MECHANICAL ABBREVIATIONS *(NOTE: NOT ALL ABBREVIATIONS OR SYMBOLS MAY APPEAR ON DRAWINGS)*

(A)	ABANDONED
A/E	ARCHITECT / ENGINEER
AFGSOV	AUTOMATIC FUEL GAS SHUTOFF VALVE
AFGSVV	AUTOMATIC FUEL GAS SOLENOID VENT VALVE
AV	AUTOMATIC AIR VENT
AB	AIR BLENDER
ACC	AIR COOLED CONDENSER
ACCH	AIR COOLED CHILLER
ACCU	AIR–COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AFTER FILTER
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AFOSOV	AUTOMATIC FUEL OIL SHUT OFF VALVE
AHU	AIR–HANDLING UNIT
AMP	AMPERAGE
AMSOV	ATOMIZING MEDIA SHUT OFF VALVE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECTURAL
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AXF	AXIAL FLOW
BAS	BUILDING AUTOMATION SYSTEM
BD	BLOWDOWN
BDD	BACKDRAFT DAMPER
BDS	BLOW DOWN SEPARATOR
BFP	BACKFLOW PREVENTER
BF	BLIND FLANGE
BFT	BOILER PLANT FIRE TUBE
BFW	BOILER FEED WATER
BHP	BRAKE HORSEPOWER
BIW	BACKWARD INCLINED WHEEL (FAN)
BLR	BOILER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BPV	BACK PRESSURE CONTROL VALVE
BSC	BIOLOGICAL SAFETY CABINETS
BT	BLOWOFF TANK
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BV	BOILER VENT STACK
BWS	BOILER WATER SAMPLE
C	CONVECTOR
CC	COOLING COIL
CCC	COOLING COIL CONDENSATE
CD	CEILING DIFFUSER
CENT	CENTRIFICAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CU FT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CG	CEILING GRILLE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CO	CARBON MONOXIDE
CO	CLEAN OUT
CO_2	CARBON DIOXIDE
COMP	COMPRESSOR UNIT
CONT.	CONTINUATION
COR	CONTRACTING OFFICER REPRESENTATIVE
COP	CENTERLINE OF PIPE ELEVATION
CP	CONDENSATE PUMP
CRU	CONDENSATE RETURN UNIT
CS	CONDENSATE STORAGE TANK
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CTP	CONDENSATE TRANSFER PUMP
CTPD	CONDENSATE TRANSFER PUMP DISCHARGE
CTPS	CONDENSATE TRANSFER PUMP SUCTION
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
CWCC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN (TO COOLING TOWER)
CWS	CONDENSER WATER SUPPLY (FROM COOLING TOWER)
(D)	DEMOLISH
D/A	DEAERATOR
DA	DEAERATOR
DASV	DEAERATOR SAFETY VALVE
Db	DECIBELS
DB	DRY–BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DIA	DIAMETER
DMPR	DAMPER
DP	DEW POINT TEMPERATURE
DPR	DIFFERENTIAL PRESSURE REGULATOR
DSPE	ROOM DIFFERENTIAL PRESSURE MONITOR
DT	DAY TANK
DWG	DRAWING
DX	DIRECT EXPANSION
DXCC	DIRECT EXPANSION COOLING COIL
(E)	EXISTING
EA	EXHAUST AIR
EAV	EXHAUST AIR VALVE
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE COOLER
ECC	ENGINEERING CONTROL CENTER
ECM	ELECTRICALLY COMMUTATED MOTOR
ECU	EVAPORATIVE CONDENSER UNIT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EGS	EMERGENCY GAS SHUTOFF
EGT	ENTERING GLYCOL TEMPERATURE
EH	EXHAUST HOOD
EJ	EXPANSION JOINT
EMERG	EMERGENCY
ENT	ENTERING
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRIC RADIANT PANEL
ERU	ENERGY RECOVERY UNIT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETO	ETHYLENE OXIDE
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
F/SD	COMBINATION FIRE SMOKE DAMPER
FA	FIRE ALARM
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT (4 PIPE)
FCW	FORWARD CURVED WHEEL (FAN)
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FO	FUEL OIL
FOCSR	FUEL OIL CLEANING SYSTEM RETURN
FOCSS	FUEL OIL CLEANING SYSTEM SUPPLY
FOM	FUEL OIL MAINTENANCE SKID
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOP	FUEL OIL PUMP
FOT	FUEL OIL TANK
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FRP	FIBER REINFORCED POLYESTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT–LB	FOOT–POUND
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
FWP	FEEDWATER PUMP
FWPS	FEEDWATER PUMP SUCTION
FWPD	FEEDWATER PUMP DISCHARGE
FWS	FEEDWATER SAMPLE
G	GAS
GA	GAUGE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GRV	GRAVITY ROOF VENTILATOR
GS	GALVANIZED STEEL
H	HUMIDIFIER
H&CW	HOT & COLD WATER
HAC	HOUSEKEEPING AID CLOSET
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HFGPCS	HIGH FUEL GAS PRESSURE CUTOFF SWITCH
HFOPCS	HIGH FUEL OIL PRESSURE CUTOFF SWITCH
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HPS	HIGH PRESSURE SUPPLY (STEAM)
HRC	HEAT RECOVERY COIL
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRU	HEAT RECOVERY UNIT
HRW	HEAT RECOVERY WHEEL
HSTAT	HUMIDISTAT
HUM	HUMIDIFIER
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWA	HIGH WATER ALARM
HWC	HOT WATER COIL
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWUH	HOT WATER UNIT HEATER
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN–LINE CENTRIFUGAL FAN
ICU	INTENSIVE CARE UNIT
ID	INSIDE DIAMETER
IFB	INTEGRAL FACE AND BYPASS
IN	INCHES
IN HG	HG INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN–LB	INCH–POUND
IPLV	INTERGRATED PART LOAD VALUE
IRH	INTRARED HEATER
IS	INSECT SCREEN
IU	INDUCTION UNIT
kW	KILOWATT
kWH	KILOWATT HOUR
LAMDPS	LOW ATOMIZING MEDIA DIFFERENTIAL PRESS SW
LAMPS	LOW ATOMIZING MEDIA PRESSURE SWITCH
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LFOPCS	LOW FUEL OIL PRESSURE CUTOFF SWITCH
LGT	LEAVING GLYCOL TEMPERATURE
LH	LATENT HEAT
LOOP	LOCKABLE ONLY IN OPEN POSITION
LPG	LIQUID PROPANE GAS
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPRC	LOW PRESSURE STEAM RETURN (CLEAN)
LPS	LOW PRESSURE STEAM
LPSC	LOW PRESSURE STEAM (CLEAN)
LRVE	LIQUID RELIEF VALVE ON ECONOMIZER
LSD	LINEAR SLOT DIFFUSER
LVG	LEAVING
LVR	LOUVER
LWA	LOW WATER ALARM
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE–UP AIR UNIT
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MHP	MOTOR HORSEPOWER
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MOV	MOTOR OPERATED VALVE
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MTD	MEAN TEMPERATURE DIFFERENCE
MV	MANUAL AIR VENT, MANUAL VALVE
MVD	MANUAL VOLUME DAMPER
(N)	NEW
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NO	NORMALLY OPEN
NOM	NOMINAL
NPLV	NON–STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NPW	NON–POTABLE WATER
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OAG	OUTDOOR AIR GRILLE
OAI	OUTDOOR AIR INTAKE
OD	OUTSIDE DIAMETER
OED	OPEN END DUCT
OFL	OVERFLOW
OFM	OIL FLOWMETER
OR	OPERATING ROOM
OSD	OPEN SIGHT DRAIN
P	PUMP
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PF	PRE–FILTER
PG	PRESSURE GAGE
PGW	PROPYLENE GLYCOL–WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
(R)	RELOCATE(D)
R	RECIRCULATION
RA	RETURN AIR
RAD	REFRIGERANT AIR DRYER
RAHX	ROTARY AIR HEAT EXCHANGER
RAT	RETURN AIR TEMPERATURE
RAV	RETURN AIR VALVE
RDS	ROOM DATA SHEETS
REA	RELIEF AIR
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TEMPERATURE
SAV	SUPPLY AIR VALVE
SBO	SURFACE BLOW–OFF
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCI	SPINAL CODE INJURY
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SD	SUPPLY AIR DIFFUSER
SDPR	SMOKE DAMPER
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPD	STERILE PROCESS AND DISTRIBUTION
SPS	STATIC PRESSURE SENSOR
SPW	SOFTENED POTABLE WATER
SQ FT	SQUARE FOOT (FEET)
SQ IN	SQUARE INCH(ES)
SR	SUPPLY AIR REGISTER
SRV	SAFETY RELIEF VALVE
SS	STAINLESS STEEL
ST	STEAM TRAP
STS	STEAM TEST SILENCER
SUH	STEAM UNIT HEATER
SV	SAFETY RELIEF VENT
SVFPRV	SAFETY VALVE FOLLOWING PRV
SVS	STEAM VENT SILENCER
SW	SWITCH
SWHX	STEAM TO WATER HEAT EXCHANGER
TAB	TESTING, ADJUSTING & BALANCING
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TG	TRANSFER GRILLE
THPS	TEMPORARY HIGH PRESSURE STEAM
THPC	TEMPORARY HIGH PRESSURE CONDENSATE
TOG	TOP OF GRATING
TP	TEST PORT, TRAP
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
T	TEMPORARY
TU	TERMINAL UNIT
TWU	THRU–WALL UNIT
TYP	TYPICAL
UC	UNDER CUT
U/G	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
V	VENT
VAC	VACUUM
VAF	VANE–AXIAL FAN
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL BALANCING)
VFD	VARIABLE FREQUENCY DRIVE
VHA	VETERANS HEALTH ADMINISTRATION
VI	VIBRATION ISOLATOR
VP	VIEW PORT, VACUUM PUMP
VPS	VARIABLE PRIMARY SYSTEM
VTR	VENT THRU ROOF
VUH	VERTICAL UNIT HEATER
W	WATTS
W/	WITH
WAG	WASTE ANESTHESIA GAS
WB	WET–BULB (TEMPERATURE)
WC	WATER COLUMN
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WEF	WALL EXHAUST FAN
WF	WATER FILTER
WFM	WATER FLOWMETER
WG	WATER GAGE
WMS	WIRE MESH SCREEN
WPD	WATER SIDE PRESSURE DROP

PIPING SYMBOLS

- DIRECTION OF PIPE PITCH (DOWN)
- DIRECTION OF FLOW
- ANCHOR
- REDUCER OR INCREASER
- ECCENTRIC REDUCER
- TOP CONNECTION, 45° OR 90°
- BOTTOM CONNECTION, 45° OR 90°
- SIDE CONNECTION
- CAPPED OUTLET
- RISE OR DROP IN PIPE
- UNION
- PIPE UP OR RISE
- PIPE DOWN OR DROP
- QUICK–COUPLE HOSE CONNECTOR
- INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMODYNAMIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMOMETER
- PRESSURE GAGE W/ SIPHON
- FE — FLOW ELEMENT
- REFRIGERANT SIGHT GLASS
- TP — TEST PLUG (PRESSURE/TEMPERATURE)
- AV — AUTOMATIC AIR VENT
- MV — MANUAL AIR VENT
- GATE VALVE – THREADED/FLANGED
- GLOBE VALVE – THREADED/FLANGED
- GATE VALVE WITH 3/4" HOSE ADAPTER
- CHECK VALVE
- WYE STRAINER w/VALVED DRAIN AND QUICK–COUPLE HOSE CONNECTOR
- FLEXIBLE CONNECTION
- ANGLE GLOBE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- MODULATING CONTROL VALVE
- MODULATING CONTROL BUTTERFLY VALVE
- 2–POSITION CONTROL VALVE
- 3–WAY MODULATING CONTROL VALVE
- 3–WAY, 2–POSITION CONTROL VALVE
- PRESSURE REGULATING VALVE
- SAFETY RELIEF VALVE
- AUTOMATIC BALANCING CONTROL VALVE
- BALANCING VALVE
- CIRCUIT SETTER VALVE
- GATE VALVE WITH GLOBE–VALVED BYPASS
- PLUG VALVE
- CONTROL VALVE (CV) – FLOAT–OPERATED
- PRESSURE REDUCING VALVE (PRV)
- PUMP
- ORIFICE
- FLOW SIGHT GLASS
- FLOW INDICATOR

