LAKEWOOD WATER TREATMENT PLANT HEATING, VENTILATION, AND COOLING SYSTEM IMPROVEMENTS - ENGINEERING DIVISION

LOCATION: DULUTH, MN
CONSTRUCTION PLANS FOR: LAKEWOOD WATER TREATMENT PLANT
CITY PROJECT NUMBER: 1340

NOT TO SCALE

SITE LOCATION MAP

LAKEWOOD WATER TREATMENT PLANT BUILDING
8130 CONGDON BLVD
DULUTH, MN 55812

SPECIAL NOTE:
SITE IS SECURED, FENCED SITE. CONTRACTOR SHALL COORDINATE ACCESS AND FACILITY SECURITY WITH CITY STAFF.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-.2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."
NOTE: FOR CLARITY, IN A FEW LOCATIONS PORTIONS OF WORK FOR A DISCIPLINE MAY BE SHOWN ON SHEET WITH A DIFFERENT DISCIPLINE DESIGNATION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.

**PLAN VIEW LABEL**

- NORTH ARROW APPEARS IN PLAN VIEW ONLY ORIENTATION RELATIVE TO STRUCTURE.
- THE SCALE IS UNIQUE AND SPECIFIC TO EACH SHEET
- THE SCALE IS ONE HALF THE SCALE OF 22X34 SHEET
- SHEET IDENTIFICATION AND FILE NAME (THE SHEET WHERE PLAN IS SHOWN)
- SHEET IDENTIFICATION AND FILE NAME (THE SHEET WHERE PLAN IS SHOWN)

**SECTION DESIGNATION**

- ON DRAWING WHERE SECTION IS TAKEN
- ON DRAWING WHERE SECTION IS SHOWN

**DETAIL DESIGNATION**

- ON DRAWING WHERE DETAIL IS TAKEN
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**Discipline Identification**

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**Discipline Identification Example**

- DISCIPLINE IDENTIFIER: M1.2
- DISCIPLINE IDENTIFIER: M1.3
- DISCIPLINE IDENTIFIER: M1.4
- DISCIPLINE IDENTIFIER: M1.5
- DISCIPLINE IDENTIFIER: M1.6

**Sheet Identification Numbering Example**

- SHEET IDENTIFICATION NUMBER: M1.2
- SHEET IDENTIFICATION NUMBER: M1.3
- SHEET IDENTIFICATION NUMBER: M1.4
- SHEET IDENTIFICATION NUMBER: M1.5
- SHEET IDENTIFICATION NUMBER: M1.6

**Detail Label**

- SHEET IDENTIFICATION NUMBER: M1.2
- SHEET IDENTIFICATION NUMBER: M1.3
- SHEET IDENTIFICATION NUMBER: M1.4
- SHEET IDENTIFICATION NUMBER: M1.5
- SHEET IDENTIFICATION NUMBER: M1.6

**Record Drawings**

- REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR
LaKwOd WTP HVAC System Improvements

Project No.: 332 W. Superior Street Duluth, MN 55802

Superintendence and that I am a duly licensed professional engineer under the Laws of the State of Minnesota.

Architectural Symbols

Legend and Symbols

General Notes

Demolition General Notes

1. The General Contractor shall coordinate and provide all demolition and removal of debris necessary to accommodate new equipment and replacement of existing equipment.
2. Demolition Plan is provided as an aid in phasing and does not relieve the Contractor of responsibility to file verify the existing job site.
3. Demolition Plan shall be used in conjunction with the remarks of the owners in this set.
4. Removed existing concrete slabs as required for process mechanical, HVAC, and electrical work.
5. All areas, finished, and items not requiring demolition must be protected during demolition and construction work.
6. The general contractor shall coordinate and provide all demolition and removal of items identified for additional items to be removed and or relocated.
7. Prior to start of demolition work, verify with the owner all items to be turned over to the owner. All other items to be removed shall be responsibility of the GC.
GENERAL NOTE:
1. THE CONTRACTOR ACTIVITIES SHALL NOT INFRINGE ON THE OPERATIONS OR ACCESS OF THE WTP.
2. THE CONTRACTOR SHALL FURNISH, MAINTAIN, REMOVE STRAW LOGS TO CONTAIN EROSION TO DISTURBED AREAS.
3. THE CONTRACTOR SHALL FURNISH AND MAINTAIN WASH-DOWN TANK FOR SITE TOOL WASHING, ETC.
4. THE CONTRACTOR SHALL FURNISH AND MAINTAIN SANITARY FACILITIES;
5. EFFORT WAS MADE IN THE PREPARATION OF THE CONTRACT DOCUMENTATION TO COORDINATE CONNECTIONS WITH ALL DISCIPLINES; HOWEVER THE GC IS RESPONSIBLE TO REVIEW ENTIRE PLANS AND THE SPECIFICATIONS AND INCLUDE ALL WORK REQUIRED TO PROVIDE A COMPLETE PROJECT.
6. OBSERVE APPLICABLE CODE REQUIREMENTS FOR ELECTRICAL INSTALLATIONS WITHIN HAZARDOUS AREAS NOTED ON PLAN.
7. COORDINATE EXACT LOCATION OF ALL EQUIPMENT AND FIXTURES WITH GC, OWNER AND ENGINEER PRIOR TO ROUGH-IN.
8. CONTRACTOR SHALL REVIEW THE CONTRACTOR ACTIVITIES SHALL NOT INFRINGE ON THE OPERATIONS OR ACCESS OF THE WTP.
9. CONTRACTOR ACTIVITIES SHALL NOT INFRINGE ON THE OPERATIONS OR ACCESS OF THE WTP.
10. ALL DISTURBED AREAS NOT OTHERWISE SURFACED SHALL BE TURFED BY MINIMUM SEEDS, FERTILIZED, AND MULCHED.
11. CONTRACTOR SHALL PROVIDE REMOVAL OF ALL ITEMS NOT USED BY THE NEW FACILITY.
12. MAINTAIN PROPER INTERVENTION OF EXISTING FACILITIES AND OPERATIONS TO MAKE CONNECTION OR OTHER PROJECT WORK, SHALL BE COORDINATED WITH THE ENGINEER AND CITY TO HOURS IN ADVANCE.
13. SEE SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS.
14. EROSION CONTROL MEASURES SHOWN ARE THE MINIMUM REQUIRED. CONTRACTOR SHALL COMPLY WITH ALL GOVERNING EROSION CONTROL REQUIREMENTS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION STABILIZATION, ENGINEERED EXCAVATION AND SYSTEM SHALL BE PROVIDED FOR ALL INFRINGEMENT EXCAVATION THAT CANNOT TO BE EXCAVATED WITH 1:1 SLOPES.
16. NEW FACILITY.
17. CONTRACTOR SHALL PROVIDE REMOVAL OF ALL ITEMS NOT USED BY THE GC, OWNER, AND ENGINEER PRIOR TO ROUGH-IN.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION MEANS AND METHODS. CONTRACTORS SHALL OBTAIN DewaterING PERMIT(S) IF REQUIRED.

