

# CITY OF WORCESTER, MASSACHUSETTS

## MADISON STREET UNDERPASS LIGHTING

Madison Street, Worcester, MA

**Focus Map**



UNDERPASS ART LIGHT  
PROJECT SITE



ILLUSTRATIVE REPRESENTATION

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**BID DOCUMENTS**  
**September 26th, 2023**

**Prepared By**  
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L000



GENERAL NOTES:

1. PROPERTY LINES COMPILED VIA MASSACHUSETTS GIS DATA.

2. ALL BIDDERS ARE EXPECTED TO INSPECT THE PROJECT SITE IN ITS ENTIRETY PRIOR TO SUBMITTING THEIR BID, AND BECOME FAMILIAR WITH ALL CONDITIONS AS THEY MAY AFFECT THEIR BID. CONTRACTOR AND SUB-CONTRACTOR SHALL BE FAMILIAR WITH ALL DRAWINGS AND SPECIFICATIONS PRIOR TO COMMENCING THE CONSTRUCTION.

3. LOCATIONS OF ANY UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF SUCH UTILITIES, PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS, (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO OWNER'S REPRESENTATIVE PRIOR TO EXCAVATION WORK.

4. ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE BEFORE PROCEEDING. ITEMS ENCOUNTERED IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER.
5. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS-BUILT" DRAWINGS.

6. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT LIMITS, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.

7. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY FENCES, WALKS, STRUCTURES, PROTECTIVE BARRIERS, OR COVERING AS NEEDED.

8. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.

9. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER'S REPRESENTATIVE.

10. ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL, SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES, INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF CONSTRUCTION.
11. THE CONTRACTOR SHALL KEEP ALL STREETS, PARKING LOTS AND WALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOM CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.

12. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER'S REPRESENTATIVE.

Project:

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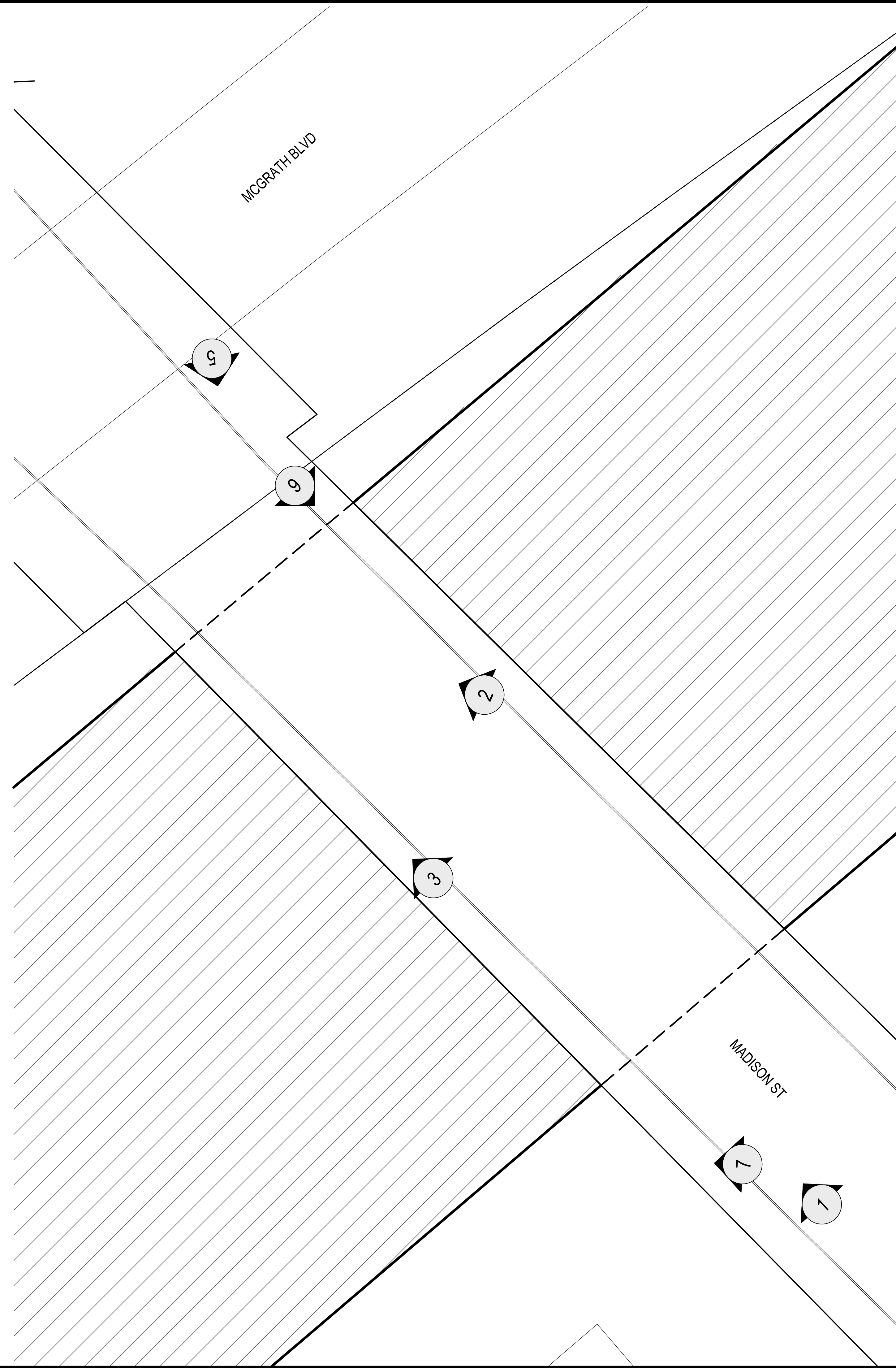
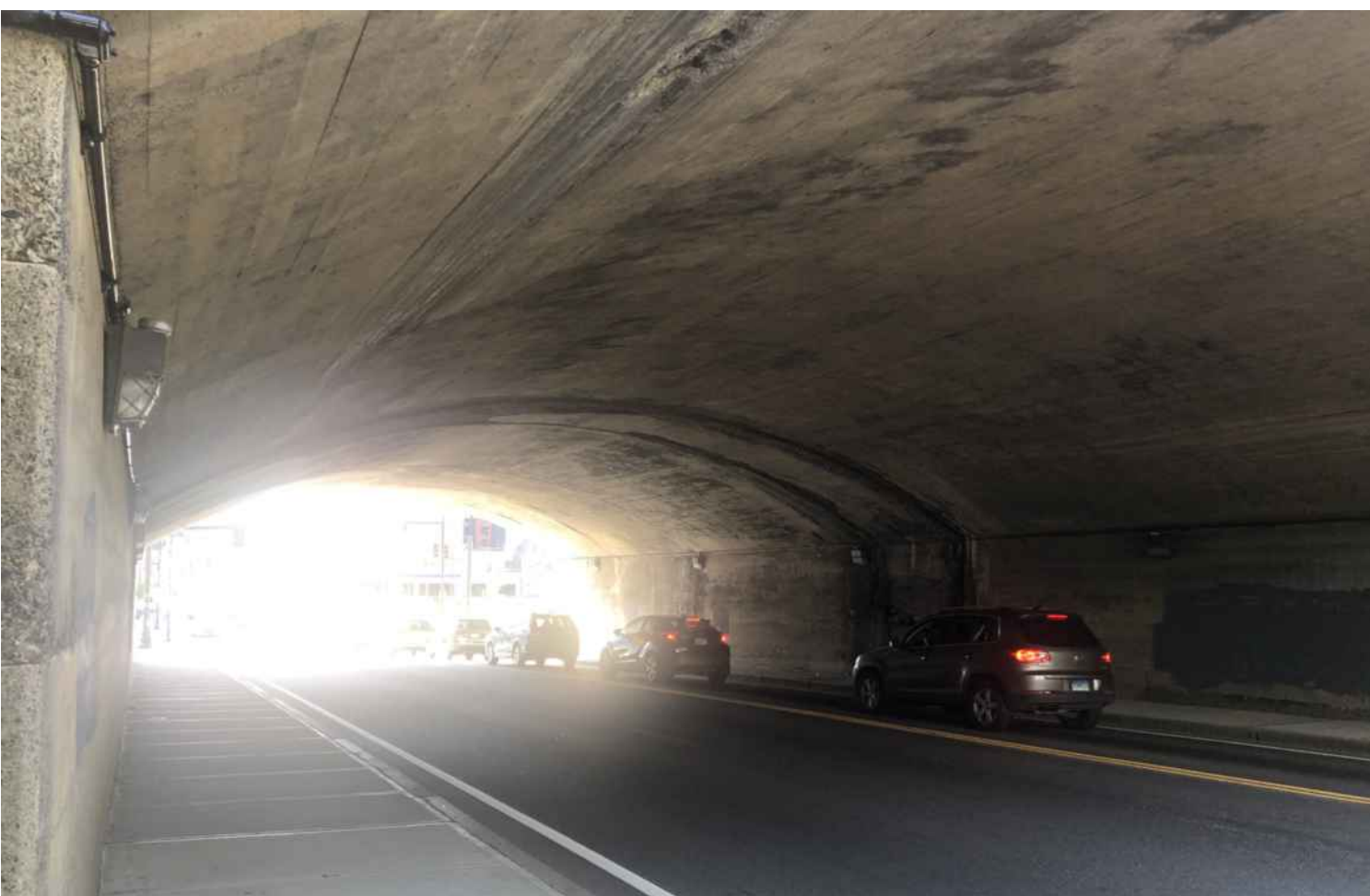
GENERAL NOTES