PIPING SYMBOLS (CONTINUED)

Line label	Description
A	COMPRESSED AIR
BO	BOILER BLOWOFF
BWS	BOILER WATER SAMPLE
CBD	CONTINUOUS BLOWDOWN
CF	CHEMICAL FEED
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CTPD	CONDENSATE TRANSFER PUMP DISCHARGE
CTPS	CONDENSATE TRANSFER PUMP SUCTION
CW	COLD WATER (CITY WATER)
CWS	CONDENSER WATER SUPPLY (FROM TOWER)
CWR	CONDENSER WATER RETURN (TO TOWER)
D	DRAIN LINE
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
FWPD	FEEDWATER PUMP DISCHARGE
FWPS	FEEDWATER PUMP SUCTION
FWS	FEEDWATER SAMPLE (FROM DEAERATOR)
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
GCR	CHILLED GLYCOL–WATER RETURN
GCS	CHILLED GLYCOL–WATER SUPPLY
FS	FLASH STEAM
GHR	GLYCOL–WATER HEATING RETURN
GHS	GLYCOL–WATER HEATING SUPPLY
GRR	GLYCOL–WATER RUN AROUND RETURN
GRS	GLYCOL–WATER RUN AROUND SUPPLY
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
HWR	HOT WATER HEATING RETURN
HWS	HOT WATER HEATING SUPPLY
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM (15 PSIG AND BELOW)[103 kPA]
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM (16 PSIG THRU 59 PSIG) [110 kPA THRU 406 kPA]
MW	MAKE–UP WATER
G	NATURAL GAS
OFL	OVERFLOW
PC	PUMPED CONDENSATE
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RO	REVERSE OSMOSIS WATER
RS	REFRIGERANT SUCTION
SW	SOFTENED WATER
V	VENT LINE
	NEW PIPE
	EXISTING PIPE TO REMAIN
	EXISTING PIPE TO BE DEMOLISHED (SINGLE LINE)
	EXISTING PIPE TO BE DEMOLISHED (DOUBLE LINE)

DRAWING SYMBOLS

- 2 — KEY NOTE SYMBOL
- 2 3 — MULTIPLE KEY NOTES APPLYING TO THE SAME ITEM
- 2 / XXX — DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
- A / XXX — SECTION LETTER; DRAWING NUMBER WHERE SHOWN
- XX–SF 3 — BUILDING NO. WHERE EQUIPMENT IS LOCATED.; EQUIPMENT ABBREVIATION (SUPPLY FAN); SUPPLY FAN NO. 3 IN BUILDING NO. 26; TYPICAL UNIT NO.
- XX–TU–I–I — BUILDING NO. WHERE EQUIPMENT IS LOCATED; ITEM (TERMINAL UNIT SHOWN); ITEM NUMBER (TERMINAL UNIT NO. 1); SERVED BY AIR HANDLER UNIT NO. 1
- POINT OF CONNECTION
- POINT OF DISCONNECT

SUPPORTS FOR PIPING, BOILER STACKS & BREECHING SYMBOLS AND ABBREVIATIONS

Symbol	Description
RH	ROLLER–TYPE HANGER
SH	VARIABLE SPRING–TYPE HANGER (TYPE 51)*
SCH	SPRING CUSHION–TYPE HANGER (TYPE 48 OR 49)*
	CLEVIS–TYPE HANGER
TH	TRAPEZE HANGER (PROVIDE U–BOLT PIPE ATTACHMENT TO TRAPEZE EXCEPT WHERE RH ARE INDICATED)
PS	FLOOR–SUPPORTED PIPE STAND
RC	RISER CLAMP (TYPE 42)*
WB	WALL BRACKET (TYPE 31, 32, 33)*
CSH	CONSTANT SUPPORT HANGER (TYPE 54, 55, 56)*
SS	SLIDING SUPPORTS (TYPE 35)*

* TYPE NUMBERS REFER TO MANUFACTURER'S STANDARDIZATION SOCIETY STANDARD PRACTICE SP–58

GENERAL NOTES AND CONDITIONS

1. THESE DRAWINGS WERE PREPARED FROM INFORMATION TAKEN FROM THE AVAILABLE BUILDING DRAWINGS, ARCHITECTURAL BACKGROUNDS PROVIDED BY THE COR AND FIELD SURVEY INFORMATION COMPILED BY THE ENGINEERING DESIGN TEAM FOR THE PURPOSE OF ENGINEERING DESIGN. EXISTING CONDITIONS ARE SHOWN AS ACCURATELY AS POSSIBLE. THERE IS THE POSSIBILITY THAT CONDITIONS SHOWN ARE NOT EXACTLY AS EXISTING. CONTRACTOR MUST VERIFY ALL DIMENSIONS, ELEVATIONS, LOCATIONS, SIZES AND CONDITIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING INSTALLATION OR FABRICATION WORK.
   - 1.1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE PLANS AND SPECIFICATIONS, AS WELL AS ALL RELATED PROJECT PLANS AND SPECIFICATIONS FROM OTHER DISCIPLINES, TO BECOME FAMILIAR WITH THE FULL PROJECT SCOPE AND COORDINATED RESPONSIBILITIES.
   - 1.2. SHOULD IT APPEAR THAT THE WORK INTENDED TO BE DESCRIBED OR RELATED WORK ARE NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THE DRAWINGS, OR IN THE SPECIFICATIONS, CONSULT THE ENGINEER FOR NECESSARY CLARIFICATIONS, AND CONFORM TO THOSE CLARIFICATIONS INSOFAR AS THEY ARE CONSISTENT WITH THE ORIGINAL DRAWINGS AND SPECIFICATIONS. IN NO CASE MUST WORK PROCEED IN UNCERTAINTY.
   - 1.3. EQUIPMENT ARRANGEMENTS ARE DESIGNED TO SHOW PREFERRED CONFIGURATIONS TO SUIT KNOWN CONDITIONS. ACTUAL INSTALLATION BY CONTRACTOR MAY BE ALTERED AS REQUIRED TO SUIT FIELD CONDITIONS ENCOUNTERED DURING CONSTRUCTION WITHOUT COMPROMISING THE INTENT OF THE ORIGINAL DESIGN. COORDINATE ANY MODIFICATIONS WITH THE ENGINEER AND COR PRIOR TO STARTING WORK IN AREAS AFFECTED.
   - 1.4. THESE DRAWINGS SHOW THE GENERAL PROPOSED PIPING ARRANGEMENT, SIZE OF THE PIPING AND DIRECTION OF FLUID FLOW. THESE DRAWINGS ARE NOT INTENDED TO SHOW EVERY FITTING, OFFSET OR INTERFERENCE THAT MAY BE ENCOUNTERED. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINAL LAYOUT DIMENSIONS PRIOR TO FABRICATION AND INSTALLATION OF MATERIALS OR ASSEMBLIES. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ROUTING ALL PIPE IN THE MOST EFFICIENT MANNER IN ACCORDANCE WITH PROJECT SPECIFICATION.
   - 1.5. DO NOT SCALE DRAWINGS.
   - 1.6. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES EVEN IF THE UTILITIES ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR MUST REPAIR ALL DAMAGES AT THEIR OWN EXPENSE AND IS RESPONSIBLE FOR ANY ADDITIONAL DAMAGES CAUSED BY A SYSTEM BEING DOWN.
2. BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES AS THE NATURE AND SCOPE OF THE WORK. THE SUBMISSION OF A BID MUST BE EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND ENSURE THAT ALL ALTERNATE PRICING INFORMATION NOTED WITHIN THE CONSTRUCTION DOCUMENTS HAVE BEEN INCLUDED WITHIN THE ORIGINAL BID SUBMISSION. LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED, OR FOR ANY DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD AN EXAMINATION BEEN MADE, MUST NOT BE ACCEPTED.
3. THOSE PERFORMING WORK AS A CONTRACTOR MUST EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE COR IN WRITING, OF CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK. COMMENCEMENT OF WORK BY A TRADE ON A SURFACE OR CONSTRUCTION MUST IMPLY ACCEPTANCE OF SUCH SURFACE OR CONSTRUCTION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL RULES AND REGULATIONS, INCLUDING THOSE WHICH MAY BE ISSUED BY THE COR, ARE BEING OBSERVED, PARTICULARLY WORKPLACE SAFETY AND THE CONDUCT OF ALL THOSE EMPLOYED DIRECTLY AND INDIRECTLY ON THE PREMISES, AND THE COR'S EMPLOYEES WHO MAY BE IMPACTED OR AFFECTED BY CONSTRUCTION ACTIVITIES. THE CONTRACTOR MUST INSTALL SIGNAGE, BARRIERS, AND OTHER MEANS TO PROVIDE WARNING AND PERSONNEL SAFETY. PLACEMENT OF THESE ITEMS MUST BE COORDINATED WITH THE COR AND HIS ONGOING OPERATIONS AND MUST PROMPTLY BE REVISED WHEN WORK IN A PARTICULAR AREA HAS BEEN COMPLETED.
   - 4.1. DURING PERFORMANCE OF WORK, THE CONTRACTOR MUST BE RESPONSIBLE FOR PROVISION AND MAINTENANCE OF WARNING SIGNS, LIGHT SIGNAL DEVICES, GUARD LIGHTS, BARRICADES, GUARD RAILS, FENCES AND OTHER DEVICES, APPROPRIATELY LOCATED ON AND AROUND THE JOB SITE WHICH GIVE PROPER AND UNDERSTANDABLE WARNING TO PERSONS WITH REGARD TO HAZARDOUS CONDITIONS, EQUIPMENT AND OPERATIONS BEING PERFORMED IN CONJUNCTION WITH THE WORK.
5. THIS INSTALLATION MUST CONFORM TO ALL CODES AND THE REQUIREMENTS OF FEDERAL, STATE, AND LOCAL REGULATORY AGENCIES HAVING JURISDICTION. IN PARTICULAR, THE WORK MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE KANSAS UNIFIED BUILDING & TRADE CODE (UBTC), INCLUDING ALL OF ITS APPLICABLE SUBCODES AND CODE REVISIONS. THIS INSTALLATION MUST ALSO CONFORM TO ALL INDUSTRY STANDARDS.

