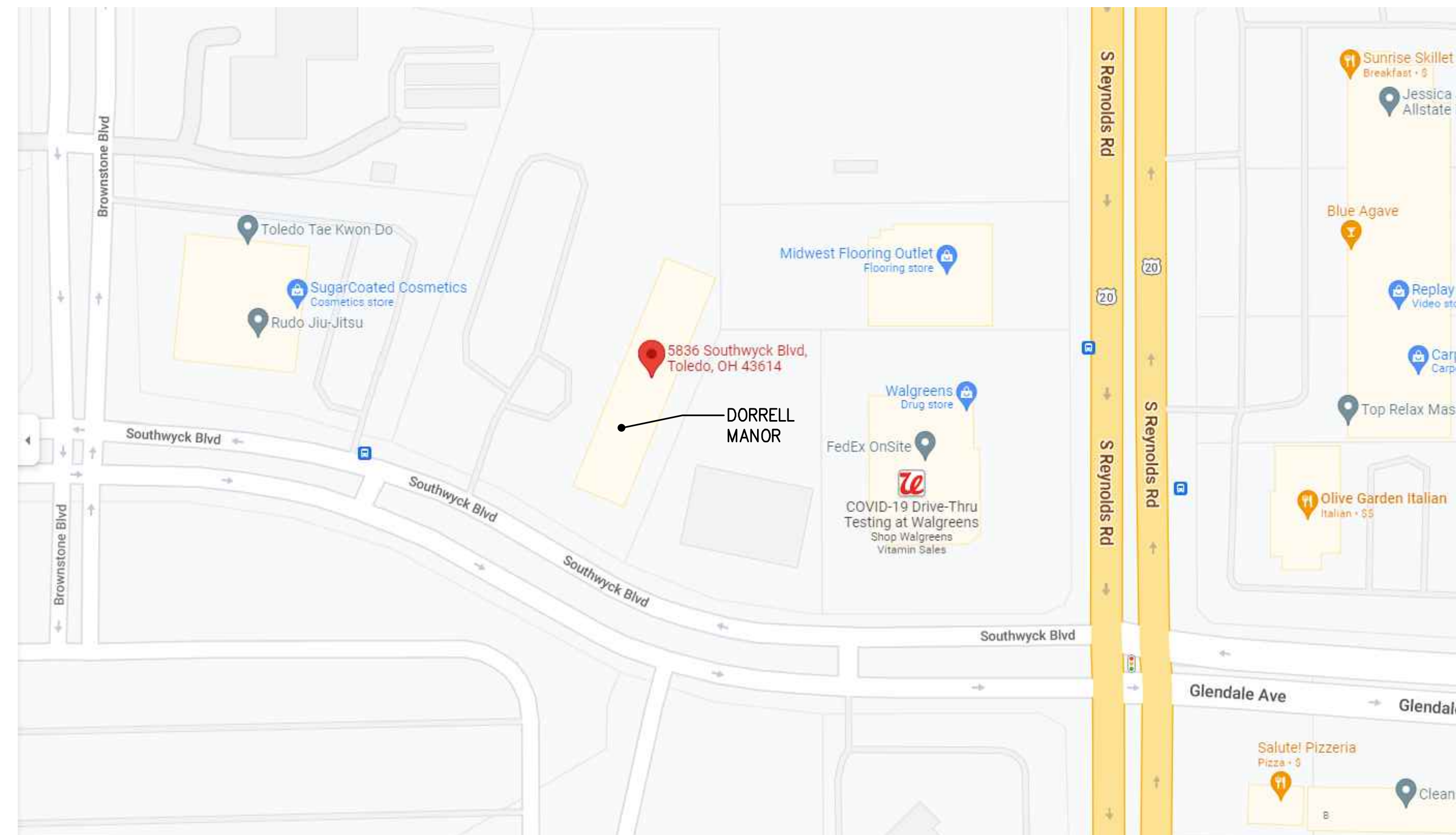




FIRE PUMP REPLACEMENT AT DORRELL MANOR, AN LMH PROPERTY

5836 SOUTHWYCK BOULEVARD, TOLEDO, OHIO



SITE LOCATION MAP
NO SCALE

SHEET LIST:

- G-1 COVER SHEET
- F-1 PARTIAL FIRST FLOOR PLAN FIRE PROT. DEMOLITION
- F-2 PARTIAL FIRST FLOOR PLAN FIRE PROTECTION
- F-3 FIRE PROTECTION SPECIFICATIONS
- M-1 MECHANICAL SCHEDULES, DETAILS, & SPECIFICATIONS
- M-2 PARTIAL FIRST FLOOR PLAN - MECHANICAL
- E-1 ELECTRICAL LEGEND AND DETAILS
- E-2 PARTIAL FIRST FLOOR PLAN ELECTRICAL DEMOLITION
- E-3 PARTIAL FIRST FLOOR PLAN ELECTRICAL
- E-4 ELECTRICAL SPECIFICATIONS

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FIRE PUMP REPLACEMENT AT
DORRELL MANOR, AN LMH PROPERTY

5836 SOUTHWYCK BOULEVARD
TOLEDO, OHIO 43614

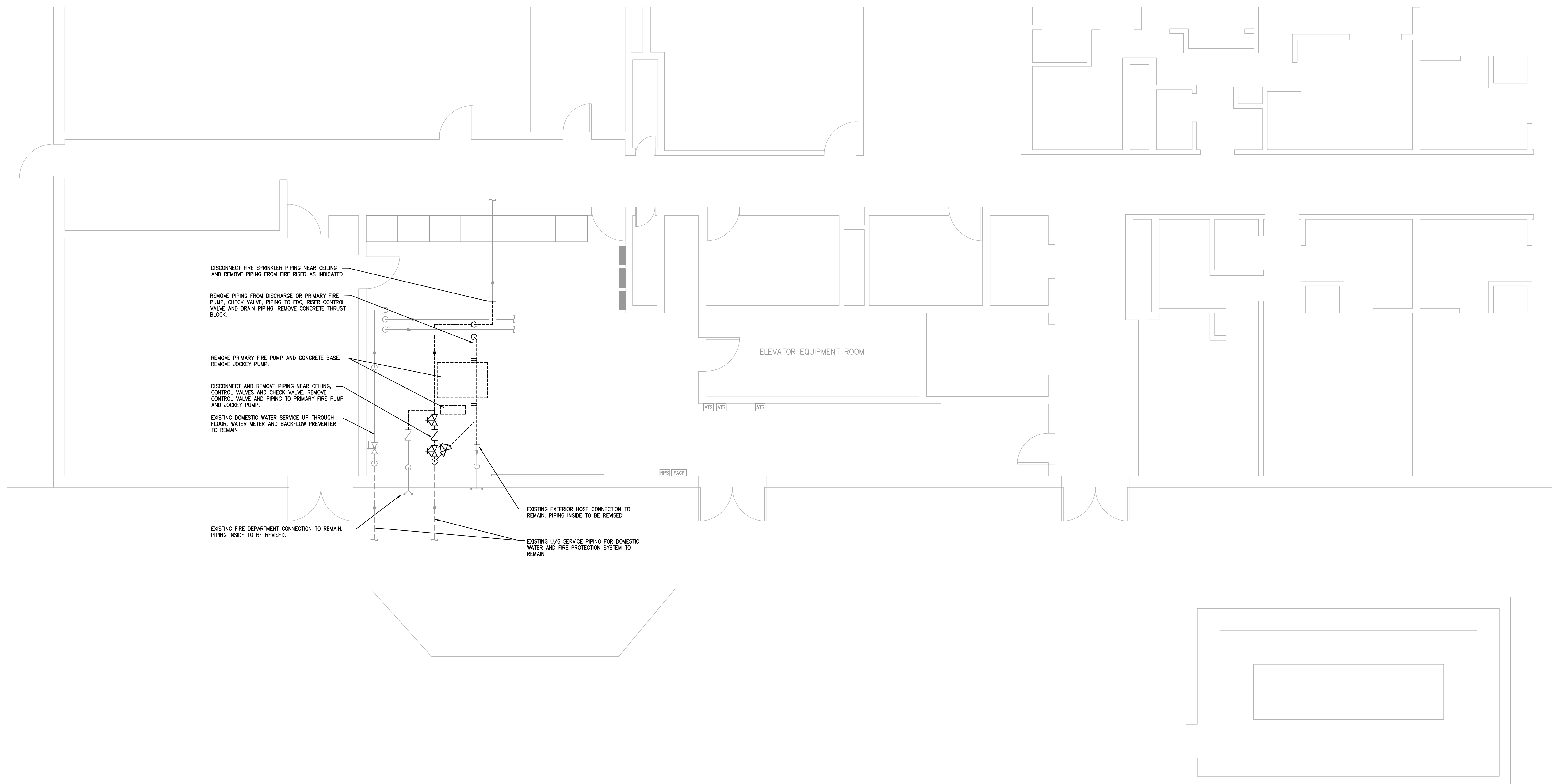
REV	DATE	FOR BID/PERMIT DESCRIPTION

COVER SHEET

Drawn By: RSK	Checked By: RST
Date: 03/15/23	Job No: 22094

SHEET NO.

G-1



PARTIAL FIRST FLOOR PLAN - FIRE PROTECTION DEMOLITION 1/8" = 1'-0" N

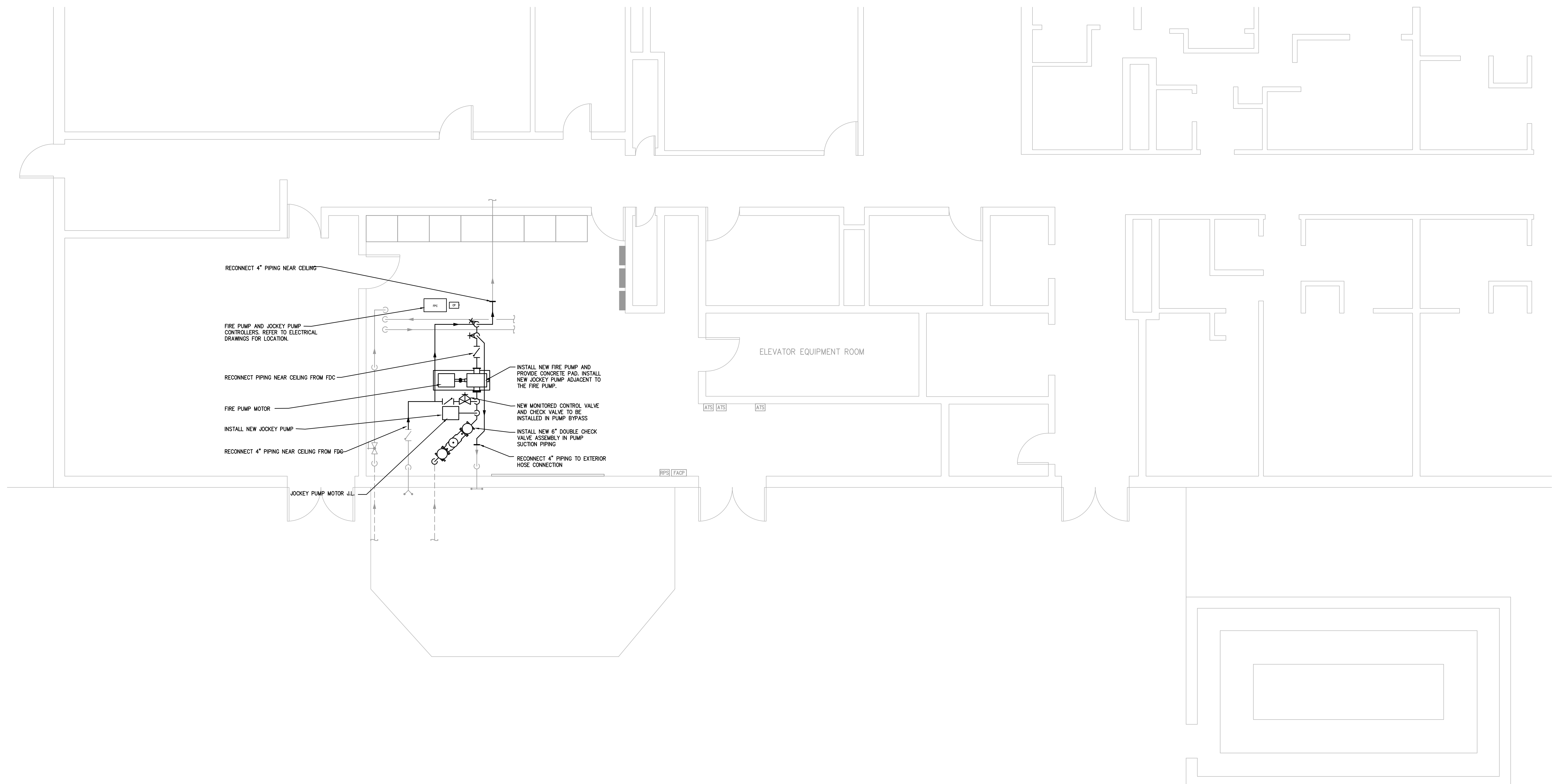
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 5836 SOUTHWYCK BOULEVARD
 TOLEDO, OHIO 43614

REV	DATE	FOR BID/PERMIT DESCRIPTION
03/15/23		

PARTIAL FIRST FLOOR PLAN
 FIRE PROT.
 DEMOLITION

Drawn By: DDC	Checked By: KPL
Date: 03/15/23	Job No: 22094

SHEET NO.
F-1



PARTIAL FIRST FLOOR PLAN - FIRE PROTECTION
 1/8" = 1'-0"
 0 1 2 3 4 feet

FIRE WATCH REQUIREMENTS:

- CONTRACTOR IS TO PROVIDE FIRE WATCH, WITH A TRAINED PERSON ON SITE, DURING PERIODS WHEN THE FIRE PROTECTION SYSTEM/PUMP OR FIRE ALARM SYSTEM IS OUT OF SERVICE PER THE FOLLOWING SCHEDULE:
 - MONDAY - FRIDAY, FROM 8AM TO 8PM (8 HRS/DAY)
 - SATURDAY & SUNDAY, 3AM TO 5PM (14 HRS/DAY)
- THE OWNER WILL PROVIDE THE FIRE WATCH DURING THE FOLLOWING TIMES:
 - MONDAY - FRIDAY, FROM 8AM TO 5PM, PROPERTY MANAGEMENT/MAINTENANCE WILL BE ON SITE AND CAN FULFILL THIS FUNCTION.
 - MONDAY - SUNDAY, FROM 5PM TO 3AM, THERE WILL BE STATIC SECURITY ON SITE AND CAN FULFILL THIS FUNCTION.
- FIRE WATCHER WILL NEED TO CONSTANTLY PATROL AREAS OF FIRE HAZARDS. ATTENDANT MUST HAVE EXPERIENCE WITH THE FACILITIES, AND HOW TO SOUND THE ALARM IN THE EVENT OF A FIRE HAZARD.
- THE FIRE WATCHER NEEDS A SOLID UNDERSTANDING OF WHERE FIRE HAZARDS COULD ARISE, AND HOW TO USE FIRE-EXTINGUISHING EQUIPMENT, HE OR SHE WILL BE PROVIDING THE FIRST RESPONSE TO FIRE ISSUES. THIS CAN INCLUDE NOTIFYING THE EMERGENCY SERVICES AND OPERATING FIRE EXTINGUISHERS, ETC.
- DUE TO THE NATURE OF THE ROLE, FIRE WATCH DUTIES CAN'T BE PERFORMED ALONG WITH OTHER JOB FUNCTIONS.
- COMPLY WITH ALL LOCAL FIRE DEPARTMENT REQUIREMENTS.
- COORDINATE ALL REQUIREMENTS WITH THE OWNER.