<Diagram of site plan with various labels and notes>
**EXHIBIT 1** FLOOR PENETRATION DETAIL

1/8" = 1'-0" (22x34)

**SECTION THROUGH FLOOR PENETRATION**

1/2" = 1'-0" (22x34)

**PLAN NOTES**

- **Saw-cut and remove existing concrete slab in this area.**
- **Existing tank w/ guardrail, TYP.**
- **Concrete slab infall.**
- **Select in location of duct. See first floor plan for location of openings. See HVAC for duct size. Verify with HVAC.**

**NOTES:**

- All bars shall be epoxy coated.
- Do not over-cut openings.
- Exercise great care near existing beam and wall to avoid damaging existing structure that is to remain.
- Intentionally roughen edge of cut to 1/4" amplitude.

- All bars shall be epoxy coated.
- Do not over-cut openings.
- Exercise great care near existing beam and wall to avoid damaging existing structure that is to remain.

**EXISTING TANK w/ GUARDRAIL, TYP.**

1. **EXISTING SLAB HAS #4 BAR @ 12" OC T & B, EW (VERIFY).**
2. **EXISTING CONCRETE WALL.**
3. **EXISTING CONCRETE BEAM.**

**SHORT WAY:** #4 BAR DRILL AND EPOXY INTO EXISTING CONCRETE SAME AS LONG WAY BARS. BARS MAY BE LAPPED VERTICALLY INSTEAD OF HORIZONTAL AS SHOWN.

**LONG WAY:** #6 BAR DRILL AND EPOXY INTO EXISTING CONCRETE WITH HILTI HIT RE 500 EPOXY ADHESIVE, TOP AND BOTTOM. PROVIDE MIN 6 3/4" EMBED. LAP BARS MIN 30".

**REQUEST FOR INFORMATION #3**

- **26"Ø SLEEVE BY HVAC CONTRACTOR, TYP.**
- **2'-3 3/4" CLR.**
- **5" 3 1/2" HIGH CONCRETE HOUSEKEEPING PAD FOR NEW AIR HANDLING UNIT IN MECHANICAL ROOM - SEE HVAC FOR LOCATION AND SIZE.**

**ENLARGED SECOND FLOOR PLAN**

**FILTER GALLERY**

**SECTION THROUGH FLOOR PENETRATION**

3" 6"

**KEY PLAN**

**RECORD DRAWINGS**

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR.

**RECORD DRAWINGS**

REVISIONS TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR.
ALUMINUM GUARDRAIL DETAIL, TYP

CONNECTIONS SHALL BE DESIGNED BY MANUFACTURER.

RAILING SHALL BE DESIGNED TO MEET THE FOLLOWING:

- TOP RAIL: 50 PLF APPLIED IN ANY DIRECTION
- TOP RAIL: A SINGLE CONCENTRATED LOAD OF 200 POUNDS AT ANY POINT
- INTERMEDIATE RAIL: 50 PLF APPLIED IN ANY DIRECTION

EXISTING ROOF FAN TO REMAIN

EXISTING ROOF MEMBRANE AND INSULATION TO BE REMOVED TO PRECAST CONCRETE DECK AT GUARDRAIL MOUNTING LOCATIONS

ALIGN CENTER LINES OF NEW GUARDRAIL AND EXISTING FAN

EXISTING BUILT-UP ROOF W/ PEA GRAVEL

NEW INSULATION TO MATCH EXISTING TYPE AND THICKNESS

RAIL POST MOUNTING DETAIL

NOT TO SCALE

NOT TO SCALE

PER MFG

POST MOUNTING DETAIL

8" BITUMINOUS FLASHING SYSTEM

EXISTING ROOFING

NEW INSULATION TO MATCH EXISTING TYPE AND THICKNESS

EXISTING INSULATION

EXISTING PRECAST CONCRETE DECK

3/8" DA POWERS SS HOLLOW SET DROP IN EXPANSION ANCHOR, 1 1/2" MIN EMBEDMENT. INTO EXISTING CONCRETE PRECAST DECK.
GENERAL NOTES
1. CONTRACTOR SHALL SERT SPE AND RECONE FAMILRY WITH EXISTING CONDITIONS PRIOR TO DEMOLITION.
2. REMOVE ITEMS INDICATED AS INSTRUCTIONS.
3. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING
   REQUIRED TO REMOVE AND INSTALLATION OF MECHANICAL PLUMBING
   AND ELECTRICAL INSTALLATION OF MECHANICAL PLUMBING

4. REMOVE EXISTING PIPE AND ELECTRICAL IS REQUIRED AND NO
   NEW WORK IS ADDED. GUT FAINT AND ALL HOLES TO
   MATCH ALREADY EXISTING. CONFORM TO THE
   CONTRACTOR'S DRAWINGS.
5. NO associative WORK IS REQUIRED TO REMOVE, ALSO REMOVE
   ALL ASSOCIATED PIPE AND HOLES.
6. WHERE PIPING AND ELECTRICAL IS REQUIRED TO BE REMOVED OR REPAIRED,
   ALSO REMOVE AND REPLACE ALL ASSOCIATED WORKS AND SUPPORTS
7. CONTRACTOR PERFORM WORK WITH CRITICAL VALUES.

NUMBERED NOTES
① EXISTING MACHINES SHALL BE REMOVED BEFORE DEMOLITION
   REMOVE AND REPLACE EXISTING AND CHANSED AS REQUIRED.
GENERAL NOTES:

1. CONTRACTOR SHALL NOT REMOVE ANY FIXTURES OR MACHINERY NOT DRAWN OR INCLUDED IN ORIGINAL DRAWINGS.

2. REMOVE ITEMS INDICATED AS MOVABLE.

3. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED TO INSTALL GENERAL CONTRACTOR AND INSTALLATION OF MECHANICAL PIPES.