BUILDING	INTERNATIONAL BUILDING CODE/2018
BUILDING	INTERNATIONAL EXISTING BUILDING CODE/2018
MECHANICAL	INTERNATIONAL MECHANICAL CODE/2018
PLUMBING	INTERNATIONAL PLUMBING CODE/2018
FUEL GAS	INTERNATIONAL FUEL GAS CODE/2018
ENERGY	INTERNATIONAL ENERGY CONSERVATION CODE/2018
FIRE	INTERNATIONAL FIRE CODE 2018
NATIONAL FIRE CODE	NFPA (VA FIRE PROTECTION DESIGN MANUAL, 7TH ED)
ELECTRICAL	NATIONAL ELECTRICAL CODE/NFPA 70–2017
WELDING	AMERICAN WELDING SOCIETY (AWS)
ASME B31.1	POWER PIPING

6. ALL WORK MUST BE LAWFULLY EXECUTED IN A NEAT AND WORKMANLIKE MANNER AND MUST BE COMPLETED IN ACCORDANCE WITH THE GOVERNING CODES (ABOVE), INDUSTRY STANDARDS, AND IN CONFORMANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS.
7. WORK UNDER THIS CONTRACT MUST CONSIST OF THE CONTRACTOR PROVIDING ALL LABOR, MATERIALS, AND SERVICES, INCLUDING WORK NOT SPECIFICALLY SHOWN BUT REASONABLY IMPLIED. THIS INCLUDES CUTTING, PATCHING AND RESTORATION OF EXISTING SURFACES DAMAGED DURING THE CONSTRUCTION. CONTRACTOR MUST ALSO PROVIDE ALL EQUIPMENT SHOWN OR SPECIFIED OR AN APPROVED EQUIVALENT. SUBSTITUTED EQUIPMENT OR MATERIALS MUST NOT BE INSTALLED UNTIL GIVEN WRITTEN APPROVAL BY THE COR.
8. CONTRACTOR IS RESPONSIBLE FOR COSTS INCURRED FOR NONCOMPLIANCE WITH THESE CONTRACT DOCUMENTS. CONTRACTOR MUST NOT BE ALLOWED CHANGE ORDERS FOR PROBLEMS ARISING FROM NEGLECT OF PROVISIONS INCLUDED IN THESE CONDITIONS.
9. MAINTAIN ORDERLY HOUSEKEEPING DURING CONSTRUCTION, AND UPON SUBSTANTIAL COMPLETION PERFORM FINAL CLEANUP. REMOVE CONSTRUCTION RUBBISH, SCAFFOLDING, EQUIPMENT, TEMPORARY PROTECTION, TEMPORARY FIELD STRUCTURES, AND OTHER MATERIALS OR EQUIPMENT THAT WAS REQUIRED IN CONNECTION WITH THE CONSTRUCTION, BUT NOT A PERMANENT PART THEREOF.
10. THE CONTRACTOR MUST SECURE ALL PERMITS AND APPLICATIONS AND PAY ANY AND ALL FEES AS REQUIRED. THE CONTRACTOR MUST GIVE ALL NECESSARY NOTICES AND CERTIFICATES OF INSPECTION REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. DELIVER ALL PERMITS, CERTIFICATES AND APPROVALS TO THE COR AGENT PRIOR TO FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR MUST FILE NECESSARY DRAWINGS, PREPARE DOCUMENTS AND MAKE APPLICATIONS FOR EACH REQUIRED PERMIT AND INSPECTION, PRIOR TO COMMENCING WORK TO AVOID DELAYS DURING CONSTRUCTION.
11. AS DIRECTED BY THE COR, ALL EXISTING EQUIPMENT AND MATERIAL IN USABLE CONDITION THAT IS REMOVED MUST REMAIN THE PROPERTY OF THE COR, OR HANDLED AS INSTRUCTED BY THE COR OR BE DISPOSED OF BY THE CONTRACTOR. ALL MATERIALS DEEMED FOR REMOVAL MUST BE RECYCLED WHENEVER POSSIBLE, IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH WITHIN DIVISION 1 OF THE SPECIFICATIONS.
12. PROVIDE ALL REQUIRED SCAFFOLDING, LADDERS, RIGGING, HOISTING AND ALL OTHER EQUIPMENT REQUIRED FOR THE INSTALLATION OF THEIR WORK.
13. ESTABLISH PASSAGE CLEARANCES REQUIRED TO DELIVER, INSTALL AND ERECT ALL REQUIRED EQUIPMENT. IF STRUCTURES, EQUIPMENT AND SYSTEMS MUST BE ALTERED TO PROVIDE PASSAGE OF EQUIPMENT, THE CONTRACTOR MUST RESTORE STRUCTURES, EQUIPMENT AND SYSTEMS TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE; INCLUDING REMOVING AND REPLACEMENT OF ALL CEILING AS REQUIRED TO COMPLETE THE WORK.
14. EXCAVATION FOR UNDER SLAB OR UNDERGROUND INSTALLATION OF CONDUITS MUST BE APPROACHED WITH EXTREME CAUTION SO AS NOT TO DAMAGE EXISTING UNDERGROUND PIPING, WIRING AND CONDUITS.
15. WORK THESE DRAWINGS WITH THE PROJECT SPECIFICATIONS.
16. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR CONDENSATE SYSTEM.
17. ALL WORK REQUIRING SHUT–DOWNS SHALL BE COORDINATED WITH THE VA COR. ALL NEW EQUIPMENT/MATERIAL REQUIRED TO BRING THE SYSTEM FULLY BACK ON–LINE MUST BE ON–SITE READY FOR INSTALLATION. CONTRACTOR SHALL SUBMIT TO THE VA COR FOR APPROVAL – METHOD OF PROCEDURE (MOP) FOR SHUT–DOWN MINIMUM OF 4 WEEKS PRIOR TO SCHEDULED SHUT–DOWN. CONTRACTOR SHALL FULLY STAFF THE WORK 24/7 UNTIL ALL SYSTEMS ARE RESTORED TO FULL OPERATION.

PIPING NOTES:

1. PIPING MUST BE IN ACCORDANCE WITH SPECIFICATION 23 21 11–BOILER PLANT PIPING SYSTEMS
2. INSTALL ALL STEAM PIPING WITH A MINIMUM SLOPE OF 1/4" PER 10 FEET (APPROXIMATELY 0.2%). IN THE DIRECTION OF THE STEAM FLOW TO FACILITATE DRAINAGE OF CONDENSATE. DRIP LEGS AND TRAPS MUST BE INSTALLED AT ALL SYSTEM LOW POINTS.
3. INSTALL ALL CONDENSATE PIPING WITH A MINIMUM SLOPE OF 1/4" PER 10 FEET (APPROXIMATELY 0.2%). IN THE DIRECTION OF THE CONDENSATE FLOW TO A LOW POINT DRAIN STATION TO FACILITATE DRAINING OF THE SYSTEM. INSTALL LOW POINT DRAINS AT ALL LOW POINTS OF THE PIPING SYSTEM AND PRIOR TO ALL ISOLATION VALVES. LOW POINT DRAIN STATIONS MUST BE INSTALLED AS DETAILED WITHIN THE PROJECT DRAWING DOCUMENTS.
4. INSTALL HIGH POINT AIR VENTS AT ALL HIGH POINTS OF THE PIPING SYSTEM TO FACILITATE REMOVAL OF AIR DURING FILLING OF THE SYSTEM. ALL STEAM PIPING HIGH POINTS MUST TERMINATE WITH A BALANCED PRESSURE THERMOSTATIC AIR VENT. AIR VENTS ARE DETAILED WITHIN THE PROJECT DRAWING DOCUMENTS.
5. ALL PIPING MATERIALS AND COMPONENTS INCLUDING FITTINGS, PIPE, FLANGES, VALVES, ETC. MUST BE DESIGNED, FABRICATED AND INSTALLED PER APPROPRIATE SECTIONS OF THE LATEST ANSI AND ASTM CODES AND STANDARDS AND THE MATERIAL SPECIFICATIONS FOUND IN THE PROJECT DOCUMENTS.
6. FIELD–ROUTED PIPING MUST BE INSTALLED IN A MANNER THAT DOES NOT INTERFERE WITH THE REMOVAL OF EQUIPMENT OR FUTURE MAINTENANCE WORK. THE DESIGN AND LAYOUT MUST BE APPROVED BY THE COR PRIOR TO INSTALLATION.
7. FLANGES OR UNIONS MUST BE INSTALLED AT ALL EQUIPMENT. THE USE OF DIELECTRIC UNIONS MUST BE INSTALLED IN AREAS WHERE JOINING OF DISSIMILAR METALS (I.E. CARBON STEEL TO COPPER OR BRONZE, ETC.) TO FACILITATE PIPING REMOVAL AND REASSEMBLY FOR FUTURE MAINTENANCE WORK AND/OR PREVENT GALVANIC CORROSION.
8. PROPERLY SUPPORT, GUIDE AND ANCHOR ALL PIPING AND VALVES. LOCATIONS OF PIPE RACKS ARE SHOWN WITHIN THE PROJECT DRAWING DOCUMENTS. PIPE SUPPORT SPACING NOT DETAILED MUST NOT EXCEED THE SPACING DISTANCES SHOWN ON THE TABLE THIS DRAWING.
9. UNLESS SHOWN OTHERWISE, ALL PIPE HANGERS AND SUPPORTS MUST BE DESIGNED, MANUFACTURED AND INSTALLED PER MSS SP–58.
10. INSULATION PROTECTION SADDLES MUST BE INSTALLED AT ALL SUPPORT LOCATIONS WITHIN ALL SECTIONS OF THE INSULATED PIPING. INSULATION PROTECTION SADDLES ARE SHOWN AND SPECIFIED WITHIN THE PROJECT CONTRACT DOCUMENTS.
11. ALL PIPES OR TUBING WHICH PASS THROUGH RATED AND NON–RATED WALLS, FLOORS AND FOUNDATION WALLS, MUST PASS THROUGH A SCHEDULE 40 CARBON STEEL PIPE SLEEVE. SLEEVES WHICH PASS THROUGH MASONRY MUST BE GALVANIZED COATED. ALL SLEEVES MUST BE INSTALLED FLUSH ON BOTH SIDES OF WALL PENETRATION.

    NON–RATED WALL: THE SLEEVE MUST BE SIZED TO ALLOW FREE PASSAGE OF INSULATED AND NON–INSULATED PIPES AND TUBING.

    RATED WALL: PIPES WHICH PASS THROUGH FIRE–RATED WALLS & FLOOR MUST USE THE APPROPRIATE CODE APPROVED, TESTED AND INSTALLATION METHOD OF SEALING WHILE MAINTAINING THE INTEGRITY OF THE WALL'S FIRE RATING(S).

    EXTENSION WALLS & FOUNDATION WALLS: PIPES WHICH PASS THROUGH EXTENSION WALLS OR FOUNDATION WALLS MUST BE SEALED AND MADE WATERTIGHT.
12. ALL VALVES MUST BE ACCESSIBLE IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE ACCESS DOORS AND COORDINATE THE GENERAL CONTRACTOR.
13. ALL PIPING AND VALVES MUST BE PROPERLY IDENTIFIED AND LABELED PER ANSI 13.1, ENTITLED "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS". ALL VALVES MUST BE IDENTIFIED AND TAGGED WITH WEATHERPROOF TAGS.
14. ALL MANUALLY OPERATED VALVES MUST BE LOCATED ACCESSIBLE FROM A WALKABLE SURFACE.
15. CONTRACTOR IS RESPONSIBLE FOR ALL CLEANING, HYDROTESTING AND COORDINATION OF INSPECTIONS OF THE NEW STEAM AND CONDENSATE SYSTEMS IN ACCORDANCE WITH THE PROJECT CONTRACT DOCUMENTS AND ALL APPLICABLE CODES.
16. ALL PIPING, VALVES AND SAFETY DEVICES MUST BE INSTALLED IN ACCORDANCE WITH THE "VHA BOILER PLANT SAFETY DEVICE TESTING MANUAL (5TH EDITION)".
17. STEAM HEADER SET PRESSURE: 80 PSIG [551 kPA] NORMAL; 80 PSIG [551 kPA] LOW DEMAND PERIODS
18. ALTITUDE–BOILER ROOM FLOOR: 1339 FT. [408.1m] ABOVE SEA LEVEL
19. SEISMIC PROVISIONS ARE REQUIRED. SEE SPECIFICATIONS.
20. ALL PRESSURES LISTED ARE GAUGE PRESSURES UNLESS OTHERWISE NOTED.