FIRE PUMP/JOCKEY PUMP:

FIRE PUMP:
 MANUFACTURER: AC FIRE PUMP
 TYPE: HORIZONTAL SPLIT CASE
 FIRE PUMP SERIES: 8100
 MODEL: 6x6x6F
 FLOW (GPM): 750
 PRESSURE (PSI): 70
 SPEED (RPM): 3600
 MAX (BHP): 45
 40 HP ELECTRIC MOTOR, 641 LOCK ROTOR AMPS, 114 FULL LOAD AMPS, 6" SUCTION/6" DISCHARGE, FRAME SIZE 286 TS

FIRE PUMP CONTROLLER:
 MANUFACTURER: TORNATECH
 MODEL: GFA
 STARTING METHOD: ACROSS THE LINE
 HORSE POWER: 40
 VOLTAGE: 200-208
 PHASE: 3

JOCKEY PUMP:
 TYPE: VERTICAL CENTRIFUGAL
 MANUFACTURER: GOULD
 MODEL: 1518
 FLOW (GPM): 5
 PRESSURE (PSI): 80
 SPEED (RPM): 3600
 HORSEPOWER (BHP): 0.92
 0.75 HP ELECTRIC MOTOR, 200-208 VOLTS, 3-PHASE, 27.6 LOCK ROTOR AMPS, 3.5 FULL LOAD AMPS

JOCKEY PUMP CONTROLLER:
 MANUFACTURER: TORNATECH
 MODEL: JPS
 STARTING METHOD: ACROSS THE LINE
 HORSE POWER: 0.75
 VOLTAGE: 200-208
 PHASE: 3

FIRE PROTECTION GENERAL NOTES:

- CONTRACTOR SHALL VISIT SITE TO VERIFY ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
 - CONTRACT SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, ETC., FOR A COMPLETE AND OPERABLE INSTALLATION. ALL MATERIALS SHALL BE NEW, SPECIFICATION GRADE, AND U.L. LISTED PRODUCTS, UNLESS NOTED OTHERWISE.
 - COORDINATE ALL WORK AND SCHEDULES WITH OWNER, CONSTRUCTION MANAGER, OTHER CONTRACTORS AND APPROPRIATE UTILITY COMPANIES.
 - STORE MATERIALS WHERE DIRECTED. PROTECT STORED MATERIALS AND INSTALLED WORK FROM DAMAGE. REPAIR ALL DAMAGE.
 - REMOVE DIRT, DEBRIS AND UNUSED MATERIALS FROM SITE REGULARLY, AND DISPOSE OF BY PROPER AND LEGAL METHODS.
 - SCHEDULE ALL FIRE PROTECTION SYSTEM INTERRUPTIONS WITH OWNER AND OTHER CONTRACTORS 72 HOURS PRIOR TO INTERRUPTION.
 - PATCH AND FINISH CONSTRUCTION DAMAGED DURING THE COURSE OF FIRE PROTECTION SYSTEM INSTALLATION. SEALS & FIRE STOPPING AT ALL WALL AND FLOOR PENETRATIONS.
 - PERFORM TESTING AND MAKE FINAL ADJUSTMENTS TO VERIFY PROPER PERFORMANCE OF ALL SYSTEMS AND EQUIPMENT.
 - MAINTAIN "AS BUILT" RECORDS OF ALL INSTALLED ITEMS AND PROVIDE TO CONSTRUCTION MANAGER AT PROJECT COMPLETION.
- NOTE: THESE NOTES ARE GENERAL IN NATURE. SPECIFIC MEANS, METHODS AND MATERIALS ARE DETAILED IN THE SPECIFICATIONS AND CONTRACTOR IS DIRECTED TO THOROUGHLY REVIEW THE FULL SPECIFICATION. CONTRACT SPECIFICATIONS SHALL GOVERN IN CASE OF CONFLICT.

STATIC PRESSURE	- 49 PSI
RESID. PRESSURE	- 30 PSI
FLOW	- 2070 GPM
TEST LOCATION	- HYDRANT FLOW TEST 891 HYDRANT 148 DHS
INFO SUPPLIED BY	- CITY OF TOLEDO

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 TOLEDO, OHIO 43614

REV.	DATE	FOR BID/PERMIT	DESCRIPTION
03/15/23			

**PARTIAL FIRST FLOOR PLAN
 FIRE PROTECTION**

Drawn By:	Checked By:
DDC	KPL
Date:	Job No:
03/15/23	22094

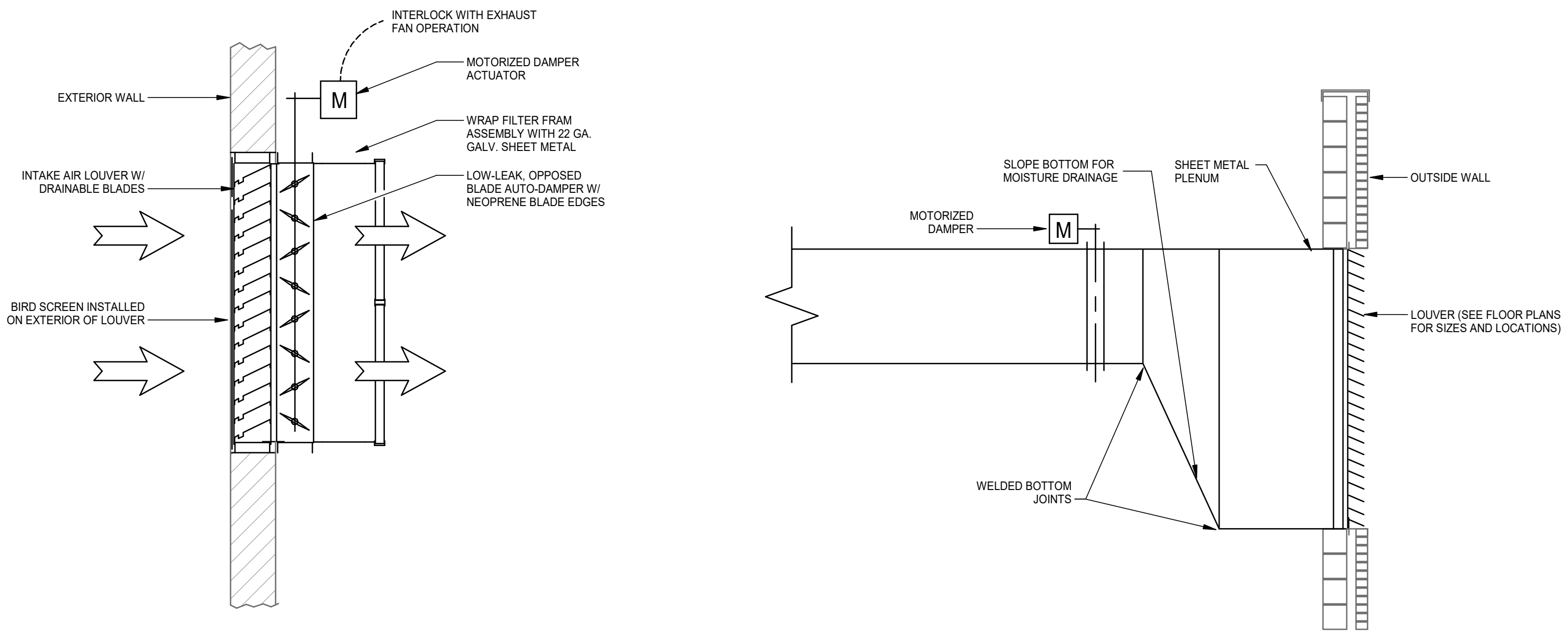
EXHAUST FAN SCHEDULE

TAG	MANUFACTURER	MODEL	LOCATION	TYPE	CFM	SP	BHP	MOTOR HP	VOLTAGE	FAN RPM	DRIVE	SONES	CURB	CONTROL	SCREEN	DISCON.	DAMPER	WEIGHT	REMARKS
EF-1	GREENHECK	CSP-A700-VG	FIRE PUMP ROOM	INLINE CABINET FAN	730	0.4	0.22	166 W	120/160	1243	DIRECT	2.1	-	TSTAT	BIRD	YES	-	39 LBS	

EC MOTOR, FACTORY WIRED INLET DAMPER, SPRING VIBRATION HANGERS.

LOUVER SCHEDULE

TAG	MAKE	MODEL	LOCATION	TYPE	CFM	MIN. FREE AREA (SQFT.)	SP	WIDTH	HEIGHT	DEPTH	FINISH	SCREEN	REMARKS
L-2	GREENHECK	ESD-435	FIRE PUMP ROOM	DRAINABLE BLADE	730 CFM	4.7	0.004	2'-10"	3'-0"	0'-6"	BAKED ENAMEL	BIRD	
L-3	GREENHECK	ESD-435	FIRE PUMP ROOM	DRAINABLE BLADE	730 CFM	1.0	0.080	1'-6"	1'-8"	0'-6"	BAKED ENAMEL	BIRD	