4. REMOVE EGRESS FROM CONCRETE WALLS AND FLOORING TO REMOVE ALL VENTS, FURNACE AND FURNACE DUCTS.

5. REMOVE EGRESS FROM CONCRETE WALLS AND FLOORING TO REMOVE ALL VENTS, FURNACE AND FURNACE DUCTS.

6. REMOVE AND REPLACE ALL ASSOCIATED MACHINERY AND SUPPORTS.

7. COORDINATE WITH OTHER TRADES.

SECOND FLOOR NORTH DEMOLITION PLAN

RECORD DRAWINGS

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

NO SHEET CHANGES

SECOND FLOOR NORTH MECHANICAL DEMOLITION

CITY OF DULUTH
DULUTH, MINNESOTA
**Record Drawings**

**General Notes:**
1. Maintain minimum of 4" clearance in point of attachment (where electrical panels attach) to comply.
2. Seal all duct and pipe openings thru exterior wall or foundation.
3. Provide manholes and drainages for easy access.
4. Provide main drain valves on all branch piping.
5. Mount all horizontal run room heater with bottom at least 18" above floor.
6. Heater installation to be coordinated with other services.
7. Provide all necessary connections of vertical, floor wall, and service side.
8. All equipment connections to be made with unions where access services required.
9. Provide additional emergency piping connections for 1" lines for larger systems.
10. Maintain access to equipment connections.
11. All branch heating water supply and return piping to line heaters and boilers and return to be 1/2" copper.
12. Provide manual air vents in heating water system at all high points of system.

**Record Drawings**

**Numbered Notes:**
1. Insulate existing 2" non-structural hot water piping.
2. Make connection of new 2-1/2" hot to existing hot at main valve.
3. Install automatic reset control valve flow as indicated or as scheduled for equipment service.

**FIRST FLOOR NORTH HEATING/COOLING PLAN**
SECOND FLOOR NORTH DUCTWORK PLAN

NUMERED NOTES
1. PROVIDE CURB ADAPTER AS REQUIRED FOR NEW EXHAUST FANS. VERIFY EXACT SIZE REQUIRED.

GENERAL NOTES
1. COORDINATE ALL ROOFING WORK WITH ROOFING SUB-CONTRACTOR.

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

M4.4
ductwork plan
SECOND FLOOR NORTH
LOWER LEVEL BOILER ROOM PARTIAL PLAN

DUCT OFFSET TO AVOID FIES

LOWER LEVEL BOILER ROOM SECTION

RECORD DRAWINGS

MECHANICAL ROOM
PARTIAL PLAN

CITY OF DULUTH
DULUTH, MINNESOTA

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS
PROVIDED BY CONTRACTOR
DULUTH, MINNESOTA
CITY OF DULUTH
LAKEWOOD WTP HVAC SYSTEM IMPROVEMENTS

RECORD DRAWINGS

PARTIAL PLAN
RAPID MIX ROOM

EXISTING RAPID MIX ROOM SAMPLE PUMPS AND PIPING

NO SCALE

REMARKS

CONNECT TO EXISTING 4" DRAIN AND ROUTE DRAIN WALL ALL AT 4 FT.
 Ngoài các thông tin khác, văn bản trích dẫn có thể bao gồm:

1. CONTRACTOR SHALL VISIT SITE AND REFERENCE PECULATION PRIOR TO DRAWING
   2. REMOVE ALL MACHINES AS INSTRUCTED
   3. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, AND INSTALLATION OF MACHINERY, PIPING, AND ALL MACHINERY DURING INSTALLATION.

GENERAL NOTES

1. REMOVE AND REPLACE EXISTING DRAINAGE PUMPS AND SUPPORTS AS REQUIRED FOR INSTALLATION OF NEW DRAINAGE PUMPS.

ALL WORK ASSOCIATED WITH SAMPLE PUMPS AND PIPING is shown on drawings PC-103.1 and clarified in ADDENDUM A.

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332 W. Superior Street  Duluth, MN 55802
Web Address: www.msa-ps.com

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

REVISION NO.

SCALE:

DRAWN BY:

CHECKED BY:

AS SHOWN:

PROJECT NO.:

PROJECT DATE:

F.B. :

PLOT DATE:

SHEET FILE NO.

MARCH 7, 2016

218-722-3915  1-800-777-7380  Fax: 218-722-4548

00616097

NO SHEET CHANGES

PROVIDED BY CONTRACTOR

MARCH 2016

THOMAS A. WENTZ

BY

JAS

DATE

01/2017

CRS NO.

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**EXHAUST FANS**

**ENERGY RECOVERY VENTILATORS**

**AIR HANDLING UNITS: MODULAR**

**DEISCANT DEHUMIDIFIER/VENTILATION UNIT**

**AIR FLOW MEASURING STATIONS**

**MOTORIZED DAMPERS**

**VAV CONTROL UNITS**

---

**RECORD DRAWINGS**

REVISION TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

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**CITY OF DULUTH**

**MECHANICAL EQUIPMENT SCHEDULES**

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**MSA PROFESSIONAL SERVICES, INC.**

DULUTH, MINNESOTA

Web Address: www.msa-ps.com

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## Pumps

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## Finned Tube Radiation

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## Hot Water Unit Heaters

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## Expansion Tanks

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**RECORD DRAWINGS**

1. RELOCATE EXISTING SAMPLE PUMPS: SP-1, SP-2
2. RELOCATE AND RECONFIGURE SAMPLE PIPING TO ACCOMMODATE THE NEW DOOR AND ACCESS STAIRS
3. RELOCATE SP-1, CONNECT (TYP), RELOCATE ELECTRICAL CONNECTIONS
4. RELOCATE SP-2, CONNECT (TYP), RELOCATE ELECTRICAL CONNECTIONS
5. RELOCATE EXISTING 8' DIP DRAIN LINE VERTICALLY TO ACCOMMODATE NEW BOILER ROOM ACCESS. (2) NEW FLANGED ADAPTOR, (3) 90° FLxFL BENDS. NEW 8' DIP. NEW CORROSION RESISTANT HANGERS AND SUPPORTS. PIPING SHALL BE PAINTED AND LABELED.
6. OFFSET AND SUPPORT EXISTING 8' DIP DRAIN LINE. RECONNECT TO EXISTING PIPE (COMPLETE)