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS — MABBETT & ASSOCIATES, INC., 105 CENTRAL STREET, STONEHAM, MA 02180, PHONE: (781)275-6050
CIVIL / STRUCTURAL — PROFESSIONAL ENGINEERING CONSULTANTS, P.A., 303 SOUTH TOPEKA, WICHITA, KS 67202, PHONE: (316)262-2691
ARCHITECTURAL — OCULUS INC., 1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102, PHONE: (314)367-6100
FIRE SUPPRESSION — KOFFEL ASSOCIATES, 8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045, PHONE: (410)750-2246
ELECTRONIC SECURITY — MAGNA ENGINEERS, 861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503, PHONE: (859)309-2990
PHYSICAL SECURITY — FORCE PROTECT, 3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786, PHONE: (502)836-4232

ENGINEER OF RECORD
Miller-Remick LLC — M.E.P. & Structural Engineering — A Service Disabled Veteran Owned Small Business — SDVOSB
1010 KINGS HIGHWAY SOUTH, CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-5002
MR PROJECT NO: 0499-0121

MILLER-REMICK LLC PROFESSIONAL ENGINEER
ANTHONY D. PACARO — LICENSED — 26413 — KANSAS — PROFESSIONAL ENGINEER — 9.3.2021

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title	Phase	Project Title	Project Number
MECHANICAL ABBREVIATIONS & SYMBOLS	100% BID SET	INSTALL NEW BOILERS IN BUILDING 13	589A7-18-302
Approved: Project Director	FULLY SPRINKLERED	Location: ROBERT J. DOLE VA MEDICAL CENTER, WICHITA, KANSAS	Building Number: 13
		Issue Date: 2021-09-03; Checked: JJM; Drawn: GDS	Drawing Number: M-001

VA FORM 08-6231

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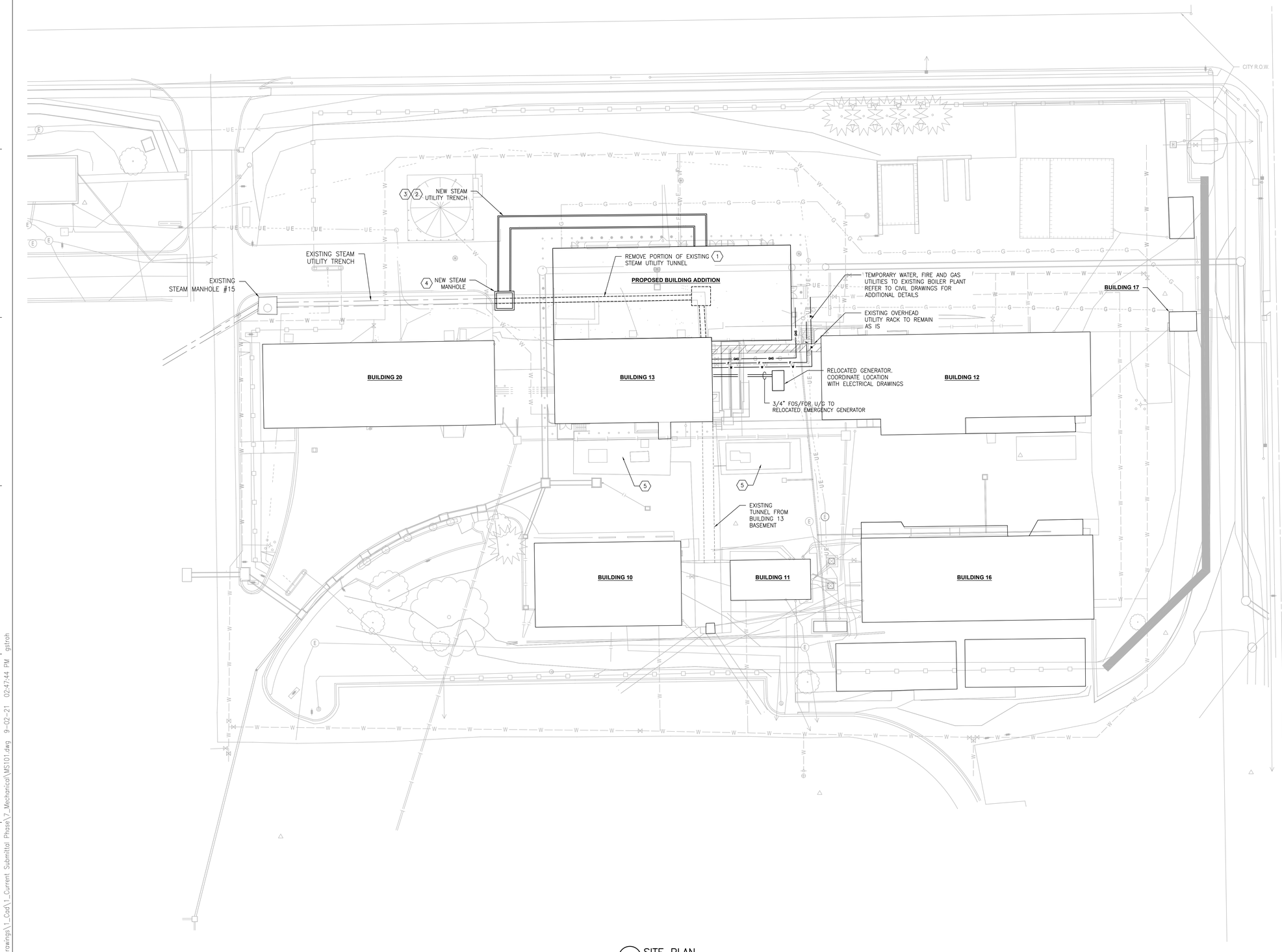
three inches = one foot; one and one half inches = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot



1 SITE PLAN
SCALE: 1" = 20'-0"

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR SYMBOLS, ABBREVIATIONS AND GENERAL AND DEMOLITION NOTES.
2. REFER TO MECHANICAL PLANS AND FLOW DIAGRAMS FOR FURTHER DETAILS.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR CONDENSATE SYSTEM.
5. ALL WORK REQUIRING SHUT-DOWNS SHALL BE COORDINATED WITH THE VA COR. ALL NEW EQUIPMENT/MATERIAL REQUIRED TO BRING THE SYSTEM FULLY BACL ON-LINE MUST BE ON-SITE READY FOR INSTALLATION. CONTRACTOR SHALL SUBMIT TO THE VA COR FOR APPROVAL - METHOD OF PROCEDURE (MOP) FOR SHUT-DOWN MINIMUM OF 4 WEEKS PRIOR TO SCHEDULED SHUT-DOWN. CONTRACTOR SHALL FULLY STAFF THE WORK 24/7 UNTIL ALL SYSTEMS ARE RESTORED TO FULL OPERATION.

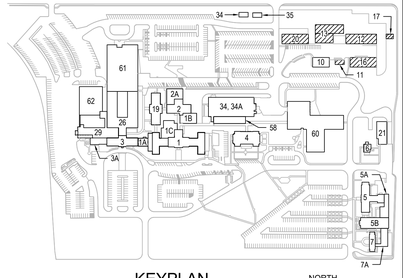
CONSTRUCTION PHASING/SHEET NOTES:

RELOCATION OF EXISTING STEAM UTILITY TUNNEL

1. THE EXISTING STEAM UTILITY TUNNEL TO THE NORTH OF EXISTING BUILDING 13 SHALL BE REMOVED FROM THE EXISTING BUILDING 13 WALL TO POINT INDICATED ON DRAWING MS102. PIPING TO BE ISOLATED AND REMOVED. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF STEAM ISOLATION VALVES PRIOR TO STARTING ANY WORK. REFER TO GENERAL NOTES FOR ADDITIONAL DETAILS. REFER TO CIVIL DRAWINGS FOR ADDITIONAL DETAILS.
2. NEW PRECAST CONCRETE PIPE TRENCH. REFER DRAWING MS102 AND CIVIL PLANS FOR ADDITIONAL INFORMATION.
3. INSTALL NEW 5" HPS AND 3" CONDENSATE RETURN PIPING FROM NEW MANHOLE 13 TO NEW BASEMENT PUMP ROOM IN NEW BOILER PLANT (BUILDING 13 ADDITION). REFER TO DRAWING MP101.02 FOR CONTINUATION.
4. NEW CONCRETE CAST-IN-PLACE STEAM MANHOLE. REFER DRAWING MS102 FOR ADDITIONAL DETAILS.

EXISTING UNDERGROUND STORAGE TANKS

5. CONTRACTOR SHALL REMOVE THE EXISTING FUEL-OIL FROM UNDERGROUND STORAGE TANKS (ONE AT A TIME), CLEAN THE TANK AND REFILL WITH FRESH FUEL OIL. THE CONTRACTOR IS RESPONSIBLE FOR RECYCLING/DISPOSAL OF THE OLD FUEL OIL.



KEYPLAN

NORTH

PRINTS OF THIS DRAWING SHALL NOT BE USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER.

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

FIRE SUPPRESSION
KOFFEL ASSOCIATES
8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045
PHONE: (410)750-2246

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
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MR PROJECT NO: 0499-0121

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACIFICO
LICENSED
26113
KANSAS
PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL SITE PLAN	Phase: 100% BID SET
Approved: Project Director	FULLY SPRINKLERED

Project Title: INSTALL NEW BOILERS IN BUILDING 13	Project Number: 589A7-18-302
	Building Number: ENERGY CMPLX
Location: ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	Drawing Number: MS101
Issue Date: 2021-09-03 / Checked: MH / Drawn: GDS	

VA FORM 08-6231

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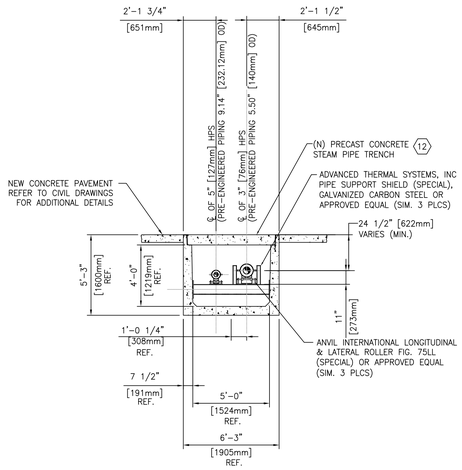
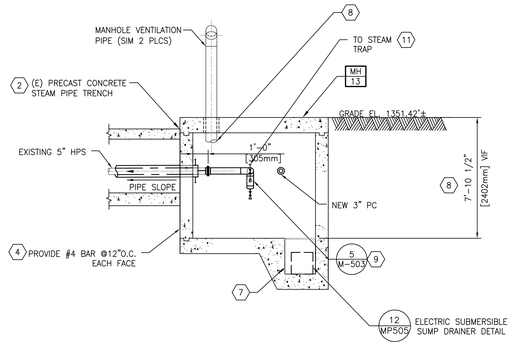
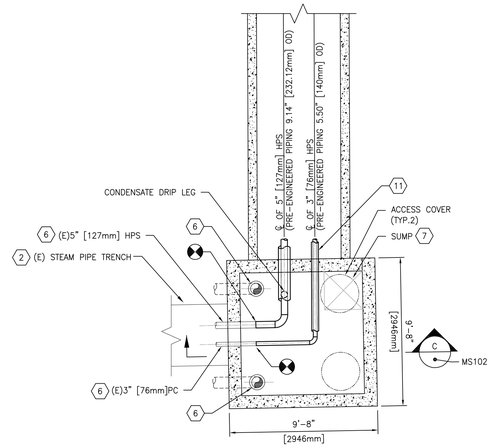


B SECTION @ NEW STEAM PIPE TRENCH
SCALE: 1/4" = 1'-0"



C SECTION @ NEW STEAM MANHOLE
SCALE: 1/4" = 1'-0"



