CENTRAL ELEMENTARY BOREFIELD

LINCOLN ELEMENTARY SCHOOL DISTRICT #27

304 8th St., LINCOLN, IL 62656

BID DOCUMENTS
10/25/2022

ARCHITECT

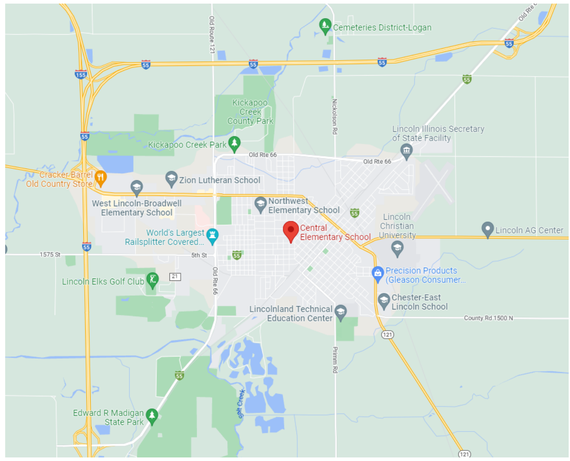
Middleton Associates, Inc.
1702 W. College Ave.
Normal, IL 61761
T: 309.452.1271

Design Mavens Architecture PLLC
1702 W. College Ave
Normal, IL 61761
T: 309.304.3048

MEP/FP

MMEA Engineers
203 Eastland Dr.
Jefferson City, mO 65101
T: 573.636.2116

LOCATION MAP



INDEX OF DRAWINGS

I HEREBY CERTIFY THAT THE PLANS AND SPECIFICATIONS DATED OCTOBER 25, 2022 FOR CENTRAL ELEMENTARY SCHOOL, 304 8TH ST. LINCOLN, IL 62656 FOR LINCOLN ELEMENTARY SCHOOL DISTRICT NO. 27, UNIT DISTRICT OFFICE, WERE PREPARED WITH MY SUPERVISION USING THE INTERNATIONAL BUILDING CODE & ILLINOIS ADMINISTRATIVE CODE 185 AND TO THE BEST OF MY KNOWLEDGE, COMPLY WITH THE HEALTH/LIFE SAFETY CODE AS PREPARED AND PROVIDED BY THE STATE OF ILLINOIS BOARD OF EDUCATION. I HAVE PREPARED, OR CAUSED TO BE PREPARED UNDER MY DIRECT SUPERVISION, THE ATTACHED PLANS AND SPECIFICATIONS AND STATE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND TO THE EXTENT OF MY CONTRACTUAL OBLIGATION, THEY COMPLY WITH THE ENVIRONMENTAL BARRIERS ACT (ILL. REV. STAT. 1985, CH. III-I/2 PARS. 3711 ET. SEQ. AS AMENDED) AND THE ILLINOIS ACCESSIBILITY CODE, 71 ILLINOIS ADMINISTRATIVE CODE 400.

STATE OF ILLINOIS
001-007938
RANDALL E MIDDLETON
LICENSED ARCHITECT

Expiration Date
11/30/22

PROJECT NOTE: ALL NEW MATERIALS EMPLOYED IN THE WORK SHALL BE ASBESTOS FREE AND PCB FREE. CONTRACTOR SHALL SUBMIT CERIFICATION OF SUSPECT ITEMS UPON REQUEST, AND FOR THE OVERALL PROJECT AT THE CONCLUSION OF THE WORK.

