

SPECIFICATIONS (APPLY TO BUILDING "C" ALSO)

- A. GENERAL**
- PRIOR TO SUBMISSION OF BID, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS.
 - ALL ELECTRICAL SERVICE WORK SHALL COMPLY WITH PG&E REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL COMPONENTS, MEANS AND METHODS OF INSTALLATION AS REQUIRED BY PG&E GREENBOOK AND PUC REQUIREMENTS.
 - BRING TO THE ATTENTION OF THE ARCHITECT ANY CONFLICTING INFORMATION, OR MISSING INFORMATION FROM THE DOCUMENTS PRIOR TO START OF CONSTRUCTION.
 - PROVIDE REQUIRED COOPERATION AND COORDINATION WITH OTHER TRADES TO MAXIMIZE CONSTRUCTION EFFICIENCY.
 - ORDINANCES AND REGULATIONS: ALL SYSTEMS SHALL BE INSTALLED WITHIN STRICT ACCORDANCE WITH ALL APPLICABLE CITY, STATE AND NATIONAL CODES AND ORDINANCES.
 - TESTING AND ADJUSTING: UPON COMPLETION OF THE WORK, TEST AND REGULATE ALL SYSTEMS TO THE INTENT OF THEIR DESIGN AND TO THE OWNER'S SATISFACTION.
 - WARRANTEE: ALL MATERIALS, AND EQUIPMENT FURNISHED AND INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED, AND FREE OF ALL DEFECTS AND SHALL BE WARRANTED FOR ONE YEAR FROM DATE OF ACCEPTANCE.
 - LICENSES, PERMITS AND FEES: PROVIDE, PROCURE AND PAY FOR ALL PERMITS SERVICES, LICENSES, FEES, ETC., REQUIRED FOR PERFORMANCE OF THIS WORK UPON COMPLETION OF THE WORK, DELIVER TO THE OWNER, ALL CERTIFICATES OF APPROVAL SIGNED BY THE CONTROLLING AUTHORITIES.
 - SUBMITTAL:
 - SIX CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT.
 - FIRE ALARM: SHOP DRAWINGS AS REQUIRED BY FIRE MARSHALL
 - COORDINATE EXACT HVAC LOCATION AND VERIFY ELECTRICAL LOADS WITH THE MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
 - INSTALL ALL DEVICES AND EQUIPMENT PER MANUFACTURERS' RECOMMENDATIONS.
 - PROVIDE SUPPORTS, VIBRATION ISOLATION, AND SEISMIC BRACING.
 - FIRE ALARM: DEVICES SHOWN ON PLANS TO SHOW MINIMUM REQUIREMENTS FOR THIS BUILDING. IT IS THE RESPONSIBILITY OF THE DESIGN-BUILD CONTRACTOR TO PROVIDE REQUIRED AND COMPLETE DOCUMENTS FOR DEFERRED PERMIT SUBMITTAL.
 - THE TERM PROVIDE AS USED IN THESE DOCUMENTS IS DEFINED AS TO FURNISH AND INSTALL.
- B. MATERIAL AND METHODS**
- ALL EQUIPMENT SHALL BE LISTED BY AN ACCEPTED TESTING LABORATORY AND SHALL BE INSTALLED PER LISTING OR LABELING.
 - CONDUIT ROUTING SHOWN IS DIAGRAMMATIC. CONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
 - PROVIDE A CODE SIZE GROUND WIRE IN ALL CONDUITS UNLESS OTHERWISE NOTED.
 - ALL OUTLETS AND JUNCTION BOXES MOUNTED IN RATED WALL SHALL BE FIRE RATED.
 - MOUNTING HEIGHT SHOWN ARE FROM FINISHED FLOOR TO CENTERLINE OF THE OUTLET OR RACEWAY. ALL MOUNTING HEIGHTS SHALL BE AS SHOWN ON THE SYMBOL LIST UNLESS OTHERWISE NOTED.
 - REFER TO ARCHITECTURAL DOCUMENTS FOR CEILING TYPES AND DETAILS. PROVIDE REQUIRED LIGHTING FIXTURE ENCLOSURE, TRIMS AND MOUNTING ACCESSORIES. REFER TO APPLICABLE BUILDING CODES. PROVIDE REQUIRED FIXTURE SUPPORTS. MAINTAIN CEILING FIRE RATINGS.
 - RUN ALL CONDUITS CONCEALED. IF CONDUITS ARE RUN EXPOSED, RUN PARALLEL WITH BUILDING LINES, GROUPED TOGETHER IN ORDERLY AND WORKMANLIKE MANNER, AND FANNED-OUT OF ELECTRICAL ROOM AND OR RESPECTIVE PANELBOARDS TO INDIVIDUAL DEVICES. THE ROUTING SHALL BE APPROVED BY ARCHITECT.
 - ALL WIRES SHALL BE COPPER #12 AWG MINIMUM.
 - ALL WIRING SHALL BE IN CONDUIT. 3/4" MINIMUM.
 - FLEXIBLE CONDUIT: STEEL
 - EMT CONNECTORS: SET SCREW (NO COMPRESSION)
 - PULL CORD IN ALL EMPTY CONDUIT.
 - EMT: STEEL
 - INSULATION BUSHING ON 1-1/4" AND LARGER CONDUITS.
 - EXTERIOR AND CONCRETE EMBEDS" PVC SCH. 40.
 - METALLIC CLAD CABLE MAYBE USED WHERE SUITABLE, EXCEPT FOR FIRE ALARM SYSTEM.
 - THE WIRING OF LUMINAIRES, WIRING DEVICES AND CONTROL DEVICES, WITHIN EACH INTENDED CONTROL SCHEME, SHALL BE FULLY IMPLEMENTED USING THE PROPER TYPE AND NUMBER OF WIRES WITH CONNECTIONS AS REQUIRED.

- C. PRODUCTS**
- MAIN SWITCHBOARD:**
 - MANUFACTURERS: SIEMENS, GENERAL ELECTRIC, SQUARE D OR CUTLER-HAMMER.
 - MAIN BREAKERS: MOLDED CASE 22,000AIC MIN
 - BRANCH BREAKERS: 10,000AIC MIN
 - NEUTRAL BUS: COPPER FULL LENGTH WITH LUGS
 - GROUND BUS: FULL SIZE
 - OTHERS: 60HZ, 22,000AMP BUS BRACINGS
 - PANELBOARDS:**
 - MANUFACTURERS: SIEMENS, GENERAL ELECTRIC, SQUARE D OR CUTLER-HAMMER.
 - BRANCH BREAKERS: 10,000AIC MIN
 - NEUTRAL BUS: COPPER FULL LENGTH WITH LUGS
 - GROUND BUS: FULL SIZE
 - OTHERS: 60HZ, 10,000AMP BUS BRACINGS
 - CONDUITS:**
 - MANUFACTURERS: ALLIED TUBE & CONDUIT CORP., TRIANGLE PWC INC., WHEATLAND TUBE CO., INC. OR APPROVED EQUAL.
 - METALLIC TYPE: RSC, IMC, EMT AND FLEXIBLE.
 - NON-METALLIC TYPE: PVC SCHEDULE 40.
 - CONDUCTORS:** COPPER MINIMUM 75-DEG.C INSULATION (THW, THWN). MANUFACTURED BY ROME CABLE, GRAYBAR
 - METALLIC CLAD CABLE:** ALUMINUM-CLAD, COPPER MINIMUM 75-DEG.C INSULATION (THW, THWN) MEETS UL STANDARD 1569 AND NEC 334. MANUFACTURED BY ALFLEX CORP.
 - BOXES:**
 - MANUFACTURERS: T&B STEEL CITY, WIREMOLD WALKERBOX
 - TYPE: STEEL-STAMPED. SUITABLE FOR ENVIRONMENT.
 - EXTERIOR AND SITE BOXES: CHRISTY OR FORNI.
 - DEVICES:**
 - SWITCHES 15A-120V: LUTRON MAESTRO OR EQUAL.
 - RECEPTACLES 15A/20A-120V: LEVITON DECORA PLUS OR EQUAL.
 - WALL PLATES: LEVITON DECORA PLUS OR EQUAL.
 - SPECIALTY TYPE: NEMA CONFIGURATIONS AS SHOWN ON PLANS.
 - SWITCHBOARD MOUNTED SECONDARY SURGE ARRESTERS:** UL LISTED, MEET ANSI/IEEE C62.11-1987, SUITABLE FOR SERVICE ENTRANCE LOCATIONS AND FOR SINGLE OR THREE PHASE SYSTEMS. 650VAC PHASE TO GROUND MAXIMUM. SAME AS SWITCHBOARD MANUFACTURER.
 - OCCUPANCY SENSOR:**
 - WALL BI-LEVEL: WATTSTOPPER WI-300
 - CEILING: WATTSTOPPER A-1000/A-2000 WITH RELAY MODULE
 - LUMINAIRES:** AS SCHEDULED

ABBREVIATIONS

A	AMPS OR AMPERES	(N) N	NEW
AFF	ABOVE FINISHED FLOOR	NO/NC	NORMALLY OPEN/NORMALLY CLOSED
CKT	CIRCUIT	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	NL	NIGHT LIGHT
C	CONDUIT	NTS	NOT TO SCALE
C.O.	CONDUIT ONLY (EMPTY CONDUIT)	OC	ON CENTER
CU	COPPER	OL	OVERLOAD
(D) D	DEMOLISH	PH, Ø	PHASE
DF	DEMAND FACTOR	PNL	PANEL
(E) E	EXISTING	(RL) RL	RELOCATED
EM	EMERGENCY	(R)	REMOVE
FA	FIRE ALARM	(RN)	RENAME
FSD	FIRE SMOKE DAMPER	R	REUSED
FBO	FURNISHED BY OTHERS	SAD	SEE ARCHITECTURAL DRAWINGS
G GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMD	SEE MECHANICAL DRAWINGS
HOA	HAND/OFF/AUTO	SLD	SEE LANDSCAPE DRAWINGS
JB	JUNCTION BOX	SPD	SEE PLUMBING DRAWINGS
LED	LIGHT EMITTING DIODE	TTB	TELEPHONE TERMINAL BOARD
L	LOCKABLE	TYP	TYPICAL
MCC	MOTOR CONTROL CENTER	TVSS	TRANSIENT SURGE SUPPRESSOR SYSTEM
MTD	MOUNTED	T/S TS	TIME SWITCH
MLO	MAIN LUG/S ONLY	UON	UNLESS OTHERWISE NOTED
		V	VOLTS
		VIF	VERIFY IN FIELD
		W	WIRE
		WP	WEATHERPROOF

