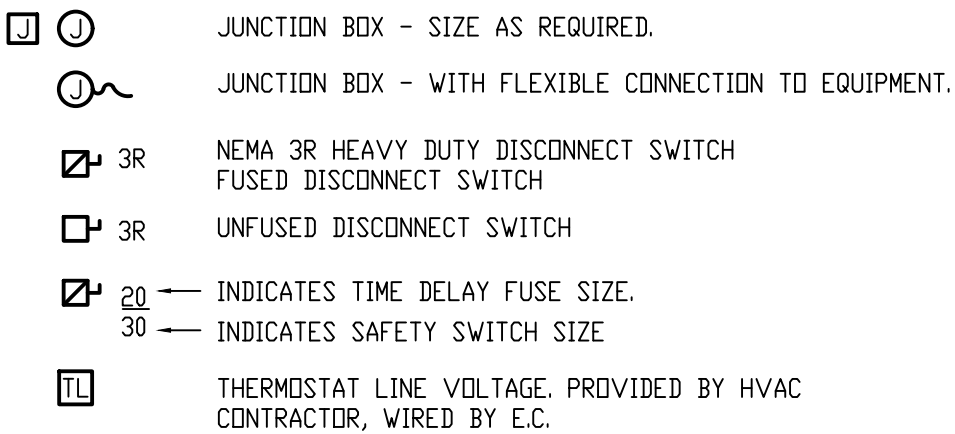


POLE MOUNTED LIGHTING FIXTURE- SINGLE HEAD
POLE MOUNTED LIGHTING FIXTURE- DOUBLE HEAD
ELECTRIC MANHOLE
TELEPHONE MANHOLE
HAND HOLE
COMMUNICATIONS HAND HOLE

ABBREVIATIONS

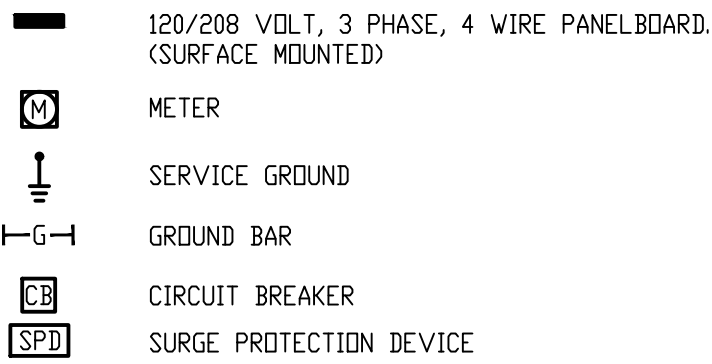
A	AMPERES OR ANTENNA	KW	KILOWATTS
AFG	ABOVE FINISH GRADE	LTG	LIGHTING
AHJ	AUTHORITY HAVING JURISDICTION	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AIC	AMPERE INTERRUPTING CAPACITY	MISC	MISCELLANEDUS
AWG	AMERICAN WIRE GAUGE	MLO	MAIN LUGS ONLY
BLDG	BUILDING	MP	MEGA PIXELS
C	CONDUIT	NC	NORMALLY CLOSED
CAT	CATALOG	NEC	NATIONAL ELECTRIC CODE
CATV	CABLE TELEVISION	NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
CB	CIRCUIT BREAKER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCTV	CLOSED CIRCUIT TV	NIC	NOT IN CONTRACT
CKT	CIRCUIT	NTS	NOT TO SCALE
CLG	CENTERLINE	P	POLE
CLG	CEILING	PH	PHASE
COL	COLUMN	PNL	PANEL
COORD	COORDINATE	PV	PHOTOVOLTAIC
CT	CURRENT TRANSFORMER	PVC	POLYVINYL CHLORIDE
CU	COPPER	PW	POWER
DIA	DIAMETER	QTY	QUANTITY
DN	DOWN	R	RECESSED
DWG	DRAWING	S	SURFACE
E.C.	ELECTRICAL CONTRACTOR	SP	SPARE
EMT	ELECTRICAL METALLIC TUBING	SPD	SURGE PROTECTION DEVICE
EQ	EQUAL	SW	SWITCH
EX	EXISTING	TC	TIME CLOCK
F	FUSE	UG	UNDERGROUND
F&I	FURNISHED AND INSTALLED	UL	UNDERWRITERS LABORATORIES
FA	FIRE ALARM	UNO	UNLESS NOTED OTHERWISE
FLA	FULL LOAD AMPERES	V	VOLT
FM	FACTORY MUTUAL	VD	VOLTAGE DROP
FT	FEET	V/	WITH
GC	GENERAL CONTRACTOR	WP	WEATHER PROOF
GF1	GROUND FAULT INTERRUPTER	XFMR	TRANSFORMER
GND,G	GROUND DR GROUNDING	Δ	DELTA
HD	HAND DRYER	Y	WYE
H&L	HORN/LIGHT	Ø	PHASE
IMC	INTERMEDIATE METAL CONDUIT		
INT	INTERLOCK		
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY		
KMIL	THOUSAND CIRCULAR MILS		
KVA	KILOVOLT AMPERES		

MECHANICAL EQUIPMENT



JUNCTION BOX - SIZE AS REQUIRED.
JUNCTION BOX - WITH FLEXIBLE CONNECTION TO EQUIPMENT.
NEMA 3R HEAVY DUTY DISCONNECT SWITCH
FUSED DISCONNECT SWITCH
UNFUSED DISCONNECT SWITCH
INDICATES TIME DELAY FUSE SIZE.
INDICATES SAFETY SWITCH SIZE
THERMOSTAT LINE VOLTAGE. PROVIDED BY HVAC CONTRACTOR, WIRED BY E.C.

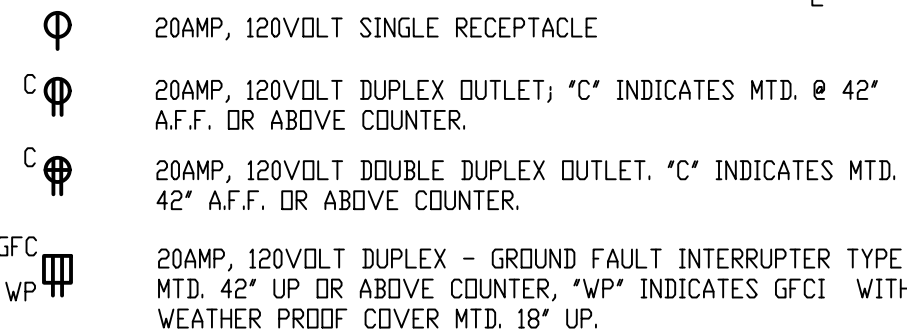
POWER



120/208 VOLT, 3 PHASE, 4 WIRE PANELBOARD. (SURFACE MOUNTED)
METER
SERVICE GROUND
GROUND BAR
CIRCUIT BREAKER
SURGE PROTECTION DEVICE

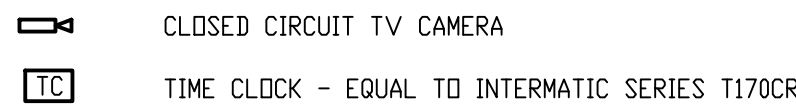
RECEPTACLES

(MOUNTED 18" A.F.F. TO C - UNID.)