ARCHITECTS
MIDDLETON ASSOCIATES · INC ARCHITECTS
WWW.MIDDLETONASSOCIATES.NET

DESIGN Mavens ARCHITECTURE PLLC
DESIGN FIRM REG# 184-006472
WWW.DESIGN-MAVENS.COM

MEP ENGINEER
MMEA ENGINEERS
WWW.MMEAENG.COM

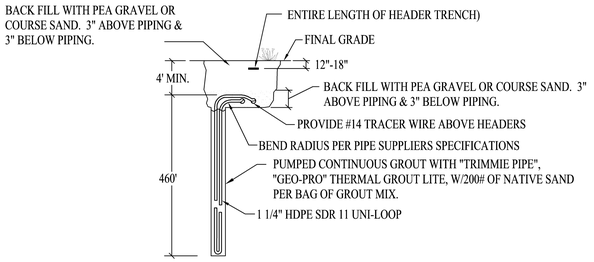
COVER SHEET
CENTRAL ELEMENTARY BOREFIELD
LINCOLN ELEMENTARY SCHOOL DISTRICT #27
304 8th St., LINCOLN, IL 62656

REVISIONS

#	DATE	DESCRIPTION

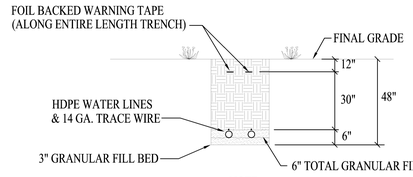
PROJECT #	25821422A
ISSUED DATE	10/25/2022
SHEET	G100

BID DOCUMENTS



02 VERTICAL U-BEND WELL DETAIL

SCALE: NONE

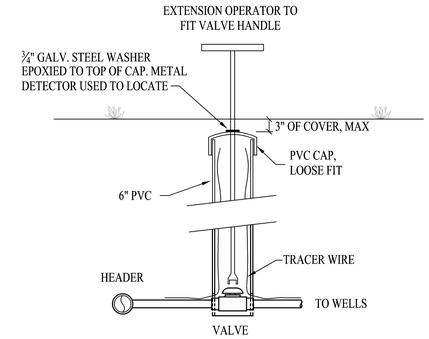


NOTE:

ALL NON-METAL LINES TO BE TRACED WITH 14 GA. WIRE (TYPICAL). TERMINATE WIRE AT ACCESSABLE VALVE PIT.