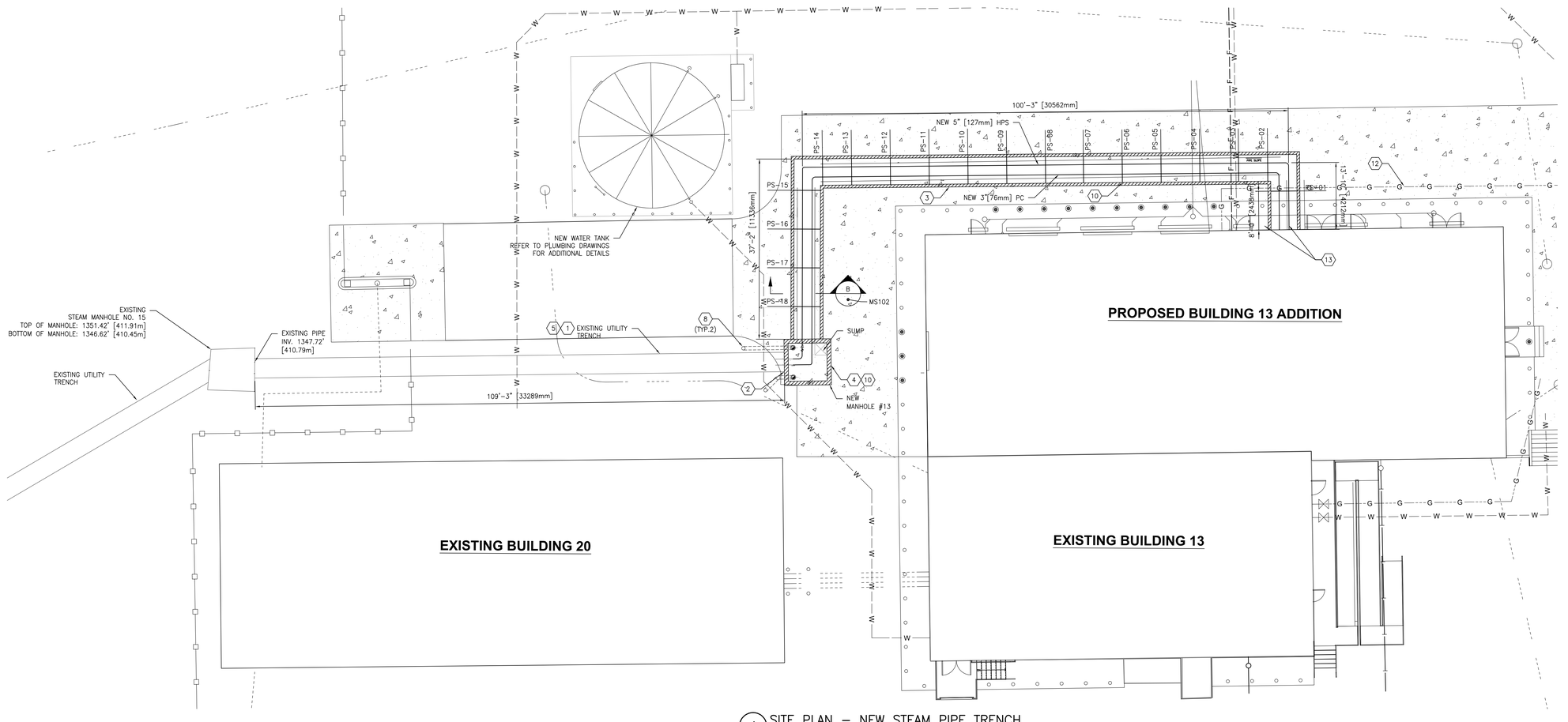
D PLAN VIEW – NEW STEAM MANHOLE
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

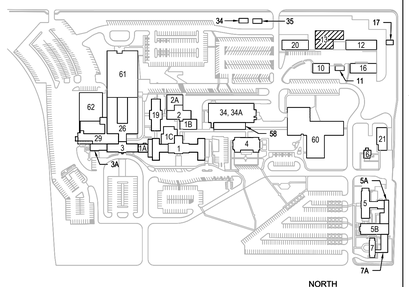
1. THE UNDERGROUND UTILITIES SHOWN ON THE PROJECT DOCUMENTS AND WITHIN THE PROJECT AREA AND TOPOGRAPHIC SURVEY WERE LOCATED AND REFERENCED FROM A SITE MARK-OUT PERFORMED BY PEC, PA. DURING THE SUMMER OF 2020/2021.
   CONTACT INFORMATION:
   PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
   303 SOUTH TOPEKA, WICHITA, KS 67202
   PHONE (316) 262-2691
2. THE LOCATIONS OF UNDERGROUND UTILITIES FOUND AND SHOWN WITHIN THESE PROJECT DOCUMENTS, WERE CONDUCTED FOR DESIGN PURPOSES ONLY. PARTIAL FIELD INVESTIGATIONS WERE CONDUCTED TO DETERMINE DEPTHS OF SOME OF THE EXISTING UTILITIES, THEREFORE LOCATIONS SHOWN WITHIN THESE DESIGN DOCUMENTS ARE APPROXIMATE AND THE EXISTENCE AND LOCATION OF ANY UNDERGROUND OBSTRUCTION OR UTILITY CANNOT BE GUARANTEED, THEREFORE THE PROJECT AREA MUST BE FULLY INVESTIGATED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO EXCAVATION/CONSTRUCTION.
3. PRIOR TO ANY EXCAVATION, THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND IDENTIFY ANY PUBLIC OR PRIVATE UNDERGROUND UTILITY. FOR PUBLIC UTILITIES, CONTRACTORS MUST CONTACT THE KANSAS 811 UTILITY NOTIFICATION SYSTEM. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE LOCATION OF ALL PUBLIC UTILITIES AND ALL PRIVATE UTILITIES THAT MAY BE EXPOSED OR COULD BE IMPACTED BY THE WORK AND ARE WITHIN AND ADJACENT TO ANY EXCAVATIONS OR UNDERGROUND WORK. THE CONTRACTOR SHALL ENLIST THE ASSISTANCE OF THE COR OR APPOINTED FACILITY PERSONNEL TO OBTAIN THEIR OPINION AS TO THE LOCATIONS OF UNDERGROUND UTILITIES THAT MAY EXIST WITHIN THE CONSTRUCTION AREA AND THAT MAY OR MAY NOT BE PRESENTED IN THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES EVEN IF THE UTILITIES ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL REPAIR ALL DAMAGES AT THEIR OWN EXPENSE AND WILL BE RESPONSIBLE FOR ANY ADDITIONAL DAMAGES CAUSED BY A SYSTEM BEING DOWN.
5. HPS STEAM PIPING TO BE SLOPED 1/2" IN 10F FEET IN DIRECTION OF FLOW.
6. INSTALLATION MUST MEET ALL VA STEAM DISTRIBUTION SYSTEM REQUIREMENTS.

SHEET KEYNOTES:

1. CONTRACTOR SHALL FIELD VERIFY DEPTH & WIDTH OF EXISTING UTILITY TRENCH.
2. CONTRACTOR SHALL SAW-CUT EXISTING CONCRETE AT POINT INDICATED.
3. NEW PRECAST CONCRETE UTILITY TRENCH.
4. NEW CAST-IN PLACE CONCRETE MANHOLE. REFER TO DETAILS ON THIS DRAWING FOR ADDITIONAL DETAILS. REFER TO STRUCTURAL GENERAL NOTES AND DRAWING S-401 FOR TYPICAL CONCRETE REINFORCING DETAILS.
5. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATION AND SPACING OF UTILITY PIPES.
6. PROVIDE VENTILATION PIPES FROM THE MANHOLE TO A LOCATION OUTSIDE THE ROADWAY. TERMINATE ONE, 12 INCHES ABOVE THE BOTTOM OF THE MANHOLE AND THE OTHER 12 INCHES BELOW THE MANHOLE COVER. BOTH PIPES SHALL TERMINATE 18 INCHES ABOVE FINISH GRADE IN A GOOSENECK CONFIGURATION. PAINTED SAFETY YELLOW AND LABEL "MANHOLE VENT."
7. PROVIDE 30 INCH SQUARE x 36" DEEP SUMP IN FLOOR AND SLOPE MANHOLE FLOOR TO SUMP. PROVIDE SUBMERSIBLE PUMP. REFER TO DETAIL 12 ON DRAWING M-506.
8. MANHOLE DEPTH SHALL BE FIELD VERIFIED WITH EXISTING ELEVATION OF TOP AND BOTTOM OF EXISTING UTILITY TRENCH. MANHOLE DEPTH SHALL BE DEEP ENOUGH TO ALLOW FOR INSTALLATION AND MAINTENANCE OF PIPES, EQUIPMENT, ETC.
9. INSTALL STEAM TRAP UP HIGH IN MANHOLE CLOSE TO ACCESS COVER. CONNECT TRAP DISCHARGE PIPE INTO PUMPED CONDENSATE LINE PER DETAIL 12 ON M-503.
10. MANHOLE & TRENCH SHALL MEET AASHTO HS20 (32,000 LBS/AXLE).
11. PRE-ENGINEERED PIPE SYSTEM: BASIS OF DESIGN: PERMA PIPE POLY-THERM GOLD.
12. NEW 6" NATURAL GAS MAIN. REFER TO CIVIL DRAWINGS AND DRAWING MP606 FOR ADDITIONAL DETAILS.
13. INSTALL NEW PIPE ANCHOR TO FOUNDATION WALL. REFER TO DETAIL 15 ON STRUCTURAL DRAWING S-502.



1 SITE PLAN – NEW STEAM PIPE TRENCH
SCALE: 1" = 10'



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NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
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PHONE: (314)367-6100

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8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045
PHONE: (410)750-2246

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FORCE PROTECT
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PHONE: (856)429-4000
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MILLER-REMICK LLC
PROFESSIONAL ENGINEER
ANTHONY D. PACARO LICENSED 26113 KANSAS PROFESSIONAL ENGINEER
9.3.2021

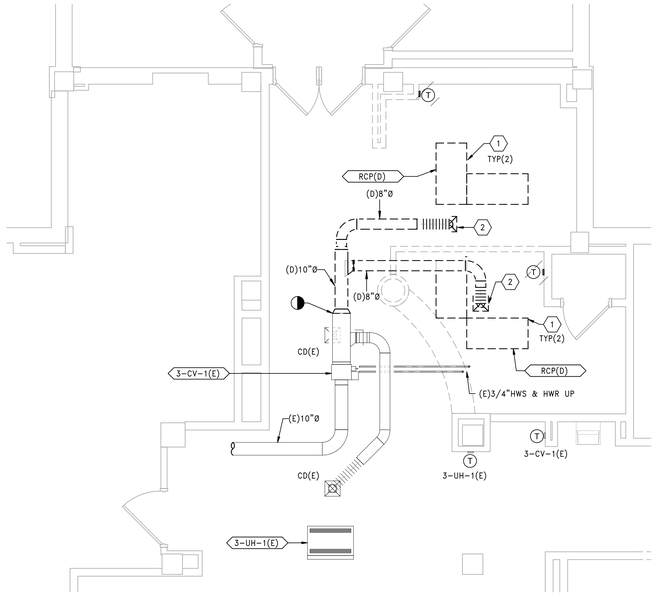
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL SITE STEAM TRENCH ARRANGMENT PLAN & SECTION	Phase: 100% BID SET
Approved: Project Director	FULLY SPRINKLERED

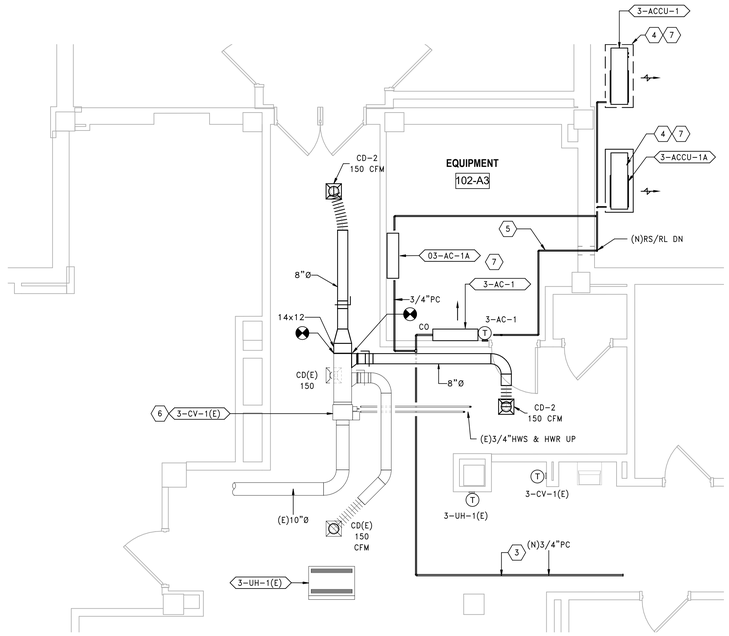
Project Title: INSTALL NEW BOILERS IN BUILDING 13	Project Number: 589A7-18-302
	Building Number: 13
Location: ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	Drawing Number: MS102
Issue Date: 2021-09-03 / Checked: AP / Drawn: GDS	

VA FORM 08-6231



1 MECHANICAL DEMOLITION PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"



2 MECHANICAL NEW WORK PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM.
5. ALL VALVE HANDLES LOCATED GREATER THAN 7'-0" ABOVE ANY WALKING SURFACE SHALL BE FITTED WITH A CHAIN WHEEL OPERATOR AND CHAIN. PROVIDE HOOKS TO STORE CHAIN IN SUITABLE LOCATION.

