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ELECTRICAL LEGEND

POWER SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|---|
| | MOTOR CONNECTION |
| | GENERATOR CONNECTION |
| | FUSED DISCONNECT SWITCH XX/XX/XX = AMP SWITCH/POLES/AMP FUSE |
| | NON-FUSED DISCONNECT SWITCH XX/XX/XX = AMP SWITCH/POLES/AMP FUSE |
| | JUNCTION BOX |
| | C = CEILING MOUNTED |
| | JUNCTION BOX; WALL MOUNTED |
| | JUNCTION BOX WITH WHIP-STYLE CONNECTION TO POWERED FURNITURE, POWER AND/OR DATA |
| | TRANSFORMER; BOTTOM OF T DESIGNATES FRONT SIDE |
| | PANELBOARD OR TERMINAL CABINET; SURFACE MOUNTED |
| | PANELBOARD OR TERMINAL CABINET; FLUSH MOUNTED |
| | GROUND BUS BAR |
| | TRANSFORMER |
| | AUTOMATIC TRANSFER SWITCH |
| | NORMALLY OPEN CONTACT |
| | NORMALLY CLOSED CONTACT |
| | DRAWOUT CIRCUIT BREAKER; RATING AS SHOWN ON PLANS |
| | STATIONARY - CIRCUIT BREAKER; RATING AS SHOWN ON PLANS |
| | DISCONNECT; RATING AS SHOWN ON PLANS |
| | SWITCH AND FUSE; RATING AS SHOWN ON PLANS |
| | INVERTER |
| | GROUNDING POINT |
| | UTILITY METER |

CONDUIT SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|--|
| | CONDUIT INSTALLED ABOVE FINISHED FLOOR OR GRADE |
| | CONDUIT INSTALLED BELOW FINISHED FLOOR OR BELOW GRADE |
| | INDICATES CONDUIT TURNING UP |
| | CONDUIT HOMERUN; ROUTE TO PANELBOARD, CABINET, OR TERMINAL BOARD INDICATED, AND TERMINATE CONDUCTORS TO CIRCUIT OVER CURRENT PROTECTIVE DEVICE |

LIGHTING SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|--|
| | LUMINAIRE; CEILING OR SURFACE MOUNTED |
| | LUMINAIRE; WALL MOUNTED |
| | AREA POLE WITH MOUNTED LUMINAIRE |
| | LUMINAIRE ON EMERGENCY POWER |
| | EXIT SIGN; CEILING MOUNTED; ARROWS AND FACES AS SHOWN ON PLANS |
| | EXIT SIGN; WALL MOUNTED; ARROWS AND FACES AS SHOWN ON PLANS |
| | EMERGENCY FIXTURE; DUAL LAMP HEAD |

TELECOM SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|---|
| | TELEPHONE/DATA OUTLET; PROVIDE 1" C. W/ PULL-STRING TO ACCESSIBLE CEILING SPACE |
| | C = CEILING MOUNTED; BACK BOX ONLY FOR FUTURE WAP UNLESS OTHERWISE NOTED |

WIRING DEVICE SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|---|
| | 20A, 125V, DUPLEX RECEPTACLE OUTLET |
| | 20A, 125V, DOUBLE DUPLEX RECEPTACLE OUTLET |
| | SPECIAL PURPOSE RECEPTACLE OUTLET; RATING AS SHOWN; +18" AFF TP CENTERLINE |
| | 20A, 125V, SINGLE RECEPTACLE OUTLET |
| | A = ABOVE COUNTER |
| | C = CEILING MOUNTED |
| | G = GFCI |
| | S = SWITCHED RECEPTACLE |
| | T = TAMPER PROOF |
| | U = WITH (2) USB PORTS |
| | W = WEATHERPROOF COVER AND GFCI |
| | +# = INCHES ABOVE FINISH FLOOR |
| | 20A, 125V, DUPLEX RECEPTACLE OUTLET; FLOOR RECESSED |
| | 20A, 125V, DOUBLE DUPLEX RECEPTACLE OUTLET; FLOOR RECESSED |
| | 2-CHANNEL FLOOR BOX W/ (2) GANG POWER / (2) GANG DATA; PROVIDE 1" C. FROM EACH DATA OUTLET TO ACCESSIBLE CEILING SPACE. BASIS-OF-DESIGN: WIREMOLD "RFB4". |
| | COMMERCIAL CORD REEL RECEPTACLE; CEILING MOUNTED |
| | SINGLE POLE SWITCH |
| | 3 = THREE WAY SWITCH |
| | 4 = FOUR-WAY SWITCH |
| | D = DIMMER SWITCH |
| | K = KEY OPERATED SWITCH |
| | M = MOTOR RATED SWITCH |
| | S = DUAL TECH SENSOR SWITCH |
| | T = INTERVAL TIMER |
| | V = LOW VOLTAGE SWITCH |
| | W = SINGLE POLE WEATHERPROOF SWITCH |
| | PUSH BUTTON SWITCH |
| | OCCUPANCY LIGHT CONTROL SWITCH; CEILING MOUNTED |
| | OCCUPANCY LIGHT CONTROL SWITCH; WALL MOUNTED |
| | C = DUAL TECH WITH CORRIDOR PATTERN |
| | H = DUAL TECH WITH HIGH BAY SENSOR |
| | V = DUAL TECH WITH VACANCY SENSOR MODE |
| | PHOTOSENSOR; CEILING MOUNTED |
| | D = DIMMING |
| | S = SWITCHED |
| | ELECTRIC VEHICLE CHARGING STATION |
| | HORN/STROBE COMBINATION; CEILING MOUNTED |
| | HORN/STROBE COMBINATION; WALL MOUNTED |

DESIGNATION SYMBOLS

| SYMBOL | IDENTIFICATION |
|--------|---|
| | GRID LINE DESIGNATOR |
| | FEEDER DESIGNATION TAG |
| | SHEET KEYNOTE TAG |
| | MECHANICAL EQUIPMENT TAG |
| | CONTRACTOR EQUIPMENT TAG |
| | REVISION DELTA WITH REVISION NUMBER |
| | LETTER INDICATES FIXTURES CONTROL (WHERE SHOWN) |
| | NUMBER INDICATES CIRCUIT NUMBER (WHERE SHOWN) |

ABBREVIATIONS

| ABBRV. | IDENTIFICATION |
|--------|--|
| AC | ALTERNATING CURRENT |
| AF | ABOVE FINISH FLOOR |
| AF | FRAME RATING IN AMPERES |
| AS | SWITCH RATING IN AMPERES |
| AT | TRIP RATING IN AMPERES |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AV | AUDIO VISUAL |
| C | CONDUIT |
| CFCI | CONTRACTOR FURNISHED, CONTRACTOR INSTALLED |
| CFOI | CONTRACTOR FURNISHED, OWNER INSTALLED |
| CEC | CALIFORNIA ELECTRIC CODE |
| CL | CENTERLINE |
| CONN | CONNECTED |
| DC | DIRECT CURRENT |
| DPDT | DOUBLE POLE, DOUBLE THROW |
| DPST | DOUBLE POLE SINGLE THROW |
| (E) | EXISTING TO REMAIN |
| ELEV | ELEVATOR |
| EMT | ELECTRO METALLIC TUBING |
| EW | ELECTRIC WATER COOLER |
| EW | ELECTRIC WATER HEATER |
| FVNR | FULL-VOLTAGE, NON-REVERSING |
| FVR | FULL-VOLTAGE, REVERSING |
| G | GROUND |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER |
| GND | GROUND |
| HID | HIGH INTENSITY DISCHARGE |
| IG | ISOLATED GROUND |
| LRC | LIGHTING RELAY CABINET |
| NC | NORMALLY CLOSED |
| NEC | NATIONAL ELECTRIC CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OFCI | OWNER FURNISHED, CONTRACTOR INSTALLED |
| PH | PHASE |
| PP | POWER POLE |
| PTS | PNEUMATIC TUBE STATION |
| PVC | POLYVINYL CHLORIDE CONDUIT |
| (R) | RELOCATE EXISTING |
| RSC | RIGID STEEL CONDUIT |
| SPD | SURGE PROTECTION DEVICE |
| SPDT | SINGLE POLE, DOUBLE THROW |
| SPST | SINGLE POLE, SINGLE THROW |
| TB | TERMINAL BACKBOARD |
| TC | TERMINAL CABINET |
| TEL | TELEPHONE |
| UON | UNLESS OTHERWISE NOTED |
| VFD | VARIABLE FREQUENCY DRIVE |
| W | WEATHERPROOF |
| WAP | WIRELESS ACCESS POINT |
| W/ | WITH |
| (X) | REMOVE EXISTING |
| XFMR | TRANSFORMER |
| XP | EXPLOSION PROOF |

LEGEND NOTES:

- ALL SYMBOLS MAY NOT BE USED IN THIS PROJECT.
- SYMBOLS DO NOT ALWAYS REPRESENT REAL LIFE DIMENSIONS.
- SEE BOOK SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SEE DETAIL SHEETS FOR TYPICAL MOUNTING HEIGHTS OF DEVICES.

GENERAL ELECTRICAL NOTES

- LOW VOLTAGE STUBS FOR EACH DATA SYMBOL TO CONSIST OF 4SQ W/ MR, 3/4" EMT TO ACCESSIBLE CEILING SPACE, BUSHING, PULL STRING.
- WIRING METHODS ARE PER CODE. CONTRACTOR TO ASSUME MC FOR BRANCH CIRCUITS. MULTI-CIRCUIT MC ALLOWED. EMT W/ ALUMINUM CONDUCTORS FOR FEEDER ALLOWED.
- EXISTING HOMERUNS FROM PANEL TO BE RE-PURPOSED AS FEASIBLE.
- ASSUME PLUG CONTROL WILL NOT BE REQUIRED PER 2021 OEECS EXCEPTION BASED ON EXCEEDING LPD ALLOWANCES BY 5%.
- FA IS DESIGN/BUILD.
- DIVISION 26 HAS PATHWAYS AND DEVICE LOCATION ROUGH-IN ONLY FOR DIVISION 27 SYSTEMS.
- ELECTRICAL SERVICE TO REMAIN LIVE DURING REMODEL.