INTAKE LOUVER DETAIL
SCALE: NO SCALE

INTAKE LOUVER DETAIL
SCALE: NO SCALE

MECHANICAL SPECIFICATIONS

1.0 GENERAL	B. FIELD VERIFY ALL CLEARANCES AND CONDITIONS PRIOR TO THE START OF ANY DUCTWORK, ETC. VERIFY LOCATIONS OF ALL PIPING, DUCTWORK, EQUIPMENT, DEVICES, ETC. WITH FIRE PROTECTION AND ELECTRICAL DRAWINGS AND EXISTING CONDITIONS PRIOR TO ROUGH-IN. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH WORK.	2.0 BASIC MATERIALS AND METHODS	3.2 AIR INLETS AND OUTLETS
1.1 GENERAL SCOPE	A. THE WORK REQUIRED UNDER THIS SPECIFICATION SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, POWER, TRANSPORTATION, HOISTING IMPLEMENTS, ETC. NECESSARY FOR THE COMPLETION OF THE MECHANICAL WORK OF THE CONTRACT. ALL AS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS OR REASONABLY IMPLIED BY OTHER, COMPLETE IN EVERY RESPECT UNLESS SPECIFIED OTHERWISE HEREIN. THE WORK INCLUDED IN THIS CONTRACT SHALL CONSIST OF THE INSTALLATION, TEST AND GUARANTEE OF ALL WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS.	C. ALL INTERRUPTIONS OF SERVICES TO EXISTING OR OPERABLE FACILITIES SHALL BE SCHEDULED WITH THE OWNER A MINIMUM TWO (2) WEEKS IN ADVANCE. THE CONTRACTOR SHALL NOT INTERRUPT OR RESTORE SERVICES WITHOUT PRIOR CONSENT OF THE OWNER. THE INTERRUPTION SHALL BE ONLY FOR THE SPECIFIC SCHEDULED TIME. THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR SHUTDOWN AND START-UP OF ELECTRICAL SYSTEMS.	A. MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE AIR OUTLETS AND INLETS OF ONE OF THE FOLLOWING: 1. LOUVERS: AIR BALANCE INC., ARLUTE, AMERICAN WARMING AND VENTILATING INC., ARROW UNITED INDUSTRIES, INC., CESCO, GREENHECK, LOUVERS AND DAMPERS, INC., PSEN VENTILATOR CO., INC., AND RUBSON WEG. CO. B. EXCEPT AS OTHERWISE INDICATED, PROVIDE MANUFACTURER'S STANDARD GRILLES, REGISTER AND DIFFUSERS AND LOUVERS WHERE SHOWN, OF SIZE, SHAPE, CAPACITY AND TYPE INDICATED. CONSTRUCTED OF MATERIALS AND COMPONENTS AS INDICATED, AND AS REQUIRED FOR COMPLETE INSTALLATION. 1. FINISHES: a. LOUVERS: BAKED ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT.
1.2 RELATED DOCUMENTS	D. COORDINATE ALL POWER WIRING, SAFETY DISCONNECT MEANS, MOTOR CONTROL AND CONTROL WIRING FOR MECHANICAL EQUIPMENT WITH THE ELECTRICAL CONTRACTOR.	D. COORDINATE ALL POWER WIRING, SAFETY DISCONNECT MEANS, MOTOR CONTROL AND CONTROL WIRING FOR MECHANICAL EQUIPMENT WITH THE ELECTRICAL CONTRACTOR.	C. INSTALL AIR OUTLETS AND INLETS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION.
1.3 DRAWINGS AND SPECIFICATIONS	A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 23. B. DRAWINGS INDICATE GENERAL ARRANGEMENT OF SYSTEM AND ARE TO BE FOLLOWED INsofar AS POSSIBLE. DEVIATIONS FROM DRAWINGS MAY BE NECESSITATED BY FIELD CONDITIONS. DETAILED LAYOUTS OF PROPOSED DEPARTURES TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL. C. DRAWINGS AND SPECIFICATIONS TO BE CONSIDERED COOPERATIVE AND ANYTHING APPEARING IN SPECIFICATIONS, BUT NOT ON DRAWINGS, OR VICE VERSA, TO BE CONSIDERED PART OF THE CONTRACT AND TO BE EXECUTED. D. DRAWINGS INDICATE SIZE AND APPROXIMATE LOCATION OF VARIOUS PARTS OF WORK AND ARE TO BE USED AS A GENERAL GUIDE FOR INSTALLATION. HOWEVER, DRAWINGS ARE, TO A CONSIDERABLE EXTENT, DIAGRAMMATIC AND EXACT LOCATIONS OF PIPING, DUCTWORK, ETC., MAY APPEAR ON THE DRAWINGS OR MUST BE WORKED OUT ON JOB. HOWEVER, NO CHANGES IN SIZES TO BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER. ERRORS OR OMISSIONS DISCOVERED BY BIDDING CONTRACTORS PRIOR TO BID OPENINGS, TO BE CALLED TO ATTENTION OF THE ENGINEER WITHOUT DELAY. E. IF A SPECIFIC ITEM IS SPECIFIED OR ON DRAWINGS FOR MULTIPLE TRADES, THIS CONTRACTOR SHALL INCLUDE ALL ITEMS IN THE BID REGARDLESS OF OTHER TRADES. RESOLUTION WILL BE BY ADDENDUM OR CHANGE ORDER.	E. REFER TO ELECTRICAL DRAWINGS FOR WORK INVOLVING ELECTRICAL POWER SUPPLY WIRING FROM POWER SOURCE TO UNIT CONNECTION POINTS. F. LOCATE AND INSTALL ALL REQUIRED DEVICES IN ACCORDANCE WITH AMERICAN DISABILITIES ACT GUIDELINES. G. PREPARE COORDINATION DRAWINGS TO A SCALE OF ONE QUARTER INCH EQUALS ONE FOOT OR LARGER, DETAILING MAJOR ELEMENTS, COMPONENTS AND SYSTEMS OF MECHANICAL EQUIPMENT AND MATERIALS IN RELATIONSHIP WITH OTHER SYSTEMS, INSTALLATIONS, ELEVATIONS, AND BUILDING COMPONENTS. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR INSTALLATION OF ALL SYSTEMS IF COORDINATION DRAWINGS ARE NOT PREPARED.	B. CODES AND STANDARDS: COMPLY WITH THE FOLLOWING: NFPA 99A, NATIONAL ELECTRIC CODE, UNDERWRITERS LABORATORIES, NEMA FEDERAL COMMUNICATIONS COMMISSION, ELECTRONICS INDUSTRIES ASSOCIATION STD. RS-232, IEEE, ANSI. C. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: 1. THERMOSTATS a. HONEYWELL b. JOHNSON CONTROLS c. WHITE RODGERS. 2. DAMPER ACTUATORS a. BARBER-COLMAN b. HONEYWELL c. JOHNSON CONTROLS d. BELIMO. 3. ELECTRIC CONTROL SYSTEM AND COMPONENTS a. SIEBERBARBER-COLMAN b. HONEYWELL c. JOHNSON CONTROLS d. LANDS & OVR POWER. e. ROBERTSHAW f. TOUR & ANDERSON. D. ACTUATORS: ELECTRIC MOTORS: SIZE TO OPERATE WITH SUFFICIENT RESERVE POWER TO PROVIDE SMOOTH MODULATING ACTION OR 2-POSITION ACTION. 1. PERMANENT SPLIT-CAPACITOR OR SHADED-POLE TYPE. EQUIP. SPRING-RETURN MOTORS WITH INTEGRAL SPRING MECHANISM IN HOUSING DESIGN FOR EASY REMOVAL FOR SERVICE OR ADJUSTMENT OF LIMIT SWITCHES. AUXILIARY SWITCHES OR FEEDBACK POTENTIOMETER.
1.4 EQUIPMENT AND SYSTEMS DEMONSTRATION	A. EACH CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE COMPLETE OPERATION OF THE EQUIPMENT AND SYSTEMS INSTALLED AS A PART OF THE WORK. AFTER THE CONTRACTOR IS SATISFIED THE WORK MEETS THE SPECIFIED INTENTS AND SEQUENCES OF OPERATION, THE CONTRACTOR SHALL SCHEDULE, THROUGH THE ENGINEER, A SESSION DURING WHICH ALL ASPECTS OF THE WORK ARE EXPLAINED TO THE OWNER'S PERSONNEL AND/OR REPRESENTATIVES.	A. INSTALL ENGRAVED PLASTIC LAMINATE SIGN OR EQUIPMENT MARKER ON OR NEAR EACH MAJOR ITEM OF MECHANICAL EQUIPMENT. B. THIS CONTRACTOR SHALL DISPOSE OF ALL MATERIALS GENERATED FROM REMOVAL AND INSTALLATION OF THIS WORK. DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE WEEKLY. THIS CONTRACTOR SHALL PROVIDE TO THE OWNER ANY SALVAGEABLE MATERIALS AS DIRECTED BY THE OWNER. C. ALL EQUIPMENT, ITEMS, DEVICES AND APPURTENANCES SHALL BE PROTECTED FROM DEBRIS AND DAMAGE WHILE STORED AT THE SITE AND DURING AND AFTER INSTALLATION. D. UPON COMPLETION OF WORK THIS CONTRACTOR SHALL THOROUGHLY CLEAN ALL APPARATUS FURNISHED BY THIS CONTRACT.	E. INDOOR DUCT AND PLENUM APPLICATION SCHEDULE: 1. SERVICE: RECTANGULAR OUTSIDE-AIR DUCTS, EXPOSED: INSTALL MINERAL FIBER BLANKET INSULATION, 2 INCHES THICK, SINGLE LAYER WITH FOL AND PAPER JACKET AND VAPOR RETARDER. 2. SERVICE: EXHAUST-AIR DUCTS (BETWEEN FAN OUTLET AND EXTERIOR TERMINATION): INSTALL MINERAL FIBER BLANKET INSULATION, 2 INCHES THICK, SINGLE LAYER WITH FOL AND VAPOR RETARDER.
1.5 INSPECTION OF EXISTING AND GENERAL CONDITIONS	A. THE CONTRACTOR WILL BE HELD TO HAVE PERSONALLY INSPECTED THE SITE OF THE PROPOSED WORK TO ARRIVE AT A CLEAR UNDERSTANDING OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, THE EXTENT OF OTHER CONTRACTORS' ACTIVITIES IN THE AREA, AND TO BECOME FULLY ACQUAINTED WITH THE RECEIVING AND STORAGE SPACES AVAILABLE. THE CONTRACTOR SHALL BE HELD TO HAVE COMPARED THE PREMISES AND SITE WITH THE DRAWINGS AND SPECIFICATIONS, AND SHALL BE SATISFIED AS TO THE CONDITIONS OF THE PREMISES, THE ACTUAL ELEVATIONS, AND ANY OTHER CONDITIONS AFFECTING THE CARRYING OUT OF THE WORK, BEFORE THE DELIVERY OF THIS PROPOSAL. B. NO ALLOWANCES OR EXTRA CONSIDERATION ON BEHALF OF THE CONTRACTOR WILL SUBSEQUENTLY BE ALLOWED BY REASON OF THE CONTRACTOR'S FAILURE TO HAVE BECOME FAMILIAR WITH SITE CONDITIONS, ERROR OR OVERSIGHT ON THE PART OF THE CONTRACTOR OR DUE TO INTERFERENCE BY THE OWNER'S OR OTHER CONTRACTORS' ACTIVITIES. C. ITEMS SPECIFIED ON MECHANICAL DRAWINGS AND PLANS ARE THE BASIS OF DESIGN. EQUIPMENT OF OTHER EQUIPMENT SHALL BE DETERMINED BY THE OWNER AND ENGINEER. ANY MODIFICATION TO THESE DOCUMENTED METHODS THAT IS MADE NECESSARY BY ALTERNATE EQUIPMENT IS THE RESPONSIBILITY OF THE SUPPLIER OF THE ALTERNATE EQUIPMENT. D. CONTRACTOR IS DIRECTED TO INCLUDE ALL NECESSARY OVERTIME AND PREMIUM TIME (SATURDAY, SUNDAY, HOLIDAYS) REQUIRED FOR THE COMPLETION OF THE INTENDED WORK TO MEET SPECIFIED SCHEDULES. E. DO NOT SCALE MECHANICAL DRAWINGS. FOR EXACT DIMENSIONS, USE DIMENSIONED DRAWINGS OR ACTUAL FIELD CONDITIONS.	F. PATCH FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS AND EXPERIENCED INSTALLERS. G. ALL CUTTING AND PATCHING OF WALLS IS THE RESPONSIBILITY OF THIS CONTRACTOR UNLESS SPECIFICALLY STATED OTHERWISE ON THE DRAWINGS. H. GENERAL INSTALLATION REQUIREMENTS A. DO NOT SCALE MECHANICAL DRAWINGS FOR EXACT DIMENSIONS USE DIMENSIONED DRAWINGS OR ACTUAL FIELD CONDITIONS. B. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS UNDER WHICH ALL WORK MUST BE PERFORMED AND VERIFY/CHECK ALL CONDITIONS. REPORT ANY DISCREPANCIES TO THE ENGINEER. C. THE CONTRACTOR IS RESPONSIBLE FOR FULLY COORDINATING ALL WORK WITH OTHER TRADES PRIOR TO FABRICATING AND/OR INSTALLING ANY WORK TO ENSURE PROPER CLEARANCES FOR INSTALLATION AND MAINTENANCE ARE MAINTAINED. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. EXACT LOCATION OF EQUIPMENT, MATERIAL, DEVICE, ETC. MUST BE WORKED OUT IN THE FIELD. D. THE CONTRACTOR SHALL TURN OVER TO THE OWNER AND/OR DISPOSE OF AS DIRECTED ALL EXISTING EQUIPMENT AND MATERIALS BEING REMOVED. E. ALL EQUIPMENT SHALL BE NEW AND SHALL BE EQUAL IN QUALITY AND TYPE AND HAVE ALL ACCESSORIES AS NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS. MAKE EQUIPMENT SELECTIONS AND PROVIDE INSTALLATIONS WHICH MEET OR EXCEED THE ENERGY PERFORMANCE, HEATING/COOLING CAPACITIES, AND NOISE LEVELS NOTED ON THE FLOOR PLANS AND SPECIFICATIONS. ADJUSTMENTS TO CONSTRUCTION AND ACCESSORIES ON SUBMITTED EQUIPMENT MAY BE REQUIRED TO ACHIEVE THIS EQUALITY AND SHALL BE INCLUDED AT NO EXTRA COST TO THE OWNER. MAKE ANY CHANGES IN DUCTWORK, PIPING, FRAMING, ETC., AS REQUIRED TO ACCOMMODATE SUBSTITUTED EQUIPMENT. F. SUBMIT FOR APPROVAL DATA ON PROPOSED EQUIPMENT AND MATERIALS. SUBMITTALS SHALL INCLUDE EQUIPMENT SIZES, CAPACITY, MOTOR LOCATIONS, PERFORMANCE CURVES, AND OTHER PERTINENT DATA. EACH SUBMITTAL SHALL INCLUDE IDENTIFICATION TAGS OR SYMBOLS TO MATCH CONTRACT DOCUMENTS. G. INSTALL ALL EQUIPMENT AND MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL CODES AND REGULATIONS INCLUDING ENERGY EFFICIENCY GUIDELINES. H. REFER TO H.V.A.C. SEQUENCES OF OPERATION (DRAWINGS AND/OR SPECIFICATIONS) PROVIDE ALL EQUIPMENT, MATERIALS, DEVICES, ETC. AS REQUIRED TO ACHIEVE THOSE SEQUENCES. I. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST, FUELS, AND PLUMBING VENTS. J. ALL INTERACTIVE WALL MOUNTED DEVICES (THERMOSTATS, SENSORS, CONTROLLERS, ETC.) SHALL BE MOUNTED PER ADA REQUIREMENTS. K. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR EXISTING AND PATCHING OF WALL/FLOORS AS REQUIRED TO FACILITATE INSTALLATION OF DUCTWORK. L. PROTECT ALL EXISTING BUILDING COMPONENTS INCLUDING ALL LISTING, STRUCTURE, FINISHES, AND MATERIALS AT ALL TIMES FROM DAMAGE DUE TO WORK UNDER THIS CONTRACT OR FROM DAMAGE DUE TO EXPOSURE TO THE ELEMENTS. ANY SUCH DAMAGE SHALL BE REPAIRED, PATCHED, OR REPLACED TO MATCH THE ORIGINAL EXISTING CONDITION AT NO COST TO THE OWNER. M. INSTALL ALL DUCTWORK AND PIPING AS HIGH AS POSSIBLE TO FLOOR STRUCTURE. COORDINATE DUCTWORK AND PIPING ROUTING WITH FIRE SUPPRESSION, PLUMBING, AND ELECTRICAL TRADES. N. FABRICATE AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA GUIDELINES FOR DUCT CONSTRUCTION. ALL RECTANGULAR AND ROUND RIGID DUCTS SHALL BE OF SMACNA GAGE STEEL UNLESS OTHERWISE NOTED ON THE DRAWINGS. O. ALL RECTANGULAR AND SQUARE DUCTWORK ELBOWS SHALL BE CONSTRUCTED WITH TURNING VANES. P. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING AND RACEWAYS REQUIRED FOR THIS PROJECT INCLUDING 120 VOLT INTERLOCKS, 120 VOLT POWER SUPPLY TO CONTROLLERS, AND DATA CONNECTIONS TO PANELS UNLESS INDICATED BY OTHERS. Q. INSTALL ALL CABLING AND RACEWAYS PER REQUIREMENTS OF ELECTRICAL DRAWINGS AND SPECIFICATIONS. R. PROVIDE PERMANENT PLASTIC NAME PLATE FOR ALL EQUIPMENT INSTALLED INDICATING THE PLAN DESIGNATION OF THE UNIT (EF-1, AHU-1, ETC.) AND ALSO, THE BUILDING AREA SERVED (CLASSROOMS 2-4, CONFERENCE ROOM, ETC.).	2.2 DUCTWORK AND DUCT ACCESSORIES A. CONSTRUCT RECTANGULAR DUCTWORK TO MEET ALL FUNCTIONAL CRITERIA DEFINED IN SECTION VII OF THE SMACNA "H" DUCT CONSTRUCTION STANDARDS: METAL AND FLEXIBLE"; 2005 EDITION. ALL DUCTWORK MUST COMPLY WITH ALL LOCAL, STATE AND FEDERAL CODE REQUIREMENTS. B. FABRICATE RECTANGULAR DUCTS WITH GALVANIZED SHEET STEEL. IN ACCORDANCE WITH SMACNA "H" DUCT CONSTRUCTION STANDARDS, TABLES 1-3 THROUGH 1-18, INCLUDING THEIR ASSOCIATED DETAILS, CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS. C. STATIC PRESSURE CLASSIFICATIONS: UNLESS OTHERWISE INDICATED, CONSTRUCT DUCTS TO THE FOLLOWING: 1. LOW PRESSURE OUTSIDE AIR DUCTS: 2-INCHES WG. 2. EXHAUST DUCTS: 2-INCHES WG, NEGATIVE OR POSITIVE PRESSURE. D. SEAL DUCT JOINTS AND SEAMS WITH DUCT SEALANT, TAPE OR MASTICS. 1. PRESSURE CLASSIFICATION 2-INCHES WG: TRANSVERSE AND LONGITUDINAL JOINTS. E. PROVIDE LOW-LEAKAGE STANDARD GALVANIZED VOLUME CONTROL DAMPERS, MULTIPLE (FOR DAMPERS 12 INCHES IN HEIGHT AND GREATER) OR SINGLE-BLADE (FOR DAMPERS UNDER 12 INCHES IN HEIGHT) NEGATIVE OR POSITIVE PRESSURE. PROVIDE DAMPERS WITH LINKAGE OUTSIDE OF AIR STREAM AND SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS. FURNISH WITH NEOPRENE BLADE SEALS AND ALUMINUM JAMB SEALS. F. CONSTRUCT ALL RECTANGULAR ELBOWS WITH TURNING VANES. COMPLY WITH SMACNA'S "H" DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE. FOR VANES AND VANE RUNNERS, VANE RUNNERS SHALL AUTOMATICALLY ALIGN VANES. G. FLEXIBLE CONNECTORS: FLAME-RETARDANT NONCOMBUSTIBLE FABRICS, COATINGS, AND ADHESIVES COMPLYING WITH UL181, CLASS 1, FACTORY FABRICATED WITH 3/4 INCH WIDE FABRIC STRIP ATTACHED TO TWO STRIPS OF GALVANIZED SHEET STEEL. FABRIC SHALL BE DOUBLE COATED WITH NEOPRENE AND RATED FOR SERVICE TEMPERATURE RANGE OF MINUS 40 TO PLUS 200 DEG. F. H. PROVIDE PERMANENT LABEL ON EACH CONTROL DEVICE INCLUDING ROOM SENSORS, LABEL WIRING AND CABLING WITH SYSTEM ADDRESS AND TERMINATION NUMBER. I. INSTALL CONTROL EQUIPMENT AND SYSTEMS AS REQUIRED, IN ACCORDANCE WITH SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS, AND WITH RECOGNIZED INDUSTRY PRACTICES, AND ENSURE THAT EQUIPMENT COMPLETS WITH REQUIREMENTS, COMPLY WITH REQUIREMENTS OF NEC, AND APPLICABLE PORTIONS OF NECA'S "STANDARD OF INSTALLATION" PERTAINING TO GENERAL ELECTRICAL INSTALLATION PRACTICES. J. INSTALL ALL RACEWAY AND WIRING IN ACCORDANCE WITH ALL REQUIREMENTS OF DIVISION 26, ELECTRICAL SPECIFICATIONS. K. SEQUENCES OF OPERATION A. EQUIPMENT ROOM VENTILATION 1. OPEN MOTORIZED INTAKE DAMPER ON LOUVER, L-3, ON RISE IN SPACE TEMPERATURE ABOVE 80 DEG. F. (ADJUSTABLE). 2. ON CONTINUED RISE IN SPACE TEMPERATURE ABOVE 90 DEG. F. (ADJUSTABLE) OPEN FAN #1 MOTORIZED DAMPER AND ENERGIZE THE FAN. 3. ON FALL IN SPACE TEMPERATURE, REVERSE THE SEQUENCE. L. TESTING, ADJUSTING AND BALANCING A. EMPLOY THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING AND BALANCING AGENCY CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL TO TEST AND BALANCE THE INDICATED SYSTEMS. SUBMIT A COPY OF THE REPORT TO THE ENGINEER FOR REVIEW. B. TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS: 1. EXHAUST AIR SYSTEMS. 2. VERIFY TEMPERATURE CONTROL SYSTEM OPERATION.