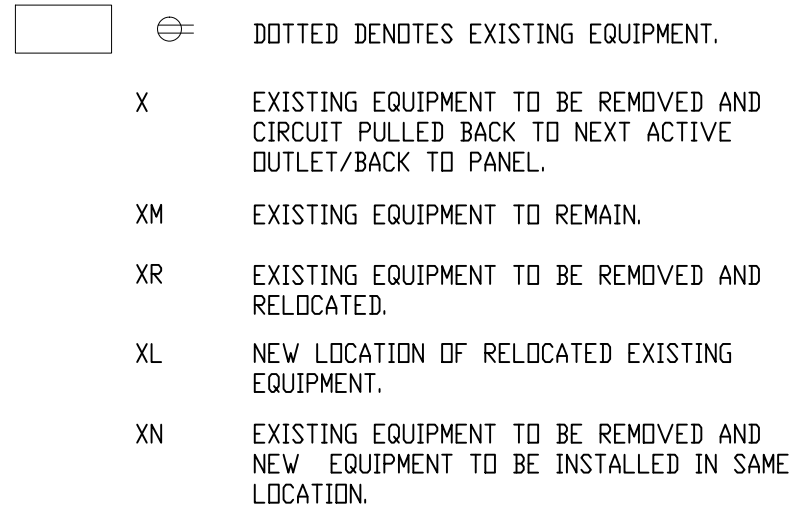
20AMP, 120VOLT SINGLE RECEPTACLE
20AMP, 120VOLT DUPLEX OUTLET; 'C' INDICATES MTD. @ 42" A.F.F. OR ABOVE COUNTER.
20AMP, 120VOLT DOUBLE DUPLEX OUTLET. 'C' INDICATES MTD. 42" A.F.F. OR ABOVE COUNTER.
20AMP, 120VOLT DUPLEX - GROUND FAULT INTERRUPTER TYPE MTD. 42" UP OR ABOVE COUNTER, 'VP' INDICATES GFCI WITH WEATHER PROOF COVER MTD. 18" UP.

MISCELLANEDUS



CLOSED CIRCUIT TV CAMERA
TIME CLOCK - EQUAL TO INTERMATIC SERIES T170CR

EXISTING EQUIPMENT



DOTTED DENOTES EXISTING EQUIPMENT.
EXISTING EQUIPMENT TO BE REMOVED AND CIRCUIT PULLED BACK TO NEXT ACTIVE OUTLET/BACK TO PANEL.
EXISTING EQUIPMENT TO REMAIN.
EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED.
NEW LOCATION OF RELOCATED EXISTING EQUIPMENT.
EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED IN SAME LOCATION.

LIGHTING FIXTURE SCHEDULE

ALL FIXTURES SHALL BE FURNISHED COMPLETE WITH ALL HARDWARE, LAMPS, HANGERS, FITTING, ETC., FOR A COMPLETE AND PROPER INSTALLATION.

TYPE	MANUFACTURER	CATALOG NO.	MTG.	MTG HEIGHT	VOLTAGE	INPUT WATTS	LUMENS	LAMPS			REMARKS
								No.	WATTAGE	TYPE	
SL1	HALOPHANE	NORTH YORKSHIRE SERIES POLE - POLE NYA16SLSL5J17SCDBK-ABGRP156A FG BK BA 100P 24 IN 1A BD SL5 AC BK BA100P 24 IN 1A BD SL5 AC BK ASSY 4685 GDF3P2040KMVOLTMSBKSTTBKPR7PCLL	P	14	120	-	-	1	-	LED	PROVIDE MCAP-2B AND BRAD 3 ADAPTER FOR THE LIGHT FIXTURE. FOR NEMA 3 MOUNTING FOR CAMERA NETWORK JB ON POLES. INSTALL TNUT3/8-100SM. LIGHT POLE BASE ALREADY INSTALLED, PROVIDE ADAPTOR FOR 12" DIAMOND PATTERN ON LIGHT POLE.

LIGHTING FIXTURE GENERAL NOTES:

- ALL BALLASTS SHALL BE OF THE ENERGY SAVINGS, HIGH POWER FACTOR TYPE, AND THD LESS THAN 10%.
- THE LIGHT POLE IS TO MEET CITY OF WORCESTER STANDARDS. PLUS, HAVE COMPARTMENTS FOR LOW VOLTAGE AND POWER. ORDER SLAUXWIRELSBK RFD- 319317 AUXILIARY CHANNEL KIT. ALSO, MUST GET MOUNTING STUDS FOR SUPPORT OF SIEMENS NEMA 3R ENCLOSURE. MOUNTING OF ENCLOSURE IS BY E.C.

PANEL SCHEDULE

120/208V, 1Ø, 3W

PANEL NO.	LOCATION	MTG	MAIN BUS AMPS	MAIN CB	KAIC RATING	BRANCH CKT BREAKER (AMPS). KAIC RATING OF THE BRANCH C.B.'S WILL MATCH KAIC RATING OF PANEL																		TOTAL POLES	OTHERS	
						1 POLE						2 POLE						3 POLE								
						15	20	30	40	50	60	15	20	30	40	50	60	15	20	30	40	50	60	100		
PP1	NEW CONCRETE PAD	S	200	150	10	2											8								30	1-20/SPD

NOTES:

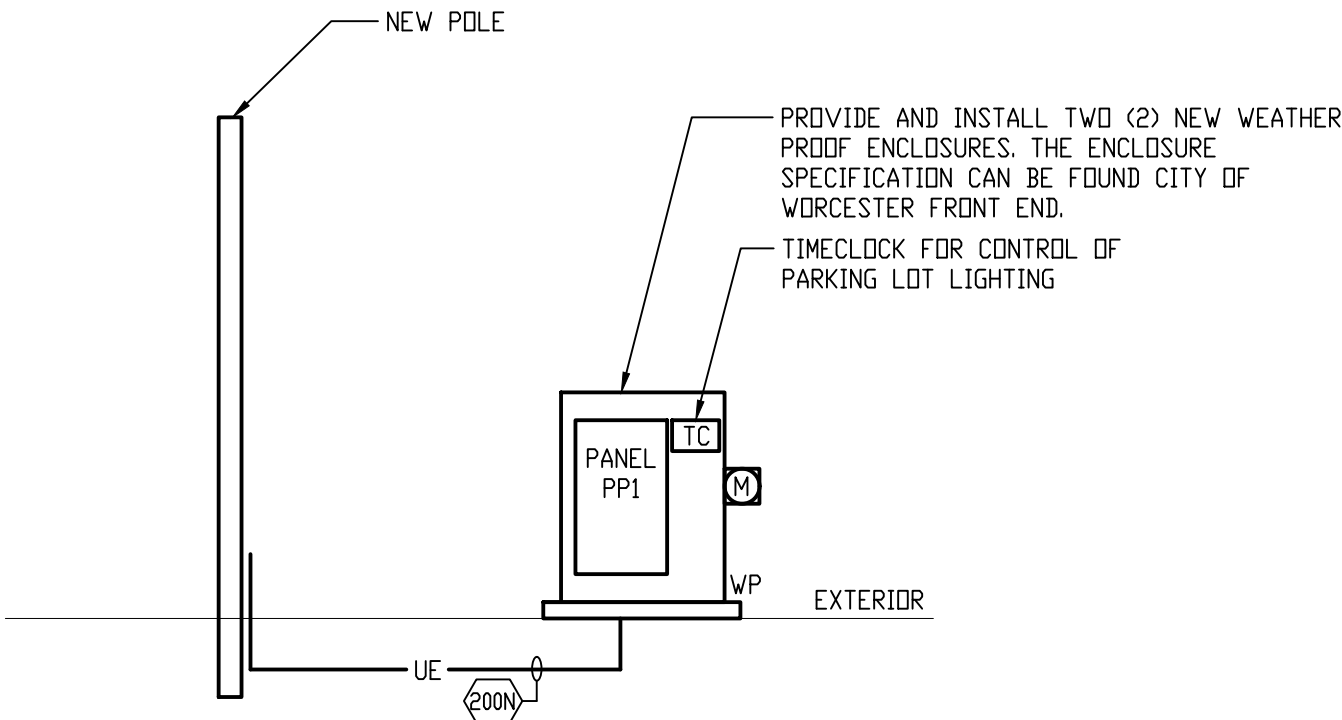
- BRANCH CIRCUIT BREAKERS KAIC SHALL MATCH THE KAIC RATING OF THE PANEL BOARD.

JOB NAME: BLITHWOOD		PANEL NAME: PP1				*HANDLE LOCK		S	F
JOB #: 1970		XXX/XXX VOLTS		1 PHASE		3 WIRE		AMPERE MAINS. TYPE XXXX	
CKT NO	DESCRIPTION	CIRCUIT BREAKER	CONNECTED LOAD WATTS		CIRCUIT BREAKER	DESCRIPTION		CKT NO	
		AMP	POLES	A	B	AMP	POLES		
1	SURGE	20	2	870		20	2	S1	2
3		20	2	400	870	20	2		4
5	FUTURE P1	20	2	400	870	20	1	FUTURE CCTV CAMERAS	6
7		20	2	400	870	20	2	FUTURE S2	8
9	FUTURE P2	20	2	400	870	20	2		10
11		20	2	400	870	20	2	FUTURE S3	12
13	FUTURE P3	20	2	400	870	20	2		14
15		20	2	400	870	20	2	FUTURE S4	16
17	FUTURE P4	20	2	400	870	20	2		18
19		20	2			20	2	PANEL OUTLET	20
21	SPACE							SPACE	22
23	SPACE							SPACE	24
25	SPACE							SPACE	26
27	SPACE							SPACE	28
29	SPACE							SPACE	30
TOTAL									

FEEDER SIZE SCHEDULE

(COPPER CONDUCTORS)

FEEDER SYMBOL	CONDUCTORS (3 PHASE, 3 WIRE) WITH GROUND	RACEWAY SIZE CONDUIT	NOMINAL AMPERE RATING
60	3#4 & 1#10G.	1"	60
60N	4#4 & 1#10G.	1 1/4"	
70	3#4 & 1#8G.	1"	70
70N	4#4 & 1#8G.	1 1/4"	
100	3#1 & 1#8G.	1 1/2"	100
100N	4#1 & 1#8G.	1 1/2"	
125	3#1/0 & 1#6G.	1 1/2"	125
125N	4#1/0 & 1#6G.	2"	
150	3#1/0 & 1#6G.	1 1/2"	150
150N	4#1/0 & 1#6G.	2"	
200	3#3/0 & 1#6G.	2"	200
200N	4#3/0 & 1#6G.	2"	



ONE-LINE RISER DIAGRAM

SCALE:NTS

NOTES:

- E.C. TO PROVIDE ARC FLASH LABEL IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) SECTION 110.16
- COORDINATE SHORT CIRCUIT RATING OF ELECTRICAL EQUIPMENT WITH LOCAL UTILITY.
- PROVIDE LABEL ON ELECTRICAL SERVICE PANEL OF AVAILABLE FAULT CURRENT. PER ARTICLE 110.24 IN THE 2023 NATIONAL ELECTRICAL CODE. COORDINATE THIS WITH LOCAL UTILITY COMPANY.
- PROVIDE SURGE SUPPRESSORS FOR ALL NEW ELECTRIC PANELS AT THE MAIN SERVICE. WIRE PER MANUFACTURERS RECOMMENDATIONS.
- E.C. IS TO VERIFY HOT OR COLD METER SEQUENCE WITH THE UTILITY.
- E.C. IS TO INSTALL TWO (2) 3/4" X 10 FOOT GROUND RODS. CONNECT PANEL PP1 WITH #6 COPPER WIRE.
- PROVIDE SUFFICIENT WIRE TO REACH UP TO THE NEW POLE MOUNTED TRANSFORMER. PROVIDE IMC CONDUIT RISER ALONG THE POLE UP TO 10 FEET AND PROVIDE A GROUNDING BUSHING AT THE END FOR CONNECTION OF GROUND WIRE BY THE UTILITY.
- PAD BY GENERAL CONTRACTOR. COORDINATE CONDUIT ROUTING WITH G.C. PRIOR TO POURING THE PAD.



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DATE REVISION

REVISIONS

NORTH

STAMP

BLITHEWOOD PARK
SITE IMPROVEMENTS
PHASE III
PROJECT WORCESTER, MA

ELECTRICAL LEGEND

DRAWING TITLE

CONTRACT NO.