| ELECTRICAL SHEET KEY | |
|----------------------|-------------|
| SHEET NUMBER | DESCRIPTION |
| | |

PRELIMINARY
NOT FOR CONSTRUCTION

COLEBREIT
ENGINEERING

+
AXIOM ENGINEERS

BEND | CORVALLIS
MONTEREY | NAPA | SANTA CRUZ

RVTD ADMIN
220 S Front St, Medford, OR 97501

REVISION SCHEDULE

--- SET --- / --- / ---

JOB NUMBER: 2022####

SHEET TITLE
ELECTRICAL - LEGEND

SHEET NUMBER
E0.01

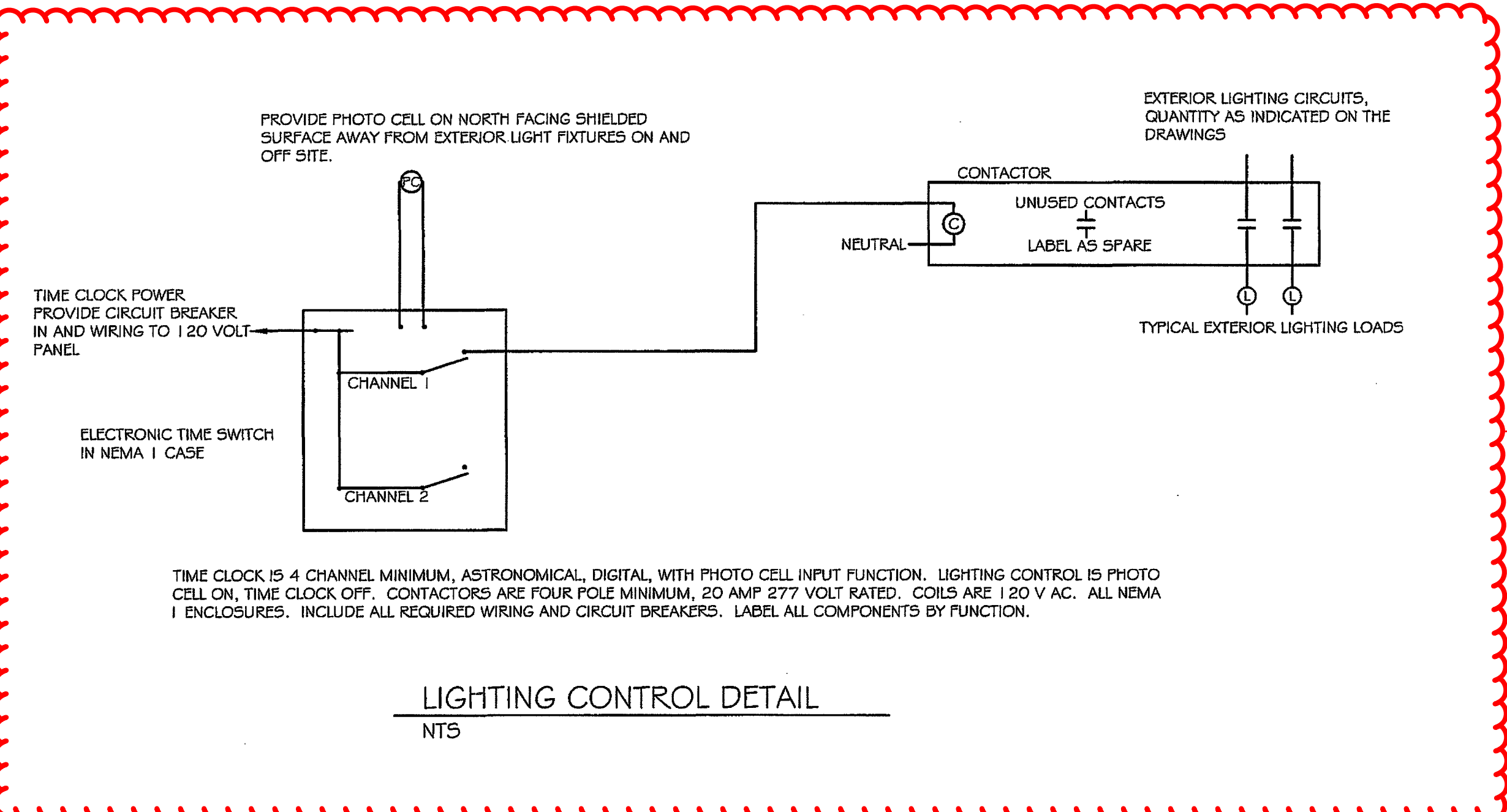
EXISTING FIXTURE
SCHEDULE

INTERIOR LIGHTING CONTROL
MATRIX TBD

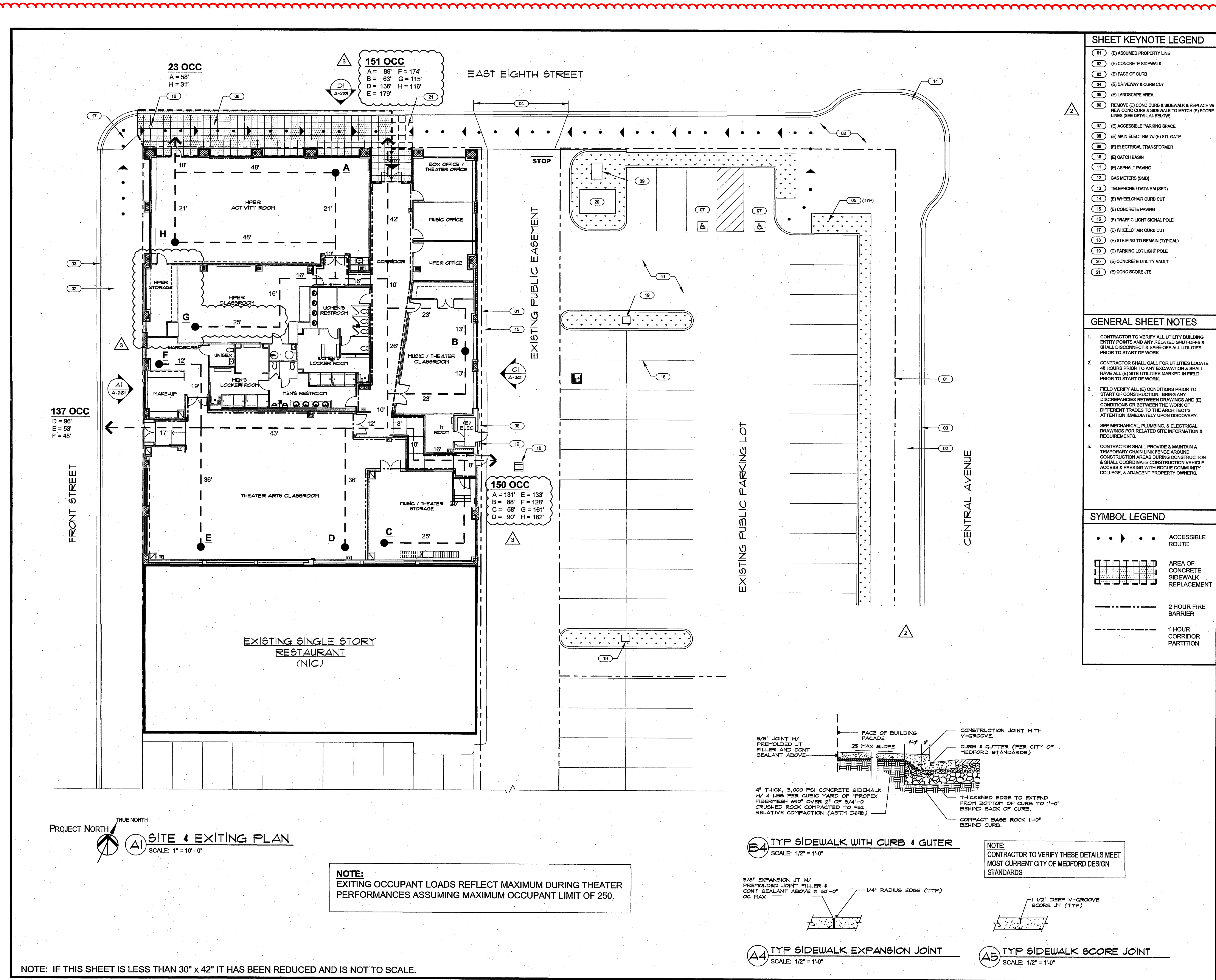
LUMINAIRE SCHEDULE

| CALLOUT | SYMBOL | LAMP | DESCRIPTION | BALLAST | MOUNTING | MODEL | INPUT WATTS | VOLTS | NOTES |
|---------|--------|-----------------|--------------------|------------|---------------|---|-------------|------------|---|
| A | | (2) 28W T5 | LITHONIA | ELECTRONIC | T-BAR CEILING | 25P 2 28 MVOLT A12 GEB1 OPS | 56 | 120V 1P 2W | |
| A1 | | (2) 28W T5 | LEDALITE SHINE | ELECTRONIC | T-BAR CEILING | 3324 D1 5T T228 5 1 1 E | 56 | 120V 1P 2W | |
| A2 | | (3) 28W T5 | LITHONIA | ELECTRONIC | T-BAR CEILING | 25P 3 28 MVOLT A12 1/3 GEB1 OPS | 84 | 120V 1P 2W | |
| A2E | | (3) 28W T5 | LITHONIA | ELECTRONIC | T-BAR CEILING | 25P 3 28 MVOLT A12 1/3 GEB1 OPS EL14 | 84 | 120V 1P 2W | PROVIDE 1400 LUMEN EMERGENCY BATTERY BALLAST |
| A2S | | (3) 28W T5 | LITHONIA | ELECTRONIC | T-BAR CEILING | 25P 3 28 MVOLT A12 GEB1 OPS | 84 | 120V 1P 2W | 2 LAMPS TO BE SWITCHED FOR DAYLIGHT CONTROL |
| AE | | (2) 28W T5 | LITHONIA | ELECTRONIC | T-BAR CEILING | 25P 2 28 MVOLT A12 GEB1 OPS EL14 | 56 | 120V 1P 2W | PROVIDE 1400 LUMEN EMERGENCY BATTERY BALLAST |
| B | | (1) 28W T5 | LEDALITE CHOPSTICK | ELECTRONIC | WALL | 7508 F01 Q N 4 5 1 E W | 28 | 120V 1P 2W | |
| BE | | (1) 28W T5 | LEDALITE CHOPSTICK | ELECTRONIC | WALL | 7508 F01 Q N 4 5 1 E W | 28 | 120V 1P 2W | PROVIDE EMERGENCY BATTERY BALLAST |
| C | | (2) 32W T8 | COOPER LIGHTING | ELECTRONIC | SURFACE | 1M-232A-UNV-ER81 | 64 | 120V 1P 2W | |
| CE | | (2) 32W T8 | COOPER LIGHTING | ELECTRONIC | SURFACE | 1M-232A UNV ER81 EL950 | 64 | 120V 1P 2W | PROVIDE 1400 LUMEN EMERGENCY BATTERY BALLAST |
| D | | (1) 32W 32TRT | LITHONIA | ELECTRONIC | CEILING | LF6N 1/26 42TRT F601AZ MVOLT | 32 | 120V 1P 2W | |
| DD | | (1) 32W 32TRT | LITHONIA | ELECTRONIC | CEILING | LF6N 1/26 42TRT F601AZ MVOLT ADEZ | 32 | 120V 1P 2W | PROVIDE DIMMING BALLAST |
| DE | | (1) 32W 32TRT | LITHONIA | ELECTRONIC | CEILING | LF6N 1/26 42TRT F601AZ MVOLT EL | 32 | 120V 1P 2W | PROVIDE BATTERY BALLAST |
| DEI | | (2) 26W 13DTT | LITHONIA | ELECTRONIC | CEILING | LF6 2/1 30TT F602AZ MVOLT EL | 26 | 120V 1P 2W | PROVIDE BATTERY BALLAST |
| DI | | (2) 26W 13DTT | LITHONIA | ELECTRONIC | CEILING | LF6 2/1 30TT F602AZ MVOLT | 26 | 120V 1P 2W | IC RATED |
| DS | | (1) 32W 32TRT | LITHONIA | ELECTRONIC | CEILING | LF6N 1/26 42TRT F601AZ 173 MVOLT | 32 | 120V 1P 2W | LENSED FIXTURE |
| E | | (1) 28W T5 | LITHONIA | ELECTRONIC | WALL | WP 1 28 120 GEB1 OPS DO | 28 | 120V 1P 2W | |
| F | | (4) 32W T8 | LITHONIA | ELECTRONIC | CHAIN HUNG | IBZ 432L WD GEB1 OPS LP841 | 128 | 120V 1P 2W | |
| FE | | (4) 32W T8 | LITHONIA | ELECTRONIC | CHAIN HUNG | IBZ 432L WD GEB1 OPS LP841 EL14 | 128 | 120V 1P 2W | PROVIDE 1400 LUMEN EMERGENCY BATTERY BALLAST |
| G | | (1) 42W 42TRT | LSI ABOUTE | ELECTRONIC | WALL | WAR W 26/32/42 CPL 120 GBK 12FS CWB BRACKET | 42 | 120V 1P 2W | |
| H | | (1) 250W QUARTZ | GOTHAM | ELECTRONIC | PENDANT | CQ1 1 250 W 6BR WLP FM DBL | 250 | 120V 1P 2W | |
| J | | (2) 28W T5 | LITHONIA | ELECTRONIC | WALL | WP 2 28 ACF125 MVOLT GEB1 OPS | 56 | 120V 1P 2W | PROVIDE TYPE 841 LAMPS, MOUNT 4" ABOVE MIRROR |
| PL | | (1) 5W NEON | HUBBELL | NONE | WALL | HBL1220RJ | 5 | 120V 1P 2W | WALL PILOT LIGHT |
| S | | (1) 110W T12 HO | CRESCENT | ELECTRONIC | CHANNEL | OD-1-110-1 | 110 | 120V 1P 2W | MOUNT TO STEEL CHANNEL PER ARCHITECTURAL DRAWINGS |
| T | | (0) 0 | JUNO | NONE | CEILING | T8WH | 0 | 120V 1P 2W | |
| T1 | | (1) PAR30 | JUNO | NONE | TRACK | T408WH1 | 75 | 120V 1P 2W | |
| X1 | | (1) 5W LED | LITHONIA | ELECTRONIC | FIELD VERIFY | LQM 5 W 3 G 120/277 ELN | 5 | 120V 1P 2W | |

CONSTRUCTION SET



EXISTING EXTERIOR
LIGHTING CONTROL



SHEET KEYNOTE LEGEND

| | |
|----|--|
| 01 | (E) ASSUMED PROPERTY LINE |
| 02 | (E) CONCRETE SIDEWALK |
| 03 | (E) FACE OF CURB |
| 04 | (E) DRIVEWAY & CURB CUT |
| 05 | (E) LANDSCAPE AREA |
| 06 | REMOVE (E) CONC CURB & SIDEWALK & REPLACE W/ NEW CONC CURB & SIDEWALK TO MATCH (E) SCORE LINES (SEE DETAIL A4 BELOW) |
| 07 | (E) ACCESSIBLE PARKING SPACE |
| 08 | (E) MAIN ELECT RM W/ (E) STL. GATE |
| 09 | (E) ELECTRICAL TRANSFORMER |
| 10 | (E) CATCH BASIN |
| 11 | (E) ASPHALT PAVING |
| 12 | (E) GAS METERS (GMD) |
| 13 | (E) TELEPHONE / DATA RM (SEE) |
| 14 | (E) WHEELCHAIR CURB CUT |
| 15 | (E) CONCRETE PAVING |
| 16 | (E) TRAFFIC LIGHT SIGNAL POLE |
| 17 | (E) WHEELCHAIR CURB CUT |
| 18 | (E) STRIPING TO REMAIN (TYPICAL) |
| 19 | (E) PARKING LOT LIGHT POLE |
| 20 | (E) CONCRETE UTILITY VAULT |
| 21 | (E) CONC SCORE LINES |

- GENERAL SHEET NOTES**
- CONTRACTOR TO VERIFY ALL UTILITY BUILDING ENTRY POINTS AND ANY RELATED SHUT-OFFS & SHALL DISCONNECT & SAFELY CAP ALL UTILITIES PRIOR TO START OF WORK.
 - CONTRACTOR SHALL CALL FOR UTILITIES LOCATE 48 HOURS PRIOR TO ANY EXCAVATION & SHALL HAVE ALL (E) SITE UTILITIES MARKED IN FIELD PRIOR TO START OF WORK.
 - FIELD VERIFY ALL (E) CONDITIONS PRIOR TO START OF CONSTRUCTION. BRING ANY DISCREPANCIES BETWEEN DRAWINGS AND (E) CONDITIONS OR BETWEEN THE WORK OF DIFFERENT TRADES TO THE ARCHITECT'S ATTENTION IMMEDIATELY UPON DISCOVERY.
 - SEE MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS FOR RELATED SITE INFORMATION & REQUIREMENTS.
 - CONTRACTOR SHALL PROVIDE & MAINTAIN A TEMPORARY CHAIN LINK FENCE AROUND CONSTRUCTION AREAS DURING CONSTRUCTION & SHALL COORDINATE CONSTRUCTION VEHICLE ACCESS & PARKING WITH ROGUE COMMUNITY COLLEGE & ADJACENT PROPERTY OWNERS.