TITLE 24 MANDATORY MEASURES

- LIGHT SWITCHES (OR OTHER CONTROL) IN EACH ROOM [§131(A)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- MULTI-LEVEL CONTROL FOR LIGHTING SYSTEMS > 0.8 W/SF [§131(B)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- DAYLIGHTING CONTROLS [§131(C)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
 SEPARATE SWITCHES WHEN SKYLIT OR PRIMARY SIDELIT ZONE > 250 FT2.
- AUTOMATIC MULTI-LEVEL DAYLIGHTING CONTROLS WHEN SKYLIT OR PRIMARY SIDELIT ZONE > 2,500 FT2.
- CONTROLS CALIBRATED SO THAT SPACE ALWAYS MEETS OR EXCEEDS DESIGN FOOTCANDLES AND ELECTRIC LIGHTING IS FULLY DIMMED WHEN DAYLIGHT IS 150% OF DESIGN ILLUMINANCE.
- AUTOMATIC SHUT-OFF CONTROLS - A TIME SWEEP WITH AN OVERRIDE SWITCH OR OCCUPANCY SENSOR TO ASSURE LIGHTS ARE OFF AFTER BUSINESS HOURS. [§131(D)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- DISPLAY LIGHTING IS SEPARATELY SWITCHED. [§131(E)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- WHEN THE TAILORED LIGHTING METHOD IS USED TO SHOW COMPLIANCE, GENERAL LIGHTING MUST BE ON A SEPARATE SHUT-OFF CONTROL FROM DISPLAY LIGHTING [§131(F)]
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- STORES LARGER THAN 50,000 SF MUST HAVE AUTOMATIC CONTROLS TO SHED 15% OF LIGHTING LOAD WHEN AN AUTOMATED DEMAND RESPONSE SIGNAL IS RECEIVED FROM THE LOCAL UTILITY.
[NO INTERIOR LIGHTING IN SCOPE OF WORK.]
- ALL OUTDOOR LUMINAIRES WITH LAMPS RATED OVER 100 WATTS MUST EITHER: HAVE A LAMP EFFICACY OF AT LEAST 60 LUMENS PER WATT OR BE CONTROLLED BY A MOTION SENSOR. [§132(A)]
[THE NEW PORTICO WILL HAVE FOUR 70 WATT LUMINAIRES.]
- ALL OUTDOOR LUMINAIRES THAT USE LAMPS RATED GREATER THAN 175 WATTS IN THE FOLLOWING AREAS ARE REQUIRED TO BE OF THE CUTOFF TYPE: (A) HARDSCAPE AREAS INCLUDING PARKING LOTS AND SERVICE STATIONS HARDSCAPE (B) BUILDING ENTRANCES (C) ALL SALES AND NON-SALES CANOPIES (D) OUTDOOR DINING (E) ALL OUTDOOR SALES AREAS. [§132(B)]
- ALL PERMANENTLY INSTALLED OUTDOOR LIGHTING MUST BE CONTROLLED BY A PHOTOCONTROL OR ASTRONOMICAL TIME SWITCH THAT AUTOMATICALLY TURNS OFF THE OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE. [§132(C1)]
- OUTDOOR MULTI-LEVEL SWITCHING FOR BUILDING FACADES, PARKING LOTS, SALES AND NON-SALES CANOPIES, OUTDOOR SALES AREAS AND STUDENT PICK-UP/DROP-OFF ZONES, WHERE TWO OR MORE LUMINAIRES ARE USED, AUTOMATIC TIME SWITCH CONTROLS ARE REQUIRED TO HAVE THE ABILITY TO TURN OFF THE LIGHTING WHEN IT IS NOT NEEDED, AND TO REDUCE THE LIGHTING POWER BY AT LEAST 50 PERCENT BUT NOT EXCEEDING 80 PERCENT WHEN THE LIGHTING IS NOT NEEDED. [§132(C2)]

FOR ALL OTHER TITLE 24 FORMS, SEE DRAWING T24.1.

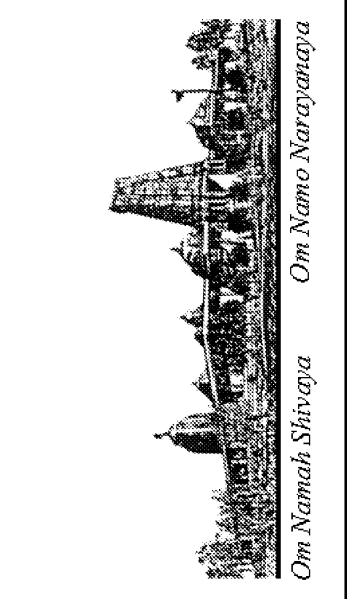
DRAWING INDEX

NO.	DWG. NO.	DESCRIPTION
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2	E-11	ELECTRIC ONE-LINE DIAGRAM AND SCHEDULES
3	E-12	ELECTRICAL SITE PLAN AND DETAILS

LEGEND

SYMBOL	DESCRIPTION
PANELBOARDS AND TERMINALS	
	DISTRIBUTION BOARD OR MOTOR CONTROL CENTER
	BRANCH CIRCUIT PANEL, FLUSH OR SURFACE MOUNTED, (120/208V, 3Ø, 4W)
EQUIPMENT CONNECTION	
	MOTOR
	JUNCTION BOX, WALL OR CEILING MOUNTED
	PULLBOX. MOUNTING AND SIZE AS INDICATED
	P = POWER; T = TELECOMM
	KILOWATT-HOUR METER WITH CURRENT AND POTENTIAL TRANSFORMERS.
SIGNAL	
	TELECOMM WALL OUTLET, +18" AFF U.O.N.
RACEWAYS	
	CONDUIT RUN EXPOSED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN SLAB, UNDERSLAB OR GROUND
	CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT OR DUCT STUB
	GROUND WIRING, SIZE AS INDICATED
	CROSSMARKS (SHOWN IN HOMERUN ONLY) INDICATE THE FOLLOWING: <ol style="list-style-type: none"> NUMBER ADJACENT TO CROSSMARKS INDICATES WIRE SIZES. NO NUMBER INDICATES SIZE #12 WIRE. NO CROSSMARKS INDICATES 2#12 AWG CONDUCTORS. SHORT CROSSMARK IS PHASE WIRE, LONG CROSSMARK IS NEUTRAL WIRE, AND LONG WITH DOT IS ISOLATED GREEN GROUND CONDUCTOR. NORMAL GROUND WIRE IS USUALLY NOT SHOWN. 3/4" EMT CONDUIT MINIMUM. UPSIZE AS REQUIRED FOR CIRCUITS WITH OVERSIZED NEUTRAL.
	FLEXIBLE WIRING CONNECTION TO LUMINAIRE OR EQUIPMENT
POWER	
	DUPLEX RECEPTACLE OUTLET, NEMA 5-20R, WALL MOUNTED +18" AFF UON.
	G (GFCI) =GROUND FAULT CIRCUIT INTERRUPTER TYPE
	1=ASSOCIATED CIRCUIT. D=DEDICATED CIRCUIT
LIGHTING	
	POLE MOUNTED PARKING LOT LIGHTING LUMINAIRE - SINGLE OR TWIN HEAD.
	COMPACT FLUORESCENT LUMINAIRE - WALL MOUNTED
	FLUORESCENT STRIP - SURFACE OR CEILING MOUNTED
	SINGLE POLE SWITCH, LOWER CASE LETTER INDICATES CIRCUIT OR LAMPS CONTROLLED BY SWITCH, +48"AFF U.O.N.
MISCELLANEOUS	
	L1 LIGHTING FIXTURE TAG, "L1" = FIXTURE TYPE
	1 SHEET NOTES TAG
	EQUIPMENT IDENTIFICATION EQUIPMENT NUMBER
CONVENTIONS	
1, 3, 5	INDIVIDUAL CIRCUITS TO INDIVIDUAL OR MULTI-POLE BREAKERS
	PANELBOARD NOMENCLATURE:
	PANEL SEQUENCE
	BUILDING VOLTAGE I.D.
	- = 120/208 VOLTS

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC



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**ELECTRICAL LEGEND
DRAWING INDEX**

DATE	05/28/10
SCALE:	AS NOTED
DRAWN BY:	
PROJECT:	ARROWHEAD

E-10



ABBREVIATIONS			
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AFF	ABOVE FINISHED FLOOR	NO/NC	NORMALLY OPEN/NORMALLY CLOSED
CKT	CIRCUIT	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	NL	NIGHT LIGHT
C	CONDUIT	NTS	NOT TO SCALE
C.O.	CONDUIT ONLY (EMPTY CONDUIT)	OC	ON CENTER
CU	COPPER	OL	OVERLOAD
(D) D	DEMOLISH	PH, Ø	PHASE
DF	DEMAND FACTOR	PNL	PANEL
(E) E	EXISTING	(RL) RL	RELOCATED
EM	EMERGENCY	(R)	REMOVE
FA	FIRE ALARM	(RN)	RENAME
FSD	FIRE SMOKE DAMPER	R	REUSED
FBO	FURNISHED BY OTHERS	SAD	SEE ARCHITECTURAL DRAWINGS
G GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMD	SEE MECHANICAL DRAWINGS
		SPD	SEE PLUMBING DRAWINGS
HOA	HAND/OFF/AUTO	TTB	TELEPHONE TERMINAL BOARD
JB	JUNCTION BOX	TYP	TYPICAL
LED	LIGHT EMITTING DIODE	TVSS	TRANSIENT SURGE SUPPRESSOR SYSTEM
L	LOCKABLE	T/S TS	TIME SWITCH
MCC	MOTOR CONTROL CENTER	UON	UNLESS OTHERWISE NOTED
MTD	MOUNTED	V	VOLTS
MLO	MAIN LUG/S ONLY	VIF	VERIFY IN FIELD
		W	WIRE
		WP	WEATHERPROOF