**KEY NOTES:**

1. RELOCATE EXISTING SAMPLE PUMP(S): SP-1, SP-2
2. RELOCATE AND RECONFIGURE SAMPLE PIPING TO ACCOMMODATE THE NEW DOOR AND ACCESS STAIRS
3. RELOCATE SP-1, CONNECT (TYP), RELOCATE ELECTRICAL CONNECTIONS
4. RELOCATE SP-2, CONNECT (TYP), RELOCATE ELECTRICAL CONNECTIONS
5. RELOCATE EXISTING 8' DIP DRAIN LINE VERTICALLY TO ACCOMMODATE NEW BOILER ROOM ACCESS. (2) NEW FLANGED ADAPTOR, (3) 90° FLxFL BENDS. NEW 8' DIP. NEW CORROSION RESISTANT HANGERS AND SUPPORTS. PIPING SHALL BE PAINTED AND LABELED.
6. OFFSET AND SUPPORT EXISTING 8' DIP DRAIN LINE. RECONNECT TO EXISTING PIPE (COMPLETE)

**SCALE:** 1/8" = 1'-0" (22x34)

**FIRST FLOOR SOUTH MECHANICAL PLAN**

**DRY/ CORROSIVE AREA**

**DRY/ NON-HAZARDOUS AREA**

**WET/ NON-HAZARDOUS AREA**

**OFFSET AND SUPPORT EXISTING 8' DIP DRAIN LINE. RECONNECT TO EXISTING PIPE (COMPLETE)**

**RECORD DRAWINGS**

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

**SCALE:** 1/16" = 1'-0" (11x17)

**RECORD DRAWINGS**

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

**SCALE:** 1/8" = 1'-0" (22x34)

**RECORD DRAWINGS**

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

**SCALE:** 1/16" = 1'-0" (11x17)
KEY NOTES:

1. RELOCATE EXISTING SAMPLE PUMPS: SP-1, SP-2
2. NEW FABRICATED GALVANIZED STEEL PUMP SHELF W/ DRIP PAN
3. RELOCATE SP-1. CONNECT (TYP). RELOCATE ELECTRICAL CONNECTIONS
4. RELOCATE SP-2. CONNECT (TYP). RELOCATE ELECTRICAL CONNECTIONS
5. RELOCATE EXISTING SAMPLE PIPING TO ACCOMMODATE THE NEW DOOR AND ACCESS STAIRS
6. RELOCATE EXISTING 8" DIP DRAIN LINE VERTICALLY TO ACCOMMODATE NEW BOILER ROOM ACCESS. (2) NEW FlANGED ADAPTOR, (3) 90° FlxFl BENDS. NEW 8" DIP. NEW CORROSION RESISTANT HANGERS AND SUPPORTS. PIPING SHALL BE PAINTED AND LABELED.
7. OFFSET AND SUPPORT EXISTING 8" DIP DRAIN LINE. RECONNECT TO EXISTING PIPE. (COMPLETE)
8. RELOCATED AND RECONFIGURE SAMPLE PIPING TO ACCOMMODATE THE NEW DOOR AND ACCESS STAIRS
9. RELOCATE EXISTING 8" DIP DRAIN LINE VERTICALLY TO ACCOMMODATE NEW BOILER ROOM ACCESS. (2) NEW FlANGED ADAPTOR, (3) 90° FlxFl BENDS. NEW 8" DIP. NEW CORROSION RESISTANT HANGERS AND SUPPORTS. PIPING SHALL BE PAINTED AND LABELED.
10. OFFSET AND SUPPORT EXISTING 8" DIP DRAIN LINE. RECONNECT TO EXISTING PIPE. (COMPLETE)
EXISTING SAMPLE PUMP PIPING DIAGRAM-REMOVAL

NOT TO SCALE

RELOCATED DRAIN LINE UP ~7.5'. CORE AND GROUT WALL SLEEVE.

EXTEND LINES ABOVE OR BELOW NEW DOOR AND STAIRS AS NEEDED.

NEW PVC DRAIN LINE AND CONNECT TO EXISTING DRAIN. NEW LINE SHALL SLOPE TO DRAIN.

GENERAL NOTES:
1. DIAGRAM ARE IN INTENT. THE CONTRACTOR SHALL VERIFY ACTUAL PIPING AND RELOCATE ALL PIPING AND EQUIPMENT AS REQUIRED FOR CONSTRUCTION OF NEW DOOR AND STAIRS.
2. NEW SAMPLING PIPING SHALL BE COPPER.
3. NEW SAMPLING PIPING SHALL NOT BE INSULATED.

SYMBOLS

PLUG
CHECK VALVE
UNION
NEEDLE VALVE
BALL VALVE

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

NO SHEET CHANGES
OFFSET 4" DIP DRAIN TO ACCOMMODATE NEW BOILER ROOM ACCESS

RECONFIGURE SAMPLE PIPING AND SAMPLE PUMPS AS REQ'd
Provide separate conduits for the following:

a. 4-20mA DC

b. 120 VOLT CONTROL

c. 120 VOLT POWER

d. 480 VOLT POWER

e. LOW VOLTAGE INSTRUMENTATION

Size conduit per NEC. Minimum size 3/4".

Process Notes:

Refer to specification 16900 for details on various loop functions as well as details regarding operator interface functions.

Refer to division 11000, 13000, 15000 for additional details regarding instrumentation and control equipment furnished under those specifications.

(1) 1-1/2"C refers to number of wires and size of wire required, where as:

(1) = ONE WIRE

1-1/2"C = THE SIZE OF WIRE REQUIRED

#12 = THE SIZE OF WIRE REQUIRED

G = GROUND WIRE

Refer to drawings for req'd wire and conduit sizes and amounts

(1) = ONE CONDUIT

1-1/2"C = THE SIZE OF CONDUIT REQUIRED

(X) #12 & #12G refers to number of wire(s) and size of wire(s) required, where as:

(X) 1-1/2"C refers to number of conduit(s) and size of conduit(s) required, where as:

WIRING & CONDUIT (TYPICAL)

1. (1) wire to (1) wire

2. (1) wire to (X) wires

* Refer to drawings for number and size of wires and conduits required

* Refer to drawings for number and size of conduits required

* Refer to drawings for number and size of conduits required
GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION: IT IS THE INTENT OF THE EC TO DEMOLISH ALL EQUIPMENT, MATERIALS, ETC RELATED TO ALL POWER CONNECTIONS. IT IS THE INTENT OF THE EC TO DEMOLISH ALL EQUIPMENT, MATERIALS, ETC RELATED TO ALL POWER CONNECTIONS.
4. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.