SHEET KEYNOTES:

1 DISCONNECT AND REMOVE EXISTING RADIANT CEILING PANEL, ASSOCIATED PIPING, VALVES, CONTROLS, THERMOSTAT. REMOVE PIPING BACK TO RESPECTIVE MAINS. PROVIDE BALL VALVES WITH CAPS/PLUGS.

2 DISCONNECT AND REMOVE AIR DEVICE AND ASSOCAITED SUPPLY BRANCH DUCTWORK BACK TO POINT SHOWN FOR CONNECTION IN NEW WORK.

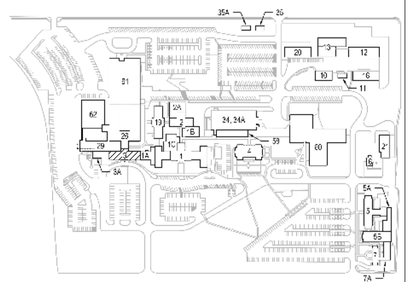
3 3/4" DIA CONDENSATE DRAIN PIPING. PITCH DOWNWARD IN DIRECTION OF FLOW MINIMUM 1/8 INCH PER FOOT. ROUTE TO NEW INDIRECT WASTE DRAIN ABOVE CEILING IN TOILET 109A-3. TERMINATE TO SANITARY DISCHARGE WITH AIR GAP.

4 PROVIDE 6" CONCRETE EQUIPMENT PAD ON GRADE. REFER TO MECHANICAL DETAIL FOR ADDITIONAL INFORMATION.

5 REFRIGERANT PIPING (SUCTION & LIQUID) THRU WALL SLEEVE ABOVE CEILING. ROUTE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTS AS REQUIRED. SEAL WEATHERTIGHT.

6 REBALANCE EXISTING TERMINAL REHEAT UNIT TO AIRFLOW INDICATED.

7 CONTRACTOR SHALL PROVIDE (N+1) COMPLETE HVAC SYSTEMS FOR SECURITY EQUIPMENT ROOM 102-X.



KEYPLAN

NORTH

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS MABBETT & ASSOCIATES, INC. 105 CENTRAL STREET, STONEHAM, MA 02180 PHONE: (781)275-6650	**FIRE SUPPRESSION** KOFFEL ASSOCIATES 8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045 PHONE: (410)750-2246
CIVIL / STRUCTURAL PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA, WICHITA, KS 67202 PHONE: (316)262-2691	**ELECTRONIC SECURITY** MAGNA ENGINEERS 861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503 PHONE: (859)309-2990
ARCHITECTURAL OCULUS INC. 1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102 PHONE: (314)367-6100	**PHYSICAL SECURITY** FORCE PROTECT 3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786 PHONE: (502)836-4232

ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-8002

MR PROJECT NO: 0499-0121

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACANO
LICENSED
26413
KANSAS
PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL BUILDING 3 SECURITY EQ. CLOSET	**Phase** 100% BID SET	**Project Title** INSTALL NEW BOILERS IN BUILDING 13	**Project Number** 589A7-18-302
Approved: Project Director			**Building Number** 3
	FULLY SPRINKLERED	**Location** ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	**Drawing Number** 03-M-111
		Issue Date 2021-09-03 / **Checked** AP / **Drawn** MK	

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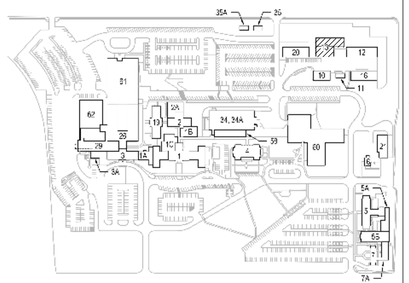
three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.

SHEET KEYNOTES:

1 MOUNT CO DETECTORS 4'-6" AFF. CONFIRM QUANITY AND LOCATION OF SENSORS W/ GAS DETECTION VENDOR TO ENSURE COMPLETE COVERAGE.



KEYPLAN

NORTH

1 DUCTWORK PLAN - TUNNEL & BASEMENT LEVELS, PHASE 2

SCALE: 1/4" = 1'-0"

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
PHONE: (314)367-6100

FIRE SUPPRESSION
KOFFEL ASSOCIATES
8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045
PHONE: (410)750-2246

ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786
PHONE: (502)836-4232

ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business

1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-8002

MR PROJECT NO: 0499-0121

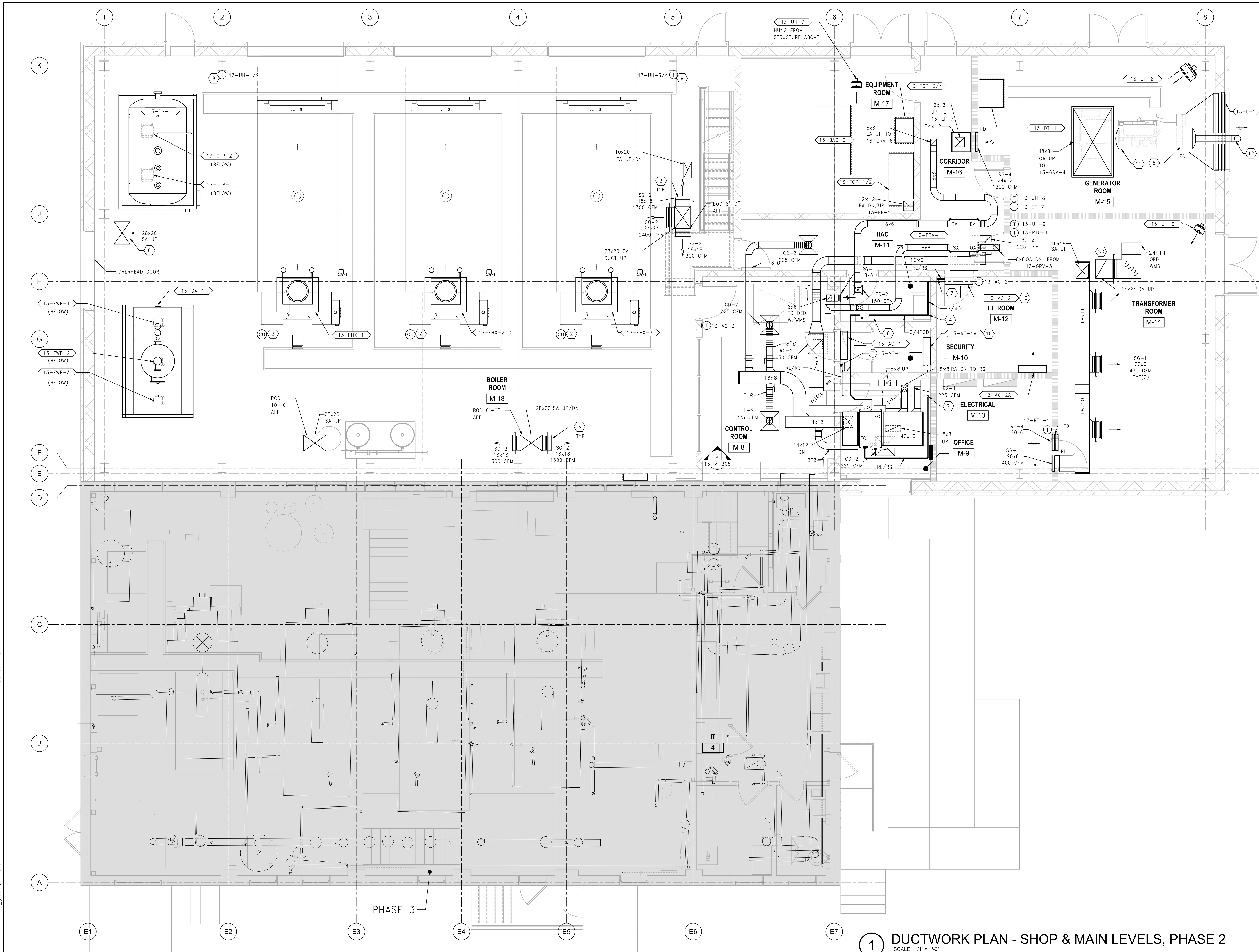
MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACARO
LICENSED
26413
KANSAS
PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL DUCTWORK PLAN TUNNEL & BSMT LEVELS, PHASE 2	**Phase** 100% BID SET	**Project Title** INSTALL NEW BOILERS IN BUILDING 13	**Project Number** 589A7-18-302
			Building Number 13
Approved: Project Director	FULLY SPRINKLERED	**Location** ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	**Drawing Number** 13-MH101.02
		Issue Date 2021-09-03 / **Checked** AP / **Drawn** GDS	



1 DUCTWORK PLAN - SHOP & MAIN LEVELS, PHASE 2
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1 INSTALL NEW TEMPORARY 4" DIA NATURAL GAS PIPING IN PHASE 1. REFER TO CIVIL DRAWINGS FOR CONTINUATION. NATURAL GAS PIPE TO BE A MINIMUM OF 24" BELOW RAMP FOOTINGS, COORDINATE WITH STRUCTURAL DRAWINGS.

2 MOUNT CO DETECTORS 4'-6" AFF. CONFIRM QUANITY AND LOCATION OF SENSORS W/ GAS DETECTION VENDOR TO ENSURE COMPLETE COVERAGE.

3 BOTTOM OF DUCTWORK AND SUPPLY GRILLE SHALL BE MOUNTED MINIMUM 8'-0" AFF. DIRECT SUPPLY GRILLE AIR DOWNWARD 45 DEG. TOWARD FLOOR.

4 3/4" DIA CONDENSATE DRAIN PIPING. PITCH DOWNWARD IN DIRECTION OF FLOW MINIMUM 1/8 INCH PER FOOT. ROUTE DOWN TO MOP SINK. TERMINATE WITH AIR GAP.

5 TRANSITION DUCTED LOUVER CONNECTION TO NEW GENERATOR PER MANUFACTURER'S RECOMMENDATIONS. FILED VERIFY OFFSET AND FINAL DIMENSIONS. REFER TO CONTROLS DETAIL FOR ADDITIONAL INFORMATION.

6 PROVIDE NEW ATC PANEL WITH DEDICATED POWER THIS LOCATION. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

7 REFRIGERANT PIPING (SUCTION & LIQUID) UP THRU ROOF PIPE PORTAL. PROVIDE SEPARATE BOOT FOR EACH PIPE. ROUTE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTS AS REQUIRED.