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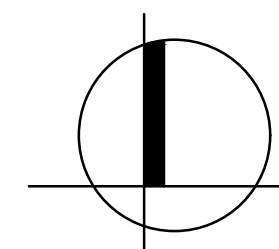
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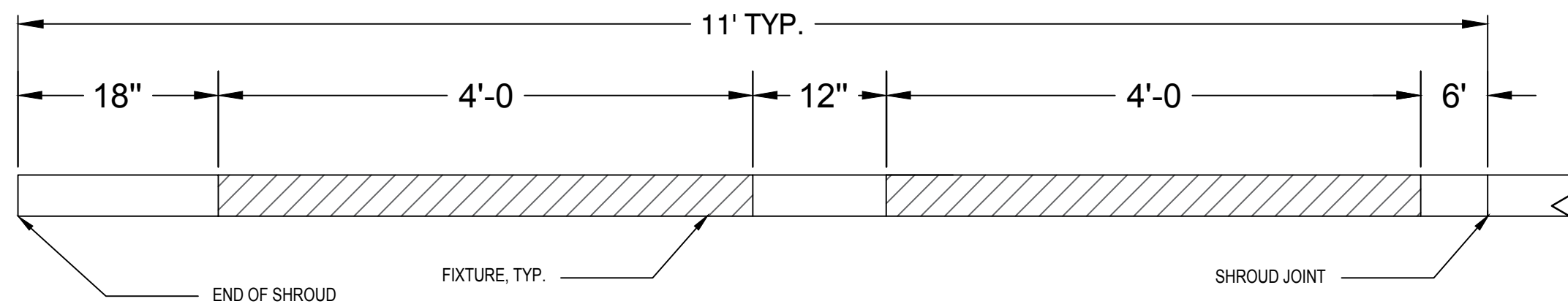
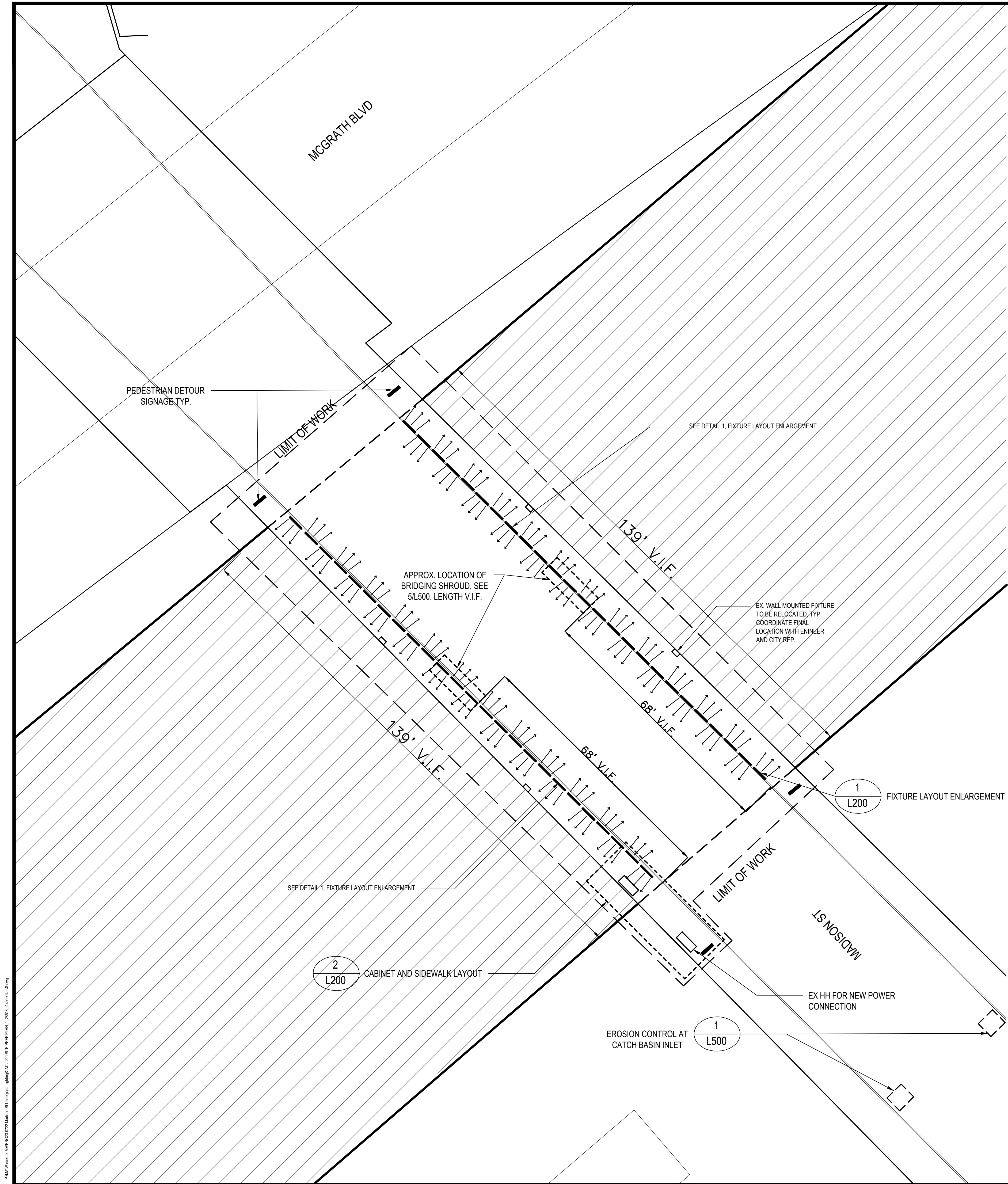
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## EXISTING CONDITIONS

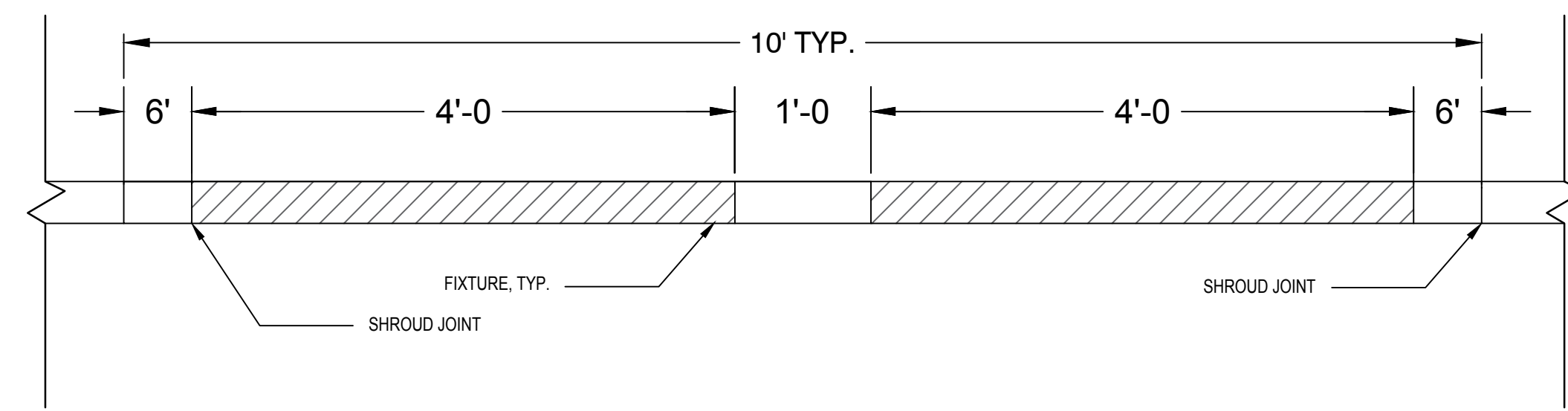
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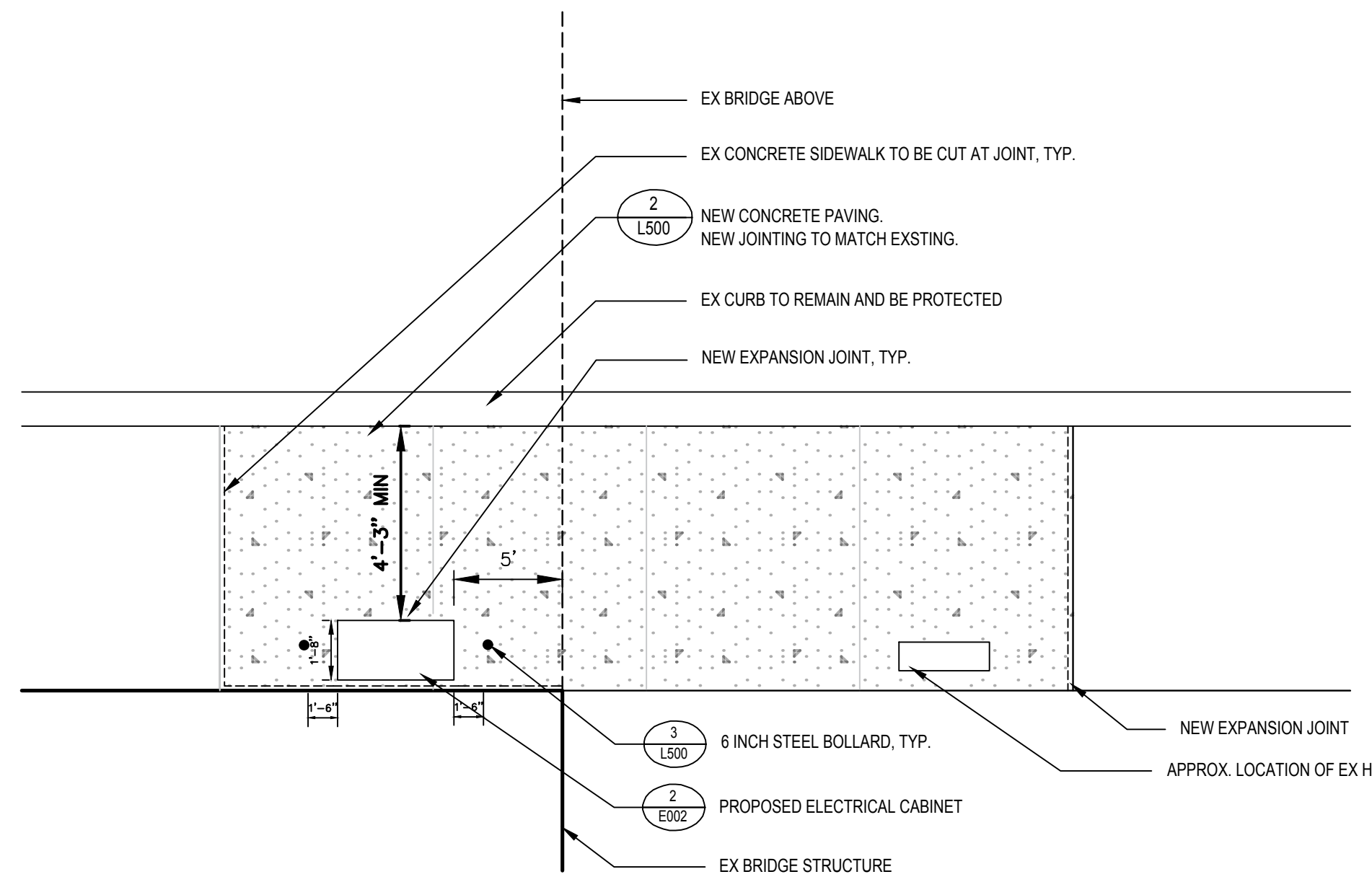