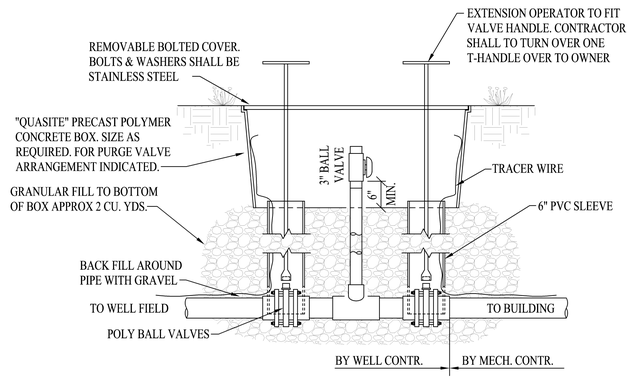
03 SECTION DETAIL

SCALE: NONE



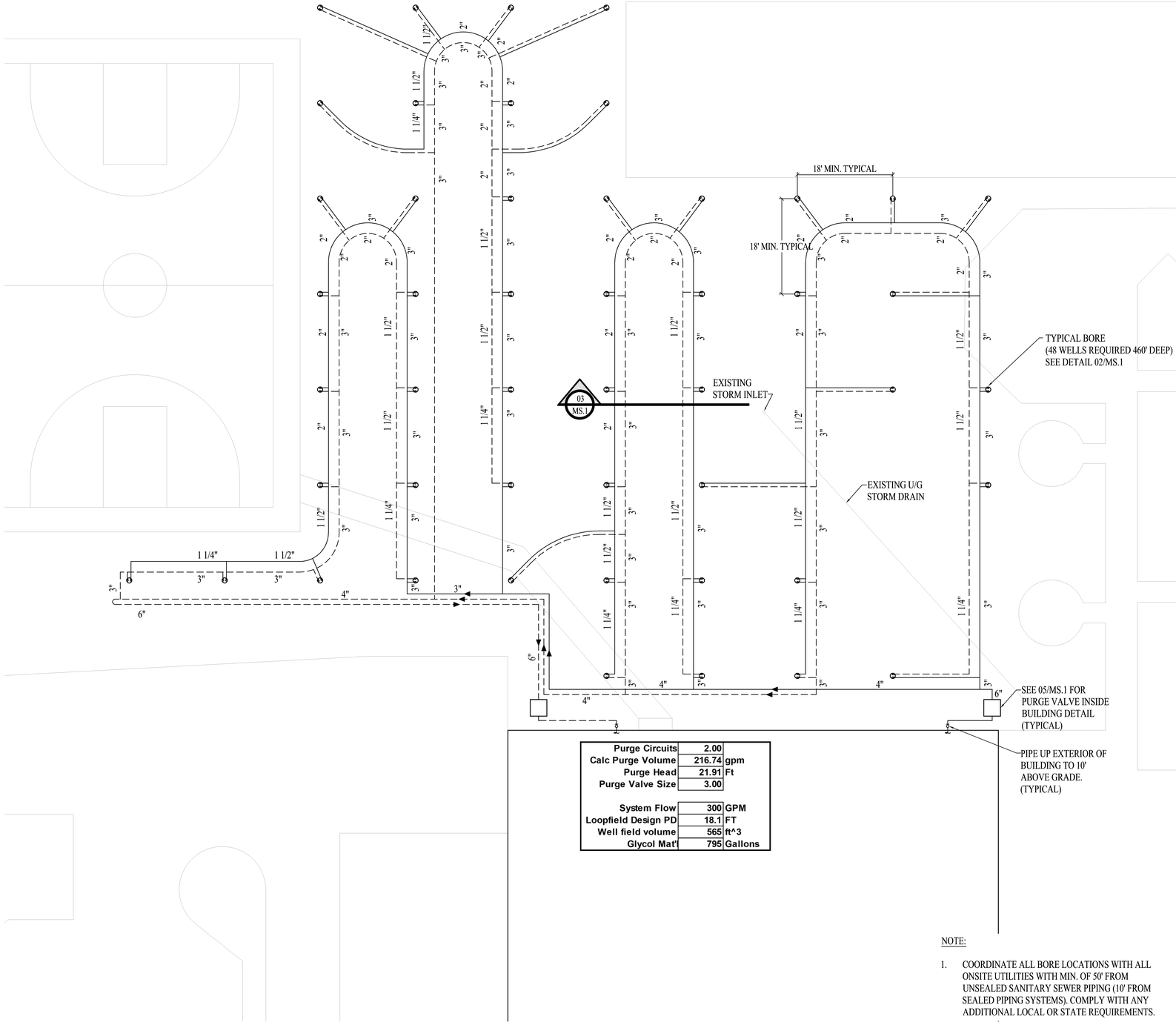
04 WELL FIELD ISOLATION VALVE DETAIL

SCALE: NONE



05 PURGE VALVE PIT DETAIL

SCALE: NONE



Purge Circuits	2.00	
Calc Purge Volume	216.74	gpm
Purge Head	21.91	Ft
Purge Valve Size	3.00	
System Flow	300	GPM
Loopfield Design PD	18.1	FT
Well field volume	565	ft^3
Glycol Mat'	795	Gallons

NOTE:

1. COORDINATE ALL BORE LOCATIONS WITH ALL ONSITE UTILITIES WITH MIN. OF 50' FROM UNSEALED SANITARY SEWER PIPING (10' FROM SEALED PIPING SYSTEMS). COMPLY WITH ANY ADDITIONAL LOCAL OR STATE REQUIREMENTS.