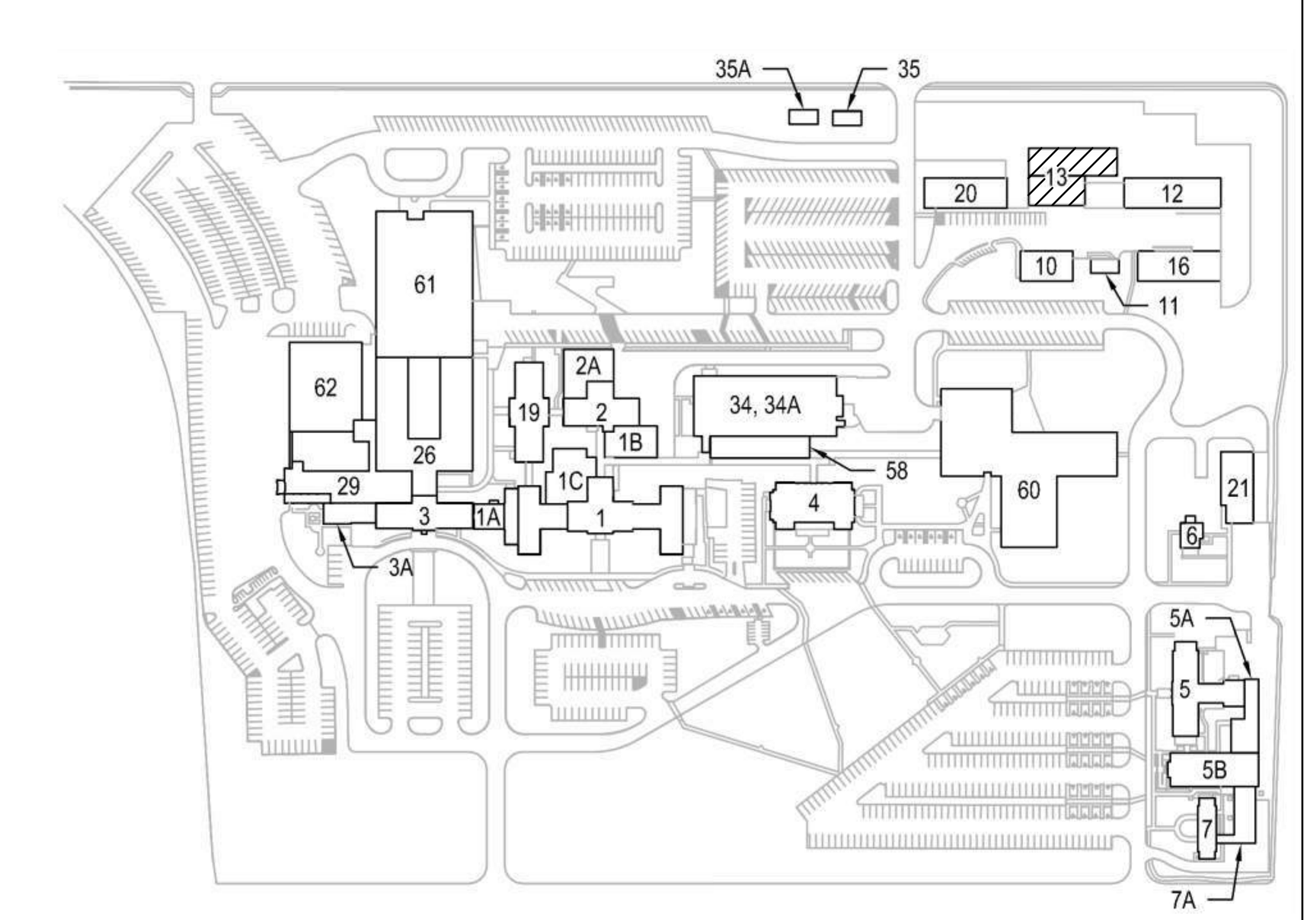
8 BOTTOM OF DUCT TO BE 6 INCHES ABOVE THE TOP OF THE OVERHEAD DOOR.

9 INSTALL THERMOSTAT 52" AFF.

10 CONTRACTOR SHALL PROVIDE (N+1) COMPLETE HVAC SYSTEMS FOR SECURITY M-10 AND IT ROOM M-12.

11 GENERATOR EXHAUST MUFFLER.

12 GENERATOR EXHAUST DISCHARGES UP. REFER TO DETAIL 12 ON DRAWING M-503. REFER TO STRUCTURAL DRAWINGS FOR SUPPORT DETAILS.



KEYPLAN

NORTH

PRINTS OF THIS DRAWING SHALL NOT BE USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS MABBETT & ASSOCIATES, INC. 105 CENTRAL STREET, STONEHAM, MA 02180 PHONE: (781)275-6050	**FIRE SUPPRESSION** KOFFEL ASSOCIATES 8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045 PHONE: (410)750-2246
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ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
SDVOSB
1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-5002
MR PROJECT NO: 0499-0121

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACARO
LICENSED
26413
KANSAS
PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL DUCTWORK PLAN SHOP & MAIN LEVELS, PHASE 2	Phase 100% BID SET	Project Title INSTALL NEW BOILERS IN BUILDING 13	Project Number 589A7-18-302
			Building Number 13
Approved: Project Director	FULLY SPRINKLERED	Location ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	Drawing Number 13-MH111.02
		Issue Date 2021-09-03 / Checked AP / Drawn GDS	

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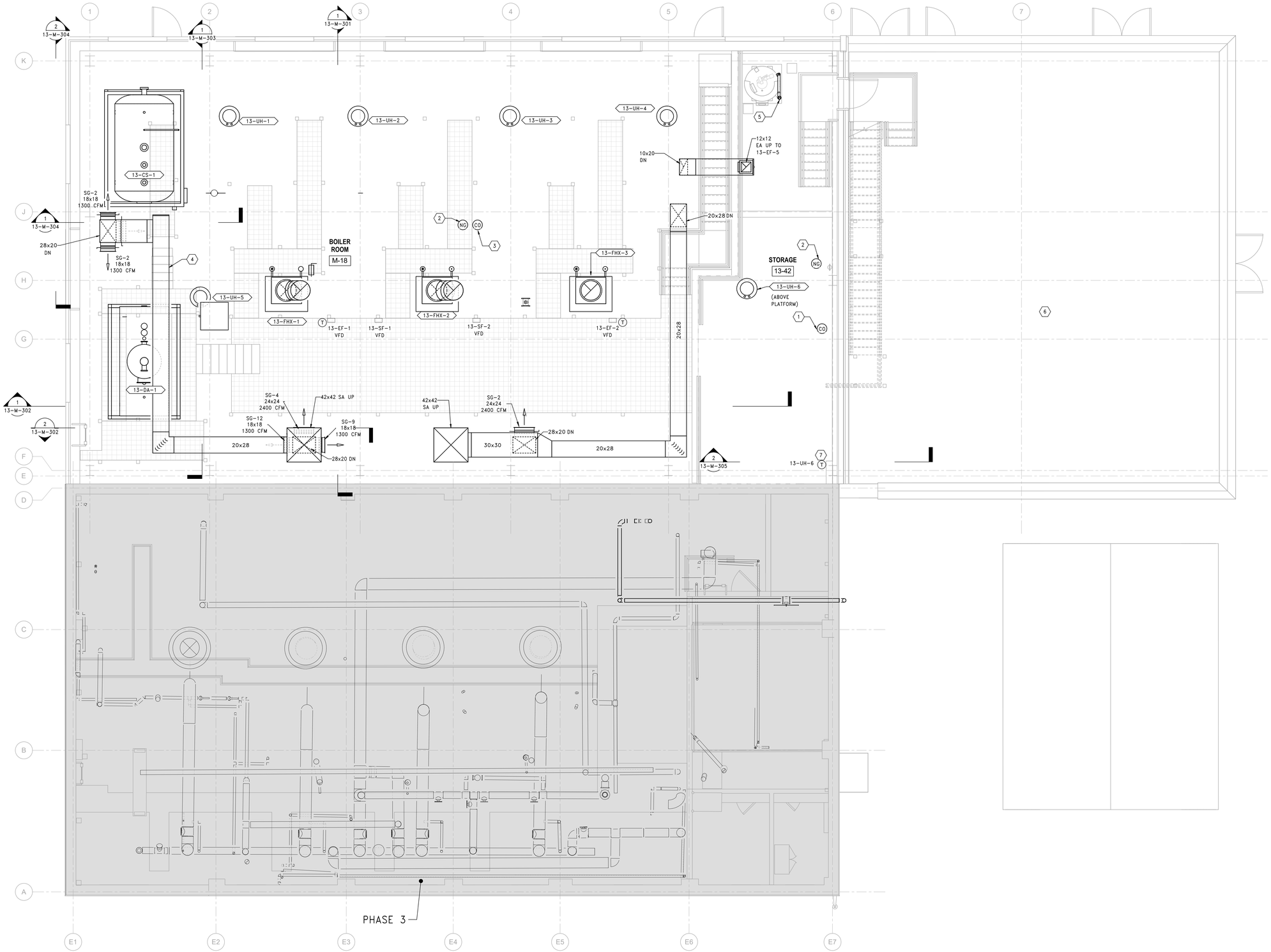

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
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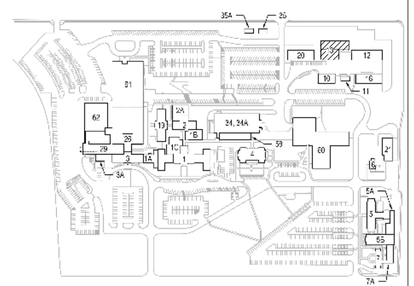
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1 MOUNT CO DETECTORS 4'-6" AFF. CONFIRM QUANITY AND LOCATION OF SENSORS W/ GAS DETECTION VENDOR TO ENSURE COMPLETE COVERAGE.
2 MOUNT NATURAL GAS DETECTOR 12" BELOW CEILING. CONFIRM QUANITY AND LOCATION OF SENSORS WITH GAS DECTECTION VENDOR TO ENSURE COMPLETE COVERAGE.
3 INSTALL CO DETECTS AT BREATHING LEVEL ABOVE THE NEW CATWALK. CONFIRM QUANITY AND LOCATION OF SENSORS WITH GAS DECTECTION VENDOR TO ENSURE COMPLETE COVERAGE.
4 COORDINATE ROUTING OF DUCTWORK WILL ALL TRADES.
5 PROVIDE 3" DIA INTAKE AND EXHAUST CPVC PIPE CONNECTIONS TO 4" DIA CPVC CONCENTRIC VENT KIT FOR NEW CONDENSING HOT WATER HEATER. ROUTE AND INSTALL PER HOT WATER HEATER MANUFACTURER'S RECOMMENDATIONS AND INTERNATIONAL FUEL GAS CODE. EXTEND THRU ROOF MINIMUM 12". TERMINATE WITH RAIN CAP.
6 REFER TO SHEET 13-M-131.02 FOR ROOF PLAN NEW WORK THIS AREA.
7 INSTALL THERMOSTAT 52" AFF.