DATE 09.26.25

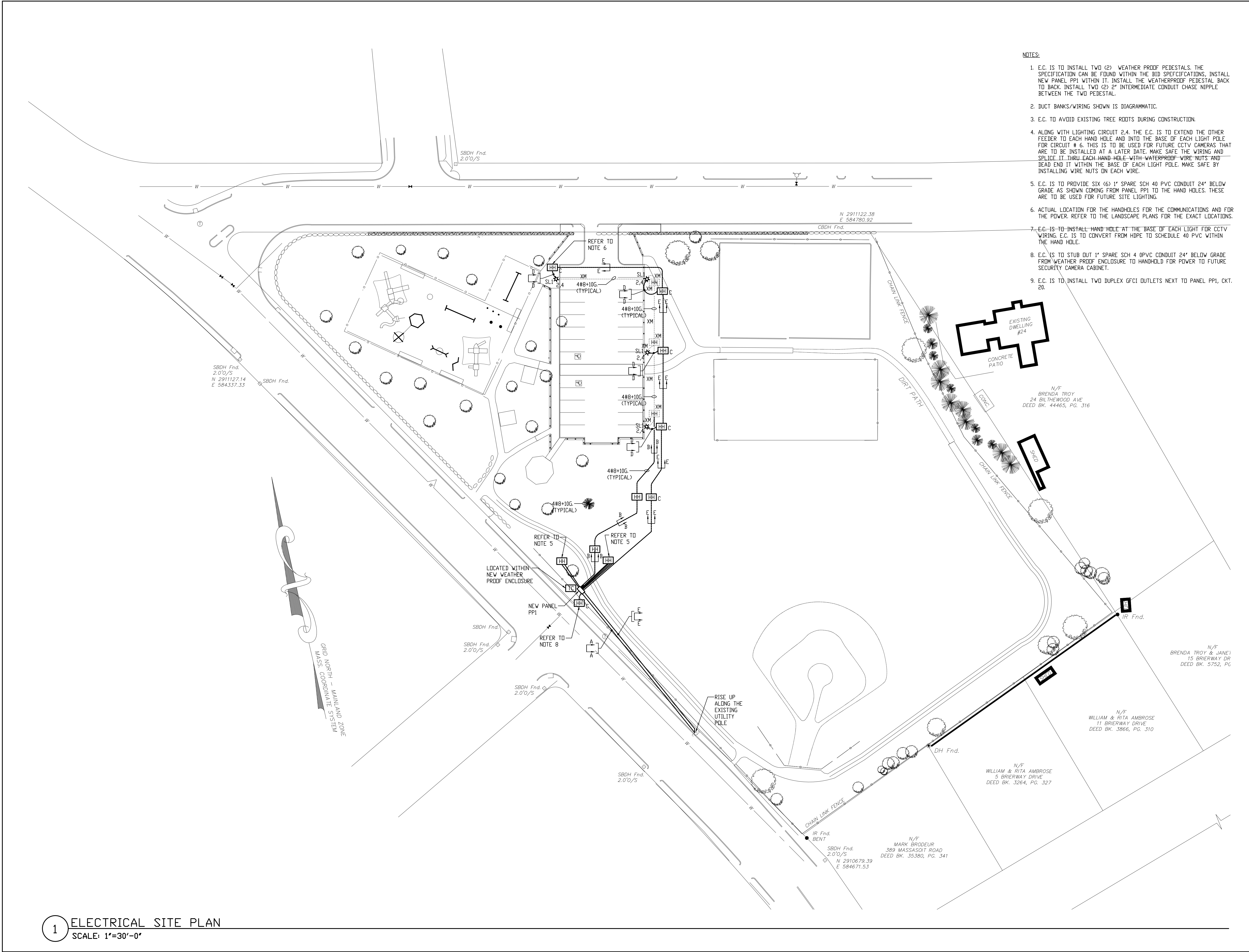
DRAWN MTG

CKD JJM

SCALE MTS

E-0.1

SHEET NO.



- NOTES:
1. E.C. IS TO INSTALL TWO (2) WEATHER PROOF PEDESTALS. THE SPECIFICATION CAN BE FOUND WITHIN THE BID SPECIFICATIONS. INSTALL NEW PANEL PP1 WITHIN IT. INSTALL THE WEATHERPROOF PEDESTAL BACK TO BACK. INSTALL TWO (2) 2" INTERMEDIATE CONDUIT CHASE NIPPLE BETWEEN THE TWO PEDESTAL.
 2. DUCT BANKS/WIRING SHOWN IS DIAGRAMMATIC.
 3. E.C. TO AVOID EXISTING TREE ROOTS DURING CONSTRUCTION.
 4. ALONG WITH LIGHTING CIRCUIT 2.4, THE E.C. IS TO EXTEND THE OTHER FEEDER TO EACH HAND HOLE AND INTO THE BASE OF EACH LIGHT POLE FOR CIRCUIT # 6. THIS IS TO BE USED FOR FUTURE CCTV CAMERAS THAT ARE TO BE INSTALLED AT A LATER DATE. MAKE SAFE THE WIRING AND SPLICE IT THRU EACH HAND HOLE WITH WATERPROOF WIRE NUTS AND DEAD END IT WITHIN THE BASE OF EACH LIGHT POLE. MAKE SAFE BY INSTALLING WIRE NUTS ON EACH WIRE.
 5. E.C. IS TO PROVIDE SIX (6) 1" SPARE SCH 40 PVC CONDUIT 24" BELOW GRADE AS SHOWN COMING FROM PANEL PP1 TO THE HAND HOLES. THESE ARE TO BE USED FOR FUTURE SITE LIGHTING.
 6. ACTUAL LOCATION FOR THE HANDHOLES FOR THE COMMUNICATIONS AND FOR THE POWER. REFER TO THE LANDSCAPE PLANS FOR THE EXACT LOCATIONS.
 7. E.C. IS TO INSTALL HAND HOLE AT THE BASE OF EACH LIGHT FOR CCTV WIRING. E.C. IS TO CONVERT FROM HDPE TO SCHEDULE 40 PVC WITHIN THE HAND HOLE.
 8. E.C. IS TO STUB OUT 1" SPARE SCH 40 PVC CONDUIT 24" BELOW GRADE FROM WEATHER PROOF ENCLOSURE TO HANDHOLD FOR POWER TO FUTURE SECURITY CAMERA CABINET.
 9. E.C. IS TO INSTALL TWO DUPLEX GFCI OUTLETS NEXT TO PANEL PP1, CKT. 20.



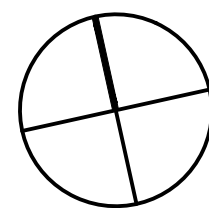
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J M E

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DATE REVISION

REVISIONS



NORTH

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**BLITHEWOOD PARK
SITE IMPROVEMENTS
PHASE III**
PROJECT WORCESTER, MA

ELECTRICAL SITE PLAN

DRAWING TITLE

CONTRACT
NO.