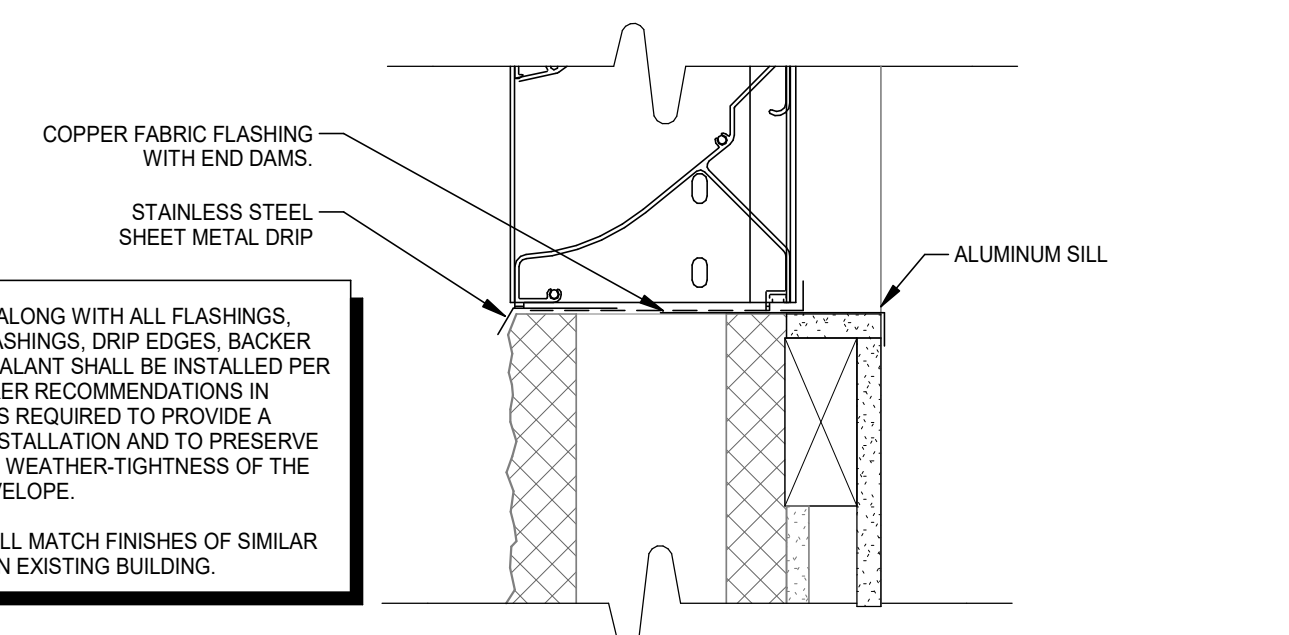
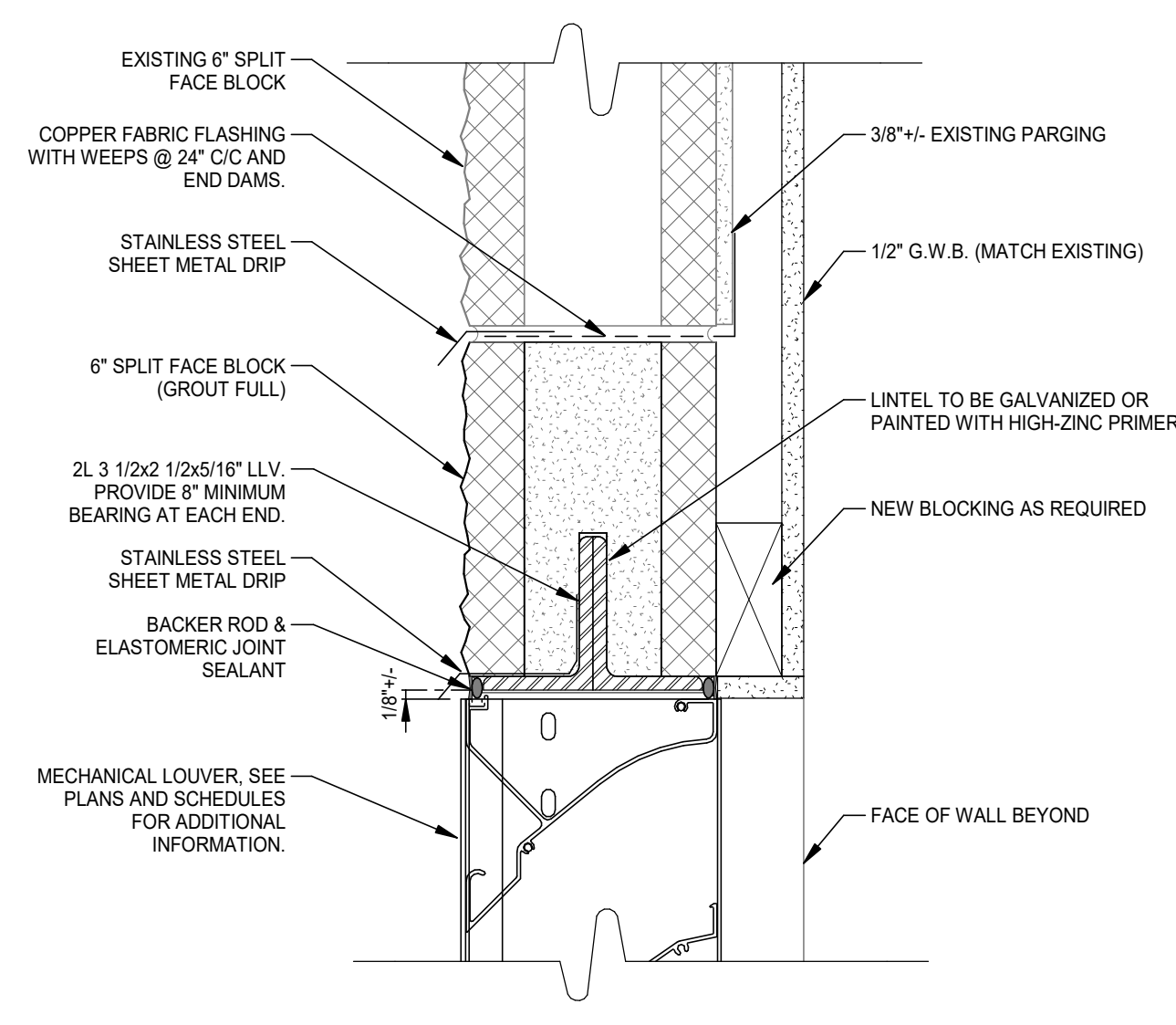
FIRE PUMP REPLACEMENT AT DORREL MANOR, AN LMH PROPERTY
5636 SOUTHWYCK BOULEVARD
TOLEDO, OHIO 43614

REV	DATE	DESCRIPTION
1	03/15/23	FOR BID PERMIT

MECHANICAL SCHEDULES, DETAILS, & SPECIFICATIONS

Drawn By:	Checked By:
DTJ	KPL
Date:	Job No:
03/15/23	22094

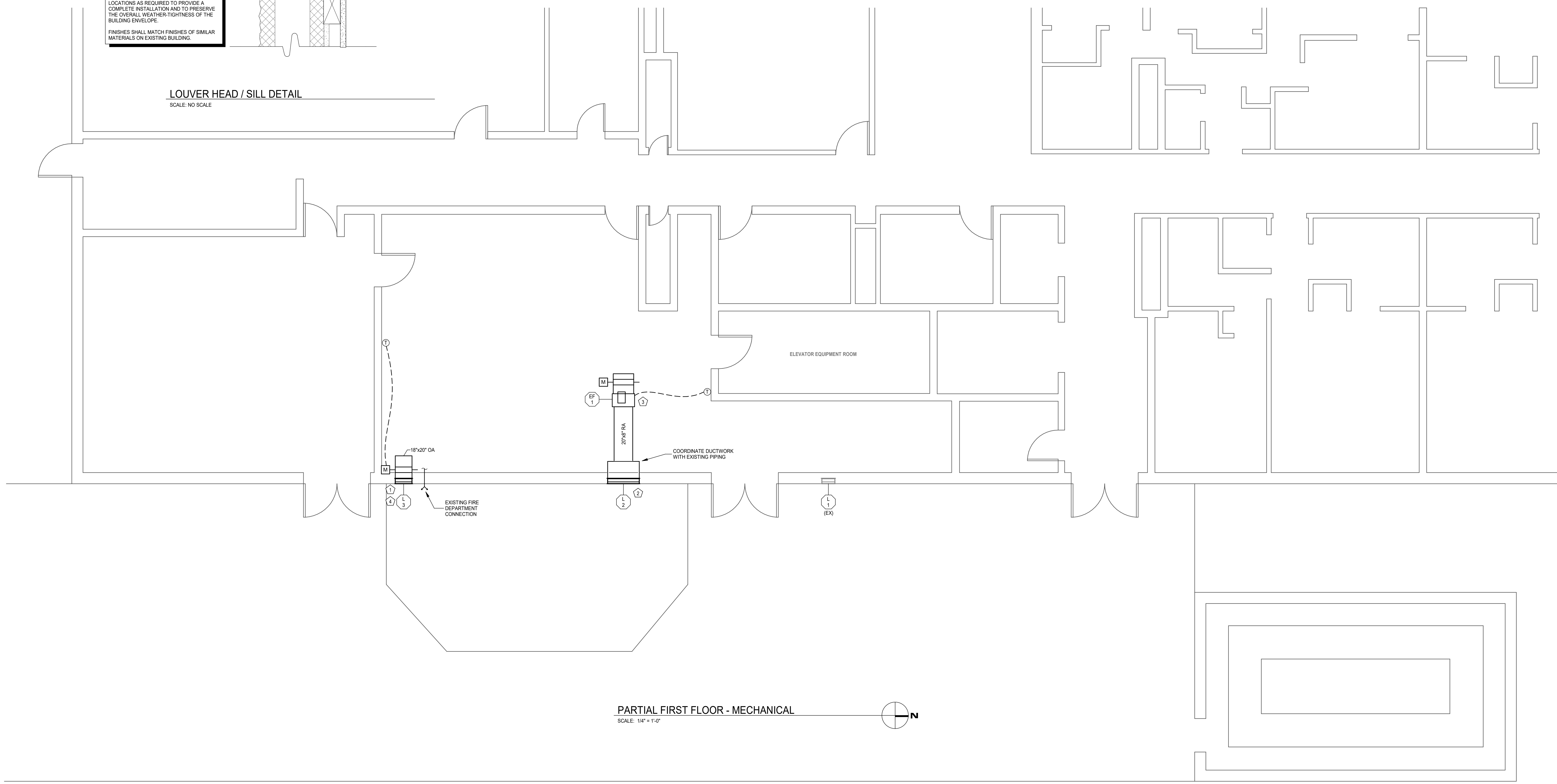
SHEET NO. **M-1**



LOUVER HEAD / SILL DETAIL
 SCALE: NO SCALE

KEYED PLAN NOTES:

1. INSTALL INTAKE LOUVER. ATTACH 18"x20" DUCTWORK WITH MOTORIZED DAMPER.
2. REMOVE EXISTING GRAVITY DAMPER AND INSTALL NEW LOUVER WITH BIRD SCREEN.
3. INSTALL INLINE EXHAUST FAN AS HIGH AS POSSIBLE. AIR INTAKE OPEN TO ROOM. COVER WITH BIRD SCREEN. ATTACH EX-HAUST DUCTWORK TO NEW LOUVER.
4. INSTALL TOP OF LOUVER AT THE SAME ELEVATION AS TOP OF EXHAUST LOUVER, L-2, OPENING.