N

01 SITE PLAN

SCALE: 1"=10'-0"

BID DOCUMENTS

MIDDLETON ASSOCIATES, INC ARCHITECTS
1702 W. College Ave.
Suite E
Normal, IL 61761-2793
p: 309.452.1271
f: 309.454.8049
middletonassociates.net

State of Illinois Professional Design Firm Number 184.000267

MMEA ENGINEERS
MID MO ENGINEERING ALLIANCE, INC
203 EASTLAND DRIVE
JEFFERSON CITY, MISSOURI 65101
Phone: 573-636-2116
Design Firm Registration #184.007967--0002

CENTRAL ELEMENTARY SCHOOL
100 Seventh Street - Lincoln, IL 62656
LINCOLN ELEMENTARY SCHOOL DISTRICT #27
100 South Maple Street
Lincoln, IL 62656

WAYNE ANTHONY STROPE 062.068121 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
Expires 11/30/2023

WAYNE A. STROPE
062.068121

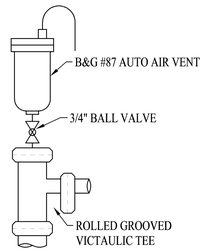
REVISIONS

NO.	DATE	REMARKS

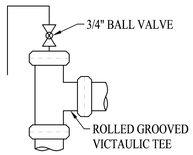
PROJECT NO.
25821422A

ISSUE DATE
10/25/2022

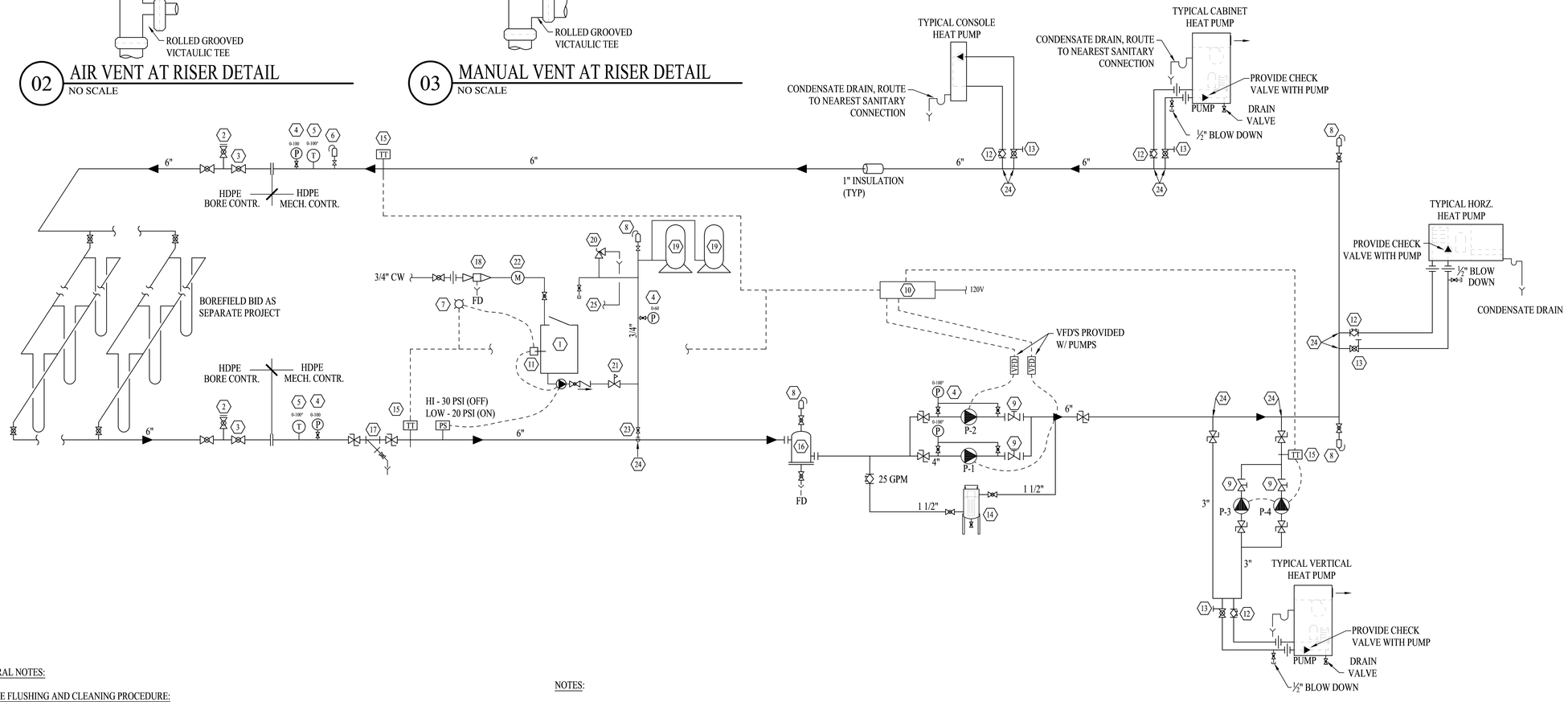
SHEET
MS.1



02 AIR VENT AT RISER DETAIL
NO SCALE



03 MANUAL VENT AT RISER DETAIL
NO SCALE



01 GEOTHERMAL SYSTEM PIPING DIAGRAM
NO SCALE

GENERAL NOTES:

1. PIPE FLUSHING AND CLEANING PROCEDURE:
   THE CLOSED LOOP SYSTEM WATER PIPING MUST BE THOROUGHLY CLEANED AND FLUSHED TO REMOVE DIRT, CHIPS, AND OTHER FOREIGN MATERIALS PRIOR TO CONNECTING THE HEAT PUMPS TO PIPING SYSTEM. COUPLE THE HEAT PUMP SUPPLY & RETURN PIPING CROSS CONNECTIONS AND FILL LOOP WITH A SOLUTION CONSISTING OF 1% TO 2% OF LIQUID TRISODIUM PHOSPHATE DETERGENT AND FRESH CLEAN WATER. REPAIR LEAKS AS REQUIRED. USE VALVES TO BYPASS HEAT REJECTOR AND SUPPLEMENTARY WATER HEATER (WHERE APPLICABLE). FLUSH SYSTEM FOR A MINIMUM OF TWO HOURS MONITORING SYSTEM BLOW DOWN UNTIL WATER RUNS CLEAR. ONCE CLEAN, STOP THE PUMP AND CLEAN ALL SYSTEM STRAINERS. REMOVE TEMPORARY CROSS CONNECTION AND CONNECT LOOP SUPPLY AND RETURN PIPING TO HEAT PUMP UNITS.

   ANTI-FREEZE SOLUTION BY INTERIOR BUILDING CONTRACTOR (FOR INTERIOR & EXTERIOR PIPING):
2. AFTER COMPLETION OF THE PIPE FLUSHING AND CLEANING PROCEDURES SPECIFIED ABOVE, SYSTEM SHALL BE FILLED WITH A SOLUTION OF 20% PROPYLENE GLYCOL AND 80% WATER BY VOLUME. PROPYLENE GLYCOL SHALL BE DOWFROST HD PHOSPHATE-BASED INDUSTRIALLY INHIBITED HEAT TRANSFER FLUID OR APPROVED EQUAL. DESIGN FREEZING POINT OF MIXED SOLUTION SHALL BE APPROX. 19.0 DEG. F. USING A HAND HELD OPTIC REFRACTOMETER INSTRUMENT, THE CONTRACTOR SHALL TEST, ADJUST AND RECORD FINAL FREEZING POINT OF MIXED SOLUTION OF PROPYLENE GLYCOL. SUBMIT "FREEZING POINT OF SOLUTION" TEST RESULTS TO ENGINEER FOR REVIEW AND APPROVAL.