KEY NOTES:
1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE HALL CONNECTIONS, REMOVE CONTROL AND POWER CIRCUITS.
2. EXISTING WATER HEATER.
3. EXISTING ELECTRICAL TO REMAIN.
4. EXISTING EF.
5. EXISTING VFD.
6. EXISTING CIRCULATING PUMP AND OLD BOILER, VFD, DISCONNECTS, MC, ETC TO BE DEMOLISHED.
7. EXISTING TEMPERATURE ALARM CONTROL PANEL.

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

FIRST FLOOR SOUTH ELECTRICAL PLAN-REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

WET/ NON-HAZARDOUS AREA
DRY/ CORROSIVE AREA
DRY/ NON-HAZARDOUS AREA
WET/ NON-HAZARDOUS AREA

EXISTING WATER HEATER
EXISTING ELECTRICAL TO REMAIN
EXISTING EF
EXISTING VFD
EXISTING CIRCULATING PUMP AND OLD BOILER, VFD, DISCONNECTS, MC, ETC TO BE DEMOLISHED
EXISTING TEMPERATURE ALARM CONTROL PANEL

EXISTING WATER HEATER
EXISTING BOILER TO REMAIN
EXISTING STORAGE CISTERN TO BE DEMOLISHED
EXISTING AIR HANDLER TO BE DEMOLISHED
EXISTING AIR-DUC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

EXISTING VACUUM PUMP DISCONNECT TO BE DEMOLISHED
EXISTING AIR DRYER DISCONNECT TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

EXISTING AHU1 DISCONNECT / MC TO BE DEMOLISHED
EXISTING AHU2 DISCONNECT / MC TO BE DEMOLISHED
EXISTING AHU1 DISCONNECT / MC TO BE DEMOLISHED
EXISTING AHU2 DISCONNECT / MC TO BE DEMOLISHED
EXISTING AHU1 DISCONNECT / MC TO BE DEMOLISHED
EXISTING AHU2 DISCONNECT / MC TO BE DEMOLISHED

EXISTING VACUUM PUMP DISCONNECT TO BE DEMOLISHED
EXISTING AIR DRYER DISCONNECT TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

EXISTING AC DISCONNECT TO BE DEMOLISHED
EXISTING AUX DISCONNECT / MC TO BE DEMOLISHED
EXISTING DUCT DISCONNECT TO BE DEMOLISHED
EXISTING VACUUM PUMP DISCONNECT TO BE DEMOLISHED
EXISTING AIR DRYER DISCONNECT TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

EXISTING LP-3A & 3B
EXISTING LP-4A
EXISTING VACUUM PUMP DISCONNECT TO BE DEMOLISHED
EXISTING AIR DRYER DISCONNECT TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

EXISTING SAMPLE PUMP TO BE RELOCATED REFER TO PM DRAWINGS
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED
EXISTING CONDENSATE UNIT MC TO BE DEMOLISHED

CONTRACTOR SHALL REVIEW EXISTING ELECTRICAL FOR CONSTRUCTION NEW MUST BE ACCOMPANY NEW AIR-HVAC.
REPLACE FIXTURES AS SCHEDULED.

IDENTIFY, DISCONNECT AND RELOCATE EXISTING ELECTRICAL FOR CONSTRUCTION NEW ACCESS DOOR AND STAIRS. REFER TO ARCH DRAWINGS.
CONTRACTOR SHALL RELOCATE EXISTING ELECTRICAL TO ACCOMMODATE NEW HVAC.
CONTRACTOR SHALL INSTALL NEW AIR-HVAC.
REPLACE FIXTURES AS SCHEDULED.
GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT IS TO DEMOLISH ALL ELECTRICAL, PLUMBING, AND MECHANICAL EQUIPMENT AND RELATED ITEMS AS SHOWN. USE THESE SHEETS TO CONSTRUCT RECORD DRAWINGS.
4. IT IS THE INTENT OF THE CONTRACTOR TO DEMOLISH ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

KEY NOTES:
1. DECOMMISSION, DISCONNECT AND DEMOLISH EQUIPMENT COMPLETE.
2. DEMO EXISTING UNIT HEATER.
3. EXISTING DAMPERS & ACTUATORS.

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR
NO SHEET CHANGES

FIRST FLOOR NORTH ELECTRICAL PLAN - REMOVALS

SCALE 1/8" = 1'-0" (22x34)
SCALE 1/16" = 1'-0" (11x17)

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT IS TO DEMOLISH ALL ELECTRICAL, PLUMBING, AND MECHANICAL EQUIPMENT AND RELATED ITEMS AS SHOWN. USE THESE SHEETS TO CONSTRUCT RECORD DRAWINGS.
4. IT IS THE INTENT OF THE CONTRACTOR TO DEMOLISH ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

KEY NOTES:
1. DECOMMISSION, DISCONNECT AND DEMOLISH EQUIPMENT COMPLETE.
2. DEMO EXISTING UNIT HEATER.
3. EXISTING DAMPERS & ACTUATORS.

RECORD DRAWINGS
REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR
NO SHEET CHANGES

FIRST FLOOR NORTH ELECTRICAL PLAN - REMOVALS

SCALE 1/8" = 1'-0" (22x34)
SCALE 1/16" = 1'-0" (11x17)
SECOND FLOOR SOUTH ELECTRICAL PLAN - REMOVALS

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT. MATERIALS, DEVICES, ETC. RELATED TO ALL POWER CONNECTIONS. IT IS THE INTENT OF THE EC TO DEMOLISH AND BE RESPONSIBLE FOR DEMOLITION OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC. AS REQUIRED TO COMPLETE PROJECT.
4. SCADA CONTROL PANEL TO REMAIN BUT TO BE MODIFIED AS REQUIRED.
5. EXISTING MCC TO REMAIN BUT TO BE MODIFIED.
6. LP-L2 REMAIN TO BE MODIFIED AS REQ'D.
7. LP-L2 TO REMAIN REFER TO E-19.
8. LP-L TO BE REFERED TO.
9. EXISTING CONTROLS TO REMAIN.
10. DEMO FEEDER AND CONDUIT.
11. DEMO DISCONNECT.
12. DEMO BATTERY CHANGER FEEDERS, AND BRANCH CIRCUITS.
13. SCADA CONTROL PANEL TO REMAIN.