TYPICAL FIXTURE LAYOUT FOR END SECTION OF SHROUD



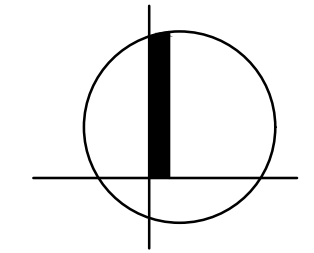
TYPICAL FIXTURE LAYOUT

1 FIXTURE LAYOUT ENLARGEMENT  
SCALE: NTS



2 CABINET AND SIDEWALK LAYOUT  
SCALE: NTS

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SITE PLAN

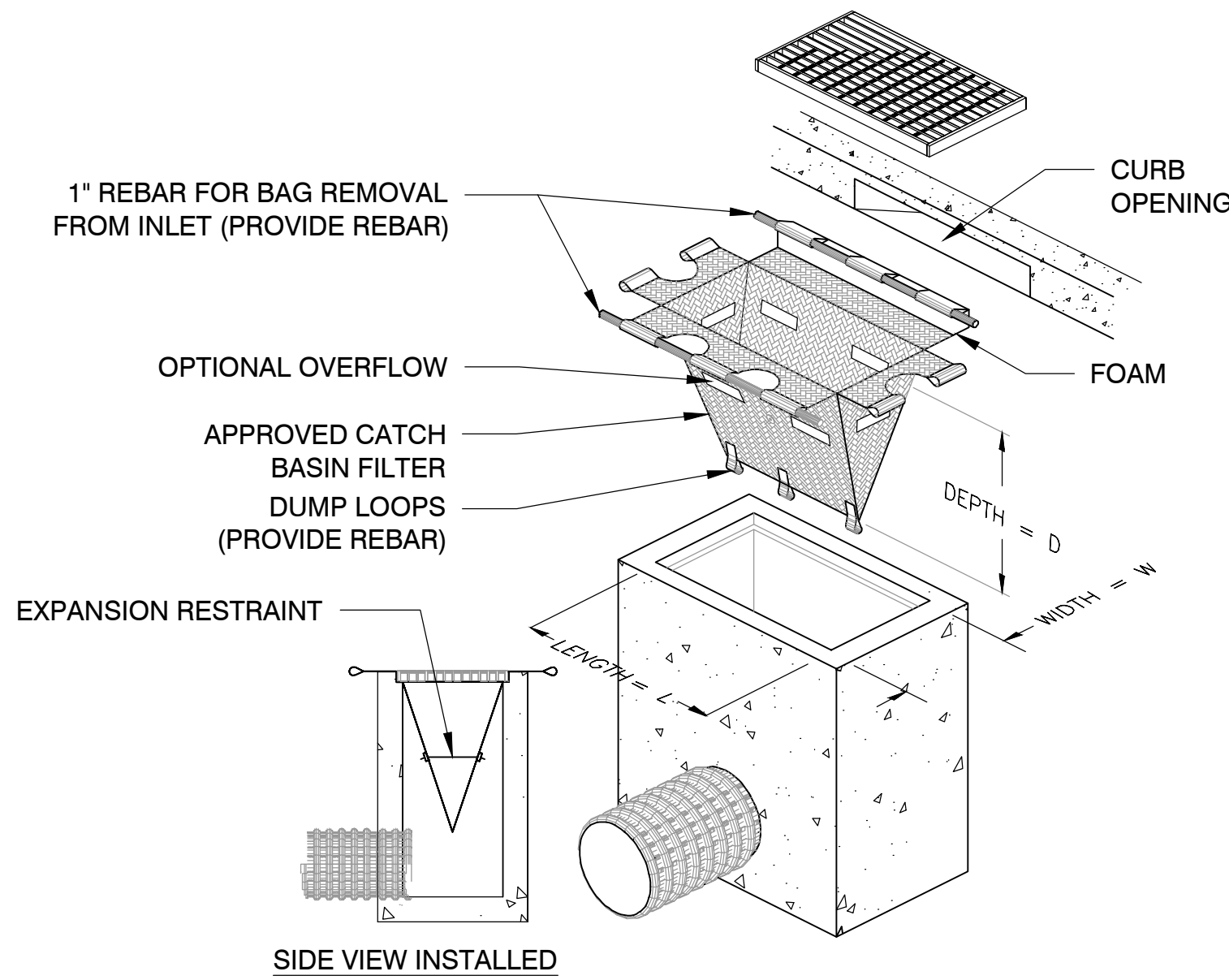
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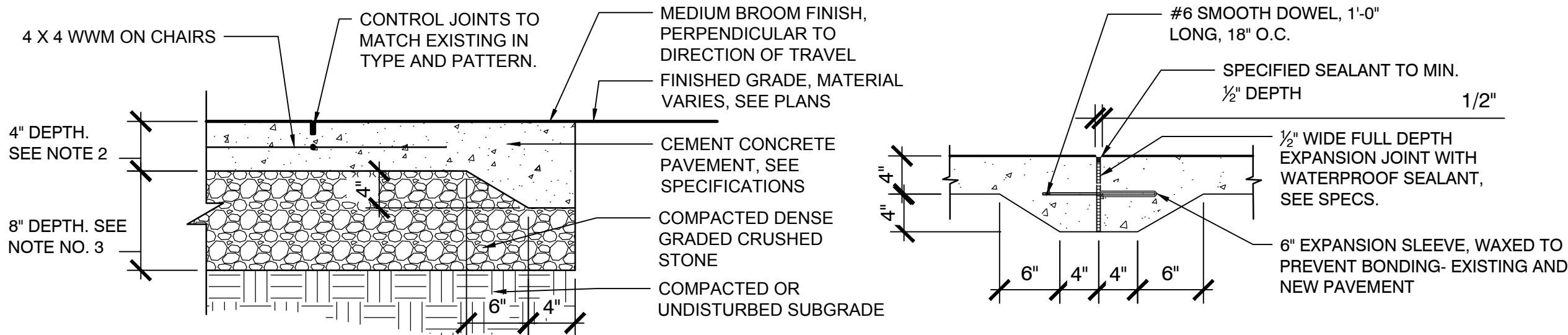
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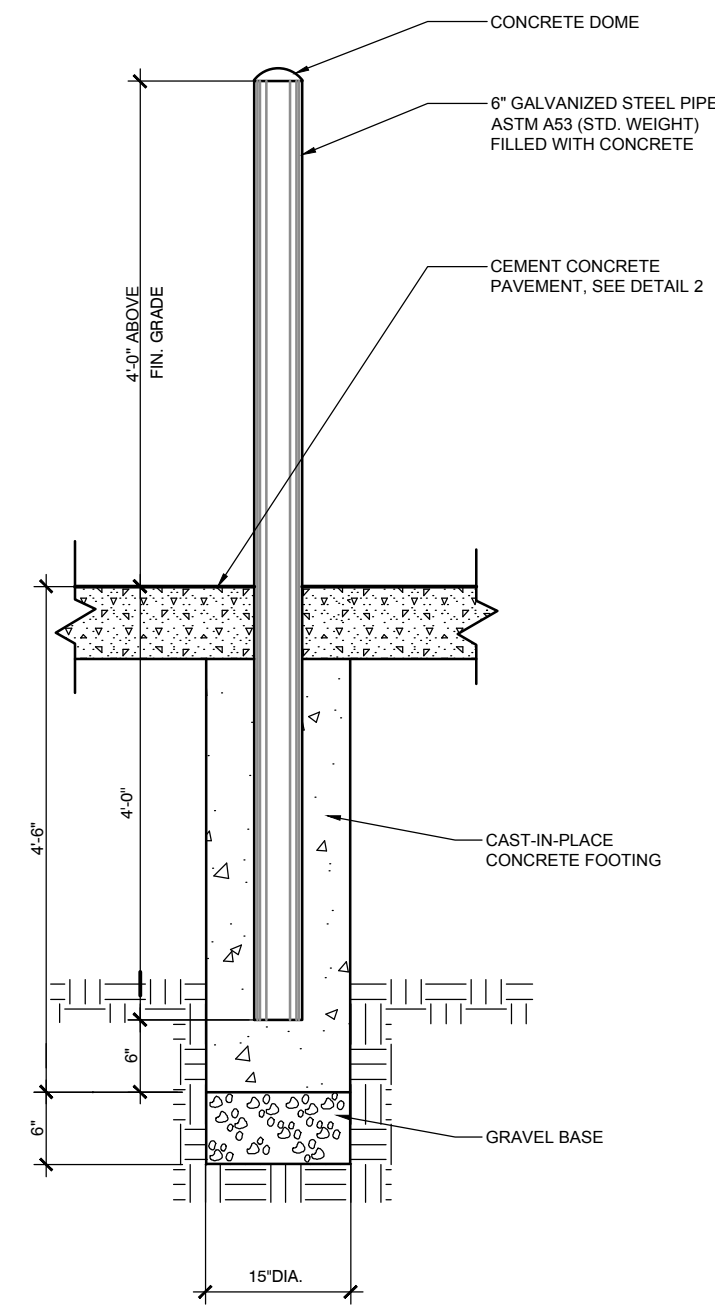




NOTE:  
1. CATCH BASIN FILTER FOR PAVED AREAS SHALL BE PROVIDED FOR ALL DRAINAGE STRUCTURES WITHIN THE LIMIT OF WORK AND ANY STRUCTURES OUTSIDE THE PROJECT TERMINI THAT ARE AFFECTED BY CONSTRUCTION.



NOTE:  
1. EXPANSION JOINT SPACING SHALL BE 30'-0" MAX.  
2. 4" CONCRETE DEPTH SHALL BE USED FOR ALL PEDESTRIAN SIDEWALK APPLICATIONS UNLESS INDICATED OTHERWISE.  
3. USE 8" GRAVEL BORROW UNDER 4" CEM. CONC. WALK PVMT. USE 12" GRAVEL BORROW UNDER 6" CEM. CONC. PADS/SLABS.  
4. DOWELS SHALL BE USED AT EXPANSION JOINTS AND WHERE NEW CONCRETE PAVEMENT ABUTS EXISTING CONCRETE PAVING TO REMAIN AND ANY PROPOSED CONCRETE RAMPS AND STAIRS.  
5. FOR SIDEWALK PAVEMENT, USE BROOM FINISH PERPENDICULAR TO ROUTE OF TRAVEL.  
6. ALL EXISTING AND PROPOSED STRUCTURES IN CONCRETE SHALL HAVE FULL ISOLATION JOINTS



## 1 EROSION CONTROLS- SEDIMENT SACK

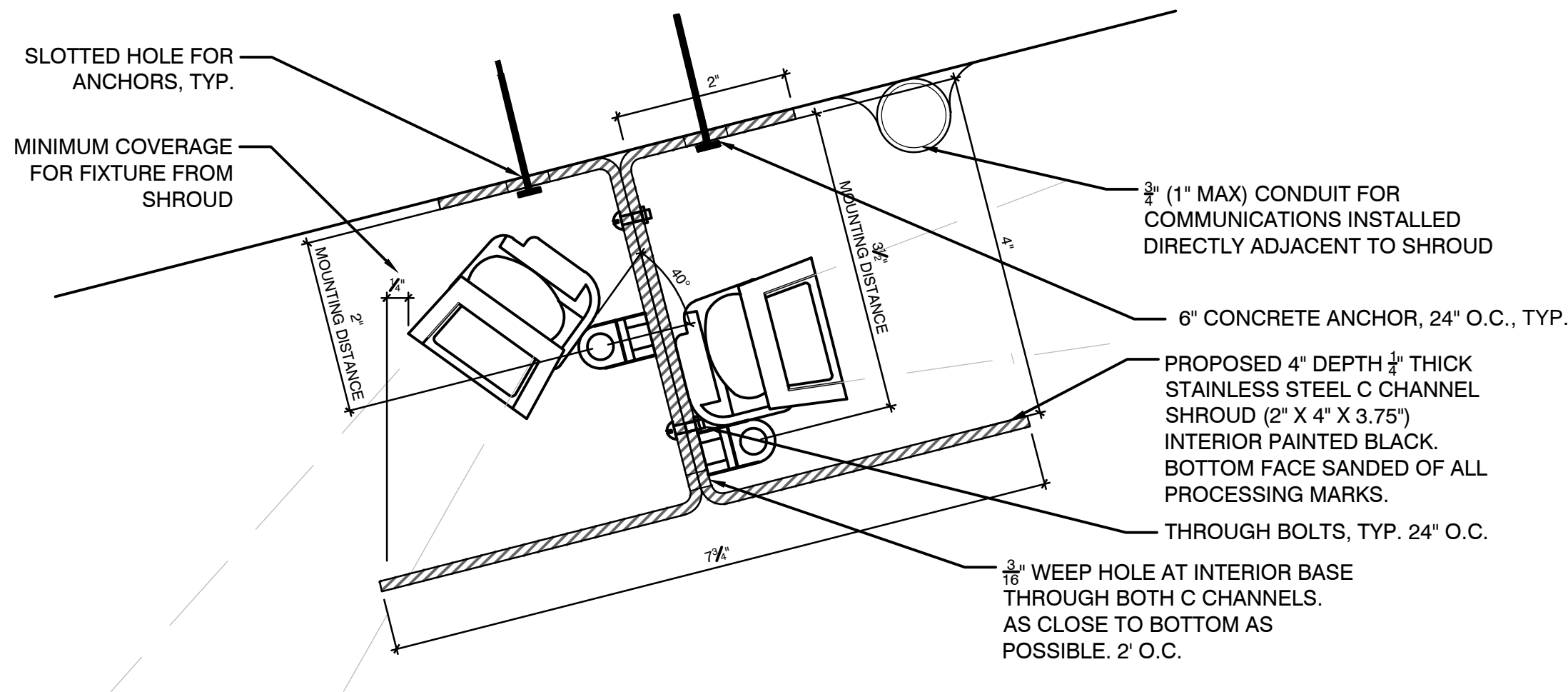
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## 2 CEMENT CONCRETE PAVEMENT