SYMBOL LEGEND

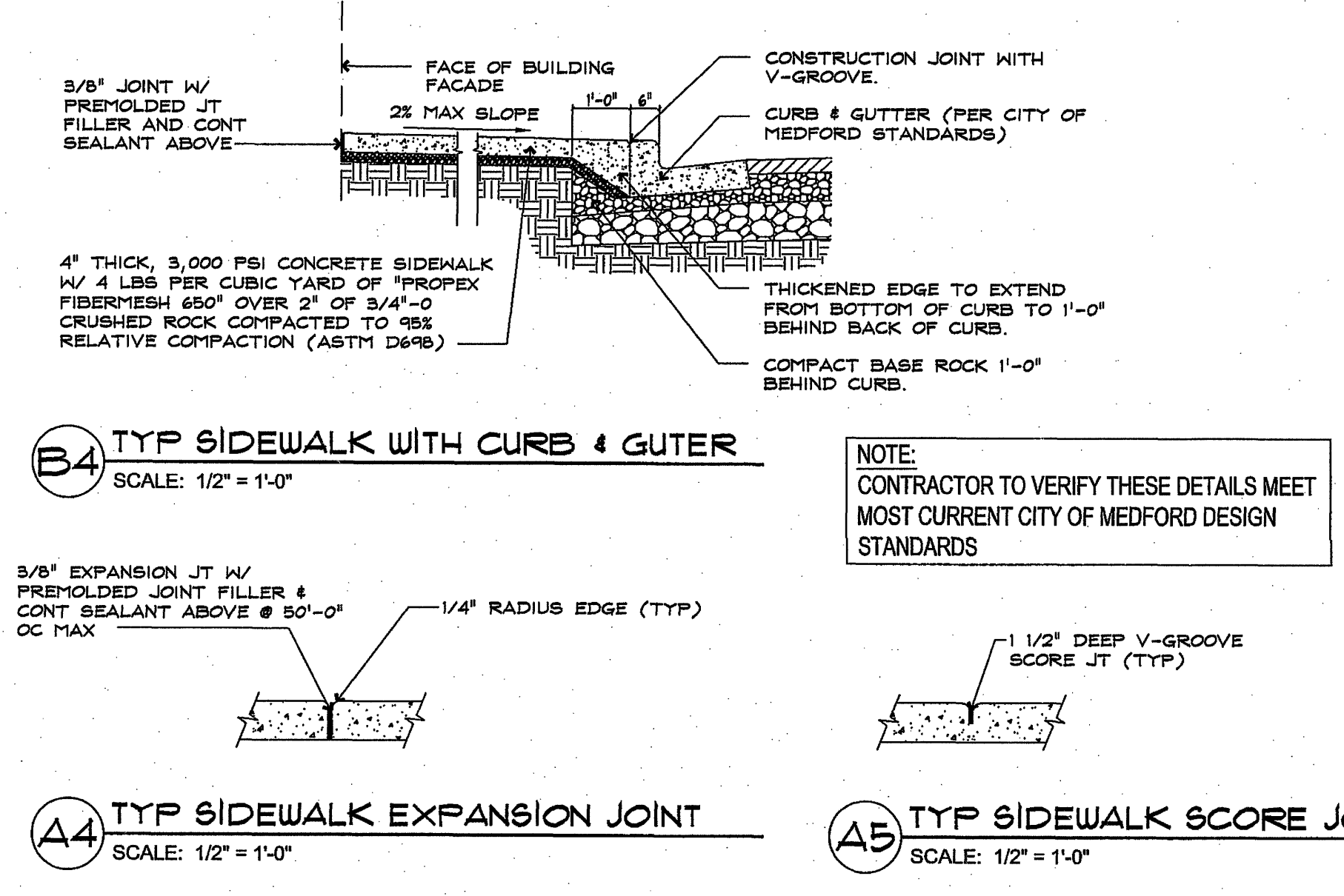
| | |
|----------------|---------------------------------------|
| • • • • • | ACCESSIBLE ROUTE |
| [Grid Pattern] | AREA OF CONCRETE SIDEWALK REPLACEMENT |
| --- | 2 HOUR FIRE BARRIER |
| --- | 1 HOUR CORRIDOR PARTITION |

SITE PLAN FOR REFERENCE - NO SCOPE

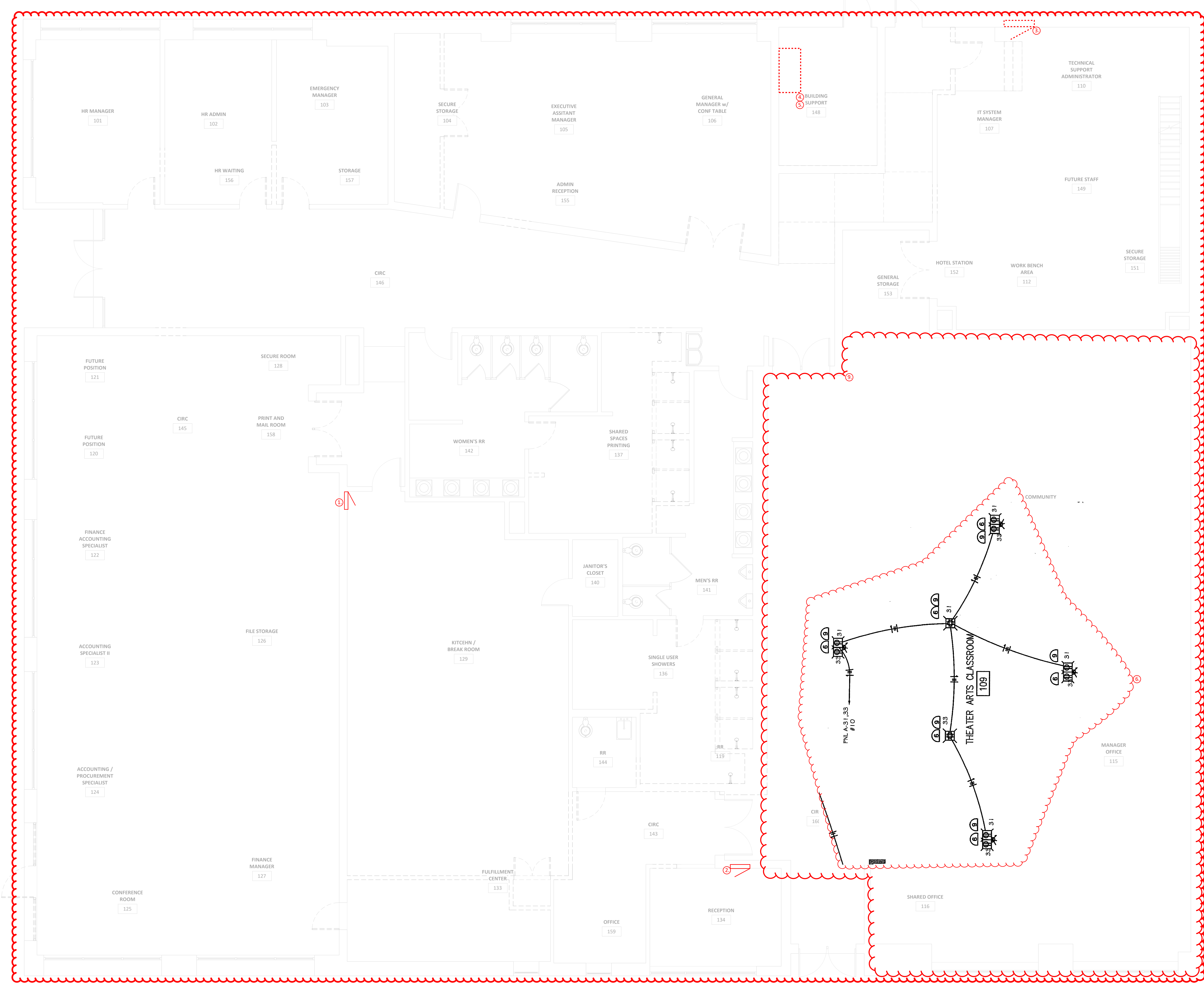
PROJECT NORTH TRUE NORTH
(A1) SITE & EXITING PLAN
SCALE: 1" = 10' - 0"

NOTE:
EXITING OCCUPANT LOADS REFLECT MAXIMUM DURING THEATER PERFORMANCES ASSUMING MAXIMUM OCCUPANT LIMIT OF 250.

NOTE: IF THIS SHEET IS LESS THAN 30" x 42" IT HAS BEEN REDUCED AND IS NOT TO SCALE.



- SHEET NOTES:**
- EXISTING PANEL 'D' TO REMAIN AS IS. LOCK-OUT/TAG-OUT EXISTING BRANCH CKTS AS NECESSARY FOR DEMO AND CONSTRUCTION. OTHER EXISTING CKTS TO REMAIN 'AS IS'.
 - RELOCATE EXISTING PANEL 'A' - EXTEND EXISTING FEEDER, IF NECESSARY. LOCK-OUT/TAG-OUT EXISTING BRANCH CKTS AS NECESSARY FOR DEMO AND CONSTRUCTION OTHER EXISTING CKTS TO REMAIN 'AS IS'.
 - DEMO EXISTING PANEL 'B' - DEMO FEEDER BACK TO SOURCE. DEMO ALL ASSOCIATED BRANCH CIRCUITS.
 - PROVIDE LOCK-OUT/TAG-OUT AS NECESSARY FOR DEMO AND CONSTRUCTION.
 - RE-ORIENT EXISTING 'METER' FOR NEW LAYOUT OF BUILDING SUPPORT ROOM. EXTEND EXISTING FEEDERS AS NECESSARY.
 - EXISTING FLOORBOX 120V CIRCUITS/DEVICES & LOW VOLTAGE CABLING/DEVICES TO REMAIN 'AS IS'.
 - ALL EXISTING LIGHTING AND CONTROLS TO BE REPLACED IN LIKE FOR LIKE LOCATIONS. PROVIDE NEW CONTROLS WIRING. EXISTING HOMERUNS AND BRANCH CIRCUITS TO BE RE-PURPOSED.
 - ALL EXISTING WALL AND CEILING MOUNTED LOW VOLTAGE SYSTEMS/DEVICES TO REMAIN 'AS IS'. IF DEMO NECESSARY, COORDINATE WITH GC.
 - CONFIRM EXISTING DMX CABLING, PERIPHERALS, AND HEAD END TO BE DEMO'D W/ ARCHITECT.



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ELECTRICAL - LEVEL 01 FLOOR PLAN - ELECTRICAL DEMO

PROJECT: 2022####

DATE: --/------

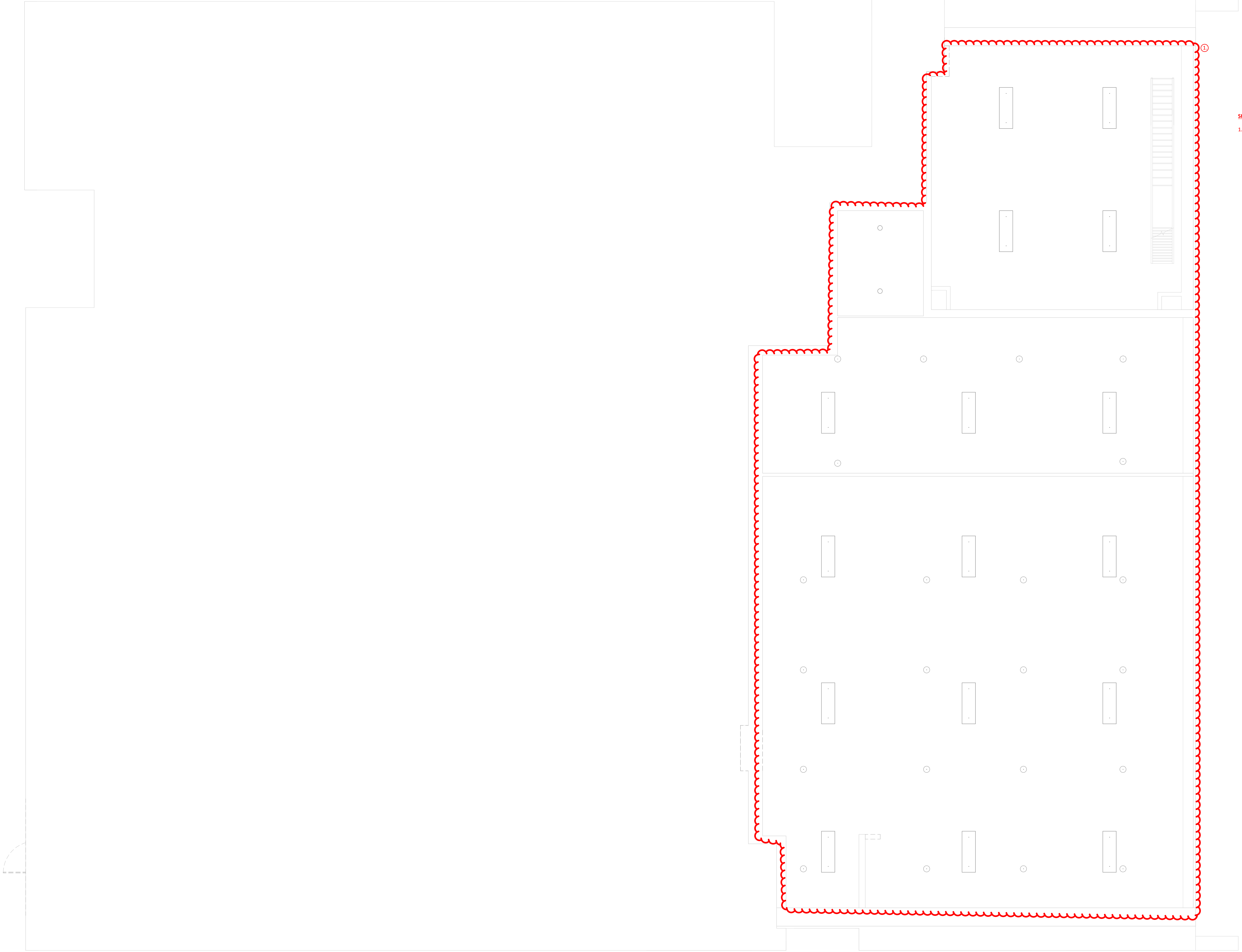
| No. | Description | Date |
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| | | |
| | | |

1 ELECTRICAL - LEVEL 01 FLOOR PLAN - ELECTRICAL DEMO
E1.01 1/4" = 1'-0"

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SHEET NOTES: ○
1. ALL EXISTING LIGHTING AND CONTROLS TO
BE REPLACED. EXISTING HOMERUNS AND
BRANCH CIRCUIT WIRING TO BE
RE-PURPOSED. SEE E2.02 FOR DETAILS.