KEY NOTES:

1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE (ALL CONNECTIONS). REMOVE CONTROL AND POWER CIRCUITS.
2. DEMO POWER EXISTING REHEAT AND AIR HANDLING UNIT.
3. DEMO POWER EXISTING ACTUATORS.
4. DEMO POWER TO UNIT HEATER AND EQUIPMENT.
5. DEMO TEMP CONTROL PANEL.
6. EXISTING MCC TO REMAIN BUT TO BE MODIFIED REFER TO ONE LINE DIAGRAMS.
7. XFM-L2 TO REMAIN.
8. DISCONNECT FOR LP-L2.
9. LP-L2 TO REMAIN TO BE MODIFIED AS REQ'D.
10. DEMO DC FEEDERS AND BRANCH CIRCUITS.
11. XFM-L TO BE REFERED TO.

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

KEY PLAN - SECOND FLOOR

WET/ NON-HAZARDOUS AREA
WET/ CORROSIVE AREA
DRIY/ NON-HAZARDOUS AREA
WET/ CORROSIVE AREA

EXISTING CONTROLS

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT. MATERIALS, DEVICES, ETC. RELATED TO ALL POWER CONNECTIONS. IT IS THE INTENT OF THE EC TO DEMOLISH AND BE RESPONSIBLE FOR DEMOLITION OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC. AS REQUIRED TO COMPLETE PROJECT.
4. SCADA CONTROL PANEL TO REMAIN BUT TO BE MODIFIED.
5. EXISTING MCC TO REMAIN BUT TO BE MODIFIED.
6. LP-L2 REMAIN TO BE MODIFIED AS REQ'D.
7. LP-L2 TO REMAIN REFER TO E-19.
8. LP-L TO BE REFERED TO.
9. EXISTING CONTROLS TO REMAIN.
10. DEMO FEEDER AND CONDUIT.
11. DEMO DISCONNECT.
12. DEMO BATTERY CHANGER FEEDERS, AND BRANCH CIRCUITS.
13. SCADA CONTROL PANEL TO REMAIN.

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

KEY NOTES:

1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE (ALL CONNECTIONS). REMOVE CONTROL AND POWER CIRCUITS.
2. DEMO POWER EXISTING REHEAT AND AIR HANDLING UNIT.
3. DEMO POWER EXISTING ACTUATORS.
4. DEMO POWER TO UNIT HEATER AND EQUIPMENT.
5. DEMO TEMP CONTROL PANEL.
6. EXISTING MCC TO REMAIN BUT TO BE MODIFIED REFER TO ONE LINE DIAGRAMS.
7. XFM-L2 TO REMAIN.
8. DISCONNECT FOR LP-L2.
9. LP-L2 TO REMAIN TO BE MODIFIED AS REQ'D.
10. DEMO DC FEEDERS AND BRANCH CIRCUITS.
11. XFM-L TO BE REFERED TO.

EXISTING CONTROLS

SECOND FLOOR SOUTH ELECTRICAL PLAN - REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

RECORD DRAWINGS

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

SECOND FLOOR SOUTH ELECTRICAL PLAN - REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

RECORD DRAWINGS

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

SECOND FLOOR SOUTH ELECTRICAL PLAN - REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)
KEY NOTES:

1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE (ALL CONNECTIONS), REMOVE CONTROL AND POWER CIRCUITS
2. DEMO / REPLACE EXISTING EF
3. DEMO / REPLACE MD-13
4. DEMO / REPLACE MD-14
5. DEMO / REPLACE MD-12
6. DEMO / REPLACE MD-11

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION, IT IS THE INTENT OF THE EC SHALL DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, DEVICES, MATERIAL, ETC. RELATED TO ALL POWER CONNECTIONS, MATERIAL, DEVICES, ETC. RELATED TO ALL POWER CONNECTIONS, ECC SHALL BE RESPONSIBLE FOR DEMO OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC.
4. EC SHALL SUPPORT DISCONNECTING ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

SECOND FLOOR NORTH ELECTRICAL PLAN - REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

KEY PLAN - SECOND FLOOR

UP

WOMEN

DN

DF

MATCH LINE

KEY NOTES:

XXX

1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE (ALL CONNECTIONS), REMOVE CONTROL AND POWER CIRCUITS

2. DEMO / REPLACE EXISTING EF

3. DEMO / REPLACE MD-13

4. DEMO / REPLACE MD-14

5. DEMO / REPLACE MD-12

6. DEMO / REPLACE MD-11

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION, IT IS THE INTENT OF THE EC SHALL DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, DEVICES, MATERIAL, ETC. RELATED TO ALL POWER CONNECTIONS, MATERIAL, DEVICES, ETC. RELATED TO ALL POWER CONNECTIONS, ECC SHALL BE RESPONSIBLE FOR DEMO OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC.
4. EC SHALL SUPPORT DISCONNECTING ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

SECOND FLOOR NORTH ELECTRICAL PLAN - REMOVALS

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

KEY PLAN - SECOND FLOOR

UP

WOMEN

DN

DF

MATCH LINE

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION, IT IS THE INTENT OF THE EC SHALL DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, DEVICES, MATERIAL, ETC. RELATED TO ALL POWER CONNECTIONS, MATERIAL, DEVICES, ETC. RELATED TO ALL POWER CONNECTIONS, ECC SHALL BE RESPONSIBLE FOR DEMO OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC.
4. EC SHALL SUPPORT DISCONNECTING ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.
KEY NOTES:

1. DECOMMISSION, DISCONNECT, AND DEMOLISH EQUIPMENT COMPLETE (ALL CONNECTIONS). REMOVE CONTROL AND POWER CIRCUITS

2. DEMO EF

3. DEMO / REPLACE EF

4. DEMO DEHUMIDIFIER AND AIR HANDLING UNIT SYSTEM

5. EXISTING RTU TO REMAIN

6. DEMO / REPLACE MD-15

7. DEMO / REPLACE MD-16

GENERAL NOTES:

1. REFER TO AND COORDINATE WITH M-DRAWINGS.

2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.

3. IT IS THE INTENT OF THE EC TO DEMOLISH ALL EQUIPMENT DEVICES, MATERIAL ETC RELATED TO ALL POWER CONNECTIONS. IT IS THE INTENT OF THE MSA TO DEMOLISH ALL EQUIPMENT DEVICES, MATERIAL ETC.