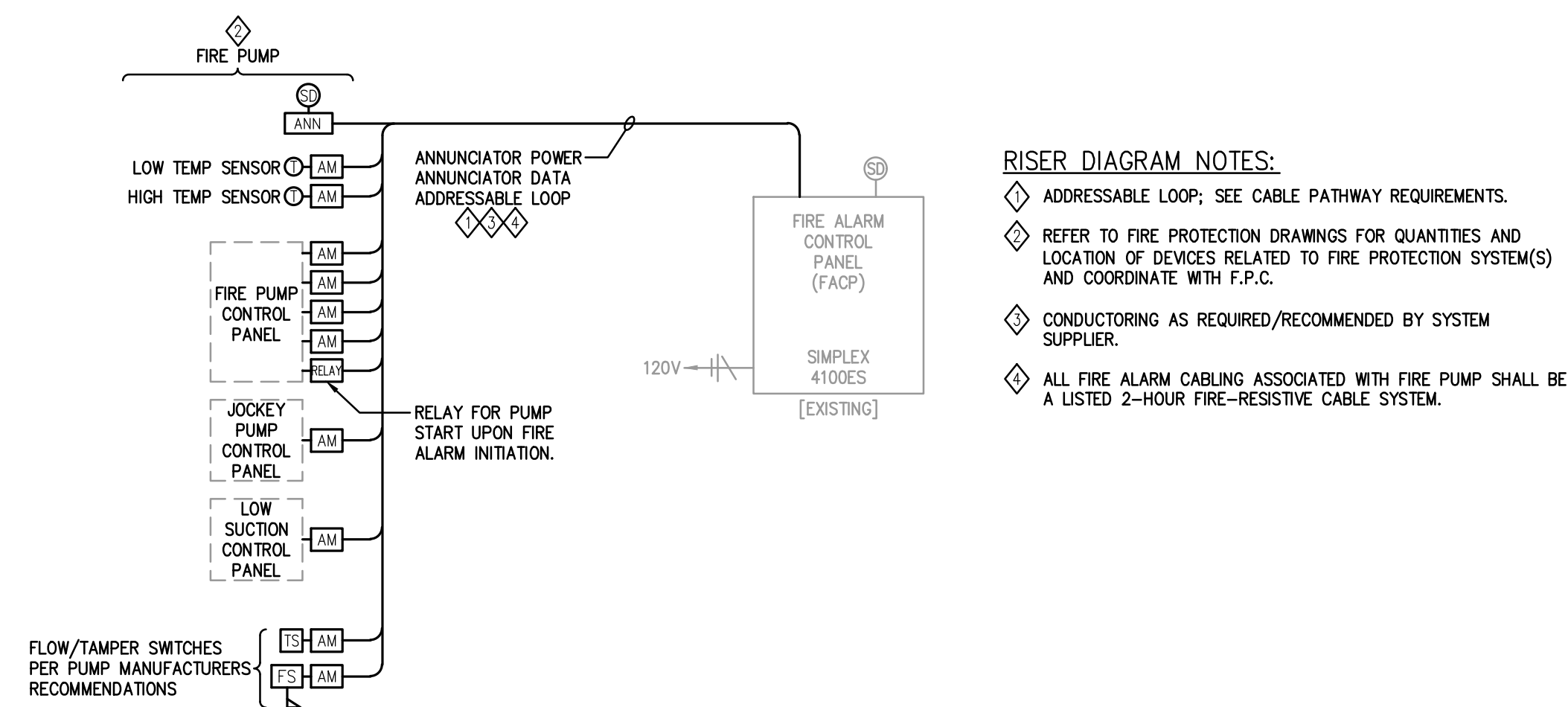
PARTIAL FIRST FLOOR - MECHANICAL
 SCALE: 1/4" = 1'-0"

REV.	DATE	DESCRIPTION
1	03/15/23	FOR BID/PERMIT

**PARTIAL FLOOR
 PLAN - MECHANICAL**

Drawn By: DTJ	Checked By: KPL
Date: 03/15/23	Job No: 22094

SHEET NO.
M-2



RISER DIAGRAM NOTES:

- ◆ ADDRESSABLE LOOP; SEE CABLE PATHWAY REQUIREMENTS.
- ◆ REFER TO FIRE PROTECTION DRAWINGS FOR QUANTITIES AND LOCATION OF DEVICES RELATED TO FIRE PROTECTION SYSTEM(S) AND COORDINATE WITH F.P.C.
- ◆ CONDUITING AS REQUIRED/RECOMMENDED BY SYSTEM SUPPLIER.
- ◆ ALL FIRE ALARM CABLING ASSOCIATED WITH FIRE PUMP SHALL BE A LISTED 2-HOUR FIRE-RESISTIVE CABLE SYSTEM.

FIRE ALARM CABLE PATHWAYS:

- A. ALL FIRE ALARM WIRING AND CABLES SHALL BE IN CONDUIT OR OTHER RACEWAYS PER THE SPECIFICATIONS.
- B. FIRE ALARM CABLES SHALL BE IN SEPARATE RACEWAYS FROM ALL OTHER SYSTEMS.
- C. CABLES PASSING THROUGH WALLS OR FLOORS OF ANY CONSTRUCTION MEANS SHALL BE IN CONDUIT EXTENDING A MINIMUM OF 6 INCHES OF EACH SIDE OF THE WALL OR FLOOR AND INCLUDE AN INSULATED BUSHING ON EACH END WHERE THE CABLE CONTIGUES WITHOUT RACEWAY.
- D. CABLES IN OPEN, EXPOSED UNFINISHED AREAS (MECHANICAL AND ATTIC) SHALL BE IN SURFACE MOUNTED EMT AND BOXES SECURED TO THE STRUCTURE. THE FINAL LENGTH OF CONDUIT AND THE DEVICE BOX SHALL BE PRE-PAINTED RED.

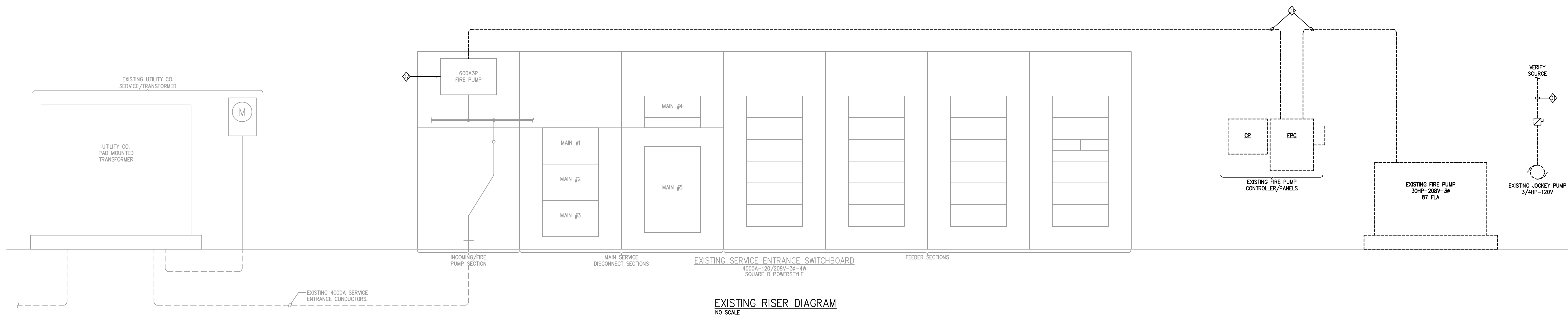
FIRE ALARM GENERAL NOTES:

1. RISER DIAGRAM IS DIAGRAMMATIC AND DOES NOT INDICATE DEVICE QUANTITIES.
2. SYSTEM SUPPLIER TO PROVIDE ALL NECESSARY DEVICES/COMPONENTS AND WIRING FOR A COMPLETE AND CODE COMPLIANT SYSTEM.
3. ALL END OF LINE RESISTORS TO BE LOCATED AT CONTROL PANEL LOCATIONS.
4. ALL DEVICES IN AREAS WITHOUT CEILINGS SHALL UTILIZE SURFACE MOUNTED EMT ATTACHED TO THE STRUCTURAL PER SPECIFICATIONS AND CABLE PATHWAYS REQUIREMENTS TO CONCEAL CABLES.

NEC ARTICLE 695 CODE STATEMENT:

- A. NEC 695.2(A): FIRE PUMP SERVED FROM SAME UTILITY COMPANY SERVICE/ TRANSFORMER AS EXISTING. NO CHANGES TO SOURCE.
- B. NEC 695.2(A)(1): FIRE PUMP SERVED FROM ELECTRICAL UTILITY SERVICE FROM CONNECTION AHEAD OF AND NOT WITHIN THE SAME VERTICAL SWITCHBOARD SECTION AS BUILDING MAIN DISCONNECT(S).
- C. NEC 695.2(D): PER DESIGN CONSULTATION WITH FIRE MARSHALL, THE EXISTING GENERATOR ON SITE (SERVING EM LIGHTING AND ELEVATORS), DOES NOT HAVE THE CAPACITY TO SERVE REPLACED FIRE PUMP. EXISTING SERVICE/SOURCE CONDITIONS TO REMAIN.
- D. NEC 695.4(A): POWER SOURCE IS CONNECTED DIRECTLY TO FIRE PUMP CONTROLLER. NO DISCONNECTS OR OVERCURRENT DEVICES EXIST UPSTREAM.
- E. NEC 695.6(A)(1): SUPPLY CONDUCTORS ARE INSTALLED AS SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.6 WITH CONDUCTORS INSTALLED UNDERGROUND WITH A MINIMUM 2" CONCRETE COVER.
- F. ELECTRICAL CONTRACTOR TO INSTALL ELECTRICAL SYSTEM AND MONITORING IN ACCORDANCE WITH NEC ARTICLE 695.

PLAN SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—	INDICATES CONDUIT ABOVE GRADE, SURFACE MOUNTED OR CONCEALED INSIDE THE BUILDING SURFACE. EXPOSED CONDUIT ON THE BUILDING EXTERIOR WILL NOT BE ACCEPTED.	⊙	HEAT DETECTOR, ADDRESSABLE, 135°F FIXED TEMPERATURE TYP.; CEILING MOUNTED.
- - -	INDICATES CONDUIT BELOW GRADE OR UNDER FLOOR.	[AM]	ADDRESSABLE SUPERVISORY MODULE; MOUNT IN JUNCTION BOX.
— — —	INDICATES (3) PHASE, NEUTRAL AND GROUND CONDUCTORS IN CONDUIT.	[FS]	FIRE PROTECTION SPRINKLER RISER WATER FLOW SWITCH, F.B.F.P., 2#14-1/2" TO AM.
—	HOME RUN TO SOURCE PANELBOARD OR CONTROL PANEL.	[TFS]	FIRE PROTECTION SPRINKLER RISER GATE VALVE TAMPER SWITCH, F.B.F.P., 2#14-1/2" TO AM.
□	JUNCTION BOX BLANK COVER.	[FACP]	FIRE ALARM CONTROL PANEL (EXISTING)
[ECP]	EQUIPMENT CONTROL PANEL. WIRING TO LINE TERMINALS BY E.C.	[RPS]	FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT REMOTE POWER SUPPLY. (EXISTING)
○	MOTOR, HORSEPOWER AND VOLTAGE AS SCHEDULED.	[FASAS]	FIRE ALARM COMBINATION ADA STROBE VISUAL SIGNAL AND AUDIBLE SIGNAL. (EXISTING)
⊠	MANUAL MOTOR SAFETY DISCONNECT SWITCH WITH LOCKING STRAP, HORSEPOWER RATED.	◇	PLAN NOTE ITEM.
⊠	MANUAL MOTOR STARTER SWITCH WITH LOCKING STRAP, HORSEPOWER RATED WITH OVERLOADS, PILOT LIGHTED, ENGRAVED NAMEPLATE; FLUSH MOUNTED FINISHED SPACE, SURFACE MOUNTED UNFINISHED SPACE, M.H. 44" A.F.F. U.N.O.	◇	RISER NOTE ITEM.
[FSD]	INDOOR FUSIBLE SAFETY DISCONNECT SWITCH WITH SIZE AS INDICATED, NEMA 1 ENCLOSURE, REJECTION STYLE FUSE CLIPS; NON-FUSED UNLESS NOTED OTHERWISE, FUSED UNITS WILL SHOW FUSE SIZE AS INDICATED.	---	EXISTING CONDUCTOR/CABLE TO BE REMOVED.
[FSD]	OUTDOOR FUSIBLE SAFETY DISCONNECT SWITCH WITH SIZE AS INDICATED, NEMA 3R ENCLOSURE, REJECTION STYLE FUSE CLIPS; NON-FUSED UNLESS NOTED OTHERWISE, FUSED UNITS WILL SHOW FUSE SIZE AS INDICATED.	⊕ \$ [X]	EXISTING DEVICE OR ITEM TO BE REMOVED.
⊕	SMOKE DETECTOR, ADDRESSABLE, PHOTOELECTRIC TYPE; CEILING MOUNTED. (EXISTING)	⊕ [X]	EXISTING DEVICE OR ITEM TO REMAIN.

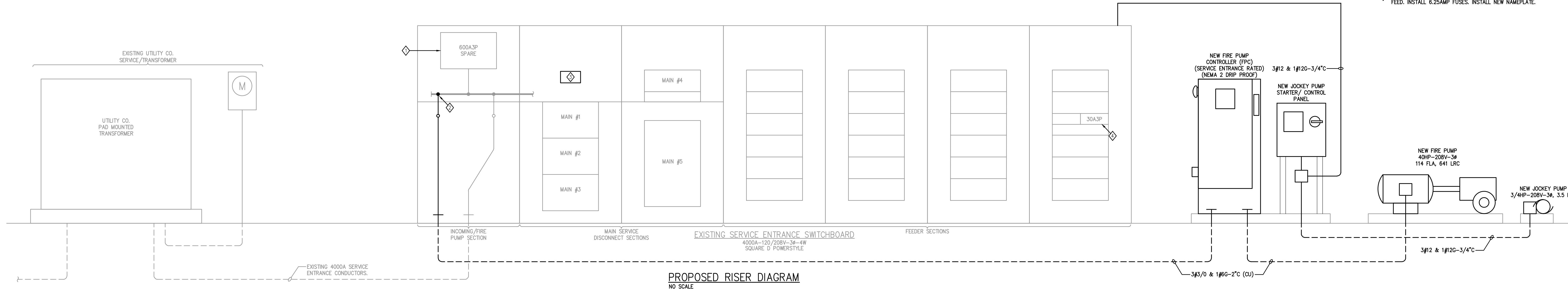


RISER DIAGRAM NOTES - DEMOLITION:

- ◆ REMOVE EXISTING FIRE PUMP AND JOCKEY PUMP SUPPLY/FEEDER CONDUCTORS/RACEWAY BACK TO SOURCE.
- ◆ REMOVE EXISTING FEEDER SWITCH FUSES AND LABEL SWITCH AS SPARE.