SCALE: NTS

## 3 6 INCH STEEL BOLLARD

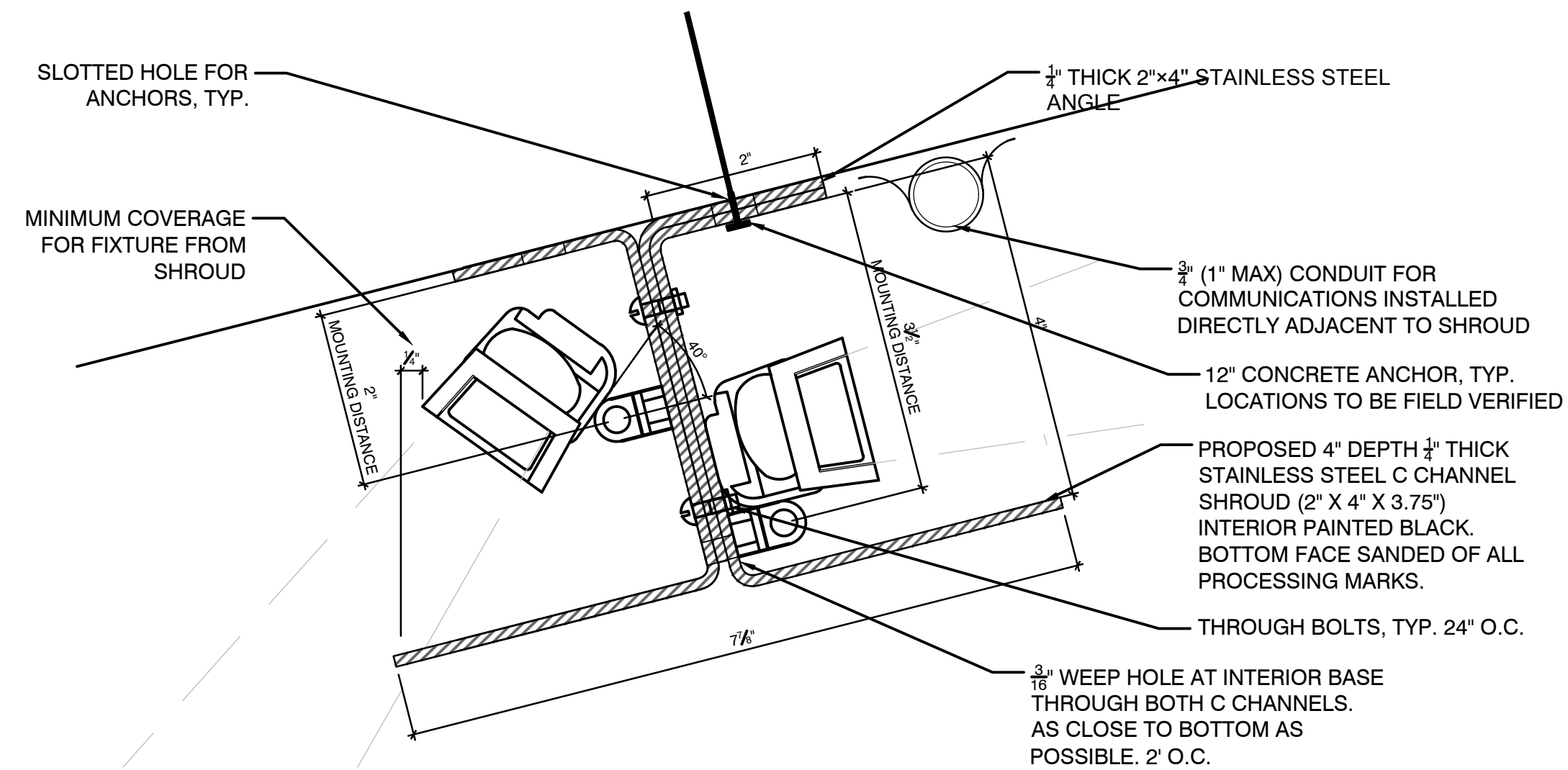
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NOTE: CHANNELS SHALL BE PROVIDED IN 10' SECTIONS, EXCEPT END SECTIONS WHICH SHALL BE 11' ADJACENT SECTIONS SHALL BE ATTACHED WITH 4" X 6" X 3/8" 316 SS PLATES AND SS HARDWARE. SECTIONS SHALL ALIGN VERTICALLY AND HORIZONTALLY.

## 4 LED FIXTURE MOUNTING SHROUD

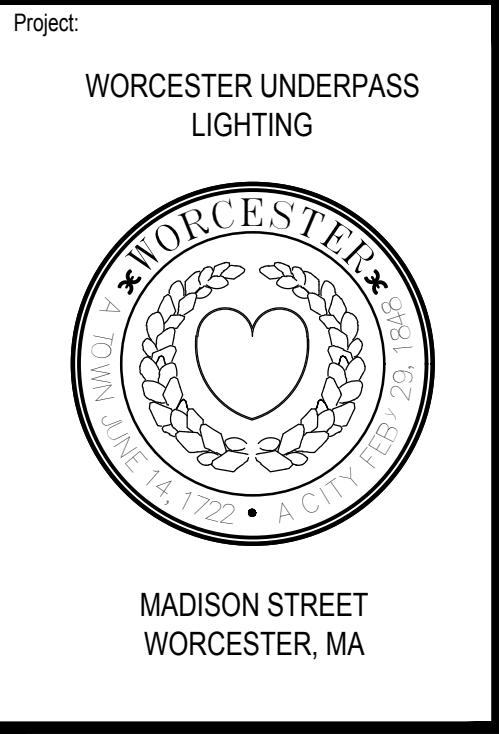
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ADJACENT SECTIONS SHALL BE ATTACHED WITH 4" X 6" X 3/8" 316 SS PLATES AND SS HARDWARE. SECTIONS SHALL ALIGN VERTICALLY AND HORIZONTALLY.

## 5 LED FIXTURE BRIDGING MOUNTING SHROUD

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**SITE CONSTRUCTION DETAILS**


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ELECTRICAL ABBREVIATIONS LIST																										
1P	1 POLE (2P, 3P, 4P, ETC.)	AS	AMP SWITCH	CMR	COMPRESSOR	DS	SAFETY DISCONNECT SWITCH	FXT	FIXTURE	HTG	HEATING	LTG	LIGHTING	MSP	MOTOR STARTER PANELBOARD	PA	PUBLIC ADDRESS	RM	ROOM	SYM	SYMMETRICAL	UV	UNIT VENTILATOR OR	Δ	ANGLE	
A	AIR TRIP	ATS	AUTOMATIC TRIP	CHNG	CHANGING	CON	CONNECTION	DWG	DRAWING	HTR	HOT WATER	LTNG	LIGHTING	MSB	MAIN SWITCHBOARD	PE	PEDESTAL	RSC	RIGID STEEL CONDUIT	SYS	SYSTEM	UV	ULTRAVIOLET	@	AT	
AC	ABOVE COUNTER OR AIR	ATS	AUTOMATIC TRANSFER SWITCH	CONST	CONSTRUCTION	DWG	DRAWING	FLR	FLOOR	HV	HIGH VOLTAGE	LV	LOW VOLTAGE	MT	MOUNT	PE	PNEUMATIC ELECTRIC	RTU	ROOF TOP UNIT	TEL	TELEPHONE	V	VOLT	Δ	DELTA	
	CONDITIONER	AUTO	AUTOMATIC	CONT	CONTINUATION OR CONTINUOUS	EC	ELECTRICAL CONTRACTOR	FU	FUSED	HVAC	HEATING, VENTILATING AND AIR	MAX	MAXIMUM	MT	EMPTY CONDUIT	PE	PEDESTAL	SC	SURFACE CONDUIT	TEL	TELEPHONE/DATA	VA	VOLT-AMPERES	'	FEET	
ACLG	ABOVE CEILING	AUX	AUXILIARY	CONTR	CONTRACTOR	ELEC	ELECTRIC, ELECTRICAL	FUDS	FUSED SAFETY DISCONNECT SWITCH		CONDITIONING	MAG	MAGNETIC STARTER	MTS	MANUAL TRANSFER SWITCH	PF	POWER FACTOR	SEC	SECONDARY	TERMD	TERMINAL	VDT	VIDEO DISPLAY TERMINAL	*	INCHES	
ADO	AUTOMATIC DOOR OPENER	AV	AUDIO VISUAL	CONV	CONVERTOR	ELEV	ELEVATOR	GAL	GALVANE	HWP	HYDRONIC WATER PUMP	MC	MOMENTARY CONTACT	MTR	MOTOR, MOTORIZED	PH	PHASE	SHT	SHEET	TSP	TWIST LOCK	VERT	VERTICAL	#	NUMBER	
AF	AIR FRAME	AWG	AMERICAN WIRE GAUGE	CP	CIRCULATING PUMP	EMER	EMERGENCY	IC	ISOLATED	MC	MECHANICAL CAPACITOR	N.C.	NORMALLY CLOSED	PC	POST INDICATING VALVE	PH	PHASE	SM	SIMILAR	TSP	TAMPER RESISTANT	VOL	VARIABLE FREQUENCY DRIVE	0	PHASE	
AFB	ABOVE FINISHED FLOOR	BATT	BATTERY	CRT	CATHODE-RAY TUBE	EMS	ENERGY MANAGEMENT SYSTEM	GALV	GALVANIZED	IG	ISOLATED GROUND	MCB	MAIN CIRCUIT BREAKER	NEC	NATIONAL ELECTRICAL CODE	PNL	PANEL	SN	SOLID NEUTRAL	TSL	TWISTED SHIELDED PAIR	VOL	VOLUME	C	CENTER LINE	
AFG	ABOVE FINISHED GRADE	BD	BOARD	CT	CURRENT TRANSFORMER	EMT	ELECTRICAL METALLIC TUBING	GC	GENERAL CONTRACTOR	IMC	INTERMEDIATE METAL CONDUIT	MCC	MOTOR CONTROL CENTER	NEMA	NATIONAL ELECTRICAL	PP	POWER POLE	SPEC	SPECIFICATION	T-SAT	THERMOSTAT	W	WATT	P	PLATE	
AFI	ARC FAULT CIRCUIT	BLDG	BUILDING	CTR	CENTER	GEN	GENERATOR	INCAND	INCANDESCENT	MCC	MAIN DISTRIBUTION CENTER	MDC	MAIN DISTRIBUTION CENTER	NFAS	NON-FUSED SAFETY DISCONNECT	PP	PAIR	SPKR	SPEAKER	TTC	TELEPHONE TERMINAL CABINET	W	WATT			
	INTERRUPTER	BMS	BUILDINGS MANAGEMENT SYSTEM	CU	COPPER	EQUIP	EQUIPMENT	IR	INFRARED	IR	INTERFLOCK WITH	MFR	MANUFACTURER	NFDS	NON-FUSED SAFETY DISCONNECT	PROJ	PROJECTION	SP	SPEAKER	TV	TELEVISION	WG	WATER GUARD			
AHU	AIR HANDLING UNIT	C	CABINET	DGP	DOMESTIC WATER CIRCULATING PUMP	EXIST	EXISTING	GND	GROUND	J-BOX	JUNCTION BOX	MFS	MAIN FUSED DISCONNECT SWITCH	NIC	NOT IN CONTRACT	PROJ	POWER ROOF VENTILATOR	SS	STAINLESS STEEL	TVC	TELEVISION TERMINAL CABINET	WH	WATER HEATER			
ALT	ALTERNATE	CAT	CATALOG	DEPT	DEPARTMENT	EXH	EXHAUST	GND	GROUND	KV	KILOVOLT	MH	MANHOLE	NL	NIGHT LIGHT	PTC	POTENTIAL TRANSFORMER	SSW	SELECTOR SWITCH	UC	UNDER COUNTER	WP	WEATHERPROOF			
AMP	AMPERE	CATV	CABLE TELEVISION	DEPT	DEPARTMENT	EXP	EXPLOSION PROOF	GYP BD	GYPSON BOARD	KVA	KILOVOLT-AMPERE	MIC	MICROPHONE	N.O.	NORMALLY OPEN	PVC	POLYVINYL CHLORIDE (CONDUIT)	SST	STOP/START PUSHBUTTONS	UC	UNDERGROUND ELECTRICAL	XFRM	TRANSFORMER			
ANF	AIR CIRCUIT BREAKER	DMF	DAMP FLOOR	DISC	DISCONNECT	FAB	FIRE ALARM	FAB	FIRE ALARM	KVA	KILOVOLT-AMPERE REACTIVE	MISC	MISCELLANEOUS	NTS	NOT TO SCALE	QNT	QUANTITY	STD	STANDARD	UH	UNIT HEATER	XFR	TRANSFER			
ANNUN	ANNUNCIATOR	CCTV	CLOSED CIRCUIT TELEVISION	DIST	DISTRIBUTION	HP	HORSEPOWER	KWH	KILOWATT HOUR	MLO	MAIN LUGS ONLY	MISC	MISCELLANEOUS	NTS	NOT TO SCALE	QNT	QUANTITY	STD	STANDARD	UH	UNIT HEATER	XFR	TRANSFER			
APPROX	APPROXIMATELY	CKT	CIRCUIT	DIST	DISTRIBUTION	HP	HORSEPOWER	KWH	KILOWATT HOUR	MLO	MAIN LUGS ONLY	MISC	MISCELLANEOUS	NTS	NOT TO SCALE	QNT	QUANTITY	STD	STANDARD	UH	UNIT HEATER	XFR	TRANSFER			
AO-STAT	AQUASTAT	CLG	CEILING	DN	DOWN	FCU	FIRE ALARM CONTROL PANEL	HPF	HIGH POWER FACTOR	LOC	LOCATE OR LOCATION	MMS	MANUAL MOTOR STARTER	OH	OVERHEAD	REQ	REQUIRED	SW	SWITCH	UTIL	UTILITY					
ARCH	ARCHITECT, ARCHITECTURAL	COMB	COMBINATION	DPR	DAMPER	FACU	FAN COIL UNIT	HT	HEIGHT	LT	LIGHT	MOA	MOTOR MOUNTED ASSEMBLY	OL	OVERLOADS	REQ	REQUIRED	SWD	SWITCHBOARD							