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ELECTRICAL - LEVEL 02 FLOOR PLAN - ELECTRICAL DEMO

| PROJECT: 2022#### | | |
|-------------------|-------------|------|
| DATE: --/------ | | |
| No. | Description | Date |
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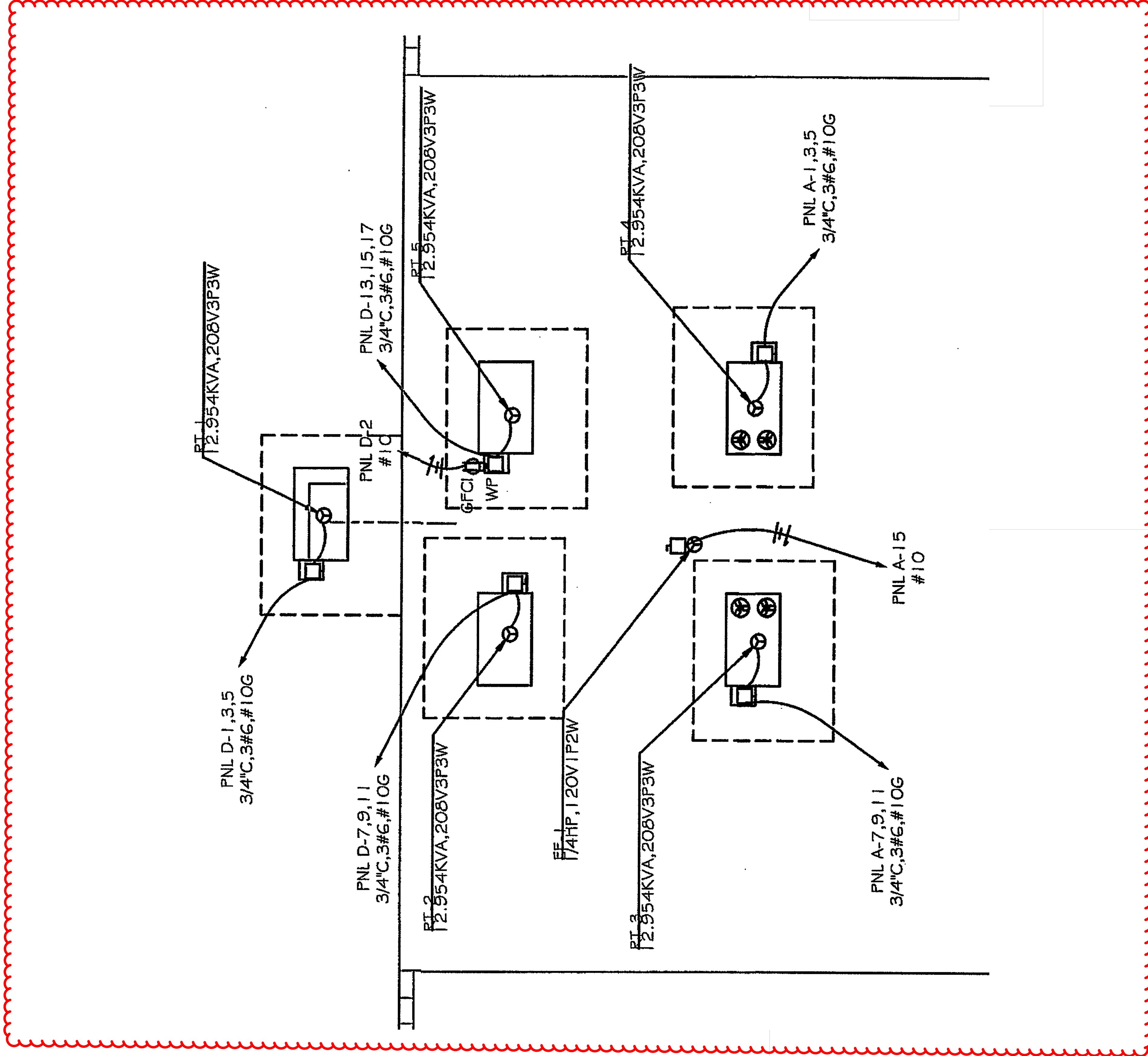
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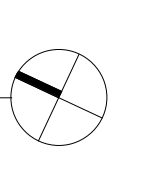
ELECTRICAL - TOP LEVEL FLOOR PLAN- ELECTRICAL DEMO

| | | |
|----------|-------------|------|
| PROJECT: | 2022#### | |
| DATE: | --/------ | |
| No. | Description | Date |
| | | |
| | | |
| | | |
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| | | |
| | | |

E1.03



EXISTING HVAC POWER TO EXISTING RTU'S TO REMAIN 'AS IS'.



SHEET NOTES:

1. ALL EXISTING LIGHT FIXTURES TO BE REPLACED IN LIKE FOR LIKE LOCATIONS WITH NEW LED. SEE FIXTURE SCHEDULE E0.02 FOR EXISTING. NEW FIXTURE TYPES TBD.
2. PROVIDE NEW CONTROLS WIRING AND DEVICES FOR REVISED OCCUPANCY TYPE PER LIGHTING CONTROLS MATRIX ON E0.02 TBD.
3. ASSUME NEW RELAY BASED LIGHTING CONTROLS PANEL (LCP) AND DEVICES TO MEET 2019 ASHRAE 90.1 REQUIREMENTS.
4. EXISTING EXTERIOR LIGHTING TO BE CONTROLLED BY NEW LCP.

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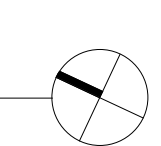
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220 S Front St, Medford, OR 97501
ORW
ELECTRICAL - LEVEL 01 RCP - LIGHTING

PROJECT: 2022####

| No. | Description | Date |
|-----|-------------|------|
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1 ELECTRICAL - LEVEL 01 RCP - LIGHTING
1/4" = 1'-0"



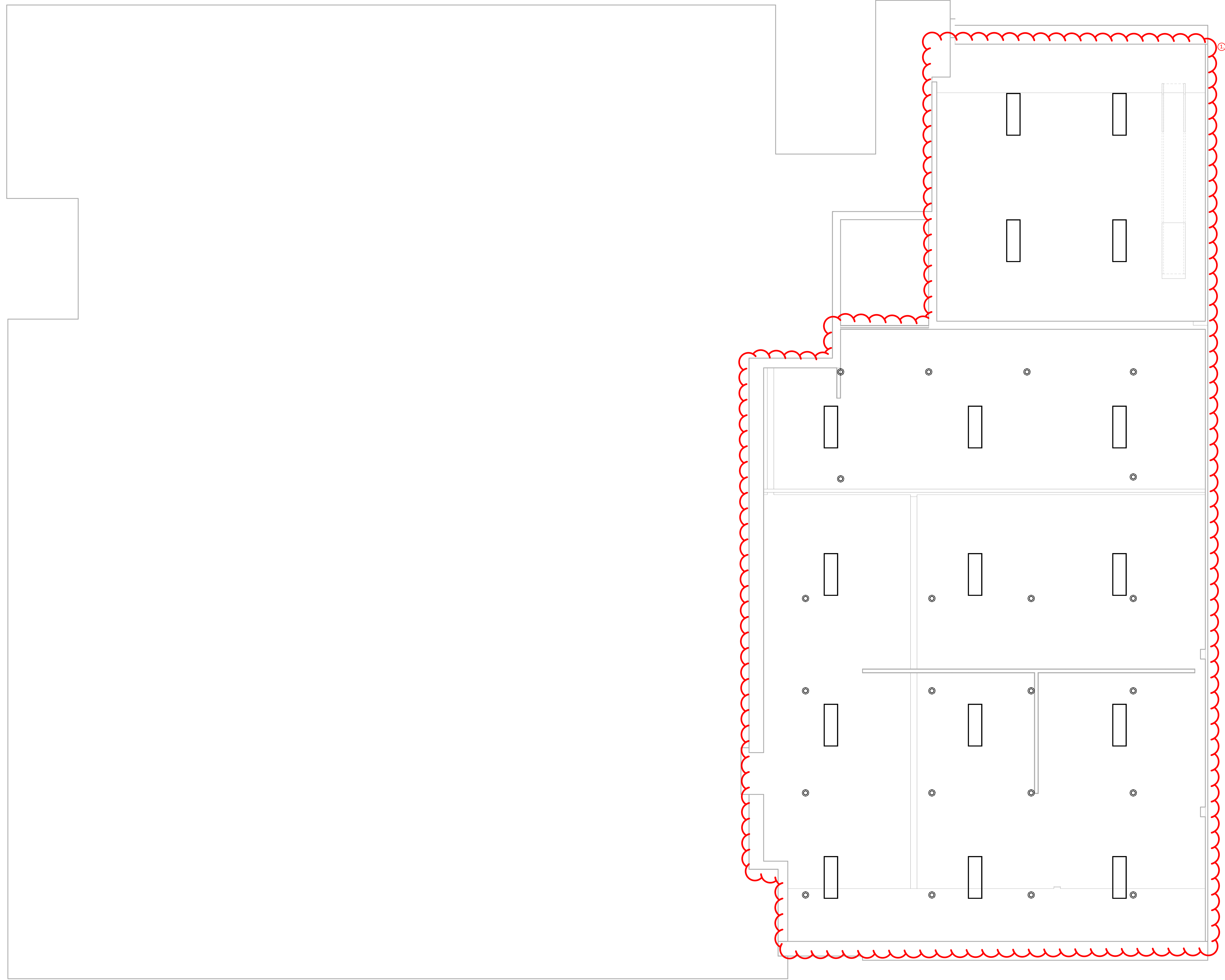
- SHEET NOTES:** ○
1. ALL EXISTING LIGHT FIXTURES TO BE REPLACED IN LIKE FOR LIKE LOCATIONS WITH NEW LED. SEE FIXTURE SCHEDULE E0.02 FOR EXISTING. NEW FIXTURE TYPES TBD.
 2. PROVIDE NEW CONTROLS WIRING AND RELAY BASED LIGHTING CONTROL DEVICES FOR REVISED OCCUPANCY TYPE. LIGHTING CONTROLS MATRIX ON E0.02 TBD.

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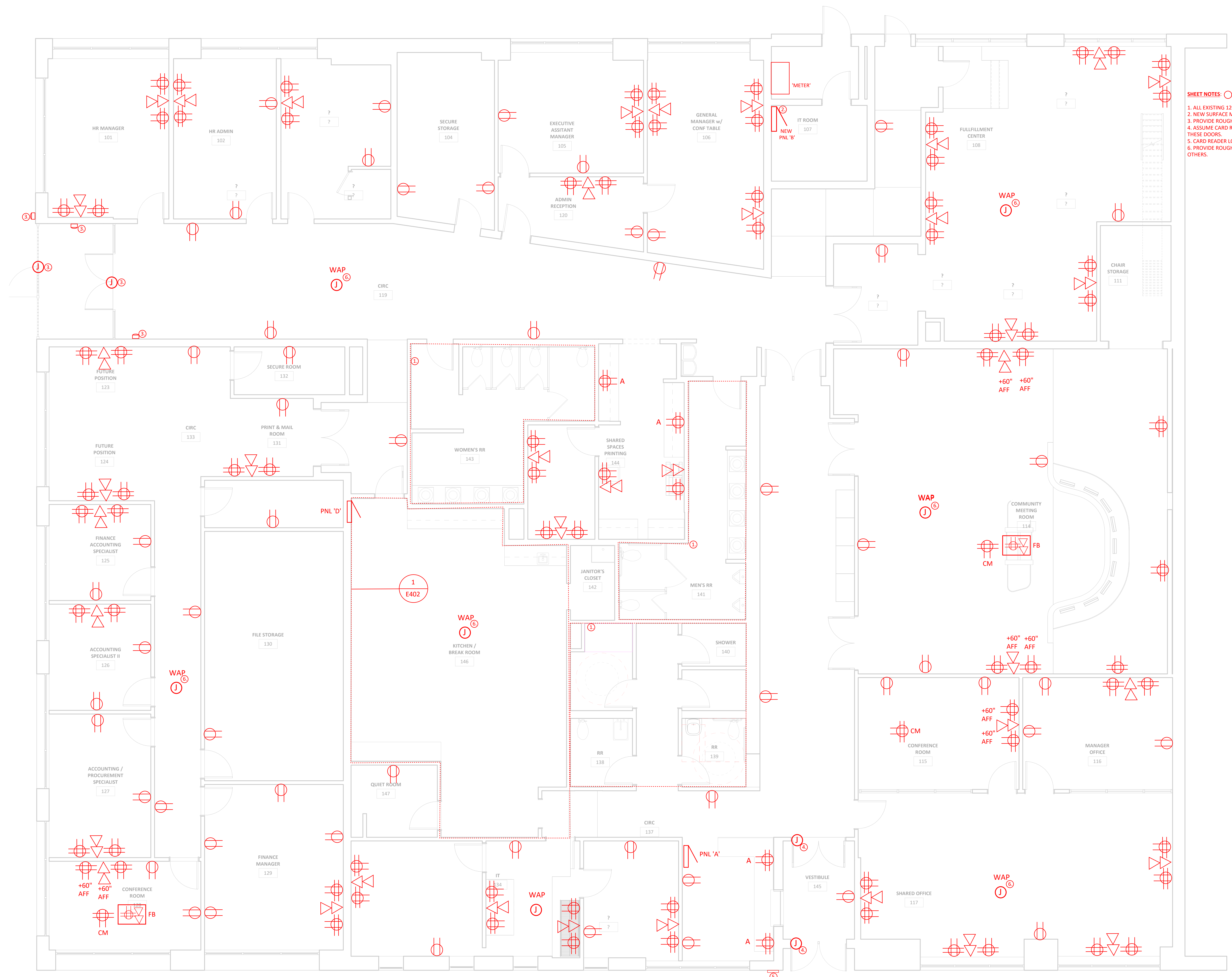
ELECTRICAL - LEVEL 02 RCP - LIGHTING

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- SHEET NOTES:**
1. ALL EXISTING 120V POWER/DEVICES TO REMAIN 'AS IS'.
 2. NEW SURFACE MOUNT 200A 120V/208Y 3PH MLO.
 3. PROVIDE ROUGH IN FOR ADA DOOR OPERATORS BY OTHERS.
 4. ASSUME CARD READER ROUGH-IN FOR ACCESS CONTROL AT THESE DOORS.
 5. CARD READER LOCATION.
 6. PROVIDE ROUGH-IN FOR WAP LOCATION. WAP DEVICE BY OTHERS.