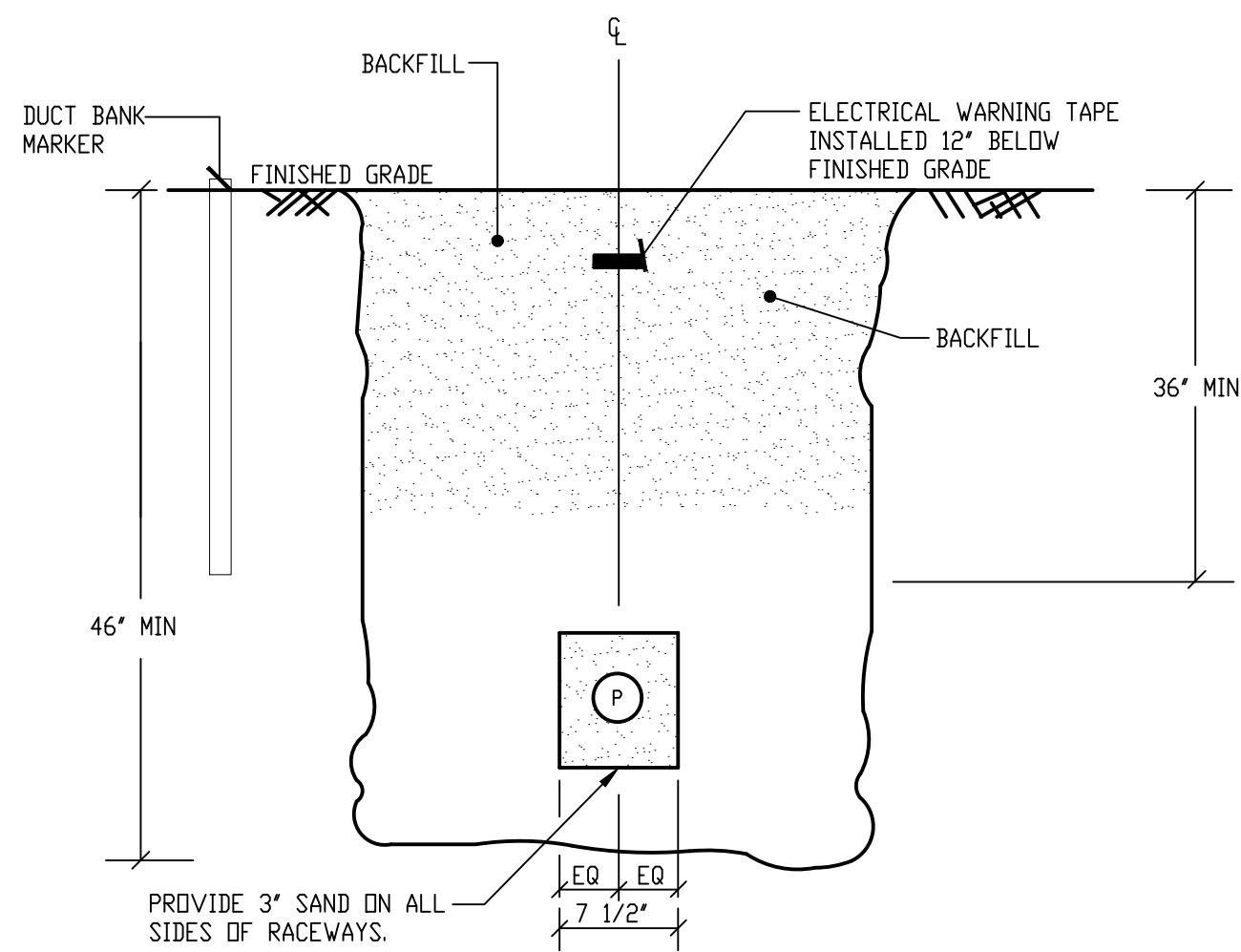
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DRAWN MTG

CKD JJM

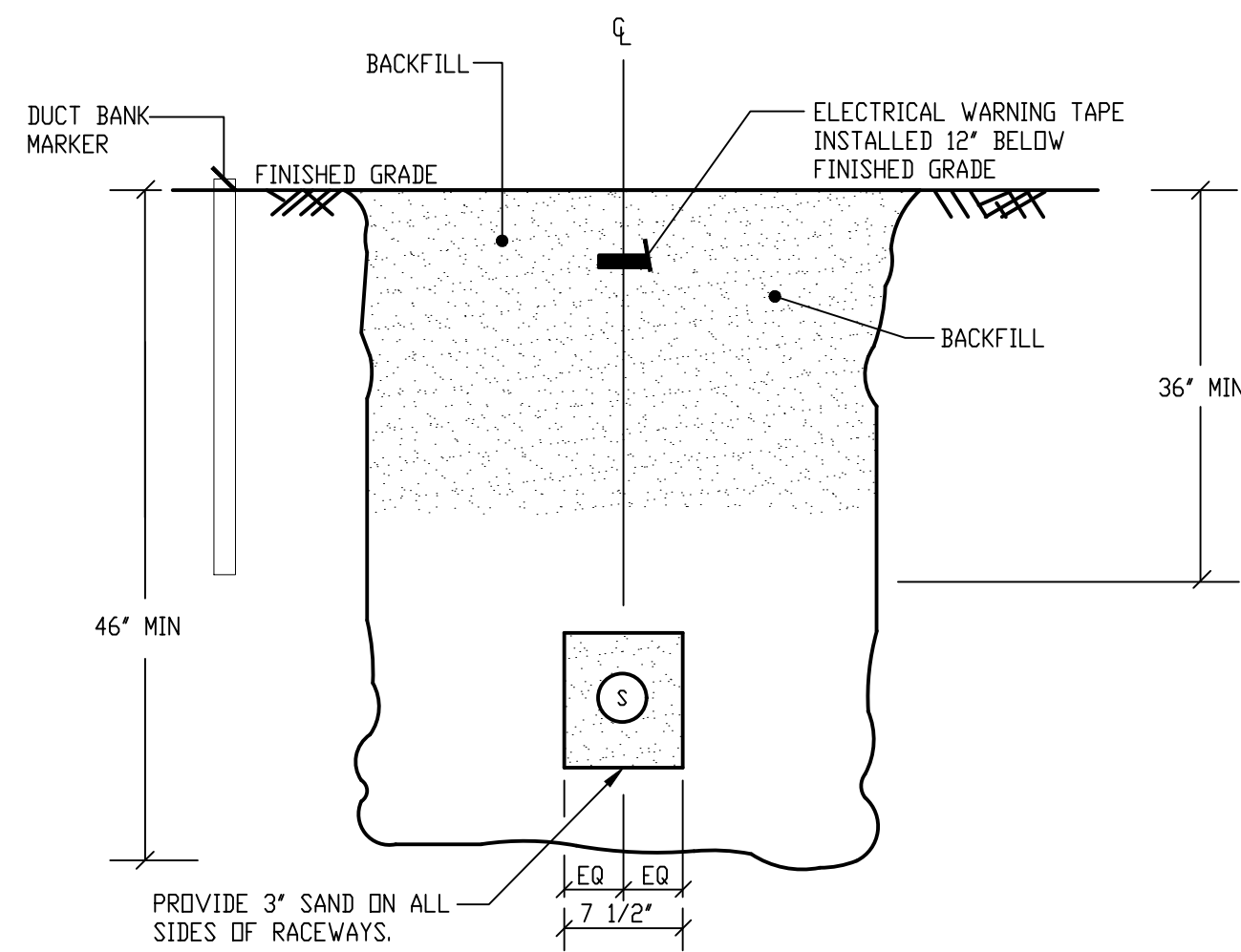
SCALE 1"=30'-0" SHEET NO.