   CHEMICAL TREATMENT:
3.
   a. GENERAL: CHEMICALS SHALL BE SPECIALLY FORMULATED TO PREVENT ACCUMULATION OF SCALE AND CORROSION IN CLOSED LOOP PIPING SYSTEMS AND CONNECTED EQUIPMENT. CHEMICAL FORMULATION DEVELOPED SHALL BE BASED ON A LABORATORY ANALYSIS OF THE SYSTEM MAKE-UP WATER SUPPLY CHEMISTRY.
   b. CORROSION INHIBITOR: PROVIDE SODIUM NITRITE/BORATE, MOLYBDATE-BASED INHIBITOR OR OTHER APPROVED PROPRIETARY FORMULATION SUITABLE FOR WATER MAKE-UP QUALITY AND QUANTITY REQUIRED. INHIBITOR FORMULATION SHALL INCLUDE ADEQUATE BUFFER TO MAINTAIN A SYSTEM pH RANGE OF 8.0 TO 10.5. INTRODUCE INHIBITOR COMPOUNDS INTO SYSTEM MANUALLY THROUGH THE BY-PASS TYPE SHOT FEEDER/FILTER ASSEMBLY PROVIDED IN THE SYSTEM.
   c. CORROSION INHIBITOR PERFORMANCE: INHIBITOR PROVIDED SHALL PROTECT VARIOUS WETTED MATERIALS OF CONSTRUCTION INCLUDING FERROUS, RED & YELLOW METALS & MAINTAIN THE SYSTEM ESSENTIALLY FREE OF SCALE, CORROSION AND FOULING. CORROSION RATES OF THE FOLLOWING METALS SHALL NOT EXCEED THE PENETRATION SPECIFIED IN MILS/YEAR; FERROUS, 0-2.0; BRASS, 0-1.0; COPPER, 0-1.0 INHIBITOR SHALL REMAIN STABLE THROUGH THE SYSTEM OPERATING TEMPERATURE RANGE. HEAT EXCHANGE FOULING AND CAPACITY REDUCTION SHALL NOT EXCEED THAT ALLOWED BY A FOULING FACTOR OF 0.0005.

NOTES:

1. EXISTING GLYCOL FILL TANK. FILL WITH 20% PROP GLYCOL AND DE-IONIZED WATER.
2. DURING STARTUP, CONTRACTOR TO TEMPORARILY INSTALL B&G MODEL 107A AIR VENT ON RISE TO ASSURE ALL AIR IS REMOVED FROM SYSTEM.
3. CONTRACTOR TO PURGE BUILDING AND WELL FIELD PIPING SYSTEMS WITH EXTERNAL PUMP AND SEPARATION TANK ASSEMBLY PRIOR TO SYSTEM OPERATION. SEE PURGE AND FILL INSTRUCTIONS THIS SHEET.
4. 4 - ½" DIAL PRESSURE GAUGE WITH ¼" BALL GAUGE VALVE. PROVIDE PSI DIAL RANGE AS INDICATED BY PRESSURE GAUGE SYMBOL IN DIAGRAM. TRERICE MODEL NO. 620B345FSL250, OR EQUAL.
5. 4 - ½" DIAL TYPE "UNIVERSAL ANGLE" THERMOMETER WITH SEPARATE WELL. PROVIDE °F TEMPERATURE DIAL RANGE AS INDICATED BY THERMOMETER SYMBOL IN DIAGRAM. TRERICE MODEL NO. V80742B31, OR EQUAL.
6. B&G AUTOMATIC AIR VENT MODEL NO. 87 OR APPROVED EQUAL. SEE DETAIL 02/M3.1. INSTALL AT HIGH POINTS IN SYSTEM.
7. LOW SYSTEM VOLUME ALARM LIGHT. COMMUNICATE ALARM TO BAS.
8. B&G AUTOMATIC AIR VENT MODEL NO. 87 OR APPROVED EQUAL. INSTALL AT SYSTEM HIGH POINTS.
9. LINE SIZE, TRI DUTY VALVE. SET FLOW WITH BOTH PUMPS RUNNING IN PARALLEL AT 60 HZ. SEE PUMP SCHEDULE FOR FLOW REQUIREMENTS.
10. ELECTRONIC LOOP WATER CONTROLLER. SEE SHEET M4.2 FOR SEQUENCE OF OPERATIONS.
11. LOW LEVEL FLOAT SWITCH. INTERLOCK WITH SYSTEM FILL PUMP TO SHUT PUMP OFF AS WELL AS ACTIVATING ALARM LIGHT.
12. LINE SIZE, B&G CIRCUIT SETTERS, OR EQUAL BY ARMSTRONG. SEE PLANS FOR LINE SIZES AND BALANCING INFORMATION.
13. BALL VALVE WITH "PETES PLUG" PRESSURE & TEMPERATURE TEST PORT WITH ⅛"Ø SIZE PROBE ACCEPTANCE PORT.
14. FIVE (5) GALLON CHEMICAL BYPASS FEEDER AND FILTER ASSEMBLY. NEPTUNE DBFC-5 OR EQUAL WITH CARTRIDGE FILTERS.
15. ELECTRONIC TEMP TRANSDUCER IN WELL, 0-110F, CONNECTED TO BUILDING AUTOMATION SYSTEM.
16. B&G ROLAIRTROL MODEL #RL-6 OR APPROVED EQUAL AIR SEPARATOR WITH STRAINER WITH BALL VALVE BLOW DOWN VALVE.
17. LINED SIZED STEAM STRAINER (30 MESH OR LESS) REMOVE START UP STRAINER SCREEN AFTER SYSTEM IS UP AND RUNNING FOR ONE MONTH.
18. ¾" REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER ASSEMBLY. WATTS NO. 009-QT, OR EQUAL.
19. EXISTING EXPANSION TANK.
20. PRESSURE RELIEF VALVE SET @ 80 PSI.
21. ¾" PRESSURE REDUCING VALVE, B&G MODEL NO. B7-12 S ET @ 30 PSIG.
22. BADGER "RECORDALL" RCDL-25, LOW FLOW, ODOMETER TYPE, METER.
23. ¾" BALL VALVE. NOTE: TAG VALVES WITH THE FOLLOWING INSTRUCTIONS "THIS VALVE SHALL REMAIN IN THE OPEN POSITION WHENEVER SYSTEM IS OPERATING".
24. CONNECT TO SIDE OF 6" HORIZONTAL MAIN. (TYPICAL OF ALL CONNECTIONS TO THE MAINS.)
25. ROUTE FULL SIZE PRESSURE RELIEF PIPING TO NEAREST FLOOR DRAIN.

BID DOCUMENTS

MIDDLETON ASSOCIATES, INC ARCHITECTS
1702 W. College Ave.
Suite E
Normal, IL 61761-2793
p: 309.452.1271
f: 309.454.8049
middletonassociates.net

State of Illinois Professional Design Firm Number 184.000267

MMEA ENGINEERS
MID MO ENGINEERING ALLIANCE, INC
203 EASTLAND DRIVE
JEFFERSON CITY, MISSOURI 65101
Phone: 573-636-2116
Design Firm Registration #184.007967-0002

CENTRAL ELEMENTARY SCHOOL
100 Seventh Street - Lincoln, IL 62656
LINCOLN ELEMENTARY SCHOOL DISTRICT #27
100 South Maple Street
Lincoln, IL 62656

WAYNE A. STROPE
062.068121

NO.	DATE	REVISIONS / REMARKS

THE CONTRACTOR SHALL VERIFY CONDITIONS & DIMENSIONS OF THE JOB. ALL DRAWINGS SHALL APPLY ON ANY PART OF THE DRAWINGS SHALL APPLY TO SIMILAR CONDITIONS AT OTHER LOCATIONS IN THE WORK UNLESS SET FORTH OTHERWISE.

PROJECT NO.
25821422A
ISSUE DATE
10/25/2022
SHEET
M3.1