1 ELECTRICAL - LEVEL 01 FLOOR PLAN - POWER & DATA
E3.01 1/4" = 1'-0"

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ELECTRICAL - LEVEL 01 FLOOR PLAN - POWER AND DATA

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E3.01

KITCHEN LAYOUT TBD



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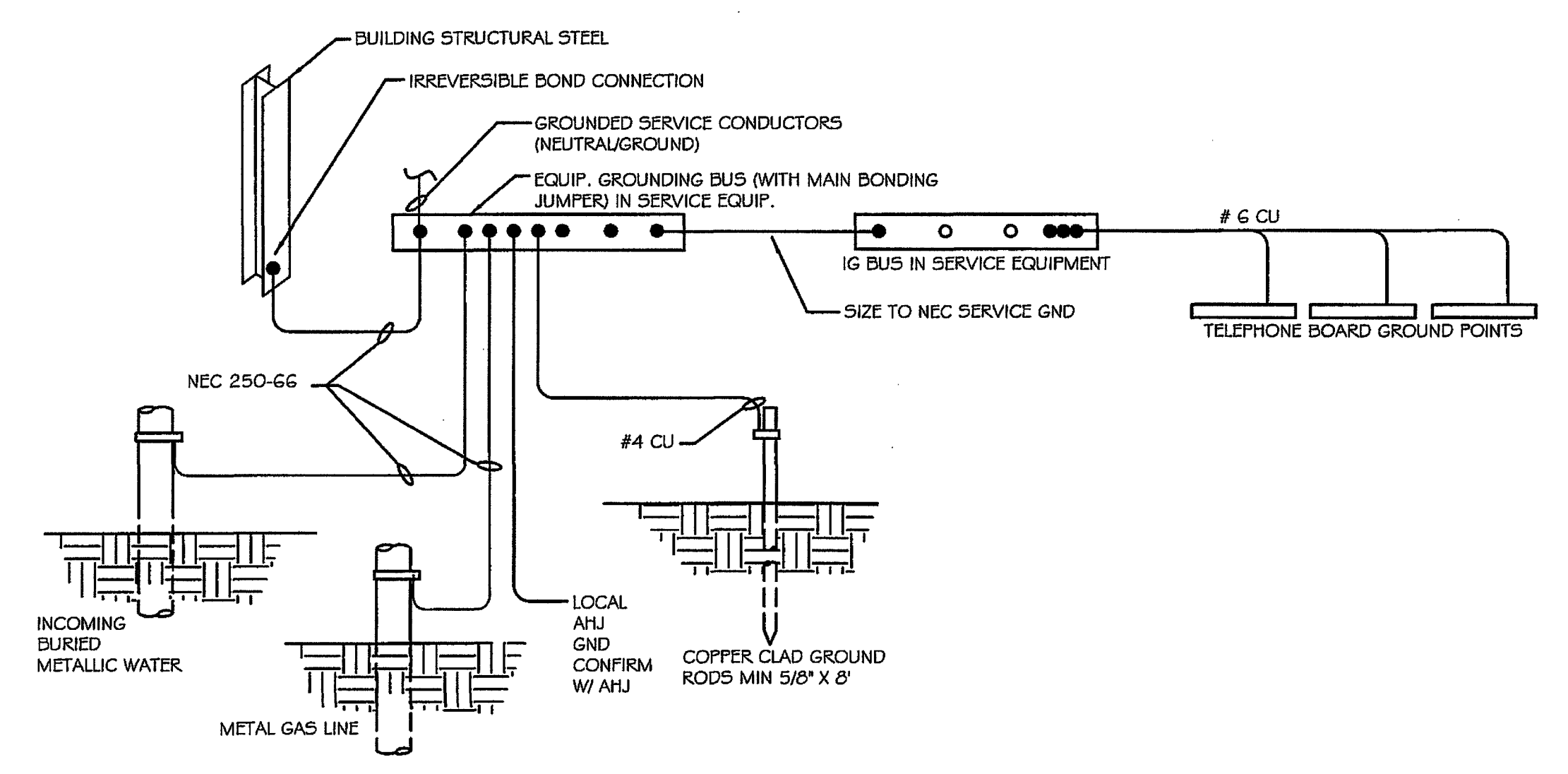
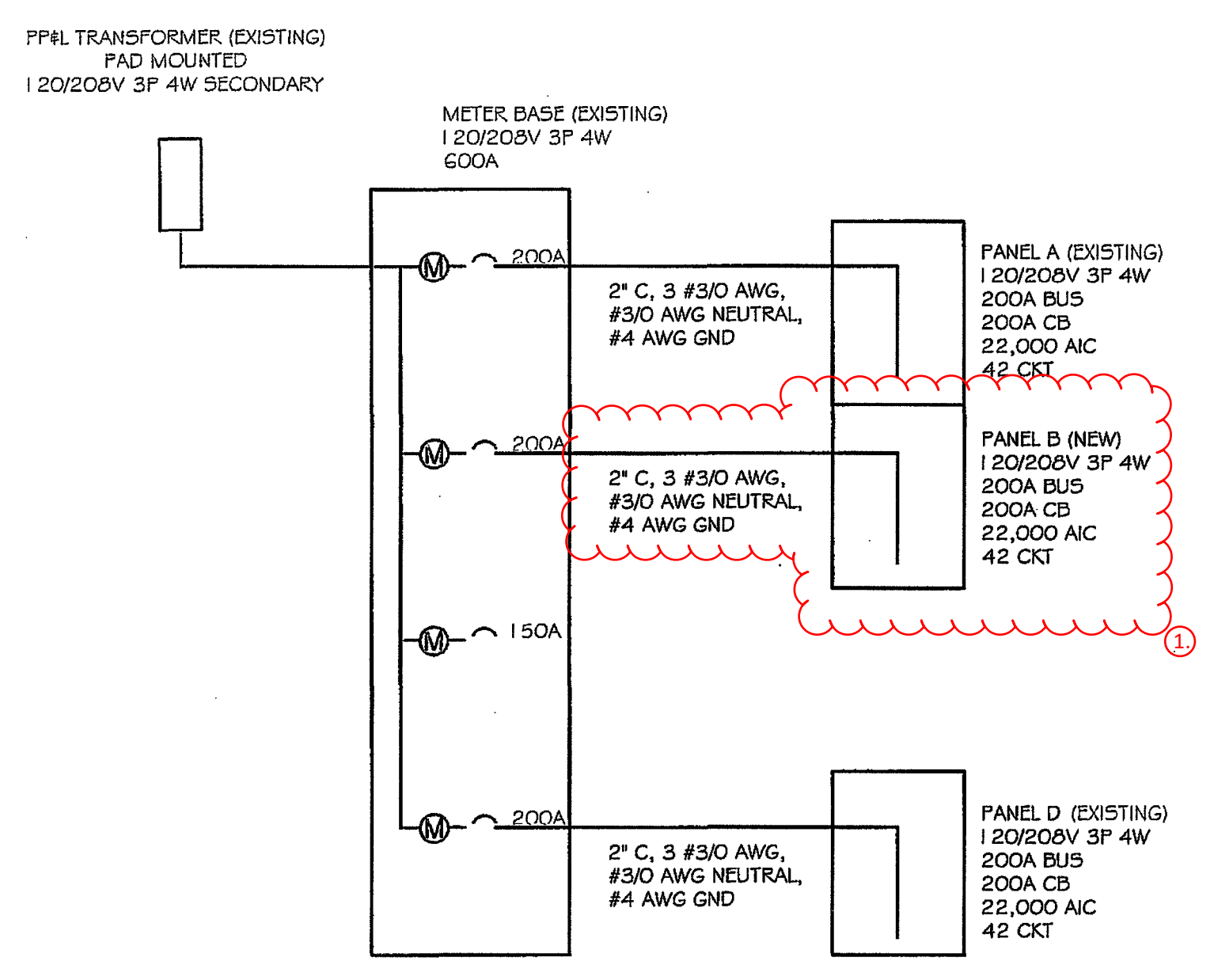
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ELECTRICAL - ENLARGED PLANS

| PROJECT: | | 2022#### |
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E4.01

SHEET NOTES:

1. PROVIDE NEW PANEL 'B' AND FEEDER FROM RELOCATED 'METER' - SEE E3.01 BUILDING SUPPORT RW 148 FOR LOCATION.



1. INSTALL GROUNDING/BONDING CONDUCTORS IN PROTECTIVE RACEWAYS
2. ALL ISOLATED GROUND CONDUCTORS ARE GREEN WITH TRACER COLOR IN INSULATION NO EXCEPTIONS

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ELECTRICAL - ONE-LINE DIAGRAMS

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E5.01

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ELECTRICAL - SCHEDULES

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E6.01

EXISTING

NEW PANEL SCHEDULES FOR 'A', 'B', & 'D'

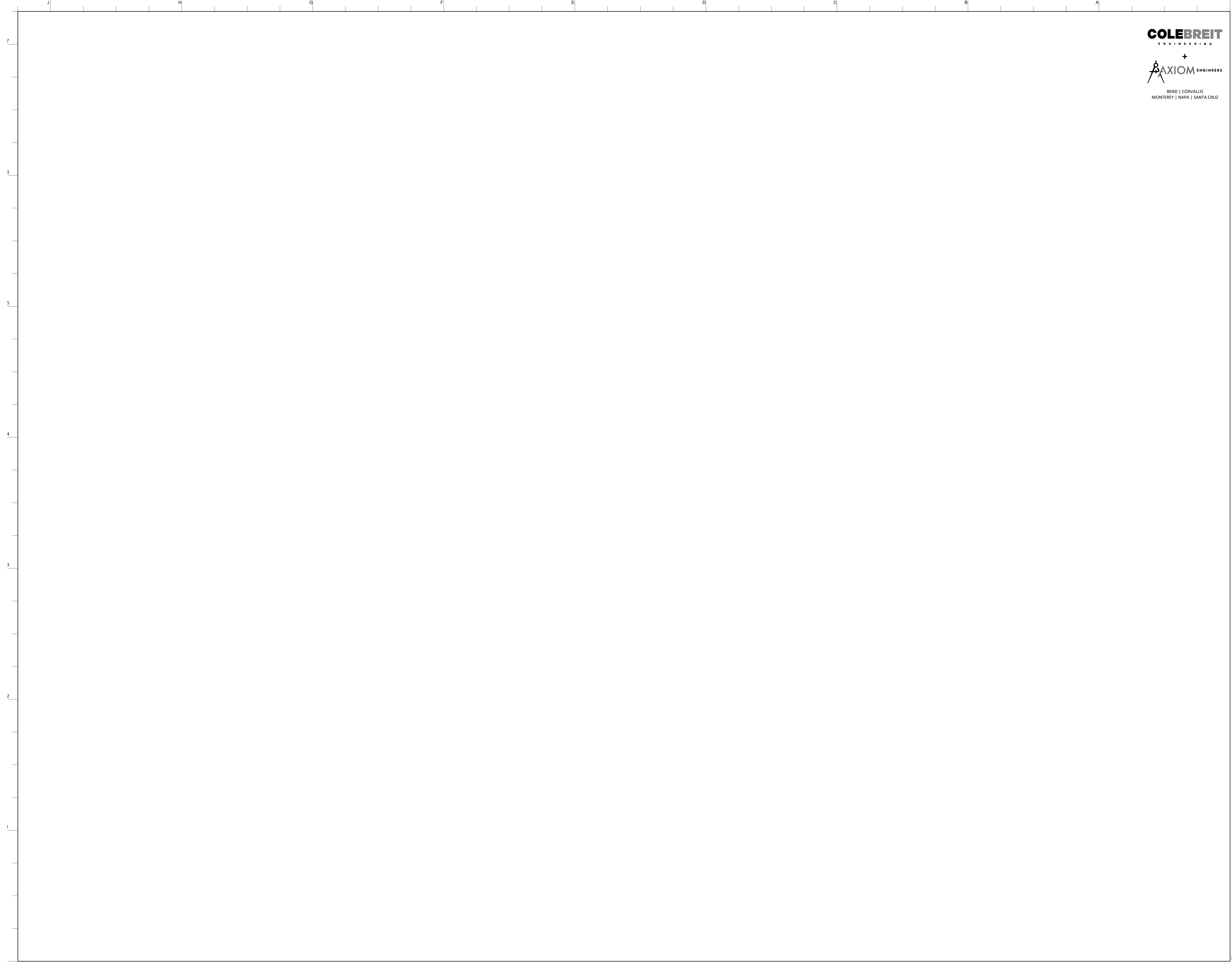
NEW MECHANICAL AND KITCHEN
EQUIPMENT SCHEDULES

| METER | | | | | | | | | |
|-------------------------------|---------------------|-----------|-----------------------|----------------|----------------------|---------------|-------------------------------|----------------------------|----------------------------|
| ROOM | | | VOLTS 208Y/120V 3P 4W | | | AIC 22,000 | | | |
| MOUNTING FLUSH | | | BUS AMPS 600 | | | MAIN BKR MLO | | | |
| FED FROM UTILITY | | | NEUTRAL 100% | | | LUGS STANDARD | | | |
| NOTE EXISTING | | | | | | | | | |
| CKT # | CIRCUIT DESCRIPTION | KVA LOAD | | | BREAKER TRIP / POLES | COND. | FEEDER RACEWAY AND CONDUCTORS | | |
| | | A | B | C | | | 2" C, 3/8" O, #3 / ON, #66 | 3" C, 3/8" O, #3 / ON, #66 | 2" C, 3/8" O, #3 / ON, #66 |
| 1 | PANEL PNL A | 16.7 | 13.6 | 14.4 | 200/3 | CU | 2" C, 3/8" O, #3 / ON, #66 | | |
| 2 | PANEL PNL B | 40.8 | 40.8 | 40.8 | 400/3 | CU | 3" C, 3/8" O, #3 / ON, #66 | | |
| 3 | SPACE | 0 | 0 | 0 | 20/3 | CU | | | |
| 4 | PANEL PNL D | 16.3 | 18.9 | 17 | 200/3 | CU | 2" C, 3/8" O, #3 / ON, #66 | | |
| TOTAL CONNECTED KVA BY PHASE | | 73.8 | 73.2 | 72.3 | | | | | |
| CONN. KVA | | CALC. KVA | | CONN. KVA | | CALC. KVA | | | |
| LIGHTING | 8.5 | 10.6 | (125%) | CONTINUOUS | 0 | 0 | (125%) | | |
| LARGEST MOTOR | 13 | 16.2 | (125%) | HEATING | 0.84 | 0.84 | (100%) | | |
| OTHER MOTORS | 53.7 | 53.7 | (100%) | NONCONTINUOUS | 0.5 | 0.5 | (100%) | | |
| RECEPTACLES | 20.4 | 15.2 | (50%*10) | KITCHEN EQUIP | 0 | 0 | (N/A) | | |
| | | | | NONCON/DIVERSE | 122 | 61.2 | (50%) | | |
| TOTAL KVA | | 219 | | 158 | | | | | |
| BALANCED THREE PHASE AMPS 439 | | | | | | | | | |