RISER DIAGRAM NOTES - PROPOSED:

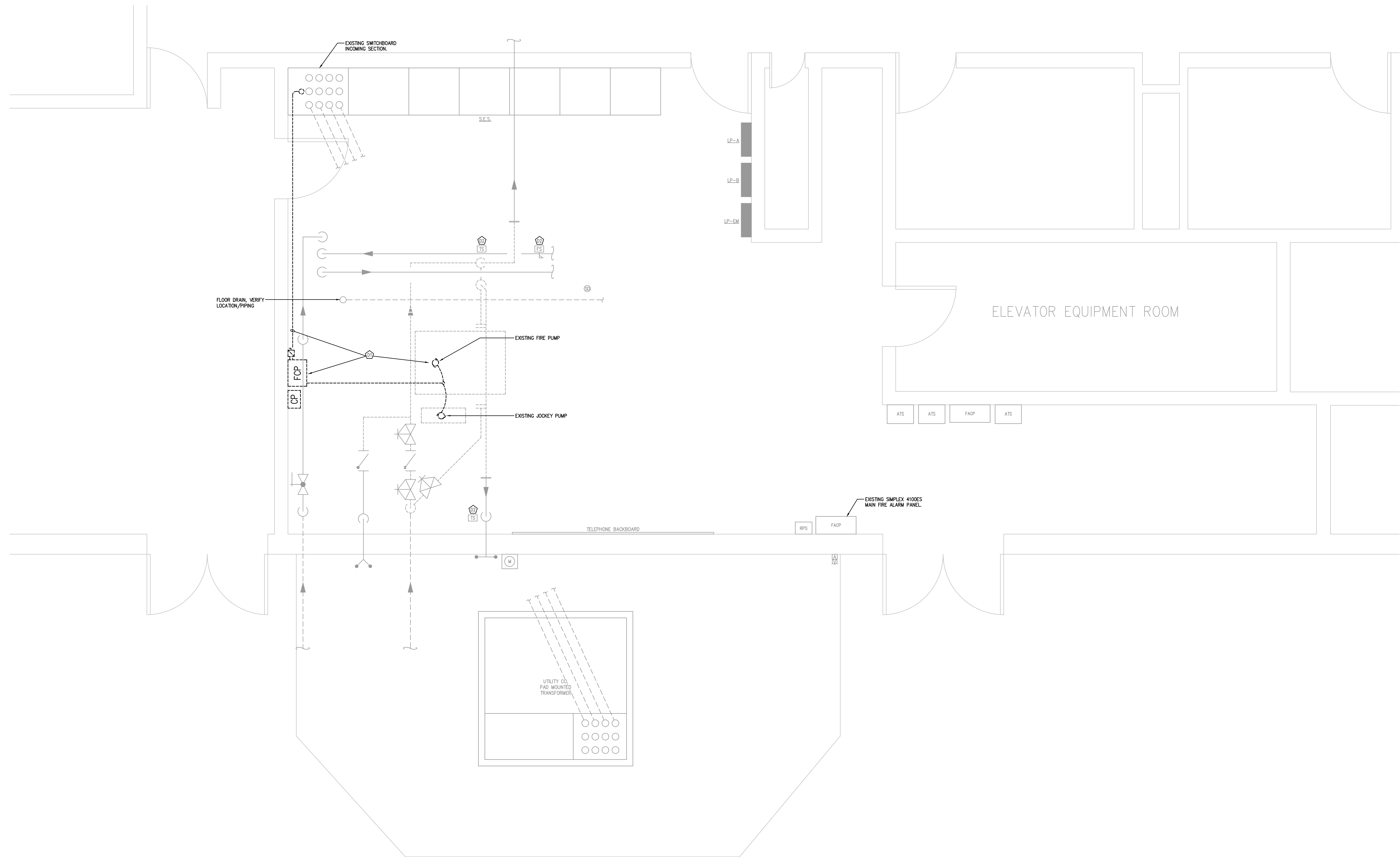
- ◆ INSTALL NEW LABEL ON EXISTING SWITCH, "SPARE".
- ◆ TAP EXISTING SWITCHBOARD BUS (3# PHASE AND GROUND) AND PROVIDE APPROPRIATE LUGS FOR NEW FIRE PUMP SERVICE ENTRANCE SUPPLY CONDUCTORS.
- ◆ INSTALL NAMEPLATE AT EXISTING SERVICE DISCONNECT SECTION: "FIRE PUMP MAIN DISCONNECT LOCATED IN FIRE PUMP CONTROLLER PANEL AT FIRE PUMP LOCATION".
- ◆ UTILIZE SPARE 30A3P FUSIBLE SWITCH FOR NEW JOCKEY PUMP FEED. INSTALL 6.25AMP FUSES. INSTALL NEW NAMEPLATE.



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03/15/23			

ELECTRICAL LEGEND AND DETAILS

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FLOOR PLAN NOTES:
 ☒ DISCONNECT AND REMOVE EXISTING FIRE PUMP CONTROL PANELS, FEEDERS, BRANCH CIRCUITS, CONDUITS, ETC.
 ☒ DISCONNECT AND REMOVE EXISTING FIRE PUMP FIRE ALARM MONITORING DEVICES AND CABLING. CONNECT EXISTING FIRE ALARM IF APPLICABLE FOR NEW FIRE PUMP WITH NEW CABLING. COORDINATE WITH FIRE PROTECTION CONTRACTOR.

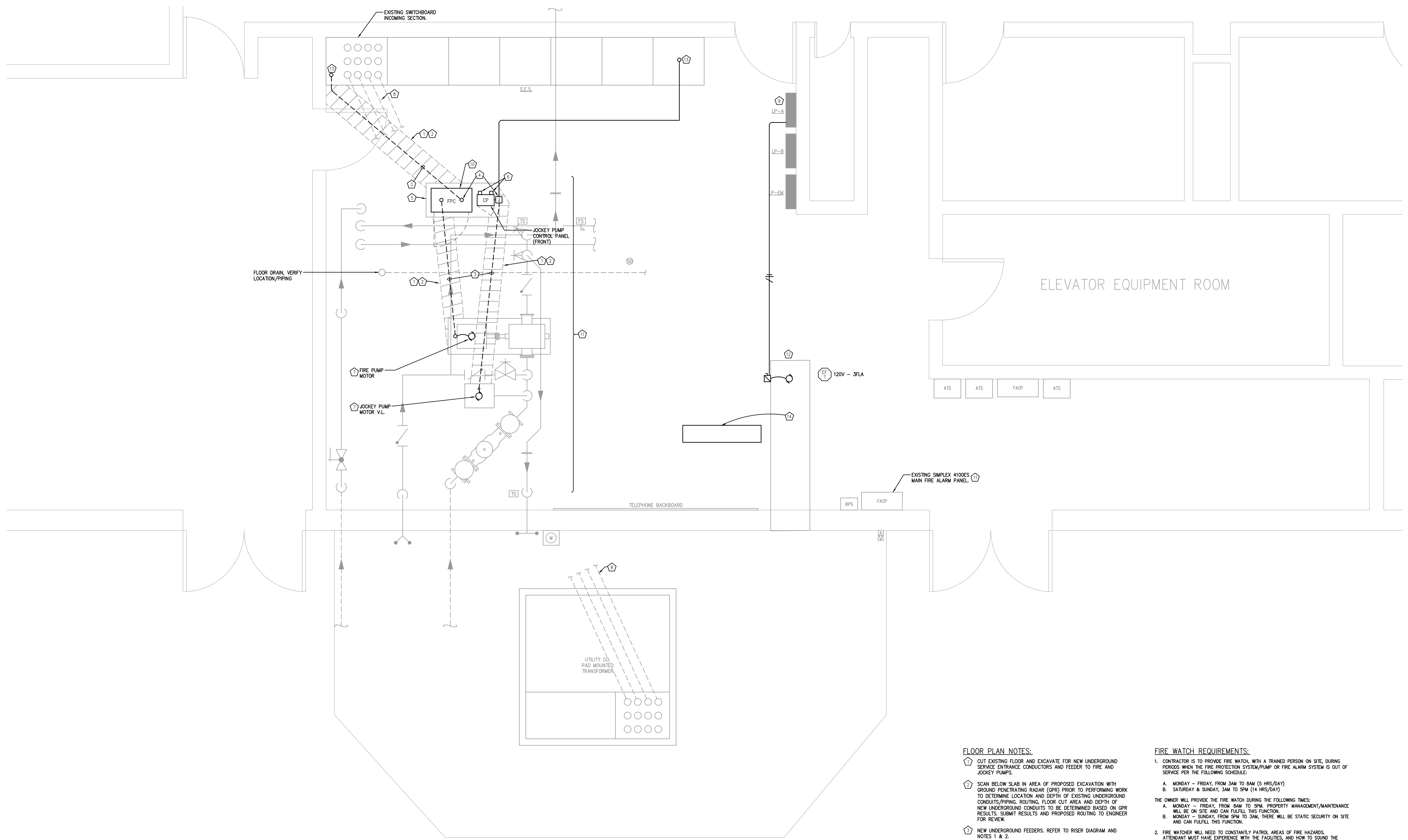
PARTIAL FIRST FLOOR PLAN – ELECTRICAL DEMOLITION
 1/2" = 1'-0" N

REV.	DATE	FOR BID/PERMIT	DESCRIPTION

PARTIAL FIRST FLOOR PLAN
 ELECTRICAL DEMOLITION

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Date: 03/15/23	Job No: 22094

SHEET NO.



PARTIAL FIRST FLOOR PLAN - ELECTRICAL
 1/2" = 1'-0"

FLOOR PLAN NOTES:

- 1. CUT EXISTING FLOOR AND EXCAVATE FOR NEW UNDERGROUND SERVICE ENTRANCE CONDUCTORS AND FEEDER TO FIRE AND JOCKEY PUMPS.
- 2. SCAN BELOW SLAB IN AREA OF PROPOSED EXCAVATION WITH GROUND PENETRATING RADAR (GPR) PRIOR TO PERFORMING WORK TO DETERMINE LOCATION AND DEPTH OF EXISTING UNDERGROUND CONDUITS/PIPING. ROUTING, FLOOR CUT AREA AND DEPTH OF NEW UNDERGROUND CONDUITS TO BE DETERMINED BASED ON GPR RESULTS. SUBMIT RESULTS AND PROPOSED ROUTING TO ENGINEER FOR REVIEW.
- 3. NEW UNDERGROUND FEEDERS. REFER TO RISER DIAGRAM AND NOTES 1 & 2.
- 4. CONDUIT ENTRY INTO FIRE AND JOCKEY PUMP CONTROL PANELS TO BE FROM BELOW INTO BOTTOM OF PANELS.
- 5. 3 1/2" HIGH CONCRETE HOUSEKEEPING PAD UNDER FIRE PUMP AND JOCKEY PUMP CONTROLLERS.
- 6. MOUNT JOCKEY PUMP CONTROLLER TO UNSTRUT FRAME/RACK SUPPORTED FROM FLOOR/HOUSEKEEPING PAD.
- 7. COORDINATE ALL CONNECTION/TERMINATION POINTS FOR MOTORS AND EQUIPMENT INCLUDING CONCRETE SUPPORT PADS WITH FIRE PROTECTION CONTRACTOR.
- 8. EXISTING UNDERGROUND 400AMP SERVICE ENTRANCE CONDUCTORS. ASSUMED TO BE A MINIMUM OF 36" BELOW SLAB. ACTUAL LOCATION AND DEPTH TO BE DETERMINED BY E.C., REFER TO NOTES 1 & 2.
- 9. UTILIZE EXISTING SPARE 20AMP BREAKER IN PANEL FOR NEW EF-1.
- 10. LOCATE CONTROL PANELS TO MAINTAIN PROPER NEC CLEARANCES (36" IN FRONT) AND ALSO MAINTAIN AISLE BEHIND.
- 11. FIRE ALARM MONITORING/DEVICES FOR FIRE PUMP CONTROLLERS AND PIPING NOT SHOWN. REFER TO RISER DIAGRAM AND COORDINATE LOCATIONS, QUANTITIES AND CONNECTION REQUIREMENTS WITH FIRE PROTECTION CONTRACTOR. SYSTEM TO BE COMPLETE CODE COMPLIANT SYSTEM.
- 12. COORDINATE LOCATION AND CONNECTION REQUIREMENTS FOR EF-1 WITH M.C.
- 13. REFER TO RISER DIAGRAM FOR FIRE PUMP AND JOCKEY PUMP CONNECTION REQUIREMENTS.
- 14. RELOCATE EXISTING LIGHT FIXTURE TO ACCOMMODATE NEW EXHAUST FAN/DUCT WORK. COORDINATE WITH M.C.

FIRE WATCH REQUIREMENTS:

1. CONTRACTOR IS TO PROVIDE FIRE WATCH, WITH A TRAINED PERSON ON SITE, DURING PERIODS WHEN THE FIRE PROTECTION SYSTEM/PUMP OR FIRE ALARM SYSTEM IS OUT OF SERVICE FOR THE FOLLOWING SCHEDULE:
 - A. MONDAY - FRIDAY, FROM 3AM TO 8AM (5 HRS/DAY)
 - B. SATURDAY & SUNDAY, 3AM TO 5PM (14 HRS/DAY)
 THE OWNER WILL PROVIDE THE FIRE WATCH DURING THE FOLLOWING TIMES:
 - A. MONDAY - FRIDAY, FROM 8AM TO 5PM. PROPERTY MANAGEMENT/MAINTENANCE WILL BE ON SITE AND CAN FULFILL THIS FUNCTION.
 - B. MONDAY - SUNDAY, FROM 5PM TO 3AM, THERE WILL BE STATIC SECURITY ON SITE AND CAN FULFILL THIS FUNCTION.
2. FIRE WATCHER WILL NEED TO CONSTANTLY PATROL AREAS OF FIRE HAZARDS. ATTENDANT MUST HAVE EXPERIENCE WITH THE FACILITIES, AND HOW TO SOUND THE ALARM IN THE EVENT OF A FIRE HAZARD.
3. THE FIRE WATCHER NEEDS A SOLID UNDERSTANDING OF WHERE FIRE HAZARDS COULD ARISE, AND HOW TO USE FIRE-EXTINGUISHING EQUIPMENT. HE OR SHE WILL BE PROVIDING THE FIRST RESPONSE TO FIRE RISKS. THIS CAN INCLUDE NOTIFYING THE EMERGENCY SERVICES AND OPERATING FIRE EXTINGUISHERS, ETC.
4. DUE TO THE NATURE OF THE ROLE, FIRE WATCH DUTIES CAN'T BE PERFORMED ALONG WITH OTHER JOB FUNCTIONS.
5. COMPLY WITH ALL LOCAL FIRE DEPARTMENT REQUIREMENTS.
6. COORDINATE ALL REQUIREMENTS WITH THE OWNER.

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PARTIAL FIRST FLOOR PLAN ELECTRICAL

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SECTION 260000 - ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

1.1 GENERAL SCOPE

A. THE WORK REQUIRED UNDER THIS SPECIFICATION SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, POWER, TRANSPORTATION, HOISTING IMPLEMENTS, ETC., NECESSARY FOR THE COMPLETION OF THE ELECTRICAL WORK OF THE CONTRACT. ALL AS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS OR REASONABLY IMPLIED BY EITHER, COMPLETE IN EVERY RESPECT UNLESS SPECIFIED OTHERWISE HEREIN. THE WORK INCLUDED IN THIS CONTRACT SHALL CONSIST OF THE INSTALLATION, TEST AND GUARANTEE OF ALL WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS.

1.2 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 26.