RACEWAY AND WIRING	
 1,3 LP1B	HOMERUN TO PANELBOARD WITH 3/4". 2 #12 & 1#12GND UNLESS NOTED OTHERWISE. NUMERALS 1 AND 3 INDICATE CIRCUITS IN PANELBOARD. RACEWAYS LARGER THAN 3/4" AND CONDUCTORS LARGER THAN #12 AWG SHALL BE INDICATED ON THE DRAWINGS. PROVIDE AN INSULATED GREEN GROUND WIRE IN ALL RACEWAYS MINIMUM SIZE TO BE #12AWG.
-----	RACEWAY RUN UNDERGROUND OR CONCEALED IN SLAB
_____	RACEWAY RUN EXPOSED

<u>LIGHTING LEGEND</u>	
	BRIDGE LIGHTING FIXTURE
	<u>LIGHTING CONTROL LEGEND</u>
	(MOUNT 4'-0" AFF UNLESS NOTED OTHERWISE)
S	SINGLE POLE SWITCH

POWER LEGEND	
HH	HANDHOLE
J	JUNCTION BOX WITH BLANK COVERPLATE, SIZE AS REQUIRED BY N.E.C.

RECEPTACLE LEGEND	
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER CONVENIENCE OUTLET - 20A, 125V, U-SLOT MOUNTED TYPE MOUNTED 18" ABOVE FINISHED FLOOR TO CENTER LINE. ALL OTHER MOUNTING HEIGHTS SHALL BE AS NOTED ADJACENT TO THE SYMBOL.

ONE LINE DIAGRAM LEGEND	
	<p>CIRCUIT BREAKER; TEXT DENOTES CIRCUIT BREAKER AMPACITY RATING AND POLE NUMBER - 40 AMPS, 2 POLE</p>


## DEMOLITION NOTES

1. SYSTEMS WHICH PASS THROUGH THE AREA BEING DEMOLISHED BUT CONTINUE TO AREAS NOT WITHIN THE DEMOLITION SCOPE ARE TO REMAIN. THE ELECTRICAL CONTRACTOR IS TO IDENTIFY (SPRAY PAINT OR EQUIVALENT) AND PROTECT THOSE SYSTEMS WHICH ARE ACTIVE AND ARE TO REMAIN.
2. ALL CONDUIT AND WIRE WHICH IS NO LONGER IN USE IS TO BE REMOVED. CONDUIT AND WIRE IS TO BE REMOVED BACK TO ITS SOURCE OR NEAREST DEVICE WHICH IS SCHEDULED TO REMAIN. UNDER NO CIRCUMSTANCES ARE ABANDONED CONDUIT AND WIRE OR SYSTEM COMPONENTS TO REMAIN.
3. MAKE ANY NECESSARY RE-CIRCUITING, EXTENSIONS OF EXISTING CIRCUITS AND RELOCATIONS REQUIRED TO PROPERLY RE-ENERGIZE REMAINING EXISTING SERVICES OR EQUIPMENT THAT MAY BE INTERFERED WITH BY NEW CONSTRUCTION, REMOVALS OR RELOCATIONS. ALL SHUTDOWNS TO RELOCATE ACTIVE FEEDERS OR BRANCH CIRCUITS WILL BE PERFORMED ON OFF HOURS AS MUTUALLY AGREED TO WITH THE OWNER.
4. PRIOR TO REMOVAL OF EQUIPMENT, CONFIRM THAT FEEDER OR BRANCH CIRCUITS ARE NO LONGER ACTIVE. SHOULD IT BE DISCOVERED THE FEEDER OR BRANCH CIRCUITS ARE ACTIVE, NOTIFY THE ARCHITECT IMMEDIATELY FOR DIRECTION.
5. ELECTRICAL CONTRACTOR IS TO REMOVE ALL LAMPS, BALLASTS AND OTHER ELECTRICAL COMPONENTS CLASSIFIED AS HAZARDOUS MATERIALS. ELECTRICAL CONTRACTOR IS TO OBTAIN THE SERVICES OF A LICENSED HAZARDOUS MATERIALS CONTRACTOR TO DISPOSE OF THE MATERIALS. PROVIDE WRITTEN DOCUMENTATION TO THE OWNER'S REPRESENTATIVE FROM THE HAZARDOUS MATERIALS CONTRACTOR.
6. ELECTRICAL DEMOLITION ABBREVIATIONS:
  - "XM" DENOTES EXISTING EQUIPMENT TO REMAIN
  - "RL" DENOTES EXISTING EQUIPMENT TO BE DISCONNECTED AND RELOCATED. ALL EXISTING CONDUIT AND WIRE SHALL BE REMOVED BACK TO ITS SOURCE AND ALL DEVICES ASSOCIATED WITH THE EQUIPMENT SHALL BE REMOVED OR ALL CONDUIT AND WIRE SHALL BE INTERCEPTED AND EXTENDED AS REQUIRED. ALL NEW CONDUIT AND WIRE SHALL MATCH EXISTING IN STYLE AND SIZE. ALL EXISTING ELECTRICAL DEVICES ASSOCIATED WITH THE EXISTING EQUIPMENT SHALL BE REMOVED AND NEW DEVICES AS SHOWN SHALL BE PROVIDED.
  - "NL" DENOTES NEW LOCATION OF RELOCATED EXISTING EQUIPMENT.
  - "RE" DENOTES EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED ALL EXISTING CONDUIT AND WIRE SHALL BE REMOVED BACK TO ITS SOURCE AND ALL DEVICES ASSOCIATED WITH THE EQUIPMENT SHALL BE REMOVED.

GENERAL ELECTRICAL NOTES	
1. DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHTS, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.	19. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTIONS OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
2. ALL STRAIGHT FEEDER, BRANCH CIRCUIT AND AUXILIARY SYSTEM CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 150 FEET. EXACT SIZES OF PULL BOXES AND LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ELECTRICAL CONTRACTOR.	20. WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO ELIMINATE INTERFERENCES.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AS APPLICABLE AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT; THE POWER WIRING, CONTROL WIRING AND ALL ELECTRICAL CONNECTIONS AND CONDUIT TURN-UPS SHALL BE COORDINATED WITH THE RESPECTIVE CONTRACTORS BEFORE THE START OF CONSTRUCTION IN THE FIELD.	21. ELECTRICAL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL COMPLETION.
4. SLEEVES ARE TO BE UTILIZED FOR PASSAGE OF CONDUITS THROUGH FLOORS OR WALLS. CONDUITS AND BOXES ARE TO BE SUPPORTED BY THE USE OF PRESET FASTENERS INSTALLED IN FLOORS, WALLS OR COLUMNS. CONDUITS AND BOXES ARE TO BE INSTALLED CONCEALED IN MASONRY WALLS AND ABOVE HUNG CEILINGS. ALL SLEEVES ARE TO BE SEALED WITH APPROVED FIRE STOPPING SEALANT.	22. WORK SHALL BE GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS. COMPLETE EQUIPMENT (INSULATED GREEN WIRE) GROUNDING SYSTEM SHALL BE INSTALLED.
5. COMBINED HOMERUNS OF TWO (2) OR THREE (3) CIRCUITS MAY BE UTILIZED. HOWEVER, THE NEUTRAL CONDUCTOR IS TO BE INCREASED TO #10AWG. COMBINED HOMERUNS ARE TO BE LIMITED TO 20A, LIGHTING AND POWER CIRCUITS.	23. WIRING METHODS: A. EXTERIOR UNDERGROUND FEEDERS SHALL BE PVC SCHEDULE 80 FOR DIRECT BURIED AND PVC SCHEDULE 40 FOR CONCRETE ENCASED. B. EXTERIOR ABOVE GRADE FEEDERS SHALL BE RGS CONDUIT. C. INTERIOR FEEDERS EXPOSED SHALL BE RGS CONDUIT. D. LIGHTING FIXTURE CONNECTIONS SHALL BE MC CABLE. E. EMERGENCY, CRITICAL AND LIFE/SAFETY BRANCH LIGHTING CIRCUITRY SHALL BE EMT CONDUIT.
6. WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE WITH MASSACHUSETTS ELECTRICAL AMENDMENTS, MASSACHUSETTS BUILDING CODE, NFPA AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.	24. NO CONDUIT OR WIRE SHALL BE RUN IN OR BELOW SLAB WITHOUT ENGINEER APPROVAL OR NOTED OTHERWISE ON THE PLANS.
7. THE WORD "CONTRACTOR" AS USED IN THE "ELECTRICAL WORK" SHALL MEAN THE ELECTRICAL SUBCONTRACTOR.	25. CONDUIT AND TUBING SHALL BE SUPPORTED ON GALVANIZED WALL BRACKETS, TRAPEZE HANGERS OR PIPE STRAPS SECURED BY MEANS OF TOGGLE BOLTS OR INSERTS IN WOOD CONSTRUCTION.
8. CONTRACTOR SHALL PAY FOR ALL PERMITS, INSURANCE AND TESTS, AND SHALL PROVIDE LABOR AND MATERIAL TO COMPLETE THE ELECTRICAL WORK SHOWN.	26. FEEDER TAPS WILL NOT BE ALLOWED IN PANELBOARD GUTTERS.
9. OWNER SHALL PAY ELECTRIC UTILITY COMPANY BACKCHARGES.	27. CONTRACTOR SHALL CHECK EXISTING CONDITIONS TO DETERMINE EXACT EXTENT OF WORK TO BE PERFORMED PRIOR TO BIDDING. DIMENSIONS RELEVANT TO EXISTING WORK SHALL BE VERIFIED IN THE FIELD.
10. CONTRACTOR SHALL PROVIDE ALL REQUIRED COORDINATION WITH ELECTRIC, UTILITY.	28. IN AREAS NOT AFFECTED BY THIS RENOVATION, THIS SUBCONTRACTOR SHALL MAINTAIN CONTINUITY OF ELECTRIC SERVICE.
11. ELECTRIC UTILITY WORK ORDER NUMBER FOR THIS PROJECT IS #XXXXXXXXXX.	29. ELECTRICAL SHUTDOWN SHALL BE AT A TIME AND DATE APPROVED BY THE OWNER.
12. EXCEPT AS OTHERWISE NOTED, THE ELECTRICAL WORK SHALL INCLUDE DEMOLITION, PANELBOARDS, CIRCUIT BREAKERS, FEEDERS, WIRING, RACEWAYS, LIGHTING FIXTURES, AND DEVICES.	30. PROVIDE AS-BUILT "CADD" DRAWINGS AT THE COMPLETION OF THE PROJECT.
13. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY LIGHTING AND POWER AND THE GENERAL CONTRACTOR SHALL PAY ALL ENERGY CHARGES FOR TEMPORARY POWER AND LIGHTING.	31. ELECTRICAL CONTRACTOR SHALL LABEL ALL ELECTRICAL DEVICES INCLUDING BUT NOT LIMITED TO RECEPTACLES, PANELBOARDS, DISCONNECTS, ENCLOSED CIRCUIT BREAKERS, CONTROL PANELS, JUNCTION BOXES, ETC. A. RECEPTACLES - PANEL NAME AND CIRCUIT DESIGNATION B. PANELBOARDS - PANEL NAME, VOLTAGE, AMPERAGE, PHASE AS WELL AS PANEL AND CIRCUIT IT IS FED FROM. C. DISCONNECTS - PANEL NAME, CIRCUIT DESIGNATION AND EQUIPMENT SERVING. D. ENCLOSED CIRCUIT BREAKERS - PANEL NAME, CIRCUIT DESIGNATION AND EQUIPMENT SERVING. E. CONTROL PANEL - PANEL NAME AND CIRCUIT DESIGNATION F. JUNCTION BOXES - PANEL NAME AND CIRCUIT DESIGNATION
14. DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL KEEP HIS PORTION OF THE WORK NEAT, CLEAN AND ORDERLY.	32. ADDRESS QUESTIONS TO THE ENGINEER IN WRITING BEFORE AWARD OF CONTRACT, OTHERWISE ENGINEER INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.
15. ALL SYSTEMS SHALL BE TESTED FOR SHORT CIRCUIT AND GROUNDS PRIOR TO ENERGIZING AND ANY DEFECTS SHALL BE CORRECTED.	
16. ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK SHALL BE INCLUDED AS PART OF THIS SECTION.	
17. COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR ELECTRICAL EQUIPMENT. WHERE SPECIFIED ELECTRICAL EQUIPMENT IS SUBSTITUTED, THE ELECTRICAL CONTRACTOR SHALL SUBMIT COMPLETE SPECIFICATIONS ON THE SUBSTITUTE AS WELL AS THE ITEM ORIGINALLY SPECIFIED.	
18. MATERIALS SHALL BE SPECIFICATION GRADE AND UL LISTED.	