| PNL A | | | | | | | | | | | |
|--|------|----------------------|-----------------------|----------------|------|---------------|--------|---------------------|----------|------|-------|
| ROOM | | | VOLTS 208Y/120V 3P 4W | | | AIC 22,000 | | | | | |
| MOUNTING FLUSH | | | BUS AMPS 200 | | | MAIN BKR MLO | | | | | |
| FED FROM METER | | | NEUTRAL 200% | | | LUGS STANDARD | | | | | |
| NOTE PANELBOARD, COPPER BUSSING, DOOR IN DOOR CONSTRUCTION | | | | | | | | | | | |
| CKT # | BKR | CIRCUIT DESCRIPTION | KVA LOAD | | | CKT # | BKR | CIRCUIT DESCRIPTION | KVA LOAD | | |
| | | | A | B | C | | | | A | B | C |
| 1 | 50/3 | RT-4 | 4.32 | | | 2 | 20/1 | FACP | 1 | | |
| 3 | | | 4.32 | | | 4 | 20/1 | HVAC CONTROLLER | 0.5 | | 0.36 |
| 5 | | | | | 4.32 | 6 | 20/1 | RECEPTACLE | | | 0.36 |
| 7 | 50/3 | RT-3 | 4.32 | | | 8 | 20/1 | RECEPTACLE | 0.36 | | |
| 9 | | | | | 4.32 | 10 | 20/1 | RECEPTACLE | 0.36 | | |
| 11 | | | | | 4.32 | 12 | 20/1 | RECEPTACLE | | | 1.08 |
| 13 | 20/1 | LIGHTING CONTROLLER | 0.5 | | | 14 | 20/1 | RECEPTACLE | 1.26 | | |
| 15 | 20/1 | EF-1 | 0.698 | | | 16 | 20/1 | RECEPTACLE | | 0.18 | |
| 17 | 20/1 | LIGHTING | | 0.64 | | 18 | 20/1 | RECEPTACLE | | 0.72 | |
| 19 | 20/1 | LIGHTING | 0.568 | | | 20 | 20/1 | RECEPTACLE | 0.72 | | |
| 21 | 20/1 | LIGHTING | | 0.33 | | 22 | 20/1 | DOOR 2 | | 0.5 | 0.481 |
| 23 | 20/1 | RECEPTACLE | | | 0.9 | 24 | 20/1 | LIGHTING | 1.54 | | |
| 25 | 20/1 | P-2, P-1, WH-1 | 1.04 | | | 26 | 20/1 | LIGHTING | | | |
| 27 | 20/1 | RECEPTACLE, LIGHTING | 1.27 | | | 28 | 20/1 | SPACE | | 0 | 0 |
| 29 | 20/1 | RECEPTACLE | | 1.62 | | 30 | 20/1 | SPACE | | 0 | 0 |
| 31 | 20/1 | RECEPTACLE | 1.08 | | | 32 | 20/1 | SPACE | | 0 | 0 |
| 33 | 20/1 | RECEPTACLE | | 1.08 | | 34 | 20/1 | SPACE | | 0 | 0 |
| 35 | 20/1 | SPACE | | 0 | | 36 | 20/1 | SPACE | | 0 | 0 |
| 37 | 20/1 | SPACE | | 0 | | 38 | 20/1 | SPACE | | 0 | 0 |
| 39 | 20/1 | SPACE | | 0 | | 40 | 20/1 | SPACE | | 0 | 0 |
| 41 | 20/1 | SPACE | | 0 | | 42 | 20/1 | SPACE | | 0 | 0 |
| TOTAL CONNECTED KVA BY PHASE | | 16.7 | | | 13.6 | | | 14.4 | | | |
| TOTAL CONNECTED AMPS BY PHASE | | 139 | | | 113 | | | 120 | | | |
| CONN. KVA | | CALC. KVA | | CONN. KVA | | CALC. KVA | | | | | |
| LIGHTING | 3.57 | 4.46 | (125%) | CONTINUOUS | 0 | 0 | (125%) | | | | |
| LARGEST MOTOR | 13 | 16.2 | (125%) | HEATING | 0.84 | 0.84 | (100%) | | | | |
| OTHER MOTORS | 13.9 | 13.9 | (100%) | NONCONTINUOUS | 0.5 | 0.5 | (100%) | | | | |
| RECEPTACLES | 13 | 11.5 | (50%*10) | KITCHEN EQUIP | 0 | 0 | (N/A) | | | | |
| | | | | NONCON/DIVERSE | 0 | 0 | (N/A) | | | | |
| TOTAL KVA | | 44.7 | | 47.3 | | | | | | | |
| BALANCED THREE PHASE AMPS 131 | | | | | | | | | | | |

| PNL D | | | | | | | | | | | |
|--|------|---------------------|-----------------------|----------------|------|---------------|--------|---------------------|----------|------|------|
| ROOM | | | VOLTS 208Y/120V 3P 4W | | | AIC 22,000 | | | | | |
| MOUNTING FLUSH | | | BUS AMPS 200 | | | MAIN BKR MLO | | | | | |
| FED FROM METER | | | NEUTRAL 200% | | | LUGS STANDARD | | | | | |
| NOTE PANELBOARD, COPPER BUSSING, DOOR IN DOOR CONSTRUCTION | | | | | | | | | | | |
| CKT # | BKR | CIRCUIT DESCRIPTION | KVA LOAD | | | CKT # | BKR | CIRCUIT DESCRIPTION | KVA LOAD | | |
| | | | A | B | C | | | | A | B | C |
| 1 | 50/3 | RT-1 | 4.32 | | | 2 | 20/1 | RECEPTACLE | 0.18 | | 1.26 |
| 3 | | | 4.32 | | | 4 | 20/1 | RECEPTACLE, POSTER | | 0.9 | |
| 5 | | | | | 4.32 | 6 | 20/1 | RECEPTACLE | | | 1.26 |
| 7 | 50/3 | RT-2 | 4.32 | | | 8 | 20/1 | RECEPTACLE | 0.36 | | |
| 9 | | | | | 4.32 | 10 | 20/1 | RECEPTACLE | | 1.44 | |
| 11 | | | | | 4.32 | 12 | 20/1 | RECEPTACLE | | | 1.08 |
| 13 | 50/3 | RT-5 | 4.32 | | | 14 | 20/1 | RECEPTACLE | 1.44 | | |
| 15 | | | | | 4.32 | 16 | 20/1 | RECEPTACLE | | 0.9 | |
| 17 | 20/1 | LIGHTING | 0.738 | | | 18 | 20/1 | MAIN DOOR | | | 1 |
| 19 | 20/1 | LIGHTING | | 1.27 | | 20 | 20/1 | SPACE | | 0 | 0 |
| 21 | 20/1 | LIGHTING | | 0.746 | | 22 | 20/1 | SPACE | | 0 | 0 |
| 23 | 20/1 | LIGHTING | 0.6 | | | 24 | 20/1 | SPACE | | 0 | 0 |
| 25 | 20/1 | LIGHTING | | 1.39 | | 26 | 20/1 | SPACE | | 0 | 0 |
| 27 | 20/1 | LIGHTING | | 0 | | 28 | 20/1 | SPACE | | 0 | 0 |
| 29 | 20/1 | SPACE | | 0 | | 30 | 20/1 | SPACE | | 0 | 0 |
| 31 | 20/1 | SPACE | | 0 | | 32 | 20/1 | SPACE | | 0 | 0 |
| 33 | 20/1 | SPACE | | 0 | | 34 | 20/1 | SPACE | | 0 | 0 |
| 35 | 20/1 | SPACE | | 0 | | 36 | 20/1 | SPACE | | 0 | 0 |
| 37 | 20/1 | SPACE | | 0 | | 38 | 20/1 | SPACE | | 0 | 0 |
| 39 | 20/1 | SPACE | | 0 | | 40 | 20/1 | SPACE | | 0 | 0 |
| 41 | 20/1 | SPACE | | 0 | | 42 | 20/1 | SPACE | | 0 | 0 |
| TOTAL CONNECTED KVA BY PHASE | | 16.3 | | | 18.9 | | | 17 | | | |
| TOTAL CONNECTED AMPS BY PHASE | | 136 | | | 157 | | | 142 | | | |
| CONN. KVA | | CALC. KVA | | CONN. KVA | | CALC. KVA | | | | | |
| LIGHTING | 4.93 | 6.16 | (125%) | CONTINUOUS | 0 | 0 | (125%) | | | | |
| LARGEST MOTOR | 13 | 16.2 | (125%) | HEATING | 0 | 0 | (100%) | | | | |
| OTHER MOTORS | 26.9 | 26.9 | (100%) | NONCONTINUOUS | 0 | 0 | (100%) | | | | |
| RECEPTACLES | 7.38 | 7.38 | (50%*10) | KITCHEN EQUIP | 0 | 0 | (N/A) | | | | |
| | | | | NONCON/DIVERSE | 0 | 0 | (N/A) | | | | |
| TOTAL KVA | | 52.2 | | 56.6 | | | | | | | |
| BALANCED THREE PHASE AMPS 157 | | | | | | | | | | | |

PANEL SCHEDULES
NTS



COLEBREIT
ENGINEERING

AXIOM ENGINEERS

BEND | CORVALLIS
MONTEREY | NAPA | SANTA CRUZ

ORW
ARCHITECTURE

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MEDFORD, OR 97501
503.779.5237

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RVTD ADMIN
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ORW
ELECTRICAL - DETAILS

PROJECT: 2022####

DATE: --/------

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E7.01

MEP Schematic Design Narrative

RVTD Downtown Administration Building

130 E 8th St. Medford, OR 97501

Project: 20220492

Date: 10/27/2022

Created for:

ORW Architects

Prepared by:

Michael Miscione, PE

Bruce Jessup

Micah Tetreault

Michael Leavitt, PE

Contents:

| | |
|---|----|
| Summary | 2 |
| Plumbing (DIV 22)..... | 3 |
| Mechanical (DIV 23) | 7 |
| Electrical (DIV 26) | 10 |
| Telecommunications/Security (DIV 27) | 15 |
| Fire Alarm (DIV 28) | 17 |

Summary

The Rogue Valley Transportation District is remodeling two of its facilities located in downtown Medford. As a part of this project, the district would like to keep sustainability in mind. The scope of this project includes the reconfiguration of existing HVAC equipment, plumbing, electrical systems, specifications, bidding support services, and construction support services.

Downtown Administration Building:

Located at 130 E8th St., Medford, OR 97501. The larger of the two facilities is approximately 12,600 square feet. This building was purchased in December 2021 from the Rogue Community College and is adjacent to RVTD’s main transit center, Front Street Station. This building will be renovated to serve the Administrative, Finance, Planning and IT personnel. Renovated spaces include a 1,600 square foot theater, and a 1,000-square foot dance studio, a large shower/locker room, and reconfiguration of several existing office spaces.

Criteria

Systems will be designed in accordance with the following:

Codes:

- Current Oregon Plumbing Specialty Code
- Current Oregon Energy Efficiency Code
- Current Oregon Mechanical Specialty Code
- Current Oregon Structural Specialty Code
- Current Oregon Boiler and Pressure Vessel Specialty Code

Standards:

- ASHRAE – American Society of Heating, Refrigeration and Air-Conditioning Engineers.
- ASME – American Society of Mechanical Engineers
- ASPE – American Society of Plumbing Engineers
- ASTM – American Society of Testing Materials
- AWWA – American Water Works Association
- CISPI – Cast Iron Soil Pipe Institute
- CS – Commercial Standards
- EPA – Environmental Protection Agency
- FM – factory Mutual Engineering Corporation
- IBC – International Building Code
- NEC – National Electric code
- NFPA – National Fire Protection Association
- OSHA – Occupational Safety and Health Administration
- PDI – Plumbing and Drainage Institute
- UPC – Uniform Plumbing Code
- UL – Underwriters Laboratories

General

The Administration Building was formally a dance studio and is being remodeled to fit the needs of the Rouge Valley Transportation Department staff. There are two main locker rooms that will be reconfigured, and single user restroom group added to the space.

Demolition

Administration Building: All showers Mixing Valve/Head Assemblies in Women's Locker Room are to be removed in their entirety. All shower Mixing Valve/Head Assemblies in the Men's Locker Room are to be removed. (2) shower Mixing Valve/Head Assemblies are to be saved and repurposed. Trench drains in Women's Locker Room showers to be removed in their entirety. Partial Demolition of trench drains in Men's Locker Room showers, see sheet P1.01. Existing water closets, lavatories, hand sink, and mop sink to remain.

Storm

Existing Storm drains and piping to remain, no additional scope.

New Fixtures

Administration Building:

- (1) Accessible shower to be added, ColeBreit to specify.
- (1) Water Closet to be added to new restroom. Match Existing.
- (1) Lavatory to be added to new restroom. Match Existing.
- (2) Existing shower head/valve assemblies to be repurposed and used for reconfigured single occupancy shower stalls.

Waste Connections

New and Re-utilized fixtures to be reconnected to Building mains with new branch waste and vent piping. Piping material for waste and vent will be cast iron as the basis of design.

Condensate

As the air conditioning units are both inside and outside the building cool air water can condense on the cooling coil in the form of condensate. Condensate must be collected and discharged to an approved location to prevent water damage.

All roof top units (RTU's) condensate shall drain to the roof, as condensate is only produced when the RTU's are in cooling mode there is little risk of condensate freezing as the RTU's should be in heating mode when outside air conditions are below freezing. The condensate will free-drain into the roof drainage system, which is typical.

Indoor cooling fan coils will require a condensate pump to pump condensate to an approved location, such as a lavatory tail piece, floor drain, or mop sink.

Water Connections

New and Re-utilized fixtures to be reconnected to Building mains with new branch piping. Piping material will be copper and PEX where appropriate.

Water Heater(s)

Existing Water heaters to remain.

Gas

The existing gas service will remain for the Administration building and Mobility Training Center.

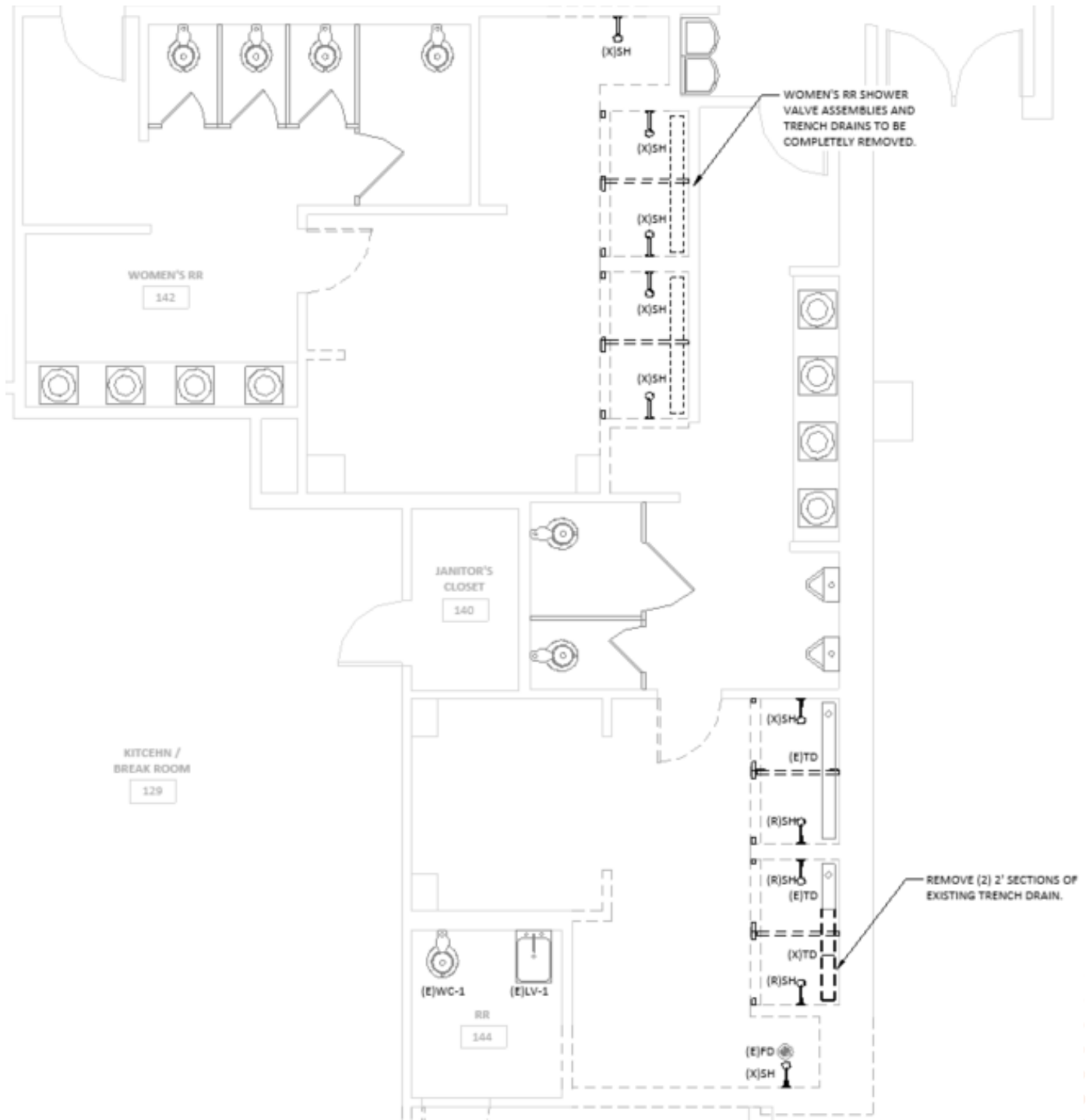
Calculations

The overall load capacity for both waste and water will be less than what exists.