1.3 DRAWINGS AND SPECIFICATIONS

A. DRAWINGS INDICATE GENERAL ARRANGEMENT OF SYSTEM AND ARE TO BE FOLLOWED INsofar AS POSSIBLE. DEVIATIONS FROM DRAWINGS MAY BE NECESSITATED BY FIELD CONDITIONS. DETAILED LAYOUTS OF PROPOSED DEPARTURES TO BE SUBMITTED TO ENGINEER FOR APPROVAL.

B. DRAWINGS AND SPECIFICATIONS TO BE CONSIDERED COOPERATIVE AND ANYTHING APPEARING IN SPECIFICATIONS, BUT NOT ON DRAWINGS, OR VICE VERSA, TO BE CONSIDERED PART OF THE CONTRACT AND TO BE EXECUTED.

C. DRAWINGS INDICATE SIZE AND APPROXIMATE LOCATION OF VARIOUS PARTS OF WORK AND ARE TO BE USED AS A GENERAL GUIDE FOR INSTALLATION. HOWEVER, DRAWINGS ARE, TO A CONSIDERABLE EXTENT, DIAGRAMMATIC AND EXACT LOCATIONS OF CONDUIT, CABLE TRAY, OUTLET BOXES, SURFACE RACEWAY, ETC., MAY APPEAR ON THE DRAWINGS OR MUST BE WORKED OUT ON JOB. HOWEVER, NO CHANGES IN SIZES TO BE MADE WITHOUT WRITTEN APPROVAL OF ENGINEER. ERRORS OR OMISSIONS DISCOVERED BY BIDDING CONTRACTORS PRIOR TO BID OPENINGS, TO BE CALLED TO ATTENTION OF ENGINEER WITHOUT DELAY.

D. IF A SPECIFIC ITEM IS SPECIFIED OR ON DRAWINGS FOR MULTIPLE TRADES, THIS CONTRACTOR SHALL INCLUDE ALL ITEMS IN THE BID REGARDLESS OF OTHER TRADES. RESOLUTION WILL BE BY ADDENDUM OR CHANGE ORDER.

E. SHOULD A CONFLICT IN REQUIREMENTS OF THE CONTRACT DOCUMENTS, TECHNICAL SPECIFICATIONS AND/OR DRAWINGS OCCUR, THE MORE STRINGENT REQUIREMENT SHALL APPLY AND BE INCLUDED IN THE BASE BID.

1.4 PROJECT CLOSEOUT

A. IN ORDER TO ACHIEVE A COMPLETE AND COMMISSIONED PROJECT, EACH CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING ITEMS:

1. BUILDING INSPECTION CERTIFICATES.
2. AS-BUILT DRAWINGS.
3. CONSENT OF SURETY.
4. CONTRACTORS RELEASE AND CERTIFICATION.
5. DEMONSTRATION CERTIFICATES SIGNED BY OWNER.
6. DELIVERY OF EXTRA MATERIALS.
7. RETURN OF BORROWED KEYS AND WORKING PERMITS.
8. LETTER DECLARING PUNCH LIST ITEMS COMPLETED.
9. OPERATION AND MAINTENANCE MANUALS.
10. FINAL GUARANTEE AND EXECUTION OF WARRANTIES.
11. OTHER REQUIREMENTS SPECIFIED IN DIVISION 1 SPECIFICATIONS.

1.5 RECORD DOCUMENTS

A. PREPARE RECORD DOCUMENTS IN ACCORDANCE WITH THE REQUIREMENTS IN DIVISION 1.

1.6 EQUIPMENT AND SYSTEMS DEMONSTRATION

A. EACH CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE COMPLETE OPERATION OF THE EQUIPMENT AND SYSTEMS INSTALLED AS A PART OF THE WORK. AFTER THE CONTRACTOR IS SATISFIED THE WORK MEETS THE SPECIFIED INTENTS AND SEQUENCES OF OPERATION, THE CONTRACTOR SHALL SCHEDULE, THROUGH THE ENGINEER, A SESSION DURING WHICH ALL ASPECTS OF THE WORK ARE EXPLAINED TO THE OWNER'S PERSONNEL AND/OR REPRESENTATIVES.

1.7 INSPECTION OF EXISTING AND GENERAL CONDITIONS

A. THE CONTRACTOR WILL BE HELD TO HAVE PERSONALLY INSPECTED THE SITE OF THE PROPOSED WORK TO ARRIVE AT A CLEAR UNDERSTANDING OF THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE EXTENT OF OTHER CONTRACTOR'S ACTIVITIES IN THE AREA, AND TO BECOME FULLY ACQUAINTED WITH THE RECEIVING AND STORAGE SPACES AVAILABLE. THE CONTRACTOR SHALL COMPARE THE PREMISES AND SITE WITH THE DRAWINGS AND SPECIFICATIONS, AND SHALL BE SATISFIED AS TO THE CONDITIONS OF THE PREMISES, THE ACTUAL ELEVATIONS, AND ANY OTHER CONDITIONS AFFECTING THE SCOPE OR COMPLETION PERFORMANCE OF THE WORK, BEFORE THE DELIVERY OF THIS PROPOSAL.

B. NO ALLOWANCES OR EXTRA CONSIDERATION ON BEHALF OF THE CONTRACTOR WILL BE ALLOWED BY REASON OF THE CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH SITE CONDITIONS. ERROR OR OVERSIGHT ON THE PART OF THE CONTRACTOR OR DUE TO INTERFERENCE BY THE OWNER'S OR OTHER CONTRACTOR'S ACTIVITIES.

C. ITEMS SPECIFIED ON ELECTRICAL EQUIPMENT SCHEDULES AND PLANS ARE THE BASIS OF DESIGN. EQUALITY OF OTHER EQUIPMENT SHALL BE DETERMINED BY THE OWNER AND ENGINEER. ANY MODIFICATION TO THESE DOCUMENTED METHODS THAT IS MADE NECESSARY BY ALTERNATE EQUIPMENT IS THE RESPONSIBILITY OF THE SUPPLIER OF THE ALTERNATE EQUIPMENT.

D. CONTRACTOR IS DIRECTED TO INCLUDE ALL NECESSARY OVERTIME AND PREMIUM TIME (SATURDAY, SUNDAY, HOLIDAYS) REQUIRED FOR THE COMPLETION OF THE INTENDED WORK TO MEET SPECIFIED SCHEDULES.

E. DO NOT SCALE ELECTRICAL DRAWINGS. FOR EXACT DIMENSIONS, USE DIMENSIONED DRAWINGS OR ACTUAL FIELD CONDITIONS.

1.8 CODES, PERMITS, AND COMPLIANCE

A. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY LAWS OF GOVERNING BODIES. COMPLY WITH ALL APPLICABLE CODES, ORDINANCES AND ALL LEGAL REQUIREMENTS. NO EXTRA COMPENSATION WILL BE ALLOWED FOR ANY CHANGES NECESSARY FOR CODE COMPLIANCE REGARDLESS OF THE METHOD OF INSTALLATION SHOWN ON THE DRAWINGS OR SPECIFIED.

B. ALL ELECTRICAL WORK SHALL COMPLY WITH CURRENT ADOPTED EDITIONS OF NATIONAL ELECTRICAL CODE, NFPA, THE LIFE SAFETY CODE AND ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.

C. ALL ELECTRICAL EQUIPMENT SHALL BE NEW AND SHALL BE LABELED OR LISTED BY U.L. OR A QUALIFIED TESTING ORGANIZATION.

D. ALL EQUIPMENT, DEVICES, AND MATERIALS SHALL BE THE LATEST PRODUCTS OF MANUFACTURER AND SHALL CONFORM TO THE REQUIREMENTS NOTED ON PLANS.

1.9 WORKMANSHIP

A. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY CONFORMING TO THE BEST ELECTRICAL INSTALLATION PRACTICE. ANY WORK OR MATERIAL, WHICH IS REJECTED, MUST BE REMOVED IMMEDIATELY AND REPLACED. NO SUB-STANDARD WORK WILL BE ACCEPTED.

B. THE BREVITY OF THIS SPECIFICATION SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM ALL WORK IN A FIRST CLASS WORKMANLIKE MANNER.

1.10 SUBMITTALS AND RECORD DRAWINGS

A. SUBMIT SHOP DRAWINGS AND CATALOG DATA FOR APPROVAL FOR ALL NEW EQUIPMENT AND MATERIALS SPECIFIED FOR THIS PROJECT PRIOR TO ORDERING OR MANUFACTURE OF SUCH SHOP DRAWINGS NOT STAMPED WITH CONTRACTORS APPROVAL WILL NOT BE REVIEWED.

B. THE CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF ALL DEVIATIONS FROM THE APPROVED DESIGN AND SPECIFICATIONS WHICH MAY OCCUR IN THE WORK AS ACTUALLY CONSTRUCTED, AND SHALL SUBMIT SAME TO THE ENGINEER OR OWNER'S REPRESENTATIVE AT COMPLETION OF THE JOB.

C. SUBMITTALS SHALL BE COORDINATED THROUGH THE ENGINEER.

1.11 TESTS AND GUARANTEE

A. ALL TESTS FOR VARIOUS SYSTEMS SHALL BE PERFORMED AS REQUIRED, IN ACCORDANCE WITH GENERAL PRACTICE AND IN COMPLIANCE WITH CODES AND AUTHORITIES.

B. AS A CONDITION PRECEDENT TO FINAL PAYMENT, THE CONTRACTOR SHALL EXECUTE TO THE OWNER A GUARANTEE IN A FORM APPROVED BY THE OWNER. GUARANTEE SHALL WARRANT THAT ALL WORK INCLUDED IN THIS SPECIFICATION WILL REMAIN IN SERVICEABLE CONDITION (ORDINARY WEAR, ABUSE AND CAUSES BEYOND THE CONTROL OF THE CONTRACTOR EXCLUDED) FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL COMPLETION AND ACCEPTANCE OF WORK. THE CONTRACTOR AGREES TO CORRECT, WITHOUT COST TO THE OWNER, ANY IMPERFECTIONS IN WHOLE OR IN PART WHICH MAY DEVELOP IN THIS WORK, INCLUDING ANY DAMAGE TO OTHER WORK CAUSED BY SUCH IMPERFECTIONS OR REPAIRING OF SAME.

C. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROPER DIRECTION OF MOTOR ROTATION. DAMAGE TO MOTORS, EQUIPMENT, OR SYSTEMS DUE TO IMPROPER ROTATION SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.

D. ALL ELECTRICAL SYSTEMS, DEVICES AND RELATED ITEMS SHALL BE TESTED. REPLACE ANY AND ALL DEFECTIVE DEVICE ITEMS OR SYSTEMS BEFORE COMPLETION OF THE PROJECT.

1.12 COORDINATION

A. FIELD VERIFY EXACT LOCATION OF ALL NEW EQUIPMENT WITH EXISTING CONDITIONS AND COORDINATE WITH THE GENERAL AND OTHER CONTRACTORS PRIOR TO ROUGH-IN AND/OR INSTALLING ANY OF THIS WORK.

B. FIELD VERIFY ALL CLEARANCES AND CONDITIONS PRIOR TO THE INSTALLATION OF ANY CONDUIT, CABLE TRAY, RACEWAY, ETC.; VERIFY LOCATIONS OF ALL OUTLET BOXES, SURFACE MOUNTED DEVICES, PANELBOARD ENCLOSURES, FIXTURE LOCATIONS, ETC., WITH CIVIL, ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS PRIOR TO ROUGH-IN. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH WORK.

C. ALL POWER OUTAGES TO EXISTING OR OPERABLE FACILITIES SHALL BE SCHEDULED WITH THE OWNER A MINIMUM TWO (2) WEEKS IN ADVANCE. THE CONTRACTOR SHALL NOT INTERRUPT OR RESTORE POWER WITHOUT PRIOR CONSENT TO THE OWNER. ANY INTERRUPTION SHALL BE ONLY FOR THE SPECIFIC SCHEDULED TIME. THE OWNER OR MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR SHUTDOWN AND START-UP OF MECHANICAL OR PROCESS SYSTEMS.

D. COORDINATE ALL POWER WIRING, SAFETY DISCONNECT MEANS, MOTOR CONTROL AND CONTROL WIRING FOR MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING TO MOTOR OR EQUIPMENT THROUGH STARTERS AND SAFETY SWITCH.

E. THE MECHANICAL CONTRACTOR, MECHANICAL EQUIPMENT SUPPLIER OR TEMPERATURE CONTROL CONTRACTOR WILL BE RESPONSIBLE FOR ALL LOW VOLTAGE TEMPERATURE CONTROL WIRING REQUIRED FOR THE PROJECT. THIS ELECTRICAL CONTRACTOR SHALL INSTALL, TERMINATE AND LABEL ALL POWER, CONTROL AND INTERLOCK WIRING DETAILED ON THESE PLANS.

F. LOCATE AND INSTALL ALL NEW DEVICES AND FIXTURES IN ACCORDANCE WITH AMERICAN DISABILITY ACT GUIDELINES.

1.13 IDENTIFICATION

A. FURNISH AND INSTALL SELF-ADHESIVE VINYL LABELS WITH 1/4 INCH LETTERS INDICATING PANEL NAME AND VOLTAGE ON ALL PANELS AND CABINETS. STARTERS, PUSHBUTTONS AND DISCONNECT SWITCHES SHALL HAVE PHENOLIC LABELS WITH 3/8 INCH HIGH LETTERS INDICATING NAME OR ITEM CONTROLLED. ALL LABELS SHALL BE WHITE SURFACE WITH BLACK LETTERS AND BE UV, WATER AND ABRASION RESISTANT.

B. INSTALL CLEAR ADHESIVE TAPE WITH 1/4 INCH HIGH BLACK LETTERING ON WIRING OUTLETS DEFINING SOURCE (PANEL) AND CIRCUIT NUMBER IDENTIFICATION.

C. PROVIDE AN ARC FLASH HAZARD LABEL FOR ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, DISCONNECTS AND MOTOR CONTROL CENTERS. LABELING TO BE IN ACCORDANCE WITH NEC ARTICLE 110.16 (FLASH PROTECTION). LABELS TO BE BRADY #99452 OR EQUAL.

D. PROVIDE TYPED PANEL DIRECTORIES FOR ALL EXISTING PANELBOARDS AFFECTED BY THIS WORK.

E. CONDUCTOR IDENTIFICATION

1. COMPLY WITH NFPA 70.
2. COLOR-CODING FOR PHASE AND VOLTAGE-LEVEL IDENTIFICATION. 600V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED FEEDER AND BRANCH-CIRCUIT CONDUCTORS AND SHALL BE FACTORY APPLIED.

a. COLORS FOR 208/120-V CIRCUITS:

- 1) PHASE A: BLACK.
 - 2) PHASE B: RED.
 - 3) PHASE C: BLUE.
- b. COLOR FOR NEUTRAL: WHITE.
- c. COLOR FOR EQUIPMENT GROUNDS: GREEN.