E-1.1



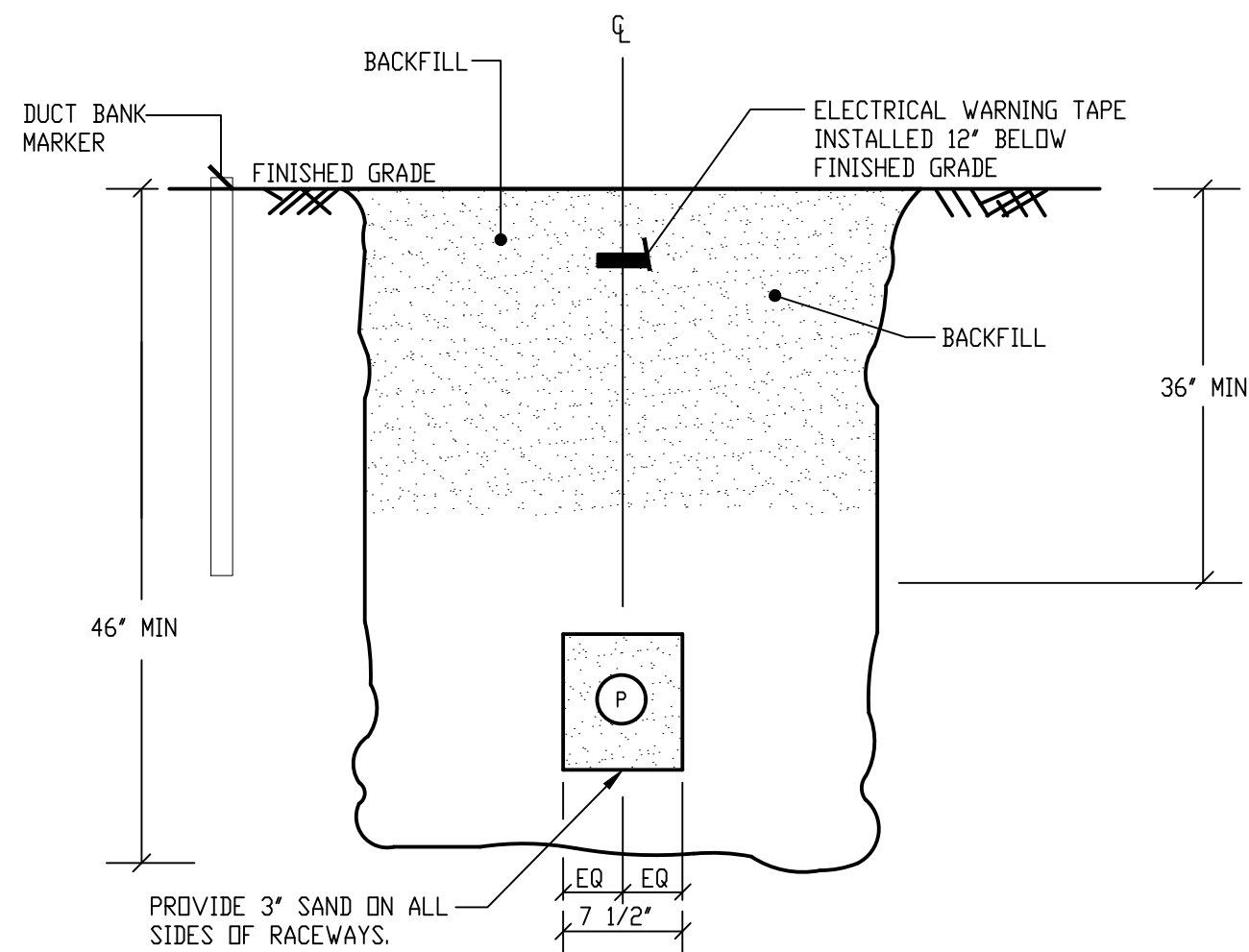
1 DUCT BANK SECTION A-A
SCALE: NTS

P 2" ELEC. - SCHED 40 PVC



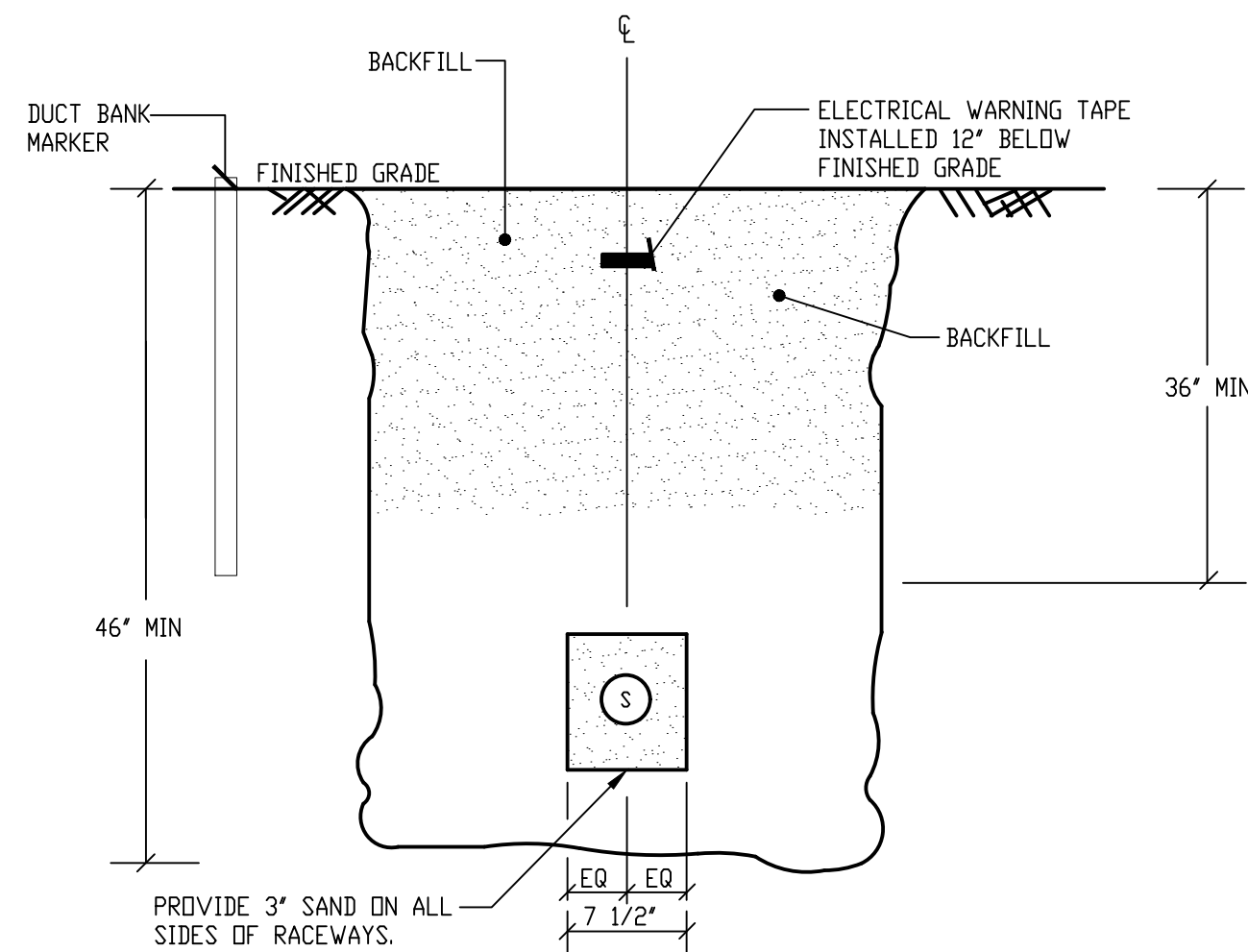
3 DUCT BANK SECTION D-D
SCALE: NTS

S 1" COMMUNICATIONS - HDPE



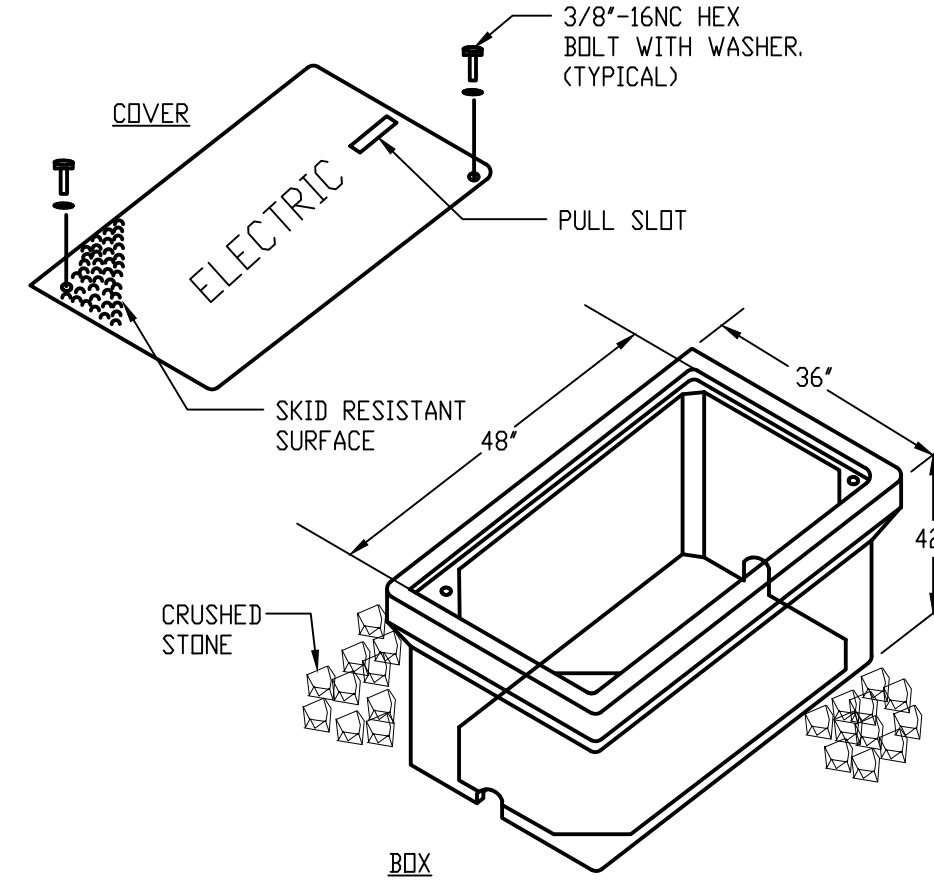