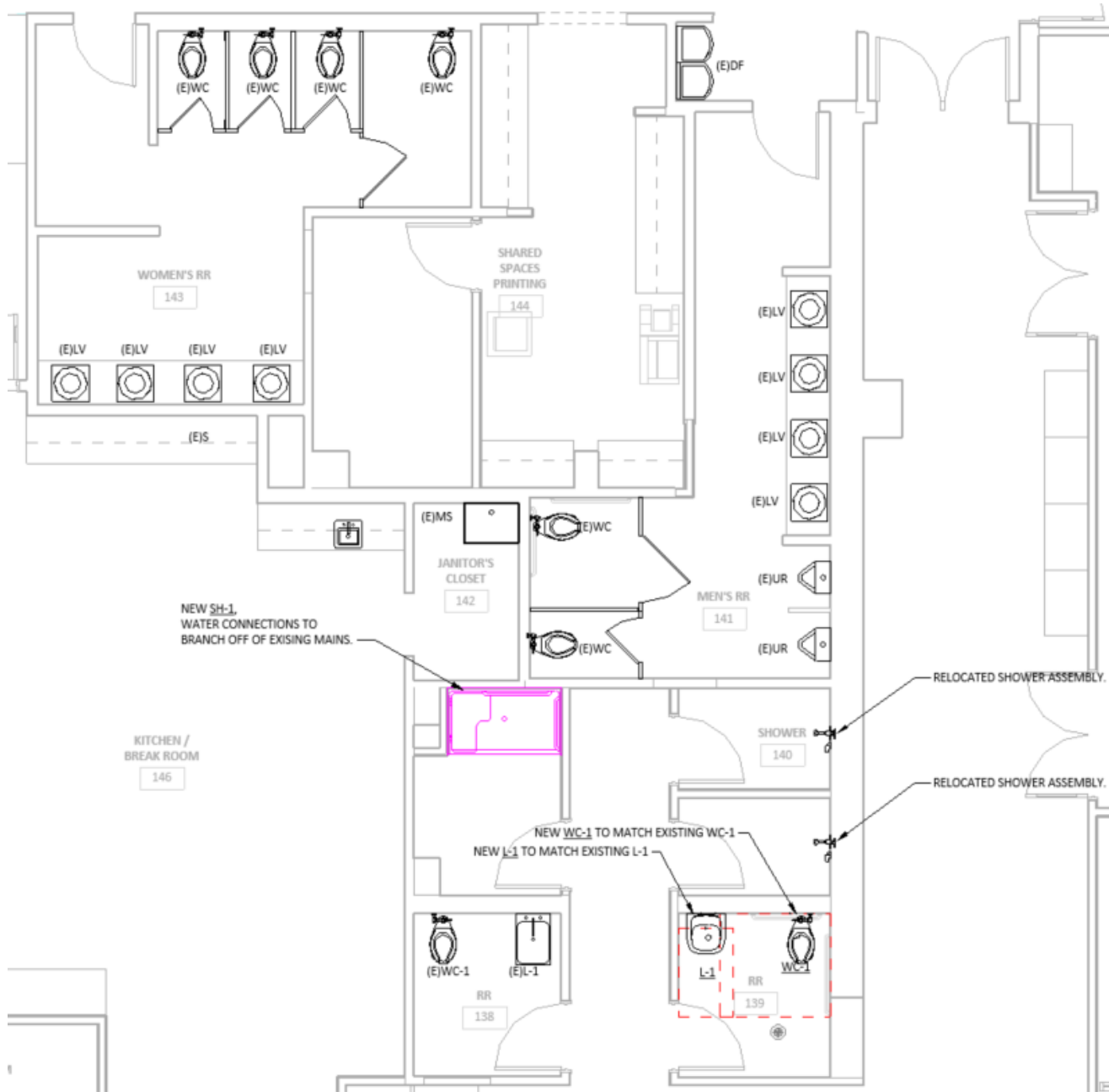
Systems Testing & Balancing

Testing and balancing of the cold and hot water systems shall be required. Detailed test procedures and balance reports shall be provided to Owner upon completion.

Administrative Building Demolition



Administrative Building Complete



Criteria

Systems will be designed in accordance with the following:

Codes:

- **Current Oregon Mechanical Specialty Code**
- **Current Oregon Energy Efficiency Code**
- **Current Oregon Plumbing Specialty Code**
- **Current (2019) Oregon Structural Specialty Code**

Standards:

- **ASHRAE 55 Thermal Environmental Conditions for Human Occupancy**
- **ASHRAE 62.1 Ventilation for Acceptable Indoor Air Quality**
- **NFPA 90A: Standard for the Installation of Air-Conditioning and Ventilating Systems, Current Edition**
- **NFPA 90B: Standard for the Installation of Warm Air Heating and Air-Conditioning Systems, Current Edition.**
- **NFPA 101: Life Safety Code, Current Edition**
- **Air Conditioning and Refrigeration Institute (ARI) Standards**
- **Air Moving and Air Conditioning Contractors National Association (SMACNA)**

General

The existing administration being renovated is served by existing HVAC system mainly comprised of 5 packaged gas-electric rooftop units (RTUs). These units are approximately 11 years old and will be reused for this project. Mechanical contractor to inspect and repair as needed to bring units into like new condition. See below for proposed equipment zoning.

The HVAC systems and equipment are sized based on existing and new layouts and Carrier Block Load calculations that comply with the following design conditions, as recommended by ASHRAE:

- **Outdoor Design Conditions**
 - Summer: 98°F OADB / 67°F OAWB
 - Winter: 21°F
- **Indoor Design Conditions**
 - In conditioned areas:
 - Cooling DB 75°F
 - Heating DB 70°F
- **Ductwork Design Criteria**
 - Maximum Friction Loss
 - 0.1 in wg / 100 ft.
- **Ventilation Criteria**
 - Complies with Oregon Mechanical Code, Chapter 4.

- Complies with ASHRAE Standard 62.1.
 - Ventilation to exceed code minimum by 50% as requested by the county to help mitigate odors.
- **Envelope Assumptions**
 - Walls: Assumed U-factor of 0.51, based on R-19 insulation.
 - Roof: Assumed R-30 or U-factor of 0.32, (equates to current code minimum).
 - Windows: Assumed U-factor of 0.36 and solar heat gain coefficient of 0.38 (equates to current code minimum).
- **Internal Heat Gains**
 - All lighting loads calculated at 1 W/sq. ft.
 - Computer loads calculated at 150 W, per ASHRAE Fundamentals Manual.
 - Refrigerators calculated at 1200 BTUH, per ASHRAE Fundamentals Manual.
 - Typical office room occupancies calculated at 1 person and 1 computer per office, other room occupancies calculated from square footage and expected typical use.

Equipment Selection

Existing units on the admin building are Lennox packaged rooftop equipment to remain. Existing exhaust fans will be replaced with a larger CFM fan to meet the new exhaust needs and will be Twin City or Greenheck.

Energy Trust of Oregon

ColeBreit Engineering will discuss potential incentives with the Energy Trust of Oregon prior to completion of design.

Power Supply

All new equipment shall be served by 208V/3Ph power, to match existing wherever possible. Maintenance receptacle shall be provided within 25' of new equipment on rooftop and mechanical disconnect shall be within visual range of new equipment.

Grilles, Registers, and Diffusers

GRDs will be sized to a maximum NC (noise criteria) level of 30, which is standard in office areas to provide a quiet work environment. Secure first-floor areas will use detention-style grilles, and internal security grilles in ductwork to these areas. Basis of design will be Price, as per the existing record drawings.

Distribution Systems

Duct routing shall be re-designed as necessary to meet the requirements of the layout revisions in the remodeled areas, and new duct distribution systems shall be designed for the newly added areas. Ducts shall be constructed of galvanized sheet metal for low pressure applications and shall be insulated to meet code requirements for minimizing energy losses. All ducts are intended to be concealed.

Controls

Existing wall-mounted thermostats will be reused and relocated based on the new floor plan.

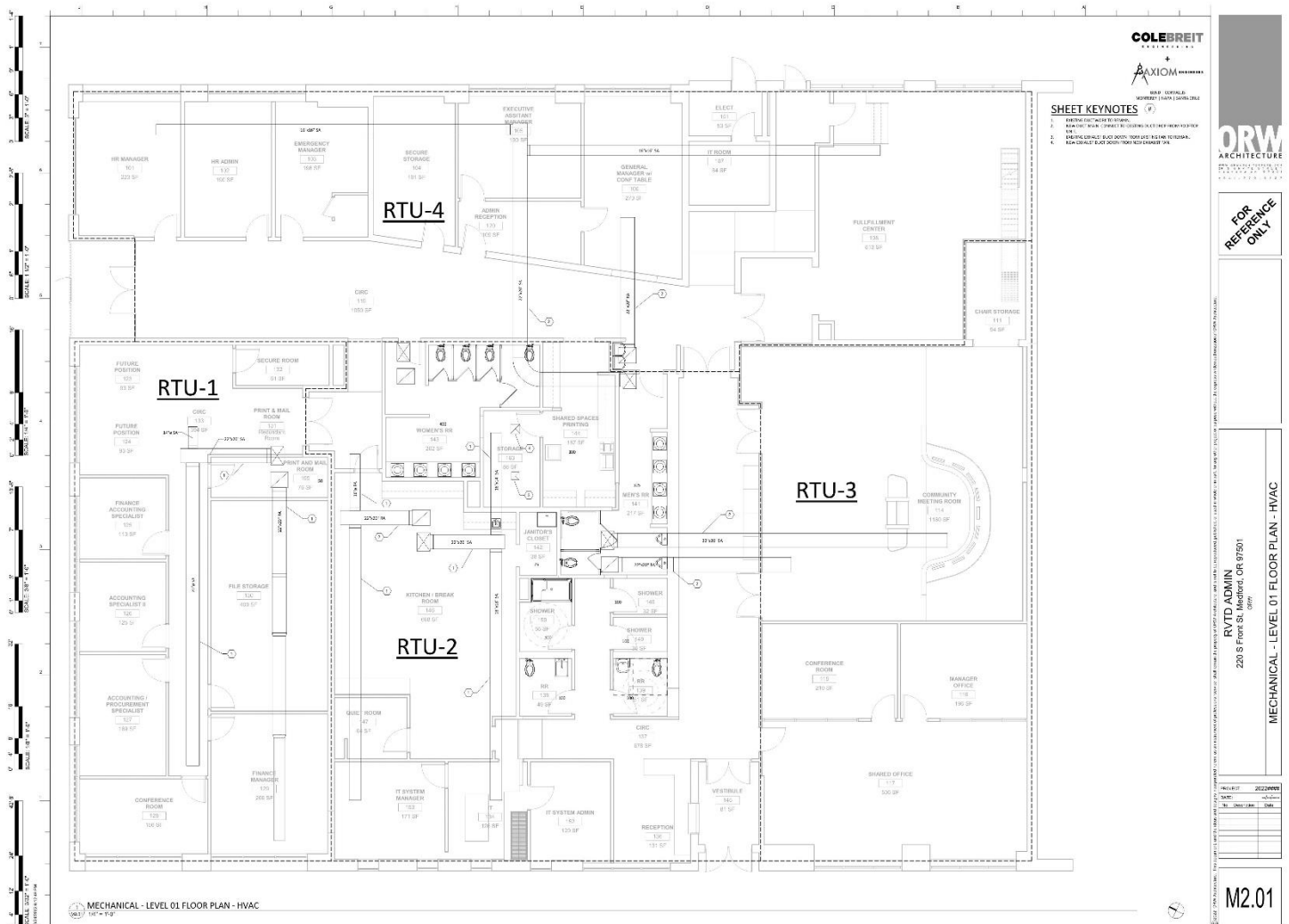
Systems Testing & Balancing

Testing, adjusting, and balancing shall include, but not be limited to air handling systems, air distribution ductwork, temperature control, general exhaust, and split system fan coil unit adjustments, and shall comply with project specifications.

Zoning

See the following zoning diagram for the admin building reusing the packaged rooftop units. The new floor plan has reduced the load in the admin building such that the following zoning plan is proposed. Rooftop units 1, 2, 3 and 4 to be reused. Rooftop unit 5 will be mothballed with all ductwork removed and drop from unit capped. The existing exhaust fan a capacity of 900 CFM and will be reused to its fullest extent. A new 900 CFM exhaust fan will need to be added to account for the additional exhaust demand of the space.