Project:

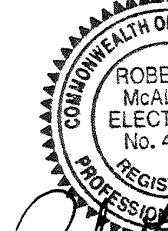
WORCESTER UNDERPASS  
LIGHTING



MADISON STREET  
WORCESTER, MA

**Weston & Sampson<sup>SM</sup>**  
Weston & Sampson Engineers, Inc.  
427 Main Street, Suite 400  
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978.532.1900 800.SAMPSON  
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Revisions:		
No.	Date	Description
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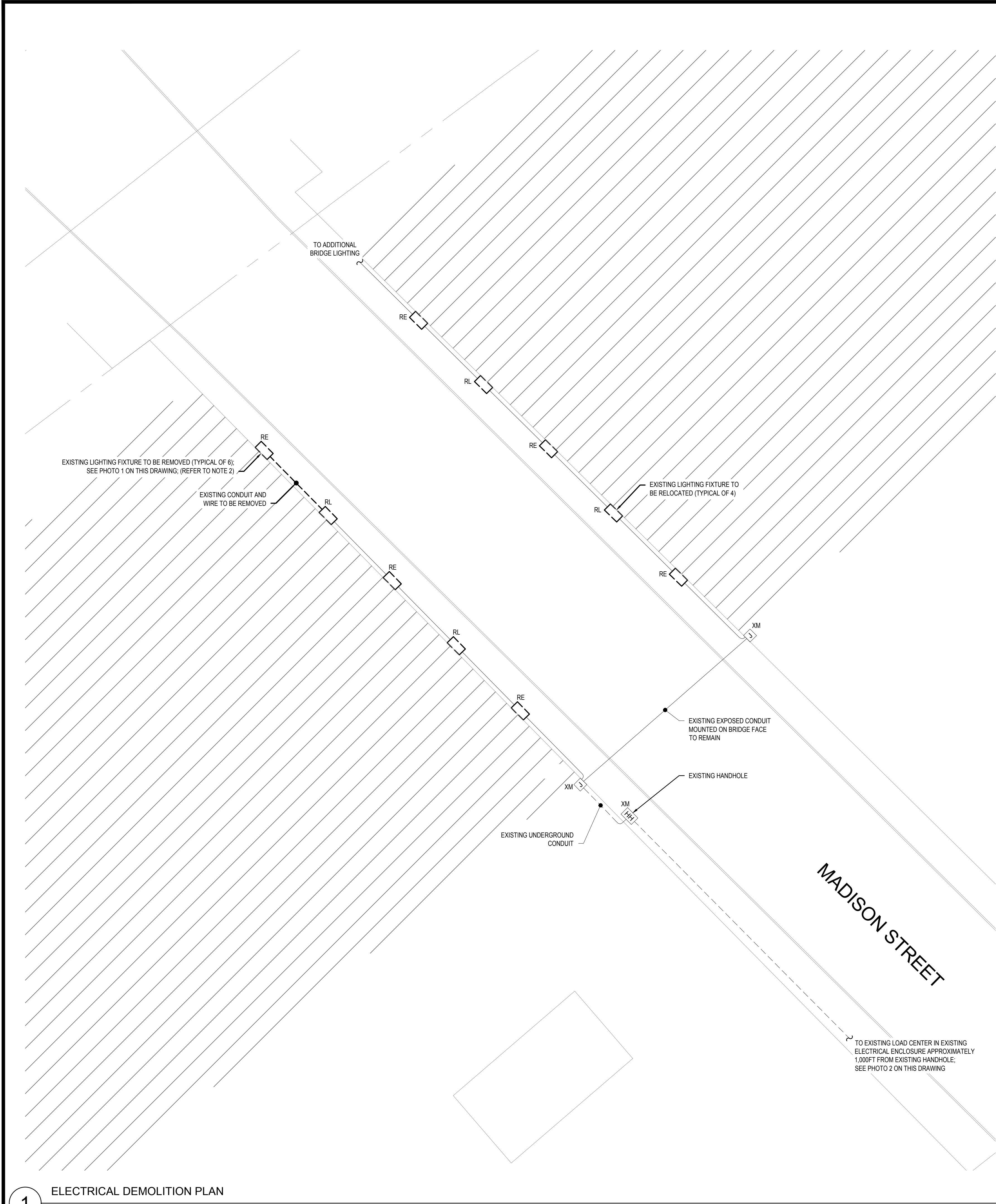
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<p>Issued For:</p>	
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Scale:	NO SCALE
<p>Date: 09/26/23</p>	
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Approved By:	RFM
<p>W&amp;S Project No.: ENG23-0722</p> <p>W&amp;S File No.:</p>	

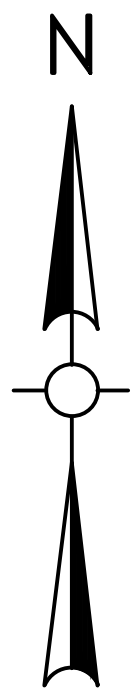
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<p>Sheet Number:</p> <p><b>E001</b></p>



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1 ELECTRICAL DEMOLITION PLAN  
SCALE: 1" = 40'-0"

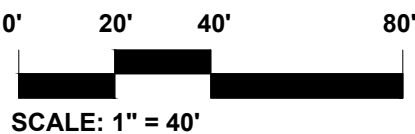


2 PHOTO 1: EXISTING UNDERPASS LIGHTING FIXTURE  
NOT TO SCALE



3 PHOTO 2: EXISTING LOAD CENTER IN EXISTING ELECTRICAL ENCLOSURE  
NOT TO SCALE

- DRAWING NOTES:
1. REFER TO DRAWING E001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
  2. ALL EXISTING CONDUIT AND WIRE TO REMAIN UNLESS NOTED OTHERWISE.
  3. NO DEMOLITION OF EXISTING LIGHTING FIXTURES IS TO TAKE PLACE UNTIL ALL NEW LED LIGHTING FIXTURES ARE INSTALLED AND OPERATIONAL. FOLLOWING INSTALLATION OF THE NEW LIGHTING, EXISTING LIGHTING FIXTURES AND CIMCOM UNITS AS INDICATED SHALL BE DISCONNECTED, PROTECTED, AND DELIVERED TO THE OWNER AT THE DPW FACILITY ON MILLBURY STREET.

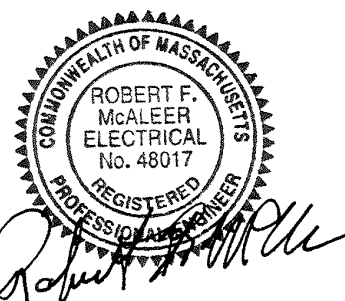


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W&S File No.:

Drawing Title:

ELECTRICAL  
DEMOLITION  
SITE PLAN

Sheet Number:

ED001

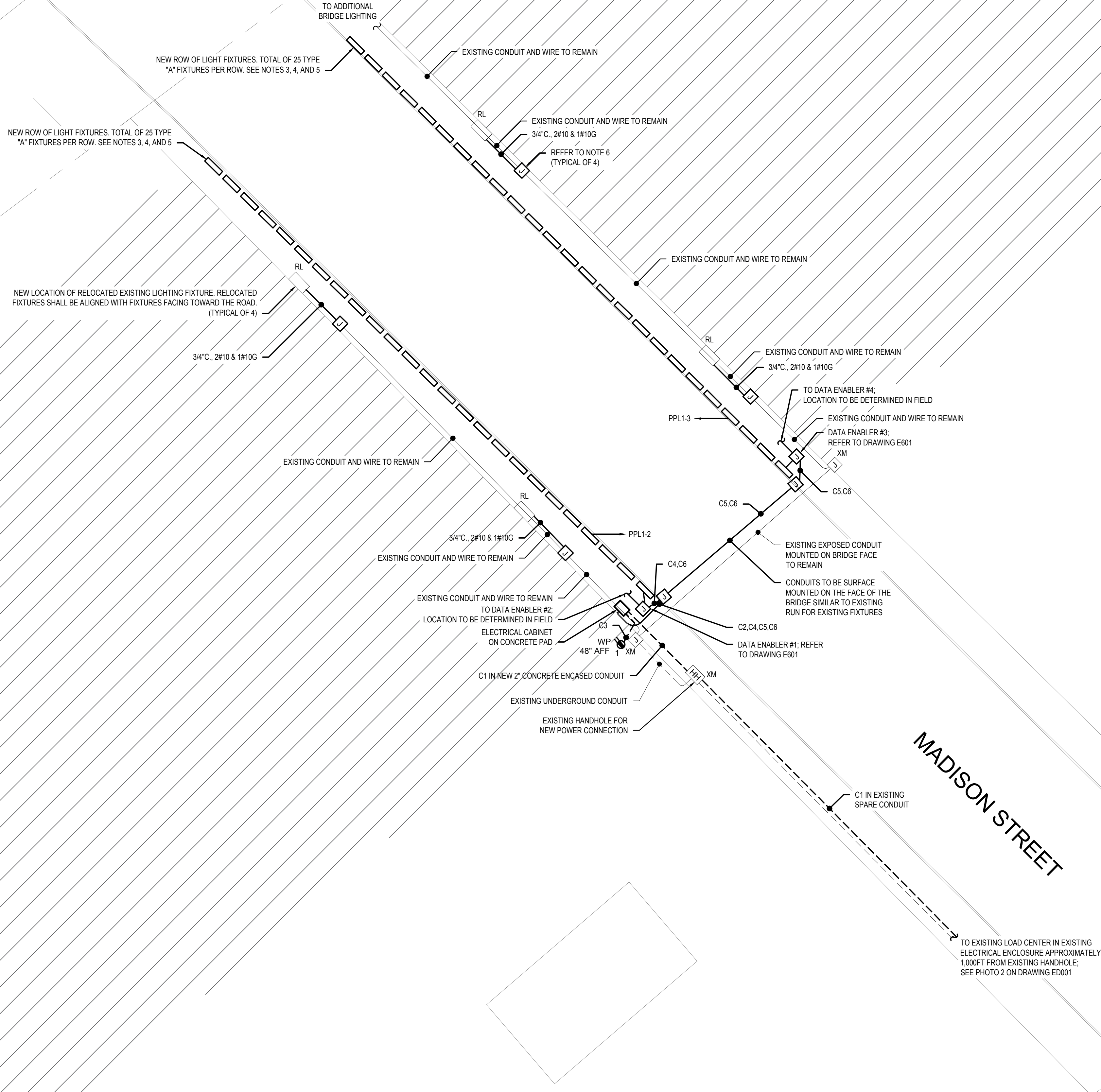
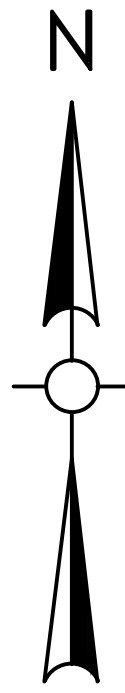


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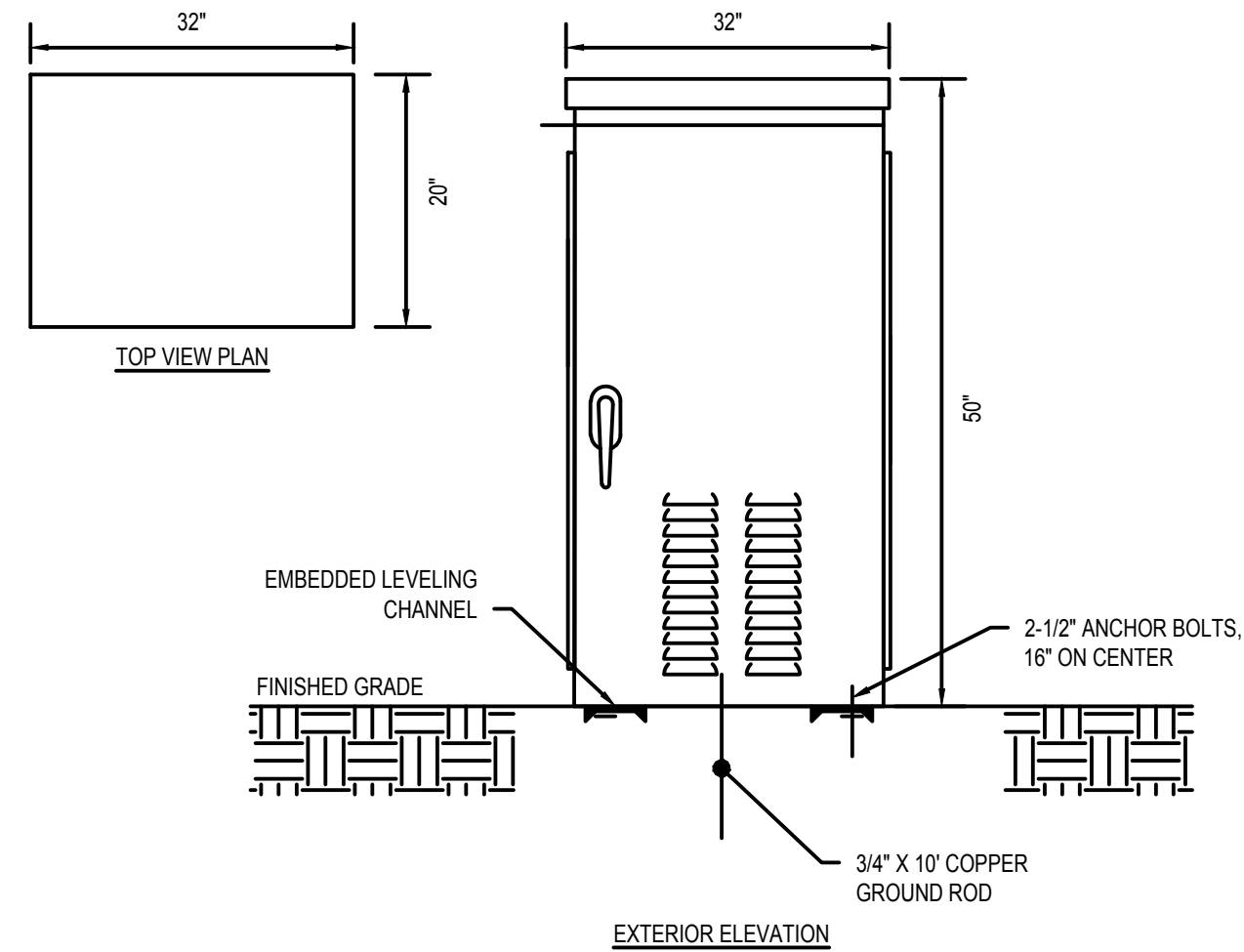
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## ELECTRICAL SITE PLAN

SCALE: 1" = 40'-0"



CONDUIT AND WIRE SCHEDULE								
CONDUIT TAG	FEEDER	FROM	TO	CONTACT	NO. OF FIXTURES	LOAD	CONTACT SIZE	REMARKS
C1	2"C., 3#4 & 1#8GND	EXISTING LOAD CENTER VIA EXISTING HANDHOLE	PPL1	-	-	-	-	CONCRETE ENCASED
C2	3/4"C., EMPTY CONDUIT WITH PULL STRINGS	ELECTRICAL CABINET	BRIDGE FACE	-	-	-	-	CONCRETE ENCASED
C3	3/4"C., 2#10 & #10GND	PPL1-1	BRIDGE RECEPTACLE	-	1	1.5 A	-	SURFACE MOUNTED
C4	3/4"C., 2#10 & #10GND	PPL1-2	UNDERPASS LIGHTS	-	25	7.1 A	-	SURFACE MOUNTED
C5	3/4"C., 2#10 & #10GND	PPL1-3	UNDERPASS LIGHTS	-	25	7.1 A	-	SURFACE MOUNTED
C6	3/4"C., WITH CAT6 CABLE	ELECTRICAL CABINET	CONTROLLER AT FIXTURE	-	-	-	-	SURFACE MOUNTED



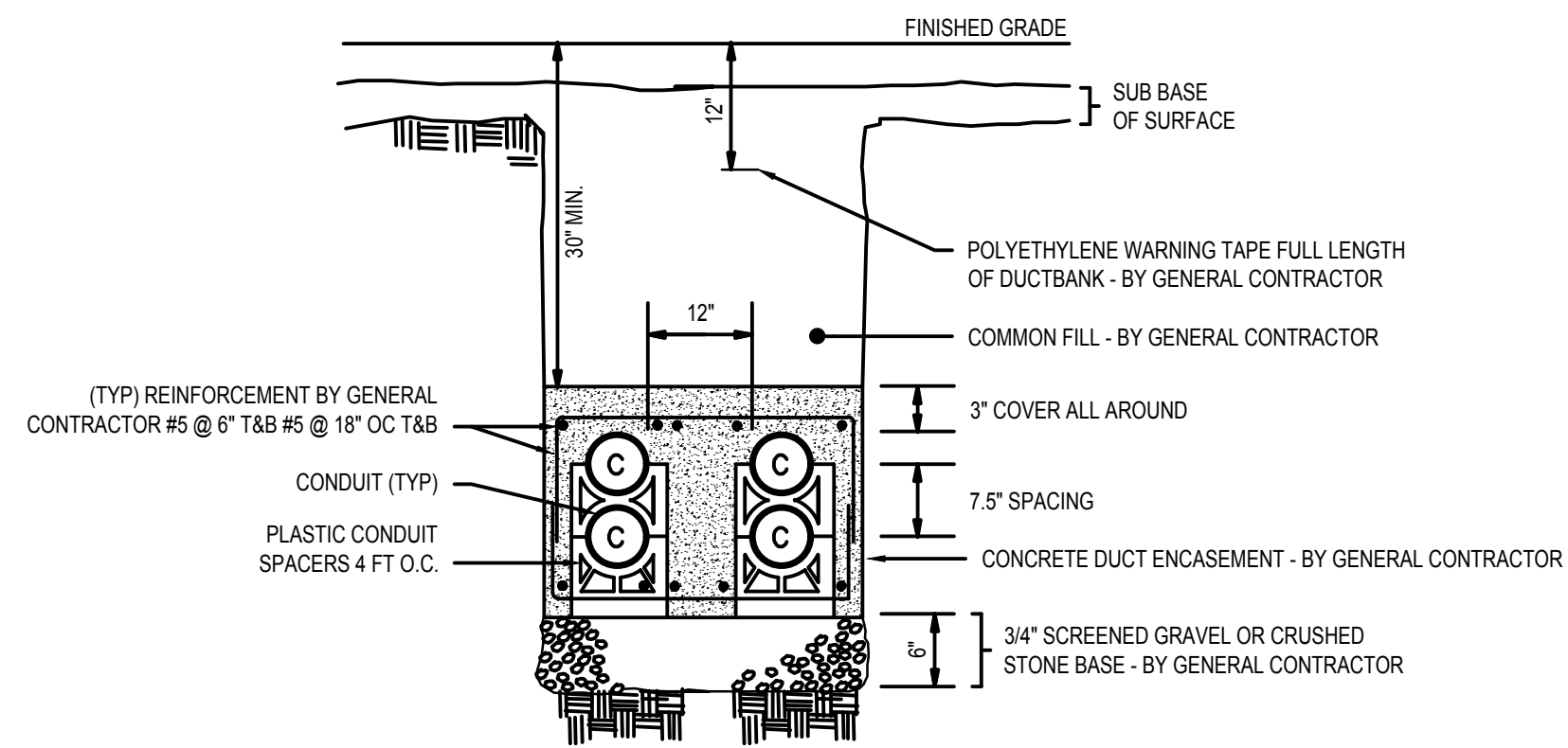
### NOTES:

- CONTRACTOR SHALL COORDINATE WITH THE EXACT CABINET SIZE WITH ALL MANUFACTURER EQUIPMENT SIZES PRIOR TO SUBMITTING THE CABINET FOR APPROVAL. PROVIDE A SCALED DRAWING SHOWING ALL EQUIPMENT.
- ALL ELECTRICAL EQUIPMENT WITHIN THE CABINET SHALL BE MOUNTED TOWARDS THE FRONT OF THE CABINET.