1.14 DEMOLITION, REMOVALS, CLEAN-UP, PROTECTION AND TOUCH-UP

A. REMOVE ALL EXISTING RACEWAY, WIRING, FIXTURES, DEVICES, CONTROLLERS, ETC., SCHEDULED FOR REMOVAL OR NOT REQUIRED TO REMAIN IN SERVICE. CONTRACTOR SHALL COORDINATE REMOVAL WITH OWNER AND ALL OTHER TRADES ON THE PROJECT. ALL RACEWAY AND WIRE SHALL BE REMOVED BACK TO THE POINT OF SERVICE. PROVIDE ADDITIONAL MAKE-UP RACEWAY, JUNCTION BOXES, WIRING, ETC., TO MAINTAIN RACEWAY AND CIRCUIT CONTINUITY FOR FUNCTIONAL CIRCUITS.

B. THIS CONTRACTOR SHALL DISPOSE OF ALL MATERIALS GENERATED FROM REMOVAL AND INSTALLATION OF THIS WORK. DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE WEEKLY. THIS CONTRACTOR SHALL PROVIDE TO THE OWNER ANY SALVAGEABLE MATERIALS AS DIRECTED BY THE OWNER OR ENGINEER.

C. ALL EQUIPMENT, ITEMS, DEVICES AND APPURTENANCES SHALL BE PROTECTED FROM DEBRIS AND DAMAGE WHILE STORED AT THE SITE AND DURING AND AFTER INSTALLATION.

D. UPON COMPLETION OF WORK THIS CONTRACTOR SHALL THOROUGHLY CLEAN ALL APPARATUS FURNISHED BY THIS CONTRACT.

E. SCARRED FACTORY-FINISHED ELECTRICAL EQUIPMENT SHALL BE TOUCHED UP WITH FACTORY FURNISHED PAINT. RUSTED OR MARRED SURFACES OF ELECTRICAL EQUIPMENT SHALL BE CLEANED AND PRIMED BEFORE PAINTING.

F. PATCH FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS AND EXPERIENCED INSTALLERS.

1.15 MAINTENANCE MANUALS

A. COMPLY WITH SPECIFICATION SECTION 017823 "OPERATION AND MAINTENANCE DATA".

1.16 ELECTRONIC FILES

A. IF THE CONTRACTOR REQUESTS, MDA ENGINEERING, INC. WILL PROVIDE ELECTRONIC FILES FOR THE CONTRACTORS SOLE CONVENIENCE AND USE IN PREPARATION OF SHOP DRAWINGS RELATED TO THE PROJECT SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. MDA ENGINEERING, INC. WILL PROVIDE ELECTRONIC FILES OF DRAWING SHEETS SPECIFICALLY REQUESTED IN WRITING BY THE CONTRACTOR. THE REFERENCE BACKGROUND FILES OR PERMISSION TO DISTRIBUTE SUCH FILES MUST BE OBTAINED FROM THE ARCHITECT OR OTHER APPLICABLE PARTY.
2. A CADD CONTRACT PROVIDED BY MDA ENGINEERING, INC. SHALL BE SIGNED BY AN OFFICER OF THE CONTRACTING COMPANY PRIOR TO DELIVERY OF THE ELECTRONIC FILES.
3. THE CONTRACTORS SHALL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS MDA ENGINEERING, INC. FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE USE OF THESE ELECTRONIC FILES.

4. MDA ENGINEERING, INC. RESERVES THE RIGHT TO REMOVE ALL INDICATIONS OF OWNERSHIP AND/OR INVOLVEMENT FROM EACH ELECTRONIC DISPLAY.

5. ANY OTHER USE OR RE-USE BY THE CONTRACTOR OR BY OTHERS WILL BE AT THE CONTRACTOR'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO MDA ENGINEERING, INC. AND OWNER.

PART 2 - BASIC MATERIALS AND METHODS

2.1 FASTENING AND SUPPORTS

A. ALL CONDUITS AND EQUIPMENT SHALL BE ADEQUATELY SUPPORTED, EITHER SUSPENDED FROM THE CONSTRUCTION ABOVE OR BY MEANS OF STRUTS TO THE CONSTRUCTION BELOW. CONDUIT, TRAY, FIXTURES, ETC., SHALL NOT SPAN FLEXIBLE CONNECTIONS OF AIR HANDLING EQUIPMENT, ETC., AND SHALL NOT BE SUPPORTED FROM DUCTWORK OR OTHER TRADES' SUPPORTS.

2.2 RACEWAYS

A. ALL SERVICE ENTRANCE, FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE INSTALLED IN RACEWAY. ANYALL CONTROL CONDUCTORS REQUIRED BY THESE DOCUMENTS SHALL BE INSTALLED IN RACEWAY.

B. UNLESS OTHERWISE NOTED, CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT) WITH STEEL COMPRESSION OR SET SCREW FITTINGS 3/4 INCH TRADE SIZE MINIMUM. CAST METAL FITTINGS ARE NOT ACCEPTABLE.

C. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR CONDUITS RISING THRU CONCRETE FLOOR APPLICATIONS WITH THREADED AND CAST FITTINGS, MINIMUM 3/4 INCH TRADE SIZE.

D. CONDUIT BELOW GRADE SHALL BE SCHEDULE 40 PVC WITH RIGID STEEL ELBOWS (GREATER THAN 30 DEGREES) AND RISERS. CONCRETE ENCASED WHERE INDICATED. BURY THE GREATER OF 18 INCHES BELOW GRADE OR PER NEC MINIMUM DEPTH AND INSTALL RED MARKER WARNING TAPE 6" BELOW FINISHED GRADE.

E. RACEWAYS SHALL BE CAPPED UNTIL CONDUCTORS ARE INSTALLED. EMPTY RACEWAYS SHALL EACH BE TAGGED AND INCLUDE PULL WIRE.

F. RACEWAYS 1 1/2 INCH TRADE SIZE AND SMALLER SHALL BE SECURED WITH ONE HOLE 1/4 INCH MALLEABLE STRAPS OR WALL BRACKETS. TRAPEZE SUPPORTS SHALL BE USED FOR GROUPS OF PARALLEL RACEWAYS WITH EACH SECURED TO TRAPEZE WITH PROPER CLAMPS. INDIVIDUAL RUNS OF RACEWAY 2 INCHES AND LARGER SHALL BE SUPPORTED WITH MALLEABLE IRON HANGERS. USE OF "MINERALLACS" FOR SUPPORTS ARE PROHIBITED.

G. ALL FEEDER AND BRANCH CIRCUIT RACEWAYS SHALL INCLUDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR. REFER TO GROUNDING SECTION.

H. INSTALL FIRE STOPPING WHERE REQUIRED BY THE BUILDING CONSTRUCTION.

I. FINAL CONNECTIONS TO VIBRATING EQUIPMENT (MOTORS, TRANSFORMERS, ETC.), PROCESS MACHINERY AND INSTRUMENTATION DEVICES SHALL BE VIA FLEXIBLE METALLIC, "SEAL TITE" CONDUIT, A MAXIMUM OF 12 INCHES IN LENGTH.

2.3 OUTLET AND JUNCTION BOXES

A. ALL BOXES SHALL BE APPROPRIATELY SIZED AND CONFIGURED FOR THE APPLICATION AND BUILDING FINISHES.

B. OUTLET AND DEVICE BOXES FOR EXPOSED APPLICATIONS AND USE WITH EMT CONDUIT SHALL BE ROUNDED EDGE PRESS-FORMED GALVANIZED STEEL WITH KNOCK-OUTS AND SIZED TO MATCH SPECIFIED DEVICE COVER PLATES WITHOUT OVER-HANG, WITH THREADED FITTINGS AND MATCHING GALVANIZED, STAMPED STEEL COVER PLATES.

C. OUTLET AND DEVICE BOXES FOR EXPOSED APPLICATIONS AND USE WITH RGS CONDUIT SHALL BE CAST FSDP WITH THREADED FITTINGS AND MATCHING GALVANIZED, STAMPED STEEL COVER PLATES.

D. SURFACE MOUNTED OUTLET DEVICE BOXES AND JUNCTION BOXES IN UTILITY ROOMS AND SERVICE AREAS SHALL BE ROUNDED EDGE PRESS FORMED GALVANIZED STEEL WITH KNOCK-OUTS AND MATCHING GALVANIZED STAMPED STEEL COVER PLATES.

E. EXPOSED JUNCTION BOXES GREATER THAN 96 INCHES A.F.F. AND/OR IN THE STRUCTURAL SPACE SHALL BE GALVANIZED STEEL WITH KNOCK-OUTS.

F. SURFACE TYPE BOXES FOR SPECIAL SYSTEMS SUCH AS FIRE ALARM, PAGING, SECURITY, ETC., SHALL BE PROPERLY SIZED BACKBOXES FOR THE DEVICE AS PROVIDED BY THE SYSTEM VENDOR.

2.4 FEEDER AND BRANCH CIRCUIT CONDUCTORS

A. UNDERGROUND FEEDER CONDUCTORS SHALL BE WET LOCATION LISTED AND LABELED TYPE XHHW-2.

B. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE STRANDED COPPER WITH 600V THY/THWN INSULATION.

C. MINIMUM WIRE SIZE FOR BRANCH CIRCUIT CONDUCTORS SHALL BE #12 AWG, STRANDED, COPPER.

D. ALL CONDUCTORS SHALL BE PROTECTED IN ACCORDANCE WITH NEC ART 240.4 AND AMPACITY SHALL BE IN ACCORDANCE WITH NEC 310.15 BASED ON 60 DEGREES C RATING FOR SIZES #2 AND SMALLER AND 75 DEGREES C FOR SIZES #1 AWG AND LARGER.

E. ALL SINGLE-POLE AND MULTI-POLE BRANCH CIRCUITS WITH NEUTRAL WIRE REQUIREMENT SHALL HAVE INDIVIDUAL NEUTRAL CONDUCTORS TO COMPLY WITH NEC 210.4. EACH NEUTRAL SHALL BE IDENTIFIED AT ALL JUNCTION BOXES AND TERMINALS THE SAME AS ITS CORRESPONDING BRANCH CIRCUIT NUMBER.

2.5 GROUNDING

A. BOND MECHANICAL METAL PIPING AND DUCT SYSTEMS PER NEC ARTICLE 250.104.

B. BOND AND GROUND ALL NON-CURRENT CARRYING METAL PARTS OF THE BUILDING AND ELECTRICAL SYSTEM AS REQUIRED.

C. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL PLANS AND STARTERS FOR ALL FEEDER AND BRANCH CIRCUITS SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122.

2.6 DISCONNECTS AND STARTERS

A. PROVIDE DISCONNECTS FOR ALL EQUIPMENT AS SHOWN ON THE PLANS AND STARTERS FOR ALL EQUIPMENT NOT PROVIDED WITH BUILT-IN CONTROL PANELS.

B. DISCONNECTS SHALL BE HEAVY DUTY, MULTIPLE POLE, QUICK-MAKE, QUICK-BREAK, H.P. RATED, 250 VOLT OR 600 VOLT IN NEMA 1 ENCLOSURE (INDOORS) OR NEMA 3R ENCLOSURES (OUTDOORS).

C. DISCONNECTS SHALL BE FUSIBLE OR NON-FUSED AS NOTED AND SHALL INCLUDE CLASS R REJECTION STYLE FUSE HOLDERS.

D. STARTERS FOR MOTORS 1/2 HP AND LESS SHALL BE MANUAL STARTERS, 120 VOLTS, WITH BUILT-IN OVERLOADS AND PILOT LIGHT. INSTALL FLUSH IN FINISHED AREAS. SQUARE D, CO. CLASS 2510 OR EQUAL BY ALLEN BRADLEY. CONTRACTOR TO DETERMINE FINAL O.L. THERMAL ELEMENT SIZED BASED UPON FINAL MOTOR F.L.A.

E. COORDINATE ALL STARTERS, DISCONNECTS, OVERLOADS, ETC., WITH FINAL MOTOR AND EQUIPMENT ITEMS. LOCATE TO MAINTAIN PROPER CLEARANCES.

2.7 FUSES

A. ALL LOW VOLTAGE FUSES SHALL BE TIME DELAY, DUAL ELEMENT, RK-1 REJECTION STYLE 250 V OR 600 V AS APPROPRIATE AND ARRANGED IN A COORDINATED SELECTIVE SYSTEM FOR OVERCURRENT PROTECTION.

B. ALL FUSES SHALL HOLD A 500 PERCENT OVERLOAD FOR 10 SECONDS AND BE RATED 300% I.C. MINIMUM. FUSE SIZES FOR INDIVIDUAL MOTOR LOADS SHALL BE PROPERLY SIZED TO ACTUAL MOTOR LABEL FOR MOTOR BRANCH CIRCUIT AND SHORT CIRCUIT PROTECTION PER NEC 430.52.

C. FUSES SHALL BE REJECTION STYLE, DUAL ELEMENT BUSMAN LOW PEAK, 300 K OR EQUAL BY LITTLE FUSE OR MERSEN.

PART 3 - PRODUCTS AND EXECUTION

3.1 FIRE ALARM SYSTEM (ADDRESSABLE)

A. FURNISH AND INSTALL A COMPLETE AND OPERABLE EXTENSION TO THE EXISTING LOCAL ADDRESSABLE FIRE PROTECTIVE SIGNALING SYSTEM AS SHOWN ON THE PLANS. SYSTEM TO INCLUDE THE FOLLOWING:

1. ADDRESSABLE MONITORING MODULES AND REQUIRED CONNECTIONS TO FIRE PUMP MONITORING POINTS AND FIRE PROTECTION PIPING SYSTEM INCLUDING FLOW AND TAMPER SWITCHES.

B. ALL FIRE ALARM WIRING SHALL BE COLOR-CODED, INSTALLED IN METAL RACEWAY AND INSTALLED BY PROPERLY CERTIFIED AND LICENSED INSTALLERS. RACEWAY/CABLING SYSTEM TO BE A LISTED 2-HOUR FIRE RESISTIVE CABLING SYSTEM.

C. CONTRACTOR SHALL OBTAIN NECESSARY PERMIT(S) FROM THE APPROPRIATE AGENCY. UPON COMPLETION OF PROJECT, FIRE ALARM SYSTEM SHALL BE COMPLETELY TESTED AND DOCUMENTED, IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION AND THE PROJECT ENGINEER. PROVIDE 7 DAYS ADVANCE NOTICE OF ANY TESTS.

D. FIRE ALARM SYSTEM SHALL BE AN EXTENSION OF THE EXISTING BUILDING INSTALLED SIMPLEX 4100ES SYSTEM.

END OF SPECIFICATIONS



FIRE PUMP REPLACEMENT AT DORRELL MANOR, AN LMH PROPERTY 5836 SOUTHWYCK BOULEVARD TOLEDO, OHIO 43614

REV	DATE	FOR	BY/PERMIT	DESCRIPTION
03/15/23				

ELECTRICAL SPECIFICATIONS

Drawn By:	Checked By:
RSK	RST
Date:	Job No:
03/15/23	22094