Downtown Admin Building Zoning Diagram with Duct Mains:



Criteria

Systems will be designed in accordance with the following:

Codes:

- ANSI Electrical Systems
- ANSI 117.1 Accessibility Standard
- NFPA-70 (2017 Ed. with Oregon State Amendments)
- NFPA-110, Life Safety Code (2019 Ed.)
- International Building Code – 2018 Ed.
- 2019 Oregon Structural Specialty Code

Standards:

- ADA – Americans with Disabilities Act
- ANSI – American National Standards Institute
- ANSI Electrical Systems
- ASTM – ASTM International
- Oregon Mechanical Code (most recent adopted edition)
- Oregon Plumbing Code (most recent adopted edition)
- Oregon Fire Code (most recent adopted edition)
- CSA – CSA International
- DSA – Division of the State Architect
- ETL – Electrical Testing Laboratories
- IEEE – Institute of Electrical and Electronics Engineers
- IES – Illuminating Engineering Society
- ISO – International Organization for Standardization
- NEC – National Electrical Code
- NECA – National Electrical Contractors Association
- NEMA – National Electrical Manufacturers Association
- NETA – National Electrical Testing Associations
- NFPA – National Fire Protection Association
- UL – Underwriters Laboratories Inc.

Energy Code Requirements

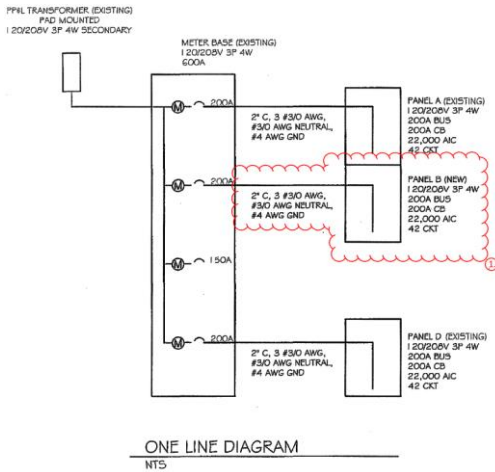
The Oregon Energy Code updates require the following measures are achieved for this project:

- Local automatic lighting controls shall be installed within each space being remodeled.

Power – Utility Service

Power to the Administration Bldg is fed from an existing exterior pad mounted Pacific Power transformer. The service voltage of 208Y/120V, 3 phase, 4 wire and is brought into the building via existing underground conduits and terminates at a freestanding switchgear section in Building Support Rm #148. The existing service is multi-tenant metered per

below. The 600A rated bussing does not have overcurrent protection. See attached SD Drawings for design intent and further details.



The existing panelboards 'A' and 'D' for distribution within the Administration Building appear to be in good working order and are within useful life. New panelboard 'B' and feeder to be provided as part of Administration Building remodel. Existing circuits that are to remain during the remodel are to be safed-off for demo and construction.

Grounding System

The existing grounding electrode system will not be changed for the Administration Bldg. Grounding for the new distribution panelboards will be extended from the existing service ground located in the Building Support Rm 148. Equipment grounding conductors will be provided for all feeders and branch circuits.

Wiring Methods

The existing feeders in the areas of remodel will be removed complete back to the panelboard that serves them. These pathways are not planned for reuse and new conduit and conductors will be installed where required to support new equipment and loads. Minimum conduit size of 3/4" to provide for future adds/changes. Feeders and branch circuits will utilize copper conductors with 600Volt THWN/THHN insulation. Conductor size shall be a #12 AWG minimum. Aluminum conductors will not be permitted. Conductors will be sized to limit voltage drop to 1.5% in feeders and 3% in branch circuits. The use of metal clad (MC) cable is not currently planned.

Feeders and branch circuit shall be installed in raceway and shall generally be routed overhead; wiring beneath the slab will be provided only where required to back feed existing to remain loads if the branch circuit were cut during removal of the existing slabs. Galvanized rigid steel conduit or intermediate metal conduit shall be used for feeders, for circuit exposed to physical damage. Otherwise, electrical metallic tubing with steel compression fittings shall be used throughout.

In conference rooms, the power and communications distribution system must be designed to integrate with the architecture, while providing flexibility for the future. These areas will receive recessed multiuse floor boxes featuring power receptacles, data outlets, and AV connections as required. Typical spaces will have receptacles in the wall and branch circuit wiring overhead (above the dropped ceiling tiles).

Wiring Devices

Wiring devices in most areas will be commercial specification grade with thermoplastic cover plates (Architect to determine finish). Ground fault circuit interrupters (5 milliamp) will be provided for all 120 Volt, 20 Amp devices in areas where water is present.

For areas where there is the potential for severe use or unauthorized access to the wiring device or box cavity behind the plate, security grade wall plates will be used (remodeled detention and high security areas). The stainless steel, tamper resistant cover plates virtually eliminate unauthorized access to junction boxes and conductors. An upgraded redundant ground tab is provided to ensure the grounding integrity of the entire installation.

Power Monitoring

Power monitoring devices are not anticipated to be provided as part of this project but will be evaluated if requested by the Owner. The power monitoring equipment would incorporate microprocessor based electronic metering to monitor kW, kWh, Amps per phase, Volts, demand kW, harmonics and power factor.

Surge Protection Devices

Surge Protection Devices (SPD) will be provided at the new distribution panelboards to help prevent equipment damage due to spikes in utility voltage.

Lighting

In order to meet stricter energy code requirements, LED based lighting sources will be used in the Administration Building for consistency and uniformity. LED lighting throughout the interior and the exterior in like for like locations is to be assumed. New layout will be necessary in the Administration Building. The lower energy running costs and long life without need to replace bulbs will benefit the Authority through decreased maintenance and energy costs.

Lighting temperature to be suggested at 3500K, a warm white to provide better color rendering, facial recognition, less eye strain, and a better match to natural daylight. Ultimately the lighting system will address specific "visibility" requirements for the project and each individual space. "Visibility" includes issues such as light quality, officer safety, occupant comfort, as well as aesthetics. A quality lighting system will not only add visual interest to a space, but may also increase employee productivity, performance, and safety. Once the visibility issues have been identified and addressed, the lighting system can be designed to provide maximum energy efficiency.

Our goal is to exceed the energy code requirements by at least 10% for the light systems while meeting the visibility and safety requirements for the County. The most typical fixture type used in the space is a recessed 2'x4' troffer style luminaire located in the dropped style ceiling grid. Basis-of-Design: Fluxwerx Transom with 100% of lighting directed downward:



Site lighting to be updated on the exterior of the building using vandal resistant LED luminaires in the activity area. Modified parking and driving areas will be reviewed and updated as needed to provide IES recommend lighting levels (footcandles) in these spaces.

Lighting Incentives

This project is eligible to participate in the Energy Trust of Oregon's available incentives under the existing buildings program. This cash rebate (\$15-\$40 per fixture) is available for existing fluorescent interior lighting being replaced with new LED luminaires. Existing incandescent exit signs, exterior building metal halide, and parking lot pole lighting is also eligible for a rebate with an upgrade to efficient LED options.

As the existing building does not have automatic lighting controls, the project will also be eligible for a \$30-\$70 per sensor rebate for each new lighting sensor installed. This includes occupancy/vacancy sensors, daylight dimming, and exterior lighting control systems utilizing photometric sensors.

Lighting Controls

The existing Lighting controls in the Admin Bldg are to be replaced. The common corridors and other common amenity spaces in the new renovation areas to be integrated into a new relay-based lighting control panel and peripherals. For all other spaces, provide local occupant controls. Individual offices will be provided with wall mounted dimming switches and conference rooms will have zoned lighting controls as appropriate for the space.

All occupied spaces will also feature automatic lighting controls such as ceiling mounted dual-technology occupancy sensors. These sensors require both motion (ultra-sonic) and heat (IR) to turn on which prevents nuisance tripping. Hallway lighting will automatically turn-off if there is no activity within 30 minutes (adjustable). Private offices will have overhead or wall mounted occupancy sensors for individual control. Small storage closets, janitor rooms, and other spaces under 100 square feet will have wall mounted occupancy sensor switches which also allow for manual off control.

Emergency Lighting

The new egress lighting in the Administration Building is to be provided by integral battery ballasts to provide 1FC of light levels along egress pathway shown by Architect.

On-Site Power Generation (Photovoltaic System)

There is anticipation of PV array being installed on the rooftop of the Administration Building if structurally feasible. For this project, assume up to 50kW of onsite generation. The PV power generated will tie into the existing spare 150/3 metered space in the Existing 600A service: see one line diagram above.

The existing 600A bussing may not be rated to accept the PV generation. Additional study will be required to determine if existing bussing/MLO service needs replacement to accommodate.

Utility coordination will be required. Design of Utility infrastructure and fees by PP&L. Additional studies may be requested by PP&L and other jurisdictions. There will be an approved PV vendor/distributor for design and equipment. Contractor responsible up to line side disconnect of PV system. Inverters, panels, aggregators, etc. all by vendor.

Mechanical/Equipment Connections

Mechanical Equipment connections will be made for all new mechanical equipment by the electrical contractor. All motors 3/4HP and larger will be wired for 208V, 3 phase power. Motors less than 3/4HP will be wired for 120 volt, 1-phase power. Magnetic starters and VFD's will be furnished by the mechanical contractor and installed by the electrical contractor with the necessary power wiring to the starter and from the starter to the motor. All VFD's not integral to the factory assembled equipment will be physically mounted at the equipment by the electrical contractor. Necessary power wiring to the VFD and from the VFD to the motor is to be installed. Refer to the mechanical and plumbing sections of this narrative for equipment descriptions and locations.

Building equipment such as motorized projector screens and motorized window shades (located in the multi-purpose room) will be provided and installed by the electrical contractor.

Labeling

All electrical equipment will be provided with labelling that identifies the equipment name, voltage, power source, arc fault information, etc. Branch panels will be provided with type-written panel directories. All receptacles will be labelled with the panel and circuit number on stick-on labels (typically black lettering on white backgrounds). All junction boxes will be provided with panel name and circuits. An updated single line diagram will be provided in the existing electrical room.

Criteria – Performance Specification

Systems will be designed in accordance with the following:

Codes & Standards:

- Oregon Building Code (most recent adopted edition)
- Oregon Electrical Code (most recent adopted edition)
- BICSI TDMM, 12th Edition
- ANSI/TIA-568-C.0 Generic Telecommunications Cabling for Customer Premises
- ANSI/TIA-568-C.1 Commercial Building Telecommunications Cabling Standard
- ANSI/TIA-568-C.2 Balanced Twisted-Pair Telecommunications Cabling and Components Standard
- ANSI/TIA-568-C.3 Optical Fiber Cabling Components Standard. Commercial Building Telecommunicating Cabling Standard
- ANSI/TIA-569-B Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA/EIA-606-A Administration Standard for Commercial Telecommunications Infrastructure
- ANSI-J-STD-607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
- Local Amendments to above Codes

A comprehensive system of voice and data outlet boxes and raceway system will be installed to provide pathways from the telecommunications room to all points in the Administration Building. See SD Drawings for proposed tel/data locations. A minimum conduit size of 3/4" will be provided to every voice and data outlet in the remodel, routed from the device to accessible ceiling space.

Division 26 has rough-in and pathways only for all Division 27 systems. All new systems described below to be provided and installed by approved vendors of RVTD. Additional low voltage requirements to be coordinated between Contractor and Vendor.

Any new CCTV camera locations (design by county's independent contractor) will have backboxes and 1" conduit installed. All outlet boxes are to be 4-11/16" square, by 2-1/8" deep. A cable tray system will be provided along the corridors to serve as the backbone raceway (located above the ceiling tiles).

Performance specifications will be provided for including horizontal 4-pair unshielded twisted pair (UTP) Category 6 voice and data network cabling. Each standard telecommunications outlet (TO) will consist of three Category 6 ports that can be patched as a data port or a voice. All 4-pair cable will terminate at 8-pin, 8-contact Category 6 communication jacks located in the main data rack in the MDF room. Cabling to be labeled on both ends.

Access controlled doors, intrusion door contacts, motion detectors, alarm notification devices, detention grade "pop locks" (electronic remote controlled) and IP Video Surveillance recording system will be provided (expanded off existing system as needed).

The following systems for the Admin Bldg have approved, existing vendors for the RVTD. Those systems to include:

- Access Control – Control locking and unlocking and monitoring of selected interior and exterior doors
- Tel/Data: RVTD IT to provide design requirements
- Internet Protocol (IP) Video Surveillance – IP cameras will be placed to monitor both interior and exterior spaces and will work in conjunction with the access control and intrusion system to deter and identify events.
- Intrusion Alarm – external and internal door monitoring for forced entry or door left ajar. During scheduled occupancy all alarms will report to building security system where appropriate action will be determined by officers. System will communicate with CCTV cameras to capture video documentation of events while events are happening.
- A raceway system of conduit, pull string, and outlet boxes will be provided for future adds/changes.
- The minimum conduit size to be 3/4"

Criteria – Performance Specification

Systems will be designed in accordance with the following:

Codes:

- **Oregon Building Code (most recent adopted edition)**
- **Oregon Fire Code (most recent adopted edition)**
- **Oregon Electrical Code (most recent adopted edition)**
- **NFPA-72, National Fire Alarm Code (2019 Ed.)**
- **Local Amendments to above Codes**

The Administration Building is currently served by an existing, monitored fire alarm system. During construction and the remodel, the existing FA system to remain active.

The remodeled areas in the Admin Bldg will have coverage extended as necessary for new occupancy by the existing FA system. Contractor to determine viability of existing FA system for compliance and expandability. FA is design/build by second-tier sub of electrical contractor. FA designer to provide necessary drawings, battery calcs, devices, and programming as necessary to procure FA permit. If the existing FA system is inadequate or incapable of expansion, provide new addressable system as necessary in compliance with code requirements and ADA regulations and per design criteria below.

Activation of system smoke detectors, manual pull stations and sprinkler water flow switches will initiate alarm signals on the existing fire alarm control panel (FACP) and fire alarm annunciator (FAA) and activate the audible and visible notification appliances throughout the building. Activation of sprinkler tamper switches and HVAC duct mounted smoke detectors will initiate supervisory signals, which will annunciate on the FACP and the FAA.

Manual pull stations shall be installed in the egress paths at exterior doors and at entrances to stairwells. Manual pull stations shall be provided with station guards with horn.

Audible and visual signaling devices shall be installed in corridors, vestibules, and open spaces. Visual-only signaling devices shall be installed in all conference rooms, work rooms, toilets, and other similar spaces. Speaker/strobes within the corridors will be located approximately 100 feet on center.

Monitoring modules for new sprinkler tampers and flows will be provided. As well as monitoring modules and control modules for elevator shunt-trip and recall operations.

A minimum of (2) duct smoke detectors for each RTU will be installed, (1) in the supply, and (1) in the return duct. Multiple detectors in each supply and return duct system to be located based on the new duct branch layout. Control modules for fan shut-down and damper control, and a signal connection to the existing BMS system for alarm conditions will be installed.

END OF MEP SD NARRATIVE