2 DUCT BANK SECTION A-A
SCALE: NTS

P 2" ELEC. - SCHED 40 PVC



4 DUCT BANK SECTION E-E
SCALE: NTS

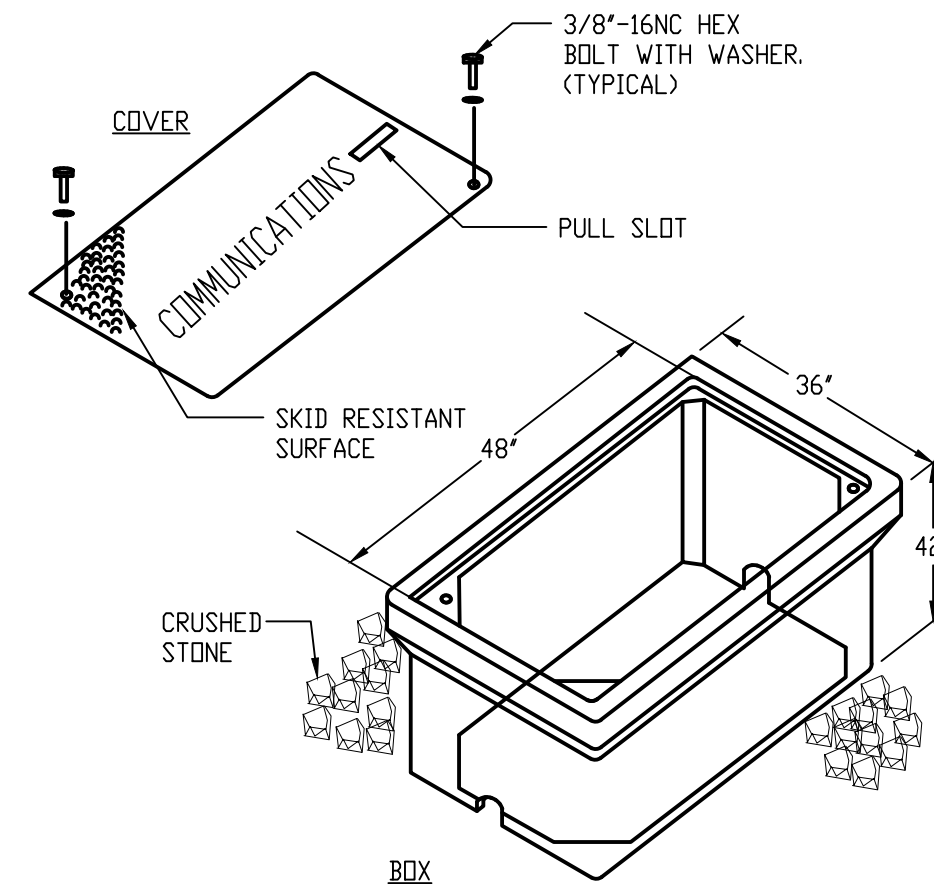
S 2" COMMUNICATIONS - HDPE



5 TYPICAL (ELECTRIC) HANDHOLE
PULLBOX DETAIL
SCALE: NTS

NOTES:

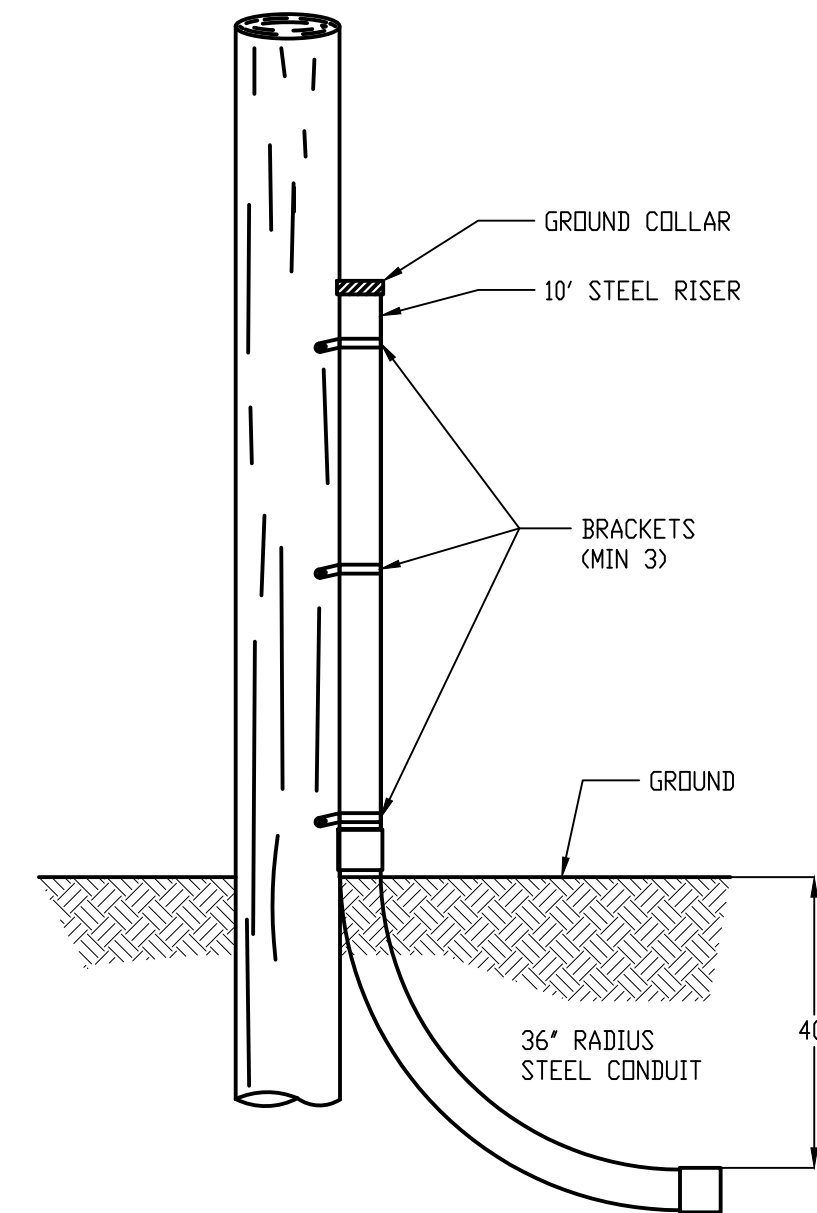
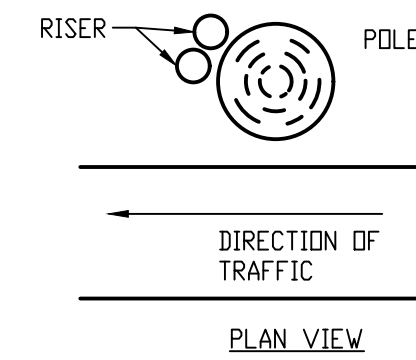
1. PHOENIX PRECAST PRODUCTS 24"X36"X36" PULL BOX WITH HEAVY DUTY COVER CAT.#46665022 OR APPROVED EQUAL.
2. HANDHOLE BOX AND COVER SHALL BE FLUSH WITH SURROUNDING GRADE.
3. ENCLOSURES AND COVERS SHALL BE CONCRETE GRAY COLOR AND RATED FOR NO LESS THAN 8000 LBS. OVER A 10'X10' AREA AND BE DESIGNED AND TESTED TO TEMPERATURES OF -50° F.
4. MATERIAL COMPRESSIVE STRENGTH SHOULD BE NO LESS THAN 11,000 P.S.I.
5. COVERS SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.5.



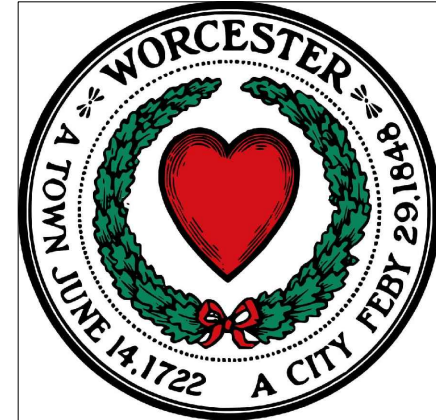
6 TYPICAL (COMMUNICATIONS)
HANDHOLE PULLBOX DETAIL
SCALE: NTS

NOTES:

1. PHOENIX PRECAST PRODUCTS 24"X36"X36" PULL BOX WITH HEAVY DUTY COVER CAT.#46665022 OR APPROVED EQUAL.
2. HANDHOLE BOX AND COVER SHALL BE FLUSH WITH SURROUNDING GRADE.
3. ENCLOSURES AND COVERS SHALL BE CONCRETE GRAY COLOR AND RATED FOR NO LESS THAN 8000 LBS. OVER A 10'X10' AREA AND BE DESIGNED AND TESTED TO TEMPERATURES OF -50° F.
4. MATERIAL COMPRESSIVE STRENGTH SHOULD BE NO LESS THAN 11,000 P.S.I.
5. COVERS SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.5.



7 SECONDARY CONDUIT INSTILLATION
ON RISER POLES
SCALE: NTS

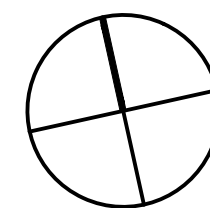


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DATE REVISION

REVISIONS



NORTH

STAMP

BLITHEWOOD PARK
SITE IMPROVEMENTS
PHASE III
PROJECT WORCESTER, MA

ELECTRICAL DETAILS

DRAWING TITLE

CONTRACT
NO.

DATE 09.26.25

DRAWN MTG

CKD JJM

SCALE MTS

E-2.1

SHEET NO.