KEYPLAN

NORTH

1 DUCTWORK PLAN - EXISTING CATWALK & CATWALK LEVELS, PHASE 2

SCALE: 1/4" = 1'-0"

PRINTS OF THIS DRAWING SHALL NOT BE USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE

CONSULTANTS

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PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
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ARCHITECTURAL
OCULUS INC.
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ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786
PHONE: (502)836-4232

ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-8002
MR PROJECT NO: 0499-0121

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACARO
LICENSED
26413
KANSAS
PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL DUCTWORK PLAN EX CATWALK & CATWALK LVLS, PH 2	**Phase** 100% BID SET	**Project Title** INSTALL NEW BOILERS IN BUILDING 13	**Project Number** 589A7-18-302
Approved: Project Director	FULLY SPRINKLERED		**Building Number** 13
		Location ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	**Drawing Number** 13-MH121.02
		Issue Date 2021-09-03 / **Checked** AP / **Drawn** GDS	

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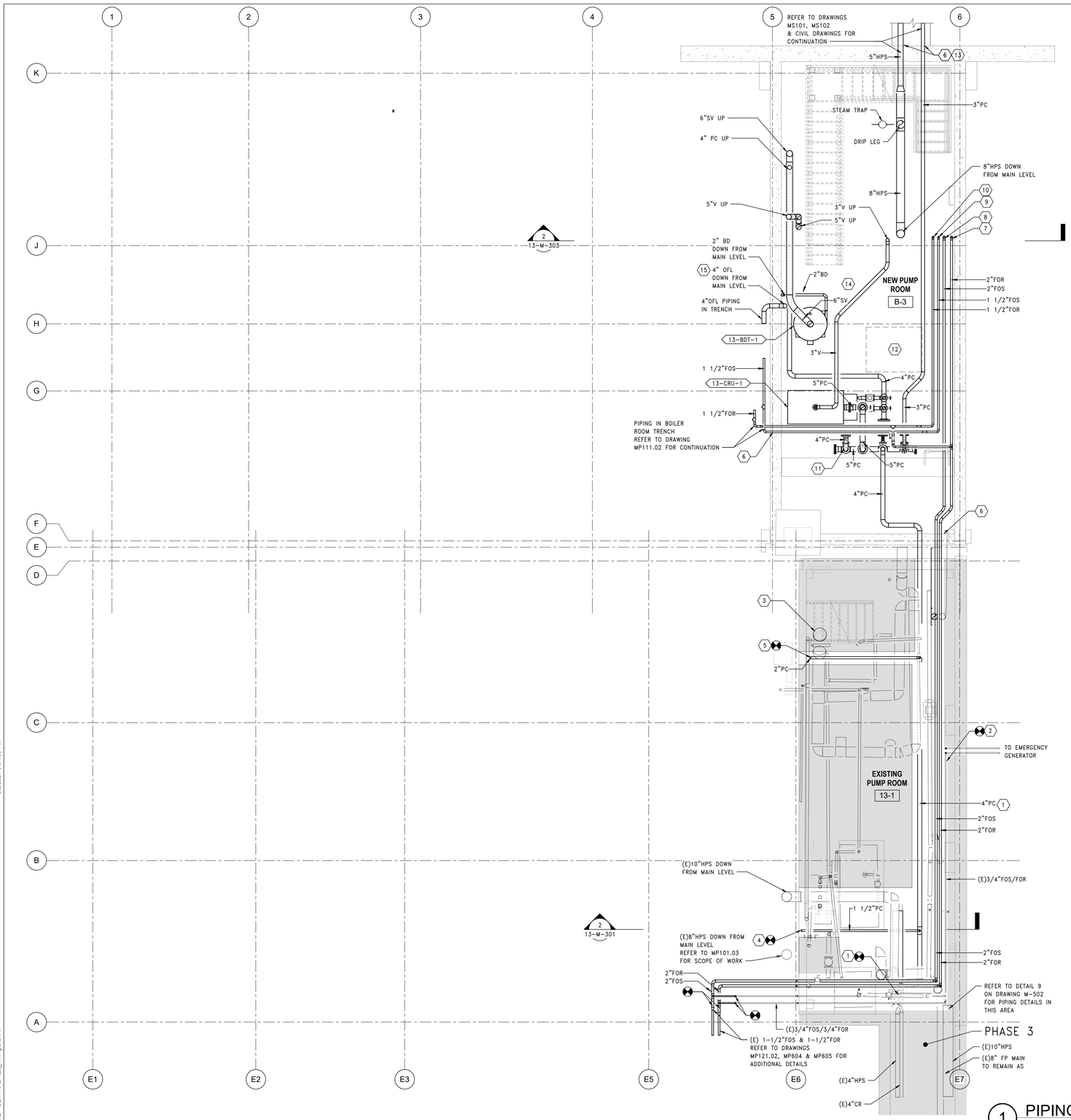

GENERAL SHEET NOTES:

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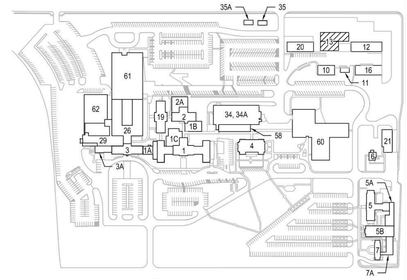
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1. EXTEND EXISTING 4" CONDENSATE PIPE (PC) TO NEW PUMP ROOM. PIPING TO BE INSTALLED IN PHASE 2. KEEP PIPE AS CLOSE TO WALL AS POSSIBLE, COORDINATE ROUTING WITH EXISTING CONDITIONS.
2. CONNECT EXISTING 3/4"FOS & 3/4"FOR TO RELOCATED EMERGENCY GENERATOR. PIPING TO BE INSTALLED IN PHASE 2. PROVIDE NEW STEEL PIPE SLEEVES & LINK SEAL IN ANNUAL SPACE. REFER TO ELECTRICAL DRAWING 13-EP101.01 FOR GENERATOR RELOCATION SCOPE.
3. EXISTING 8" DIA HPS SERVING THE NORTH LOOP. REFER TO MPD101.03 FOR SCOPE OF WORK DETAILS.
4. EXTEND EXISTING CONDENSATE RETURN LINE FROM EXIT OF EXISTING TRENCH AT FOUNDATION WALL TO NEW 4" CR MAIN.
5. INSTALL NEW 1-1/2" DIA. PC FROM THE BOTTOM OF THE EXISTING PC RISER NEXT TO THE STAIRS DOWN TO LOWER LEVEL, CONNECT INTO THE EXTENDED 4" PC IN LOWER LEVEL AND TO PC FROM BUILDING 12. REFER TO DRAWING MP603 FOR ADDITIONAL DETAILS.
6. PIPES THROUGH FOUNDATION WALL. PROVIDE SCH 40 PIPE SLEEVE AND LINK SEAL IN ANNULAR SPACE. REFER TO DETAIL 6 ON DRAWING M-506.
7. 2" FOR DOWN FROM 13-FOP-1/2 TO STORAGE TANKS.
8. 2" FOS FROM STORAGE TANKS UP.
9. 1-1/2" FOS DOWN FROM 13-FOP-1/2 TO BOILER FUEL OIL LOOP.
10. 1-1/2" FOR FROM BOILERS FUEL OIL LOOP UP.
11. 4" DIA VALVED TAP FOR FUTURE. PROVIDE BLIND FLANGE.
12. FLOOR ACCESS DOOR ABOVE TO CONTROL ROOM. COORDINATE PIPING TO PROVIDE CLEAR PATH FOR RIGGING OF EQUIPMENT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS.
13. INSTALL NEW PIPE ANCHOR ATTACHED TO FOUNDATION WALL. REFER TO DETAIL 15 ON STRUCUTRAL DRAWING S-502.
14. REFER TO MH SERIES DRAWINGS FOR GAS DETECTION SENSOR LOCATIONS.
15. 4" OFL TO SEPARATE BLOWDOWN TANK CONNECTION. REFER TO DRAWING MP601 AND MP-603 FOR ADDITIONAL DETAILS.



KEYPLAN

NORTH

1 PIPING PLAN - TUNNEL & BASEMENT LEVELS, PHASE 2

SCALE: 1/4" = 1'-0"

three inches = one foot
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NO.	DESCRIPTION	DATE

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CONSULTANTS

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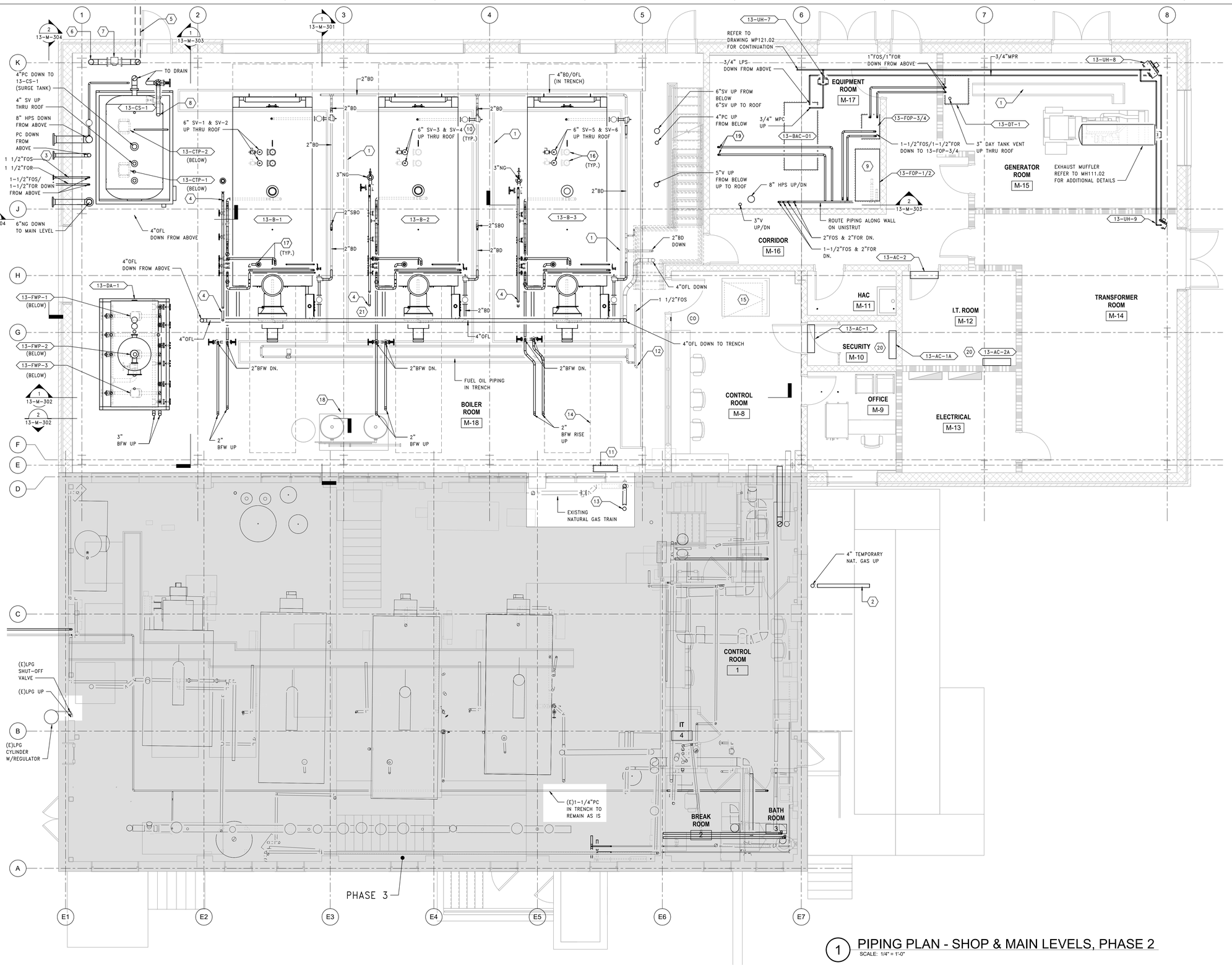
MILLER-REMICK LLC PROFESSIONAL ENGINEER

ANTHONY D. PACARO LICENSED 26413 KANSAS PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL PIPING PLAN TUNNEL & BSMT LEVELS, PHASE 2	**Phase** 100% BID SET	**Project Title** INSTALL NEW BOILERS IN BUILDING 13	**Project Number** 589A7-18-302
Approved: Project Director	FULLY SPRINKLERED	**Location** ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	**Building Number** 13
		Issue Date 2021-09-03 / **Checked** AP / **Drawn** GDS	**Drawing Number** 13-MP101.