4. THE DEMOLITION, DISCONNECT AND DEMOLISH REQUIREMENTS ARE INTENDED TO COMPLETE THE PROJECT.

5. EXISTING RTU TO REMAIN.

6. DEMO / REPLACE MD-15

7. DEMO / REPLACE MD-16
GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DELETE ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION. IT IS THE INTENT OF THE EC TO DEMOLISH, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, MATERIAL, ETC RELATED TO ALL POWER CONNECTIONS. THE EC SHALL BE RESPONSIBLE FOR DEMOLITION OF MATERIALS, DEVICES, CONTROL, ETC.
4. EC SHALL SUPPORT DEMOLITION OF ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

KEY NOTES:
1. CONNECT POWER UH-1, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
2. CONNECT POWER UH-2, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
3. CONNECT POWER UH-3, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
4. CONNECT POWER UH-4, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
5. CONNECT POWER UH-5, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
6. CONNECT POWER UH-6, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
7. CONNECT POWER UH-14, FURNISH WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH

DARK/COOLING AREA
DARK/ NON-HAZARDOUS AREA
GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

KEY NOTES:
- D-1: FURNISH AND CONNECT WITH DISCONNECT EACH MOTOR AND CONNECTION SHALL HAVE DISCONNECT PLUG SET OR NEMA 4X PVC DISCONNECT SWITCH
- D-2: FURNISH AND CONNECT WITH DISCONNECT RATED PLUG/REC SET OR NEMA 4X PVC DISCONNECT SWITCH
- D-3: FURNISH AND INSTALL SAMPLE PUMPS (TYP) REFER TO 2/E-16
- D-4: FURNISH NEW CONDUIT AND FEEDER IN THIS SPACE
- D-5: FURNISH AND INSTALL NEW WTP-MDS-1 REFER TO ONE-LINE DRAWING

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, DEVICES, MATERIAL, ETC. REQUIRED FOR PROJECT COMPLETION.
4. EC SHALL DECOMMISSION, DISCONNECT, AND DEMO ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.
GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT OF DEMOLITION IS TO REMOVE ALL EQUIPMENT, MATERIAL, ETC RELATED TO ALL POWER CONNECTIONS.
4. ELECTRIC CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION OF MATERIAL, EQUIPMENT, DEVICES, CONTROL, ETC.

KEY NOTES:
1. CONNECT POWER MD-4, FURNISH WITH DISCONNECT RATED PLUG/REC SET
2. CONNECT POWER MD-5, FURNISH WITH DISCONNECT RATED PLUG/REC SET
3. CONNECT POWER MD-6 & MD-7, FURNISH WITH DISCONNECT RATED PLUG/REC SET
4. FURNISH NEW CONDUIT AND FEEDERS IN THE CORROSIVE AREA

KEY PLAN - FIRST FLOOR

FIRST FLOOR NORTH DUCTWORK ELECTRICAL PLAN - PROPOSED

SCALE: 1/8" = 1'-0" (22x34)
SCALE: 1/16" = 1'-0" (11x17)

ELECTRICAL PLAN - PROPOSED

CONNECT POWER MD-4, FURNISH WITH DISCONNECT RATED PLUG/REC SET
CONNECT POWER MD-5, FURNISH WITH DISCONNECT RATED PLUG/REC SET
CONNECT POWER MD-6 & MD-7, FURNISH WITH DISCONNECT RATED PLUG/REC SET
FURNISH NEW CONDUIT AND FEEDERS IN THE CORROSIVE AREA

RECORD DRAWINGS
RECORDED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR
NO SHEET CHANGES
**KEY NOTES:**

1. **CONNECT POWER MD-1, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)**
2. **CONNECT POWER MD-2, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)**
3. **CONNECT POWER MD-3, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)**
4. **CONNECT POWER MD-8, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)**

**KEY PLAN - SECOND FLOOR**

**WET/ CORROSIVE AREA**

**DRY/ NON-HAZARDOUS AREA**

**SECOND FLOOR SOUTH DUCTWORK ELECTRICAL PLAN - PROPOSED**

**SCALE:**
- 1/8" = 1'-0" (22x34)
- 1/16" = 1'-0" (11x17)

**GENERAL NOTES:**

1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT DURING DEMOLITION. IT IS THE INTENT OF THE EC SHALL DECOMMISSION, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, DEVICES, MATERIAL, ETC. RELATED TO ALL POWER CONNECTIONS. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR DEMO OF EQUIPMENT, MATERIALS, DEVICES, CONTROL, ETC.
4. EC SHALL SUPPLY AND DISCONNECT ALL EQUIPMENT SHOWN AND REQUIRED TO COMPLETE PROJECT.

**RECORD DRAWINGS**

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR.
KEY NOTES:

1. Connect Power EF-4 & MD-13, furnish with disconnect rated plug/rec sets (typ).
2. Connect Power EF-5 & MD-14, furnish with disconnect rated plug/rec sets (typ).
3. Connect Power EF-3 & MD-12, furnish with disconnect rated plug/rec sets (typ).

SECOND FLOOR SOUTH DUCTWORK ELECTRICAL PLAN - PROPOSED

SCALE: 1/8" = 1'-0" (22x34)

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT IS NOT TO GIVE FLOATS, ALL POWER CONNECTIONS MUST BE DISCONNECTED, AND DEMOLISHED, AND ALL MATERIALS MUST BE REMOVED.
4. EACH SHEET MUST BE COMPLETE AND READY FOR CONSTRUCTION.

SCALE: 1/16" = 1'-0" (11x17)

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT IS NOT TO GIVE FLOATS, ALL POWER CONNECTIONS MUST BE DISCONNECTED, AND DEMOLISHED, AND ALL MATERIALS MUST BE REMOVED.
4. EACH SHEET MUST BE COMPLETE AND READY FOR CONSTRUCTION.

KEY PLAN - SECOND FLOOR

UP WOMEN

DN WOMEN

MATCH LINE

CONNECT POWER EF-3 & MD-12, FURNISH WITH DISCONNECT RATED PLUG/REC SETS (TYP)

CONNECT POWER EF-4 & MD-13, FURNISH WITH DISCONNECT RATED PLUG/REC SETS (TYP)

CONNECT POWER EF-5 & MD-14, FURNISH WITH DISCONNECT RATED PLUG/REC SETS (TYP)

CONNECT POWER EF-2 & MD-11, FURNISH WITH DISCONNECT RATED PLUG/REC SETS (TYP)
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT DIVISION OF DEMOLITION. IT IS THE INTENT OF THE EC TO DEMOLISH, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, MACHINERY, MATERIAL, ETC RELATED TO ALL POWER CONNECTIONS. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLISH, DISCONNECT, AND DEMOLISH ALL EQUIPMENT SHOWN.
4. SALES SHEET IS DRAWN TO COMPLETE PROJECT.