2

## ELECTRICAL ENCLOSURE DETAIL

NOT TO SCALE



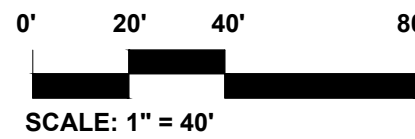
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## TYPICAL 1x1 WITH COMMUNICATIONS CONCRETE ENCASED DUCTBANK DETAIL

NOT TO SCALE

### DRAWING NOTES:

- REFER TO DRAWING E001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO DRAWING E001 FOR PANELBOARD SCHEDULE.
- CONTRACTOR TO COORDINATE QUANTITIES, OVERALL RUN LENGTHS, ORIENTATION, MOUNTING LOCATIONS, AND MOUNTING DETAILS PER ARCHITECTURAL DRAWINGS.
- FINAL LIGHT FIXTURE AND DATA ENABLER PRO LOCATIONS TO BE CONFIRMED WITH ARCHITECTS BASED ON SITE CONDITIONS.
- CONTRACTOR TO COORDINATE AND PROVIDE ALL JUMPER CABLES AND LEADER CABLES AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM INSTALLATION.
- CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT AND WIRE AT JUNCTION BOX AND EXTEND TO NEW LOCATION OF RELOCATED LIGHTING FIXTURE.



SCALE: 1" = 40'

Project:

WORCESTER UNDERPASS  
LIGHTING



MADISON STREET  
WORCESTER, MA

**Weston & Sampson**

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978.532.1900 800.SAMPSON

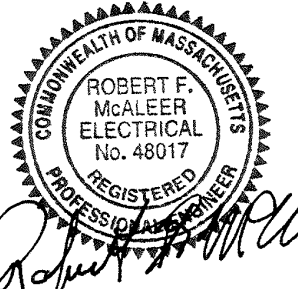
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Revisions:

No.	Date	Description
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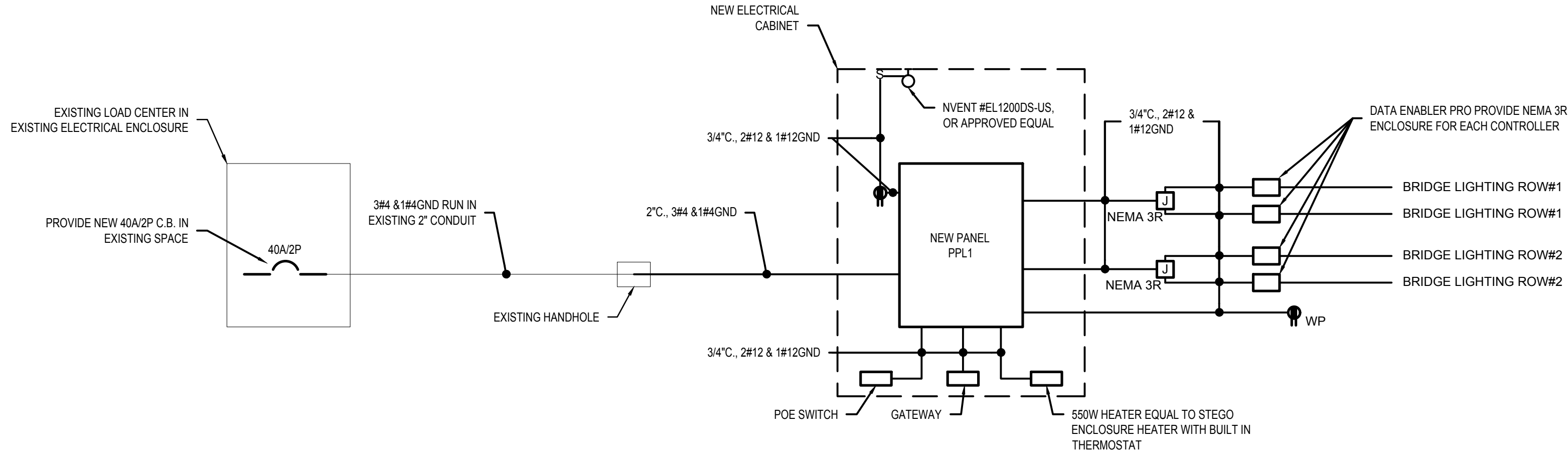
**ELECTRICAL SITE  
PLAN**

Sheet Number:

**E002**

Rev: 1.8 Date: 10/24/2019

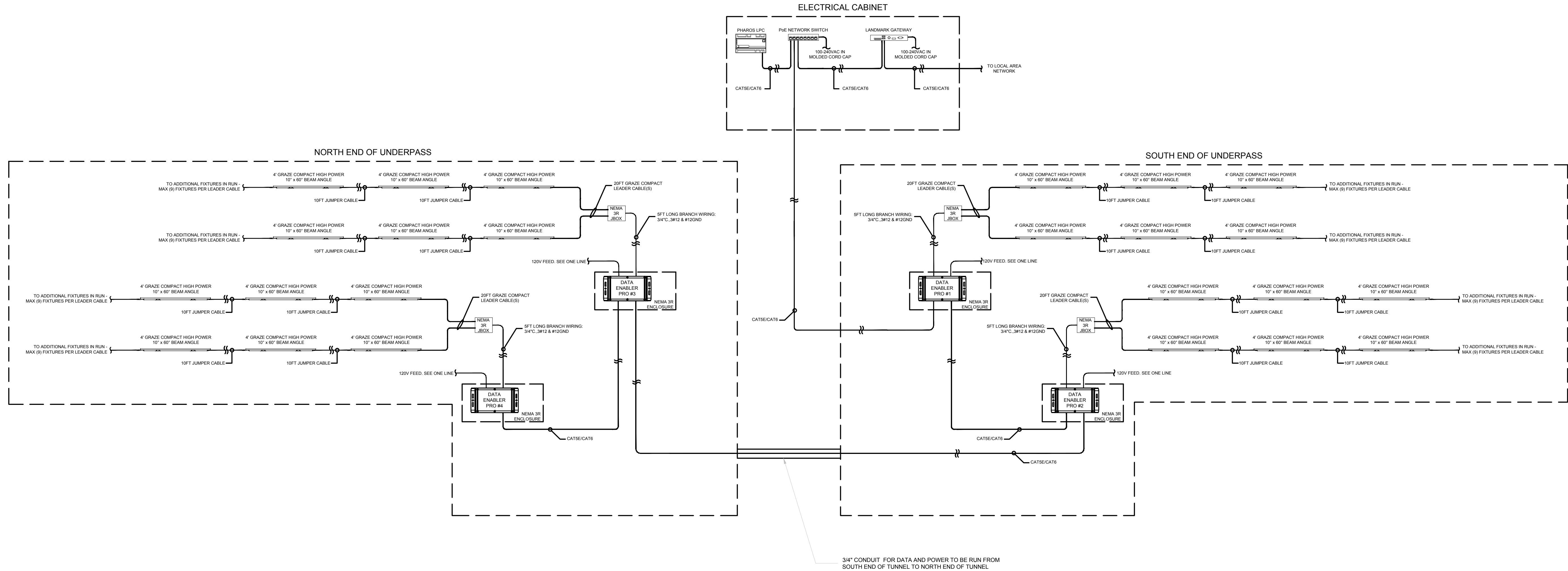




PANELBOARD SCHEDULE							
DESIGNATION: PPL1		S.C. RATING: 14,000A RMS SYSTEM			REMARKS:		
LOCATION: ELECTRICAL CABINET		SERVICE: 120/240V, 1Ø, 3W					
RATING: 100 AMPS		MOUNTING: SURFACE					
MAIN: 40A MCB							
CKT. NO.	LOAD DESIGNATION	CIRCUIT BREAKER	LOAD		CIRCUIT BREAKER	LOAD DESIGNATION	CKT. NO.
			A	B			
1	BRIDGE RECEPTACLE	20	1.03		20	BRIDGE LIGHTS	2
3	BRIDGE LIGHTS	20		1.03	20	GATEWAY	4
5	CABINET LIGHT AND RECEPTACLE	20	0.74		20	CABINET HEATER	6
7	SPARE	20		0.06	20	POE SWITCH	8
9	SPARE	20			20	SPARE	10
SUB-TOTAL			1.77	1.09			
TOTAL			2.86	KVA			
ESTIMATED DEMAD LOAD			2.58	KVA			
TOTAL DEMAND CURRENT			10.75	AMPS			

## 1 ELECTRICAL ONE LINE DIAGRAM

NOT TO SCALE



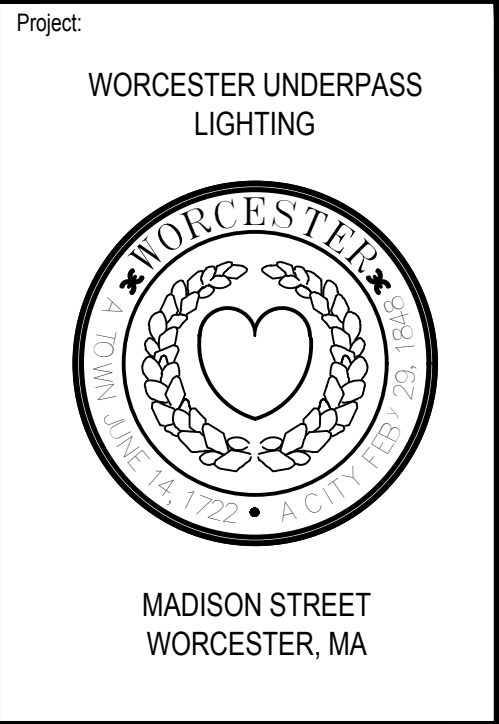
## 2 CONTROLS DIAGRAM

NOT TO SCALE

CONTROL DEVICES SCHEDULE		
EQUIPMENT	MANUFACTURER	CATALOG NUMBER
DATA ENABLER PRO	COLOR KINETICS	106-000004-00
20 FT GRAZE COMPACT LEADER CABLE	COLOR KINETICS	108-000074-02
10FT JUMPER CABLE	COLOR KINETICS	108-000073-04
PLC	PHAROS	PHAROS PLC
POE NETWORK SWITCH	COLOR KINETICS	120-000084-01
GATEWAY	INTERACT LANDMARK	LANDMARK GATEWAY

### DRAWING NOTES:

- REFER TO DRAWING E001 FOR LEGEND, ABBREVIATIONS, GENERAL NOTES AND DEMO NOTES.
- CONTRACTOR TO COORDINATE QUANTITIES, OVERALL RUN LENGTHS, ORIENTATION, MOUNTING LOCATIONS, AND MOUNTING DETAILS PER ARCH. DWGS.
- FINAL LIGHT FIXTURE AND DATA ENABLER PRO LOCATIONS TO BE CONFIRMED WITH ARCHITECTS BASED ON SITE CONDITIONS.
- CONTRACTOR TO COORDINATE AND PROVIDE ALL JUMPER CABLES AND LEADER CABLES AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM INSTALLATION.
- FOR ANY ADDITIONAL QUESTIONS REGARDING THE COLOR KINETICS PRODUCTS, PLEASE CONTACT DAN CARNEVALE, D:CARNEVALE@APEXLTG.COM



Weston & Sampson

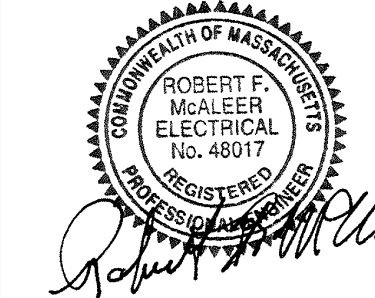
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ELECTRICAL  
SCHEDULES AND  
DIAGRAMS

Sheet Number:

E601