LUMINAIRE SCHEDULE							
TYPE	DESCRIPTION	CATALOG NO.	LAMPS	VOLTS	WATTS	MOUNTINGS	REMARKS
L1	2X4 RECESSED MOUNTED DIRECT-INDIRECT FLUORESCENT LUMINAIRE WITH ELECTRONIC BALLAST SUITABLE FOR BI-LEVEL SWITCHING	LITHONIA #2AV-G_-28T5-MDR_-MMOLT GEB10PS	2-	F028T5/835	120	60	RECESSED
L2	2X2 RECESSED MOUNTED DIRECT-INDIRECT FLUORESCENT LUMINAIRE WITH ELECTRONIC BALLAST SUITABLE FOR BI-LEVEL SWITCHING	LITHONIA #2AV-G_-14T5-MDR_-MMOLT GEB10PS	2-	F014T5/835	120	30	RECESSED
L3	6" APERTURE COMPACT FLUORESCENT DOWNLIGHT WITH ELECTRONIC BALLAST.	LITHONIA #AF-126-DTT-6AR-LD-MMOLT GEB10IS	1-	26DTT	120	30	RECESSED
L4	6" APERTURE COMPACT FLUORESCENT DOWNLIGHT WITH ELECTRONIC BALLAST WITH LENS SUITABLE FOR SHOWER ROOM.	LITHONIA #AF-226-DTT-6AR-LD-CGL-MMOLT GEB10IS	2-	26DTT	120	54	RECESSED
L5	NOT USED.						
L6	SURFACE MOUNTED COMPACT FLUORESCENT CANOPY LIGHTING WITH ELECTRONIC BALLAST DAMP LABEL DARK BRONZE FINISH.	LITHONIA #VGR4-226DTT_-120-GEB10-DDBT-LPI	2-	26DTT	120	54	SURFACE CAST-IN CONCRETE BOX
L7	2-T5 LAMP FLUORESCENT STRIP LUMINAIRE WITH SYMMETRIC REFLECTOR AND WIRE GUARD.	LITHONIA #Z5SMR-46-MMOLT-GEB10PS	2-	F028T5/835	120	60	48" CHAIN-HUNG
L8	SURFACE MOUNTED COMPACT FLUORESCENT DOWNLIGHT WITH ELECTRONIC BALLAST DAMP LABEL DARK BRONZE FINISH.	LITHONIA #CF10-226DTT-6AR-120-GEB10-DDB	2-	26DTT	120	54	CEILING
L9	WALL MOUNTED COMPACT FLUORESCENT LUMINAIRE WITH ELECTRONIC BALLAST FULL CUT-OFF AND DARK NIGHT TYPE.	LITHONIA #MRW-226-DTT-MD-MMOLT-GEB10_-LPI	2-	26DTT	120	54	WALL
LL	LOW LEVEL EXIT SIGN - NON ELECTRIFIED. PROVIDE WHERE CEILING MOUNTED EXIT SIGNAGE IS SHOWN.	ACTIVE SAFETY	NONE				WALL
LX	LED-TYPE EXIT SIGNAGE ARROWS, MOUNTING TYPE AND FACES AS SHOWN ON PLAN.	LITHONIA #EDG_-12-G-120/277-ELN	INCLUDED		120	5	CEILING/WALL

NOTES 1. COLOR AND FINISHES BY ARCHITECT.
2. PROVIDE EMERGENCY BATTERY PACK OR BALLAST AS REQUIRED.

LEGEND	
SYMBOL	DESCRIPTION
<u>POWER</u>	
1	DUPLEX RECEPTACLE OUTLET, NEMA 5-20R, WALL MOUNTED +18" AFF UON.
G	G (GFCI) =GROUND FAULT CIRCUIT INTERRUPTER TYPE 1=ASSOCIATED CIRCUIT. D=DEDICATED CIRCUIT
	DUPLEX RECEPTACLE - WALL MOUNTED ABOVE COUNTER
	DOUBLE DUPLEX (QUAD) RECEPTACLE, NEMA 5-20R, WALL MTD +18" AFF 1,3 ASSOCIATED CIRCUIT
	DUPLEX RECEPTACLE OUTLET - FLUSH MOUNTED ON CEILING
	DUPLEX RECEPTACLE OUTLET - FLUSH FLOOR MOUNTED
<u>LIGHTING</u>	
	2X4 FLUORESCENT LUMINAIRE - RECESSED MOUNTED
	2X2 FLUORESCENT LUMINAIRE - RECESSED MOUNTED
	FLUORESCENT DOWNLIGHT LUMINAIRE - RECESSED MOUNTED
	FLUORESCENT DOWNLIGHT LUMINAIRE - SURFACE MOUNTED
	FLUORESCENT STRIP - SURFACE OR CEILING MOUNTED
	FLUORESCENT STRIP/WRAPAROUND - WALL MOUNTED
	COMPACT FLUORESCENT LUMINAIRE - WALL MOUNTED
	POLE MOUNTED PARKING LOT LIGHTING LUMINAIRE - SINGLE OR TWIN HEAD.
<u>SWITCHES</u>	
	SINGLE POLE SWITCH, LOWER CASE LETTER INDICATES CIRCUIT OR LAMPS CONTROLLED BY SWITCH, +48" AFF U.O.N. "L" DENOTES LOCKABLE "3" DENOTES THREE-WAY "D" DIMMER TYPE
	MOTOR RATED SWITCH WITH THERMAL OVERLOAD ELEMENT.
	OCCUPANCY SENSOR SWITCH - WALL MOUNTED: SUITABLE UP TO 300SF BI-LEVEL OR SINGLE LEVEL TYPE
	OCCUPANCY SENSOR SWITCH - CEILING MOUNTED: SUITABLE UP TO 1000SF
<u>MISCELLANEOUS</u>	
	LIGHTING FIXTURE TAG, "L1" = FIXTURE TYPE
	SHEET NOTES TAG
	EQUIPMENT IDENTIFICATION EQUIPMENT NUMBER
<u>CONVENTIONS</u>	
1, 3, 5	INDIVIDUAL CIRCUITS TO INDIVIDUAL OR MULTI-POLE BREAKERS
	PANELBOARD NOMENCLATURE: PANEL SEQUENCE BUILDING VOLTAGE I.D. - = 120/208 VOLTS

DRAWING INDEX		
NO.	DWG. NO.	DESCRIPTION
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2	E-11B	ELECTRIC ONE-LINE DIAGRAM, DETAILS AND SCHEDULES
3	E-12B	ELECTRIC SITE PLAN
4	E-13B	LIGHTING PLAN
5	E-14B	POWER AND SIGNAL PLAN
6	E-15B	ELECTRICAL ROOF PLAN

LEGEND	
SYMBOL	DESCRIPTION
<u>PANELBOARDS AND TERMINALS</u>	
	DISTRIBUTION BOARD OR MOTOR CONTROL CENTER
	BRANCH CIRCUIT PANEL, FLUSH OR SURFACE MOUNTED, (120/208V, 3Ø, 4W)
	TERMINAL CABINET (TYPE AS INDICATED), FLUSH OR SURFACE MTD.
	TERMINAL BOARD. 3/4" THICK MARINE PLYWOOD
<u>EQUIPMENT CONNECTION</u>	
	MOTOR
	JUNCTION BOX, WALL OR CEILING MOUNTED
	PULLBOX. MOUNTING AND SIZE AS INDICATED P = POWER; T = TELECOMM
	MAGNETIC STARTER
	SAFETY DISCONNECT SWITCH-30A SIZE. LETTER DENOTES OTHER SIZES: A = 30 AMPS 15 = 15 AMP FUSES - = NON-FUSIBLE TYPE B = 60 AMPS 30 = 30 AMP FUSES C = 100 AMPS 40 = 40 AMP FUSES
	COMBINATION STARTER - FVNR HOA, NUMBER INDICATES NEMA SIZE
	PACKAGE CONTROLLER OR STARTER FURNISHED AND INSTALLED UNDER ANOTHER SECTION BUT WIRED UNDER THIS SECTION.
	PHOTO-VOLTAIC INVERTER
	KILOWATT-HOUR METER WITH CURRENT AND POTENTIAL TRANSFORMERS.
	FIRE SMOKE DAMPER, SMD
<u>SIGNAL</u>	
	TELECOMM WALL OUTLET, +18" AFF U.O.N.; RING AND STRING ONLY
	TELECOMM WALL OUTLET, MOUNTED ABOVE COUNTER
	FIRE ALARM REMOTE ANNUNCIATOR
	FIRE ALARM CONTROL PANEL
	SMOKE DETECTOR, CEILING MOUNTED. "R" DENOTES WITH RELEASING CONTACT
	SMOKE DETECTOR, DUCT MOUNTED. FURNISHED AND WIRED BY DIV 16, INSTALLED BY DIV 15
	HEAT DETECTOR, CEILING MOUNTED.
	FIRE ALARM STROBE UNIT +80" AFF
	FIRE ALARM HORN-STROBE UNIT +80" AFF
	FIRE ALARM MINI-HORN-STROBE UNIT +80" AFF
	FIRE ALARM PULL STATION +48" AFF
	FIRE ALARM TAMPER SWITCH
	FIRE ALARM WATER FLOW SWITCH
<u>RACEWAYS</u>	
	CONDUIT RUN EXPOSED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN CEILING OR WALL
	CONDUIT RUN CONCEALED IN SLAB, UNDERSLAB OR GROUND
	CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT OR DUCT STUB
	GROUND WIRING, SIZE AS INDICATED
	CROSSMARKS (SHOWN IN HOMERUN ONLY) INDICATE THE FOLLOWING: 1. NUMBER ADJACENT TO CROSSMARKS INDICATES WIRE SIZES. NO NUMBER INDICATES SIZE #12 WIRE. 2. NO CROSSMARKS INDICATES 2#12 AWG CONDUCTORS. 3. SHORT CROSSMARK IS PHASE WIRE, LONG CROSSMARK IS NEUTRAL WIRE, AND LONG WITH DOT IS ISOLATED GREEN GROUND CONDUCTOR. NORMAL GROUND WIRE IS USUALLY NOT SHOWN. 4. 3/4" EMT CONDUIT MINIMUM. UPSIZE AS REQUIRED FOR CIRCUITS WITH OVERSIZED NEUTRAL.
	FLEXIBLE WIRING CONNECTION TO LUMINAIRE OR EQUIPMENT

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDP
09-22-10	BPC
10-07-10	HCCC

NEW BUILDING "C" - PHASE 1B
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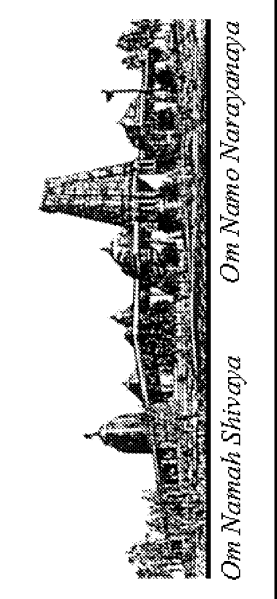
ELECTRICAL LEGEND
DRAWING INDEX

DATE: 05/28/10
SCALE: AS NOTED
DRAWN BY:
PROJECT: ARROWHEAD

E-10B



REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC

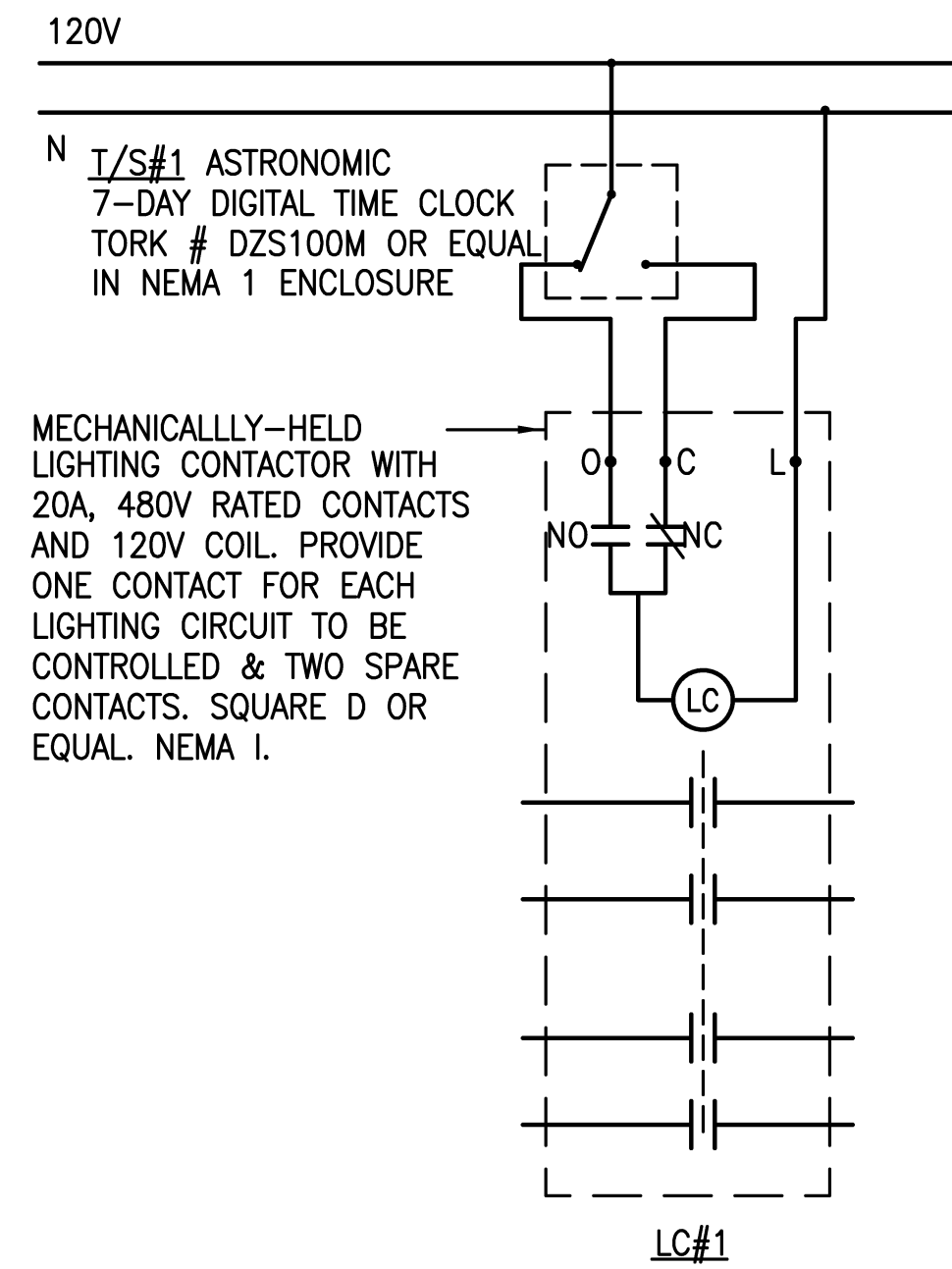
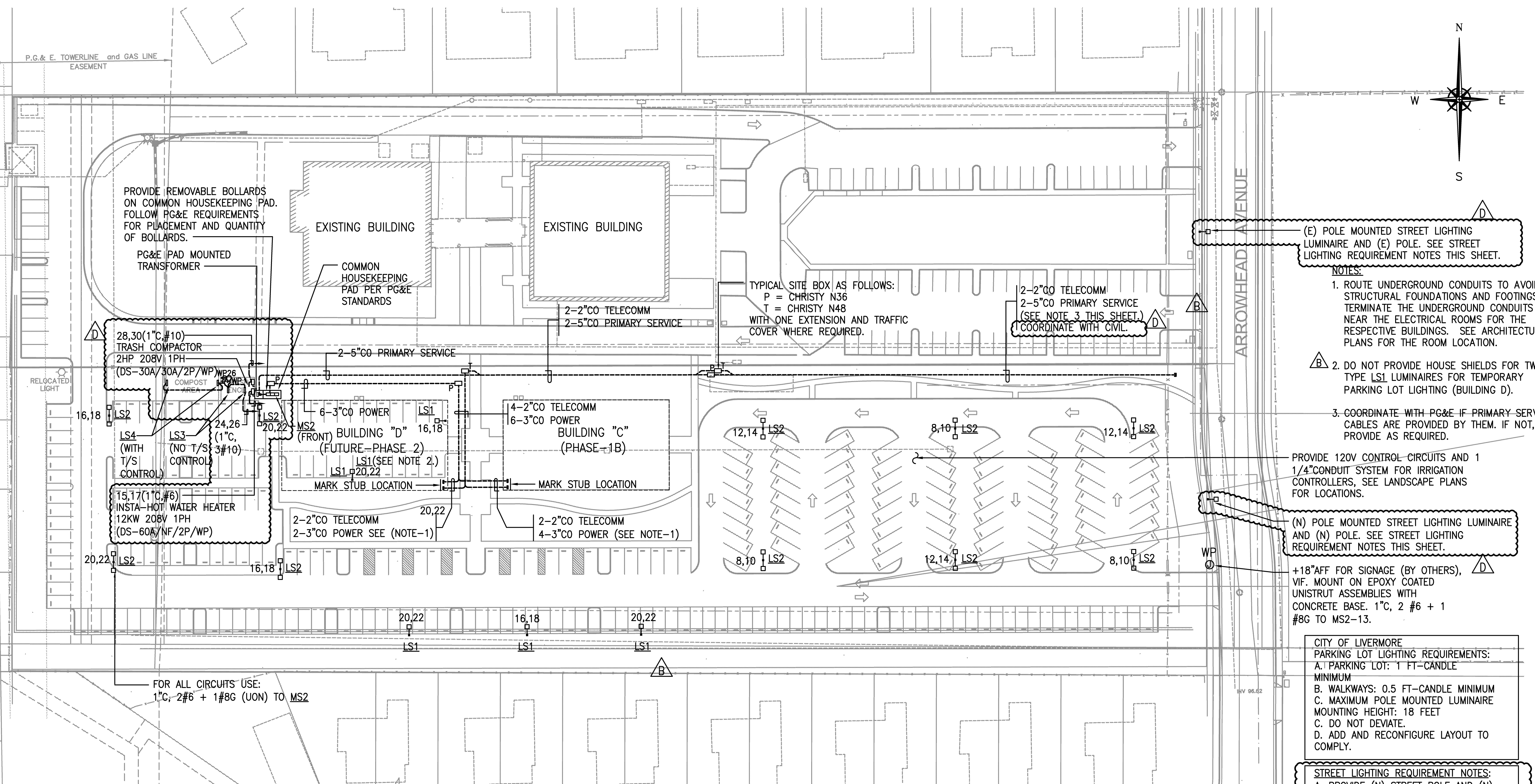


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 1200 ARROWHEAD AVE. LIVERMORE, CA 94551
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 Mechanical & Electrical Engineers
 121 California St., Suite 2025
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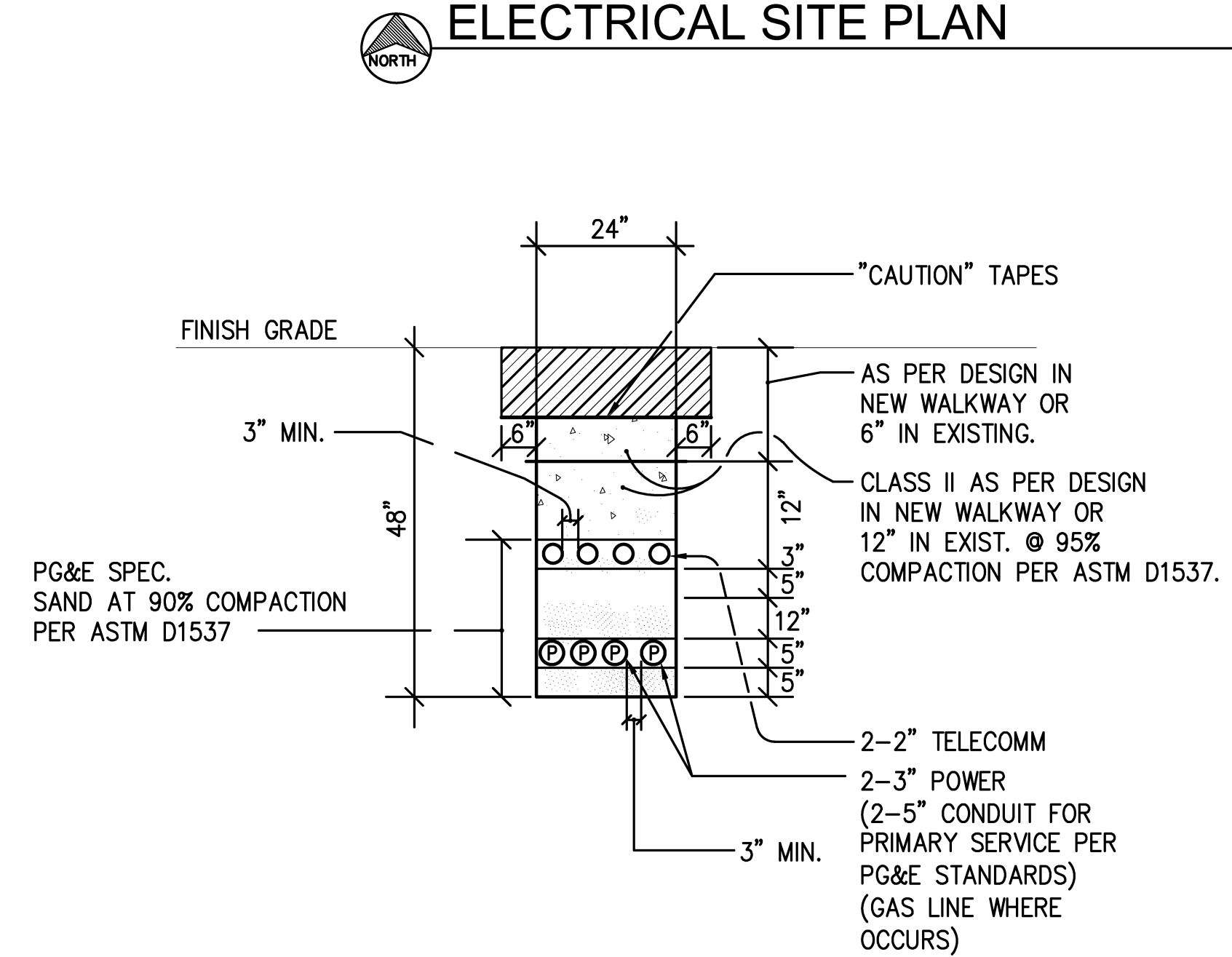
ELECTRICAL SITE PLAN
 AND DETAILS

DATE
05/28/10
SCALE:
AS NOTED
DRAWN BY:
PROJECT:
ARROWHEAD

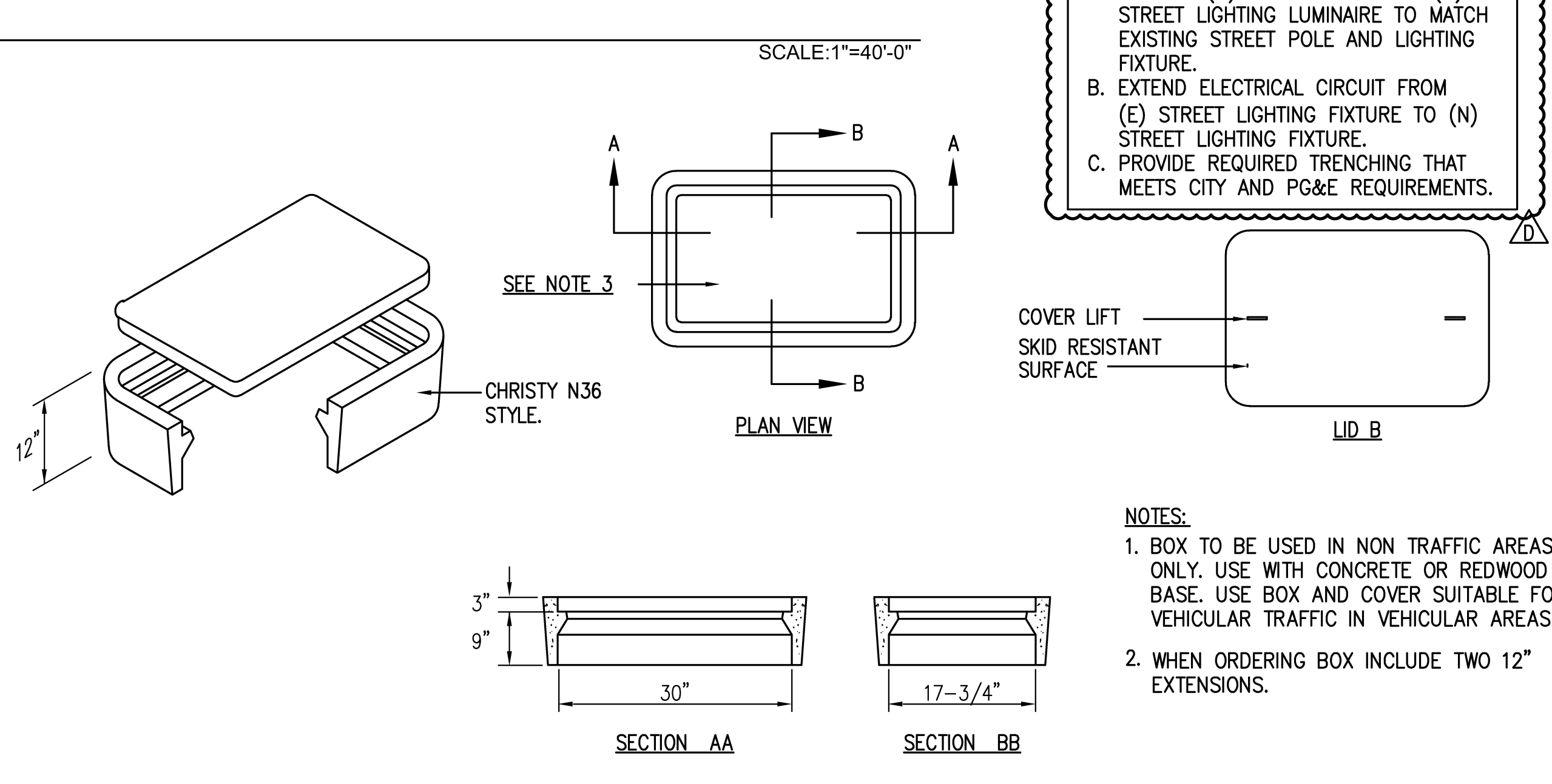
E-12



2 PARKING LOT LIGHTING CONTROLLER
 NOT TO SCALE
 TYPICAL FOR TIME SWITCH CONTROLLER #1, #2 AND #3



3 JOINT SERVICE TRENCH DETAIL
 NOT TO SCALE
 THIS DETAIL APPLIES TO ALL CONDUIT RUN AS SHOWN ON ELECTRICAL SITE PLAN THIS SHEET.



4 CONCRETE SITE BOX DETAIL
 NOT TO SCALE

STREET LIGHTING REQUIREMENT NOTES:

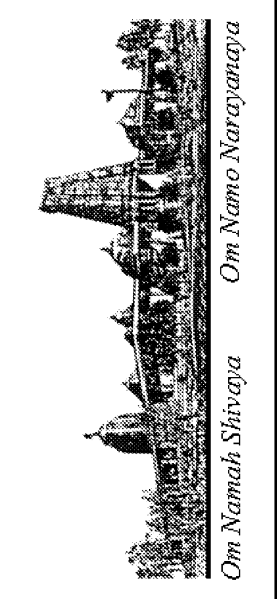
- PROVIDE (N) STREET POLE AND (N) STREET LIGHTING LUMINAIRE TO MATCH EXISTING STREET POLE AND LIGHTING FIXTURE.
- EXTEND ELECTRICAL CIRCUIT FROM (E) STREET LIGHTING FIXTURE TO (N) STREET LIGHTING FIXTURE.
- PROVIDE REQUIRED TRENCHING THAT MEETS CITY AND PG&E REQUIREMENTS.

NOTES:

- BOX TO BE USED IN NON TRAFFIC AREAS ONLY. USE WITH CONCRETE OR REDWOOD BASE. USE BOX AND COVER SUITABLE FOR VEHICULAR TRAFFIC IN VEHICULAR AREAS.
- WHEN ORDERING BOX INCLUDE TWO 12" EXTENSIONS.



REVISIONS	BY
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△ HEALTH DEPT PLAN CHECK 08-26-10	HDPC
△ 09-22-10	BPC
△ 10-07-10	HCCC



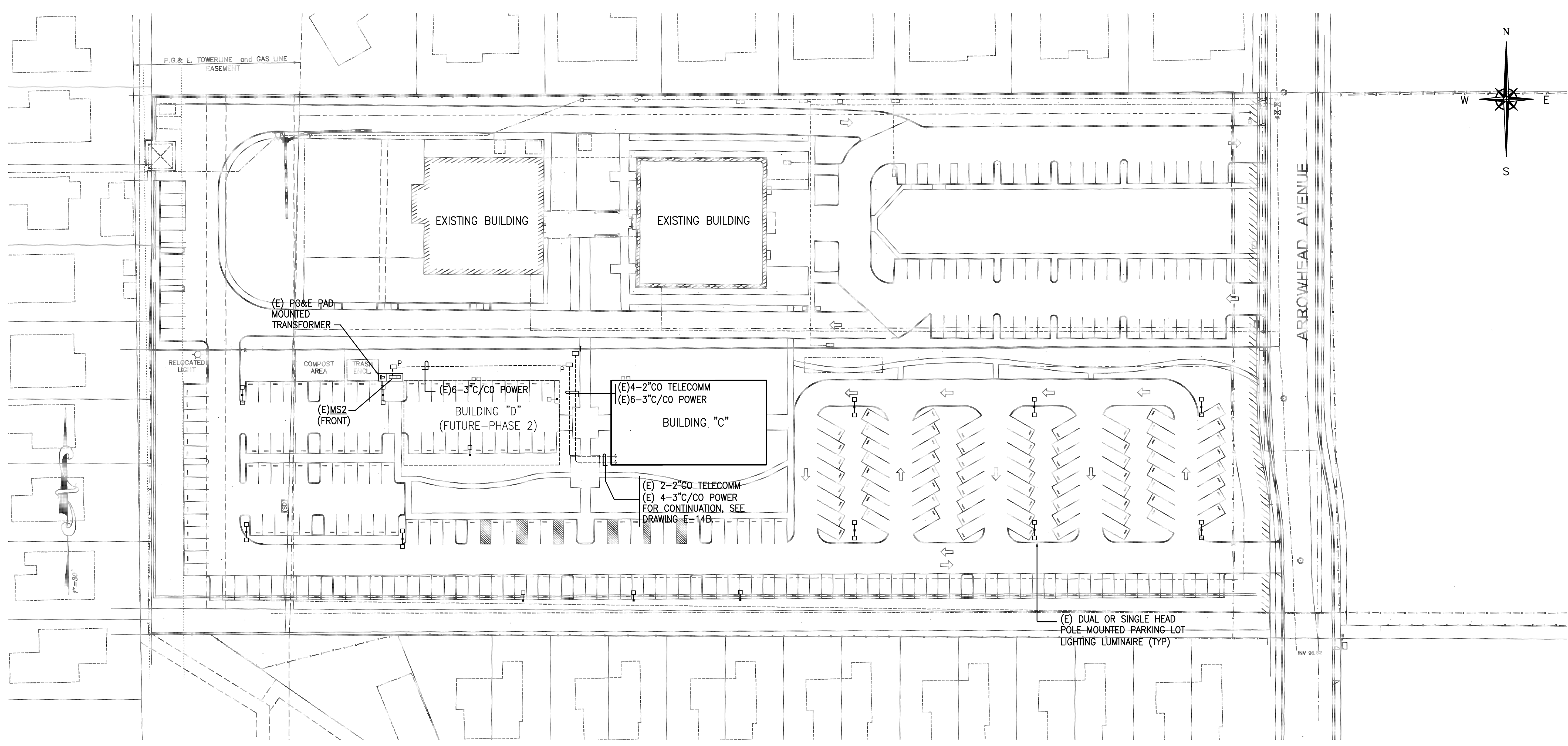
NEW BUILDING "C" - PHASE 1B
HINDU COMMUNITY and CULTURAL CENTER
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ELECTRICAL SITE PLAN

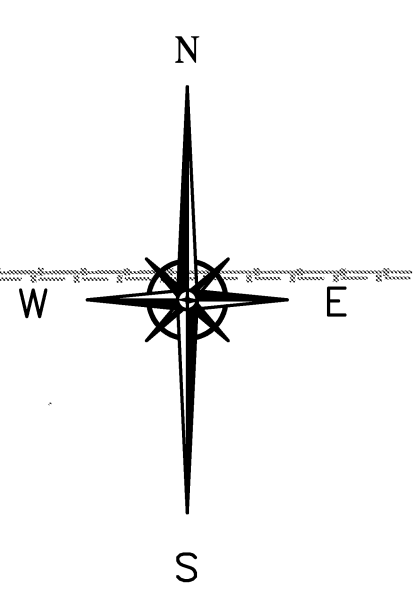
DATE
05/28/10
 SCALE:
AS NOTED
 DRAWN BY:
PROJECT:
ARROWHEAD

E-12B



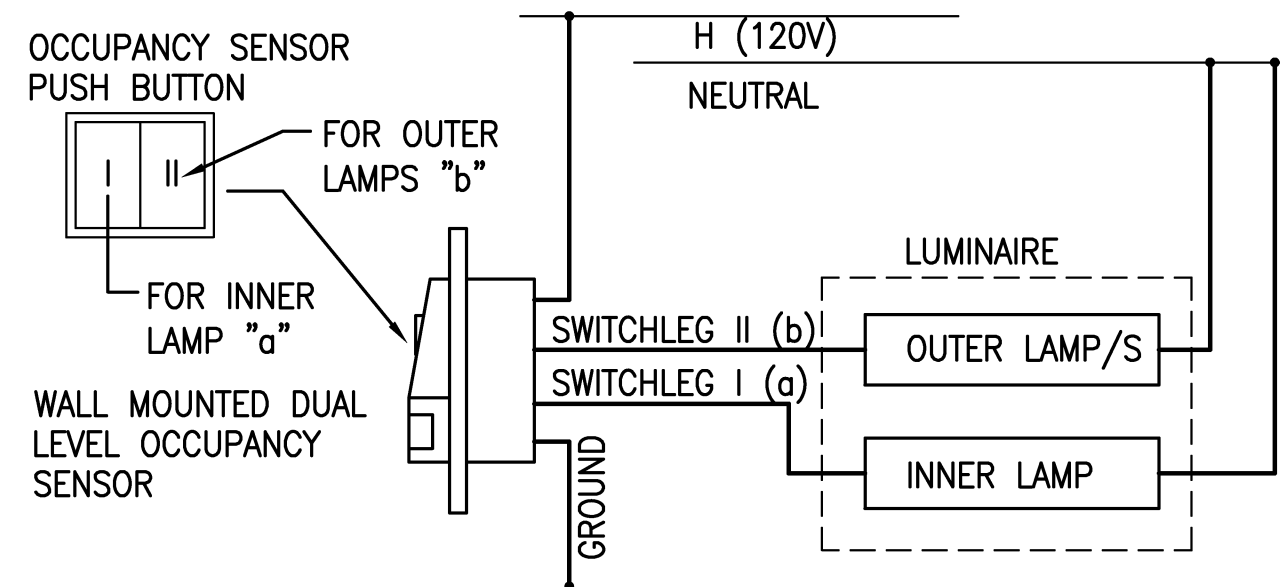
ELECTRICAL SITE PLAN

SCALE: 1"=40'-0"



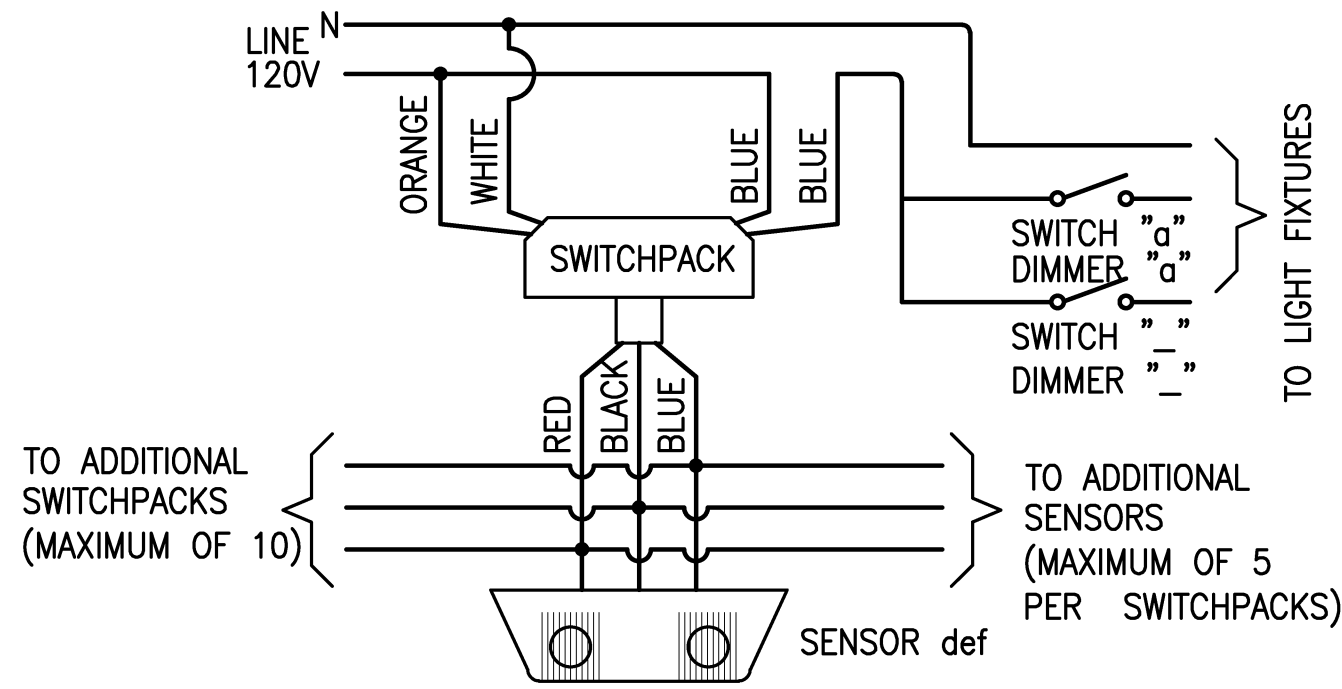
SHEET NOTES

- ① FOR CONTROLS OF BUILDING MOUNTED EXTERIOR LIGHTING, SEE DETAIL 3 DRAWING E-11B.
- ② FOR EGRESS LUMINAIRE WITH BATTERY PACK SHOWN SWITCHED, CONNECT SWITCHLEG AHEAD OF BATTERY CHARGER.
- ③ PROVIDE WALL OR CEILING MOUNTED BI-LEVEL OCCUPANCY SENSOR AS SHOWN. CEILING MOUNTED OCCUPANCY SENSORS SHALL HAVE WALL MOUNTED BI-LEVEL OVERRIDE SWITCHES. SEE DETAIL 2 AND 3 THIS SHEET.
- ④ ALL CIRCUITS ARE SUPPLIED FROM PANEL "C". THE CIRCUITING OF LUMINAIRES, WIRING DEVICES AND CONTROL DEVICES, WITHIN EACH INTENDED CONTROL SCHEME, SHALL BE FULLY IMPLEMENTED USING THE PROPER TYPE AND NUMBER OF WIRES WITH CONNECTIONS AS REQUIRED. "ROUNDHOUSE" METHOD SHALL BE USED FOR ALL MULTI-CIRCUIT RUNS IN COMMON CONDUIT.
- ⑤ RUN CONDUIT/S FOR CANOPY LIGHTING EMBEDDED IN CONCRETE CEILING SLAB, DOWN THRU COLUMN, THEN UNDERGROUND AND UP TO PANEL C VIA TS #1C.



2 WALL MOUNTED OCCUPANCY SENSOR WIRING DIAGRAM

SCALE: NOT TO SCALE



3 CEILING MOUNTED OCCUPANCY SENSOR WIRING DIAGRAM

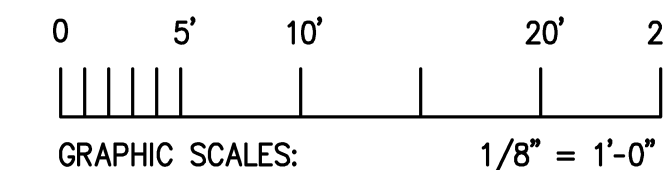
SCALE: NOT TO SCALE



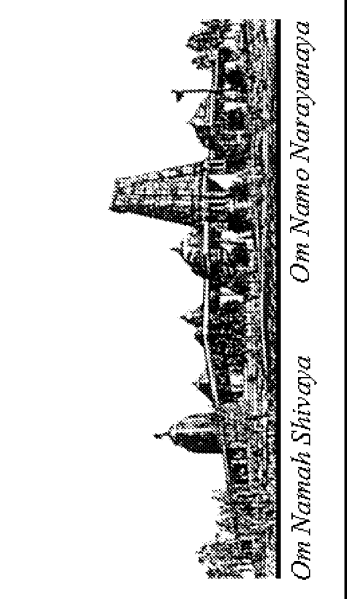
BUILDING C - PHASE 1-B LIGHTING PLAN

TOTAL 7800 SQ. FT.

SCALE: 1/8" = 1'-0"



REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC



NEW BUILDING "C" - PHASE 1B
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LIGHTING PLAN

DATE: 05/28/10
 SCALE: AS NOTED
 DRAWN BY:

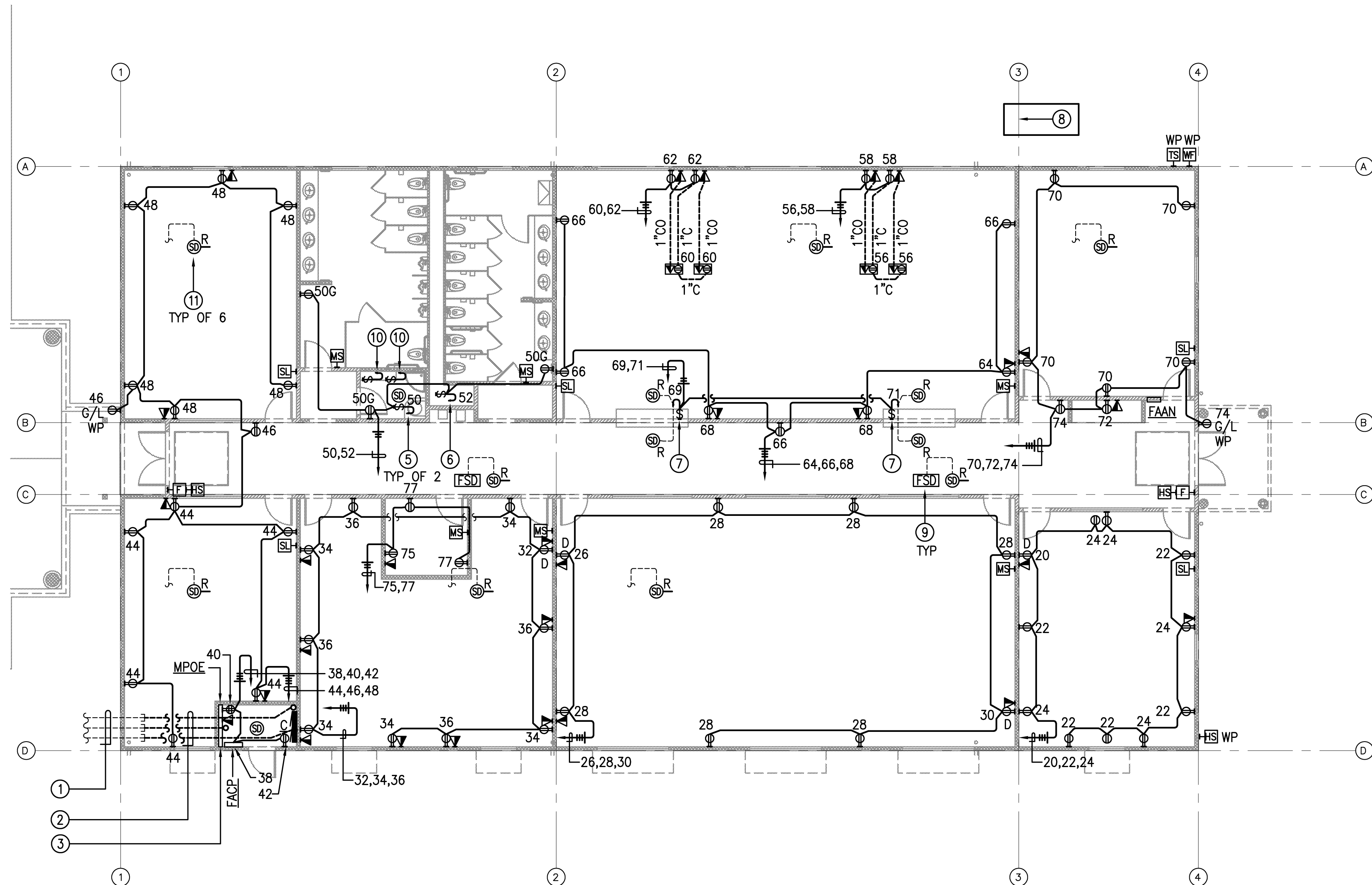
PROJECT: ARROWHEAD



E-13B

SHEET NOTES

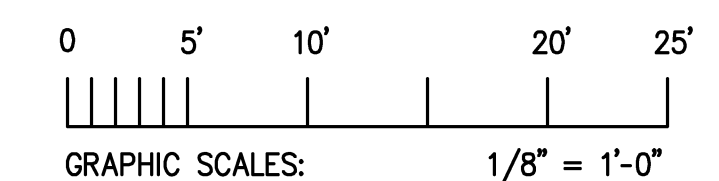
- ① (E) 2-2"CO (TELECOMM) AND (E) 2-3"CO (POWER) PLUS (E) 2-3"CO SPARE CONDUITS. FOR CONTINUATION, SEE PHASE 1A DRAWING E-12 AND E-12B (THIS PHASE).
- ② EXTEND SYSTEM CONDUITS RESPECTIVELY AS SHOWN.
- ③ FOR MPOE, PROVIDE AS FOLLOWS:
 - PROVIDE 8"HX PLYWOOD BACKBOARD (+6" AFF BOTTOM OF PLYWOOD ON WALL AS SHOWN) FIRE RETARDANT-TYPE PAINTED TO MATCH ROOM OR BIEGE. EDGES OF BOARD SHALL BE SMOOTH AND SPLINTER FREE.
 - PROVIDE 2-4"ØCO SLEEVE TO RUN FROM 6" BELOW CEILING TO 6" ABOVE CEILING. COORDINATE EXACT LOCATION WITH TENANT AND CABLING VENDOR
- ④ ALL CIRCUITS ARE SUPPLIED FROM PANEL "C". THE CIRCUITING OF LUMINAIRES, WIRING DEVICES AND CONTROL DEVICES, WITHIN EACH INTENDED CONTROL SCHEME, SHALL BE FULLY IMPLEMENTED USING THE PROPER TYPE AND NUMBER OF WIRES WITH CONNECTIONS AS REQUIRED. "ROUNDHOUSE" METHOD SHALL BE USED FOR ALL MULTI-CIRCUIT RUNS IN COMMON CONDUIT.
- ⑤ FOR HOT WATER HEATER CONTROLS.
- ⑥ FOR DRINKING FOUNTAIN.
- ⑦ FOR FIRE DOOR OPERATOR. PROVIDE CONNECTION TO RELEASING CONTACT OF NEAREST SMOKE DETECTOR/S.
- ⑧ ALL HOMERUNS TO RIGHT OF THIS GRID LINE SHALL BE #10 MIN.
- ⑨ LOOP FIRE/SMOKE DAMPERS INTO ONE 120V CONTROL CIRCUIT. USE C-78. PROVIDE FSD CONNECTION TO RELEASING CONTACT OF ASSOCIATED DUCT MOUNTED SMOKE DETECTOR.
- ⑩ FOR CP-1 AND CP-2, SPD. USE CIRCUIT C-80 AND C-82 RESPECTIVELY.
- ⑪ DUCT MOUNTED SMOKE DETECTOR WITH RELEASING CONTACT TO SHUT DOWN ASSOCIATED ROOFTOP UNIT ON ACTIVATION. PROVIDE CONNECTION TO SHUT-DOWN CIRCUIT OF ROOFTOP UNIT.



**BUILDING C - PHASE 1-B
POWER AND SIGNAL PLAN**

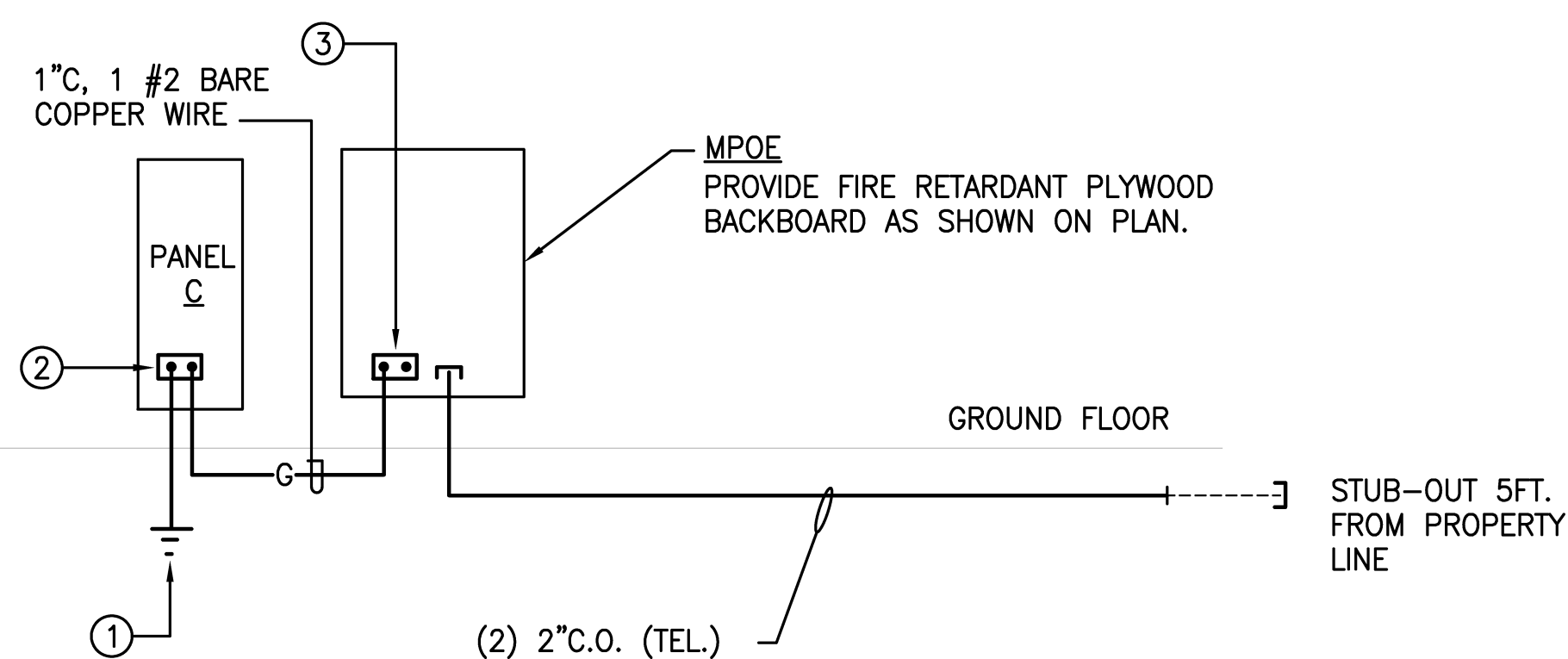
TOTAL 7800 SQ. FT.

SCALE: 1/8" = 1'-0"

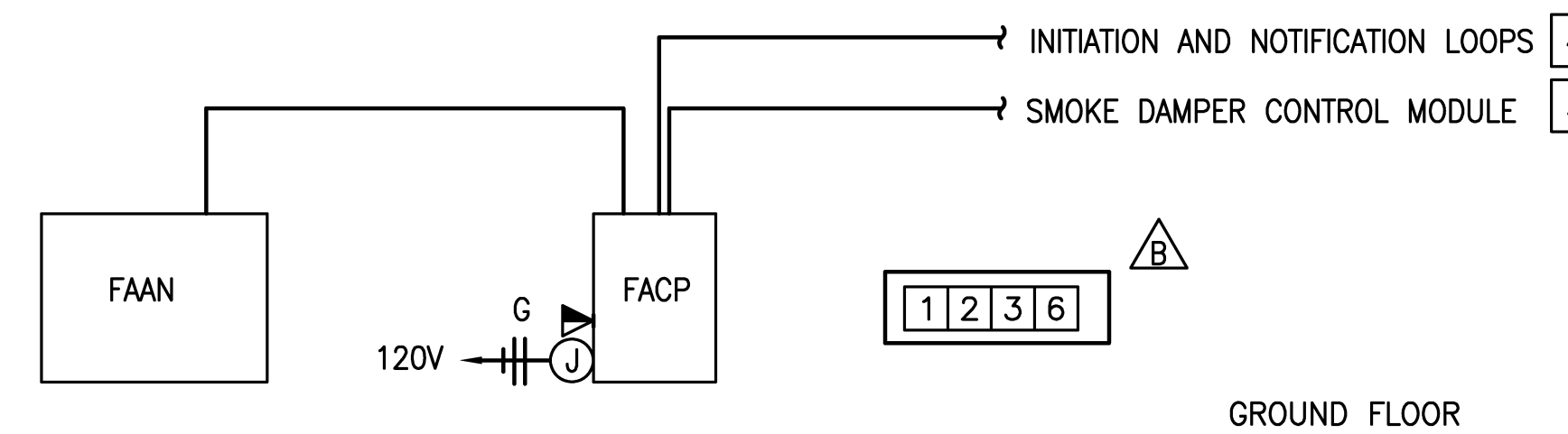


TELECOMM SHEET NOTES:

- ① SYSTEM GROUND. SEE DETAIL 1 SHEET E-11B.
- ② GROUND BUS IN PANEL.
- ③ EQUIPMENT GROUND BUS. 1/4"x4"x12" COPPER GROUND BUS WITH 20-1/4" PRE-DRILLED HOLES, MOUNTED TO THE BOARD WITH 1" THICK RUBBER/PORCELAIN SPACERS.



3 TELECOMMUNICATIONS/GROUNDING SYSTEM DIAGRAM
SCALE: NOT TO SCALE



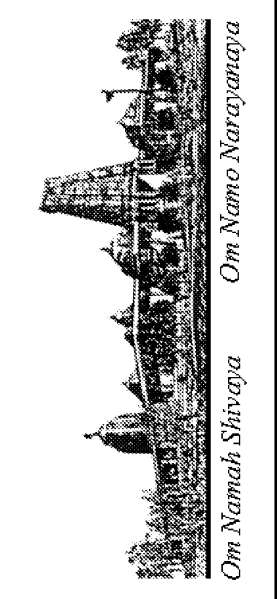
2 FIRE ALARM SYSTEM DIAGRAM
SCALE: NOT TO SCALE

FIRE ALARM SYSTEM SHEET NOTES:

- ① ALL INSTALLATION SHALL BE IN CONDUIT. WIRING SHALL BE PER MANUFACTURER'S RECOMMENDATION. MINIMUM CONDUIT SIZE SHALL BE 3/4".
- ② SUBMIT SHOP DRAWINGS TO LOCAL FIRE MARSHAL FOR APPROVAL PRIOR TO START OF ANY WORK.
- ③ NO WORK TO BE STARTED WITHOUT THE APPROVAL OF THE FIRE MARSHAL.
- ④ PROVIDE FIRE ALARM SYSTEM DEVICES AS SHOWN ON PLAN AND REQUIRED BY AUTHORITY HAVING JURISDICTION.
- ⑤ FOR LOCATION AND QUANTITY OF DEVICES, SMD.
- ⑥ FIRE ALARM SYSTEM SHALL BE UNDER DEFERRED PERMITTING.



REVISIONS	BY
△ 05-24-10	HCCC
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△ HEALTH DEPT PLAN CHECK 08-26-10	HDPC
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**NEW BUILDING "C" - PHASE 1B
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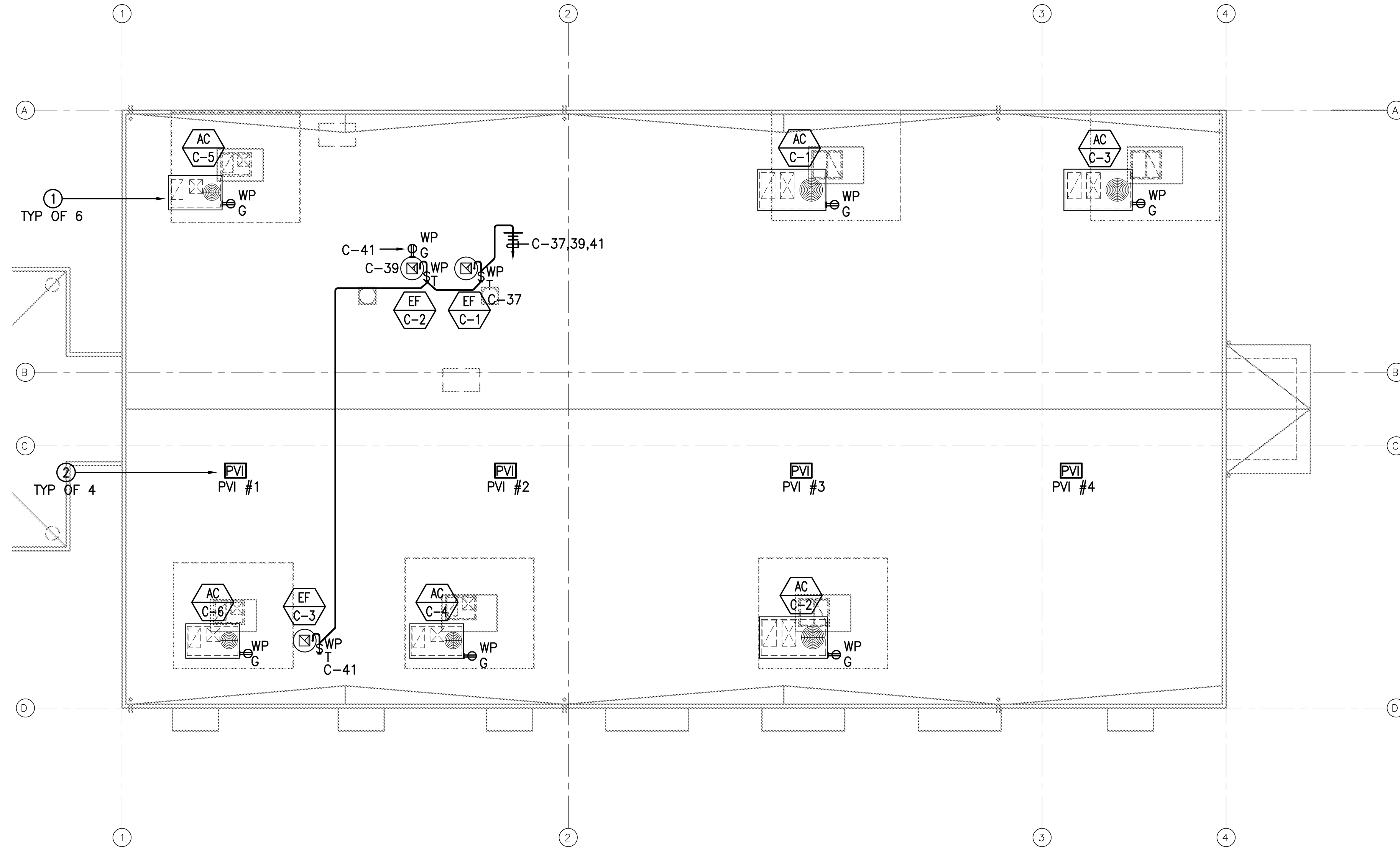
**POWER AND SIGNAL PLAN
TELECOMM/FIRE ALARM
SYSTEM DIAGRAMS**

DATE: 05/28/10
SCALE: AS NOTED
DRAWN BY: ARROWHEAD

E-14B

SHEET NOTES

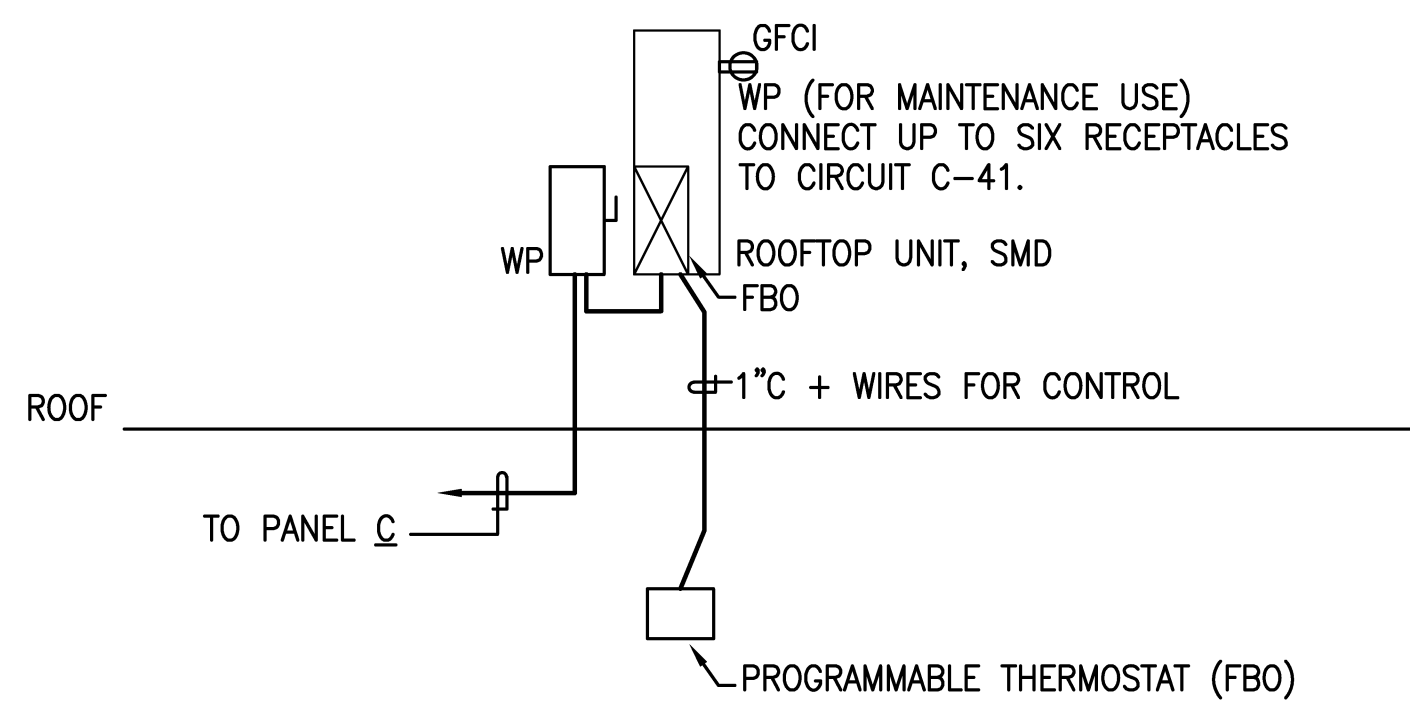
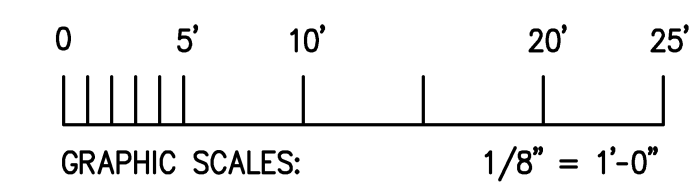
- ① FOR WIRING AND DISCONNECT SWITCH REQUIREMENTS FOR HVAC ROOF TOP UNITS, SEE DETAIL 2 THIS SHEET AND SCHEDULE PANEL "C".
- ② PHOTO-VOLTAIC SYSTEM IS DESIGN-BUILD UNDER SEPARATE PERMIT. LOCATION OF SYSTEM INVERTERS SHALL BE VERIFIED WITH PROVIDER.



BUILDING C - PHASE 1B
ELECTRICAL ROOF PLAN

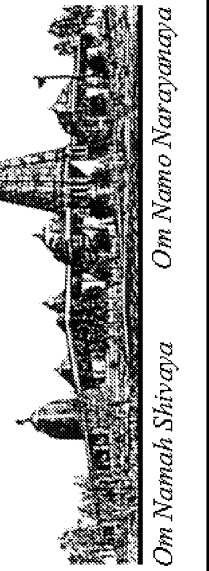
TOTAL 7800 SQ. FT.

SCALE: 1/8" = 1'-0"



2 ROOFTOP HVAC UNIT WIRING DIAGRAM - TYPICAL
SCALE: NOT TO SCALE

REVISIONS	BY
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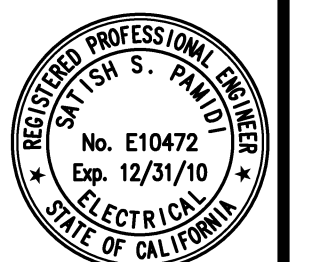
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ELECTRICAL ROOF PLAN

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ARROWHEAD



E-15B