KEY NOTES:
1. CONNECT POWER EF-1, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
2. CONNECT POWER EF-2, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
3. CONNECT POWER EF-3 & MD-15, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
4. CONNECT POWER EF-4, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
5. CONNECT POWER EF-5 & MD-16, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
6. CONNECT POWER EF-6, FURNISH WITH DISCONNECT RATED PLUG/REC SET (TYP)
7. EXISTING ROOF TOP UNIT TO REMAIN. INTEGRATE PROPOSED TEMPERATURE CONTROL

GENERAL NOTES:
1. REFER TO AND COORDINATE WITH M-DRAWINGS.
2. DEMO ALL INSTRUMENTATION, CONNECTIONS, AND EQUIPMENT AS REQUIRED FOR PROJECT COMPLETION.
3. INTENT DIVISION OF DEMOLITION. IT IS THE INTENT OF THE EC TO DEMOLISH, DISCONNECT, AND DEMOLISH ALL EQUIPMENT, MACHINERY, MATERIAL, ETC RELATED TO ALL POWER CONNECTIONS. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLISH, DISCONNECT, AND DEMOLISH ALL EQUIPMENT SHOWN.
4. SALES SHEET IS DRAWN TO COMPLETE PROJECT.
KEY NOTES:

1. EXISTING EQUIPMENT, DEVICES, AND MATERIALS TO REMAIN.
2. DECOMMISSION, DISCONNECT, AND DEMOLISH EXISTING EQUIPMENT, DEVICES, AND CONNECTION MATERIALS COMPLETE.
3. USE OF EXISTING CIRCUITS SHALL BE ALLOWED WHEN THE EXISTING CIRCUITS DERIVE FROM AND TERMINATE IN CORRECT LOCATIONS.
   OTHERWISE THE EXISTING CONTROL, FEEDERS, CIRCUIT, ETC. SHALL BE REMOVED AND REPLACED.
4. REFER TO AND COORDINATE WITH M-DRAWINGS.
5. REFER FROM LAKEWOOD PUMP TO LAKEWOOD PUMP HOUSE.
6. 600-3G FEEDER IS PARALLEL FEEDER LUGS.
7. FURNISH PARALLEL FEEDER LUGS.
8. PROVIDE NEW 300/3P CB DISCONNECT BUCKET.
9. REFER TO E-19 FOR CONSTRUCTION RECORDS.
10. DECOMMISSION FEEDER BUCKET.
11. REFER AS SHOWN ON E-19.

SECTION-6

SECTION-7

SECTION-8

RECORD DRAWINGS

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

EXISTING ONE-LINE DIAGRAM NO. 1

E-17R

CITY OF DULUTH
DULUTH, MINNESOTA

DRAWN BY:

SUPERVISION AND WRITTEN PERMITS BY LAW LICENSED PROFESSIONAL ENGINEERS UNDER THIS LAW OF THE STATE OF MINNESOTA.

MARCH 25, 2016

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332 W. Superior Street  Duluth, MN 55802

F.B.:

SRC

EXISTING ONE-LINE DIAGRAM NO.1

LAKEWOOD WTP HVAC SYSTEM IMPROVEMENTS

I HEREBY CERTIFY THAT THIS PLAN, REPORT, OR SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

3/25

3/25

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3/25

3/25

3/25
1. EXISTING TEMPERATURE CONTROL PANEL NO.2 TO BE DEMOLISHED
2. EXISTING CONDENSATE PUMPS TO BE DEMOLISHED
3. ELECTRICAL CONNECTION TO EXISTING ROOFTOP UNIT TO REMAIN
4. EXISTING ROOFTOP DEHUMIDIFIER TO BE REMOVED
5. HEAT PUMPS AND MISC EQUIPMENT TO BE DEMOLISHED
6. ROOFTOP ELECTRICAL CONNECTIONS TO BE ABANDONED
**Conduit & Box Schedule**

**Hvac Equipment**

**Motor and Wiring Comparison Schedule**

**Record Drawings**
<table>
<thead>
<tr>
<th>SHEET TITLE</th>
<th>SHEET NUMBER</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
<th>CIRCUIT NO.</th>
<th>LOAD</th>
<th>POWER</th>
<th>AMPS (3 PHASE)</th>
<th>VOLTS</th>
<th>CURRENT</th>
<th>CONDUCTOR SIZE</th>
<th>TYPE</th>
<th>MARKING</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>

**Electrical Schedules No. 5**

*Duluth, Minnesota*

City of Duluth

Lakewood WTP HVAC System Improvements

Plot Date: 11/14/17

P:\610s\616\00616097\CADD\Record Drawings\AutoCAD DWG's\616097 E-26R.dwg

I HEREBY CERTIFY THAT THIS PLAN, REPORT, OR SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Date: March 25, 2016

SCOTT R. CHILSON

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332 W. Superior Street  Duluth, MN 55802

Web Address: www.msa-ps.com

E-26R

RECORD DRAWINGS

RECORD DRAWINGS

REVISED TO CONFORM TO CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR

NO SHEET CHANGES

**Addendum #1**

Record Drawings

Rev. 3/25/17

00616097

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Project No.:

Project Date:

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Drawn By:

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INIT SRC

March 2016

ADDENDUM #1

Record Drawings

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ADDENDUM #1

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00616097

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Project No.:

Project Date:
MELTIC DB9(100A) MOTOR DECONTACTOR COMPLETE WITH ANGLED ADAPTOR, CONNECTOR WITH HANDLE. PROVIDE 4 PILOT CONTACTS. CONDUIT TO CEILING JUNCTION BOX FOR MOTOR AND TEMPERATURE SENSOR CABLES. PEDESTAL SUPPORT INSTALLED PER DETAIL. MOTOR AND TEMPERATURE SENSOR WIRING IN LIQUID TIGHT FLEXIBLE CONDUIT.

WIREWAY INSTALLATION DETAIL

EQUIPMENT CONNECTION W/ EXPOSED CONDUIT

EQUIPMENT CONNECTION W/ EXPOSED CONDUIT

SAMPLE PUMP CONNECTION DETAIL

ROOF MOUNTED EXHAUST FAN

RECORD DRAWINGS

E-28

1. BY LICENSE NO.
I HEREBY CERTIFY THAT THIS PLAN, REPORT, OR SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

2. DATE
SCOTT R. CHILSON
MARCH 7, 2016

3. PROJECT NO.
PROJECT DATE:
SCALE:
DRAWN BY:

AS SHOWN
F.B.:

4. 218-722-3915  1-800-777-7380  Fax: 218-722-4548
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Web Address: www.msa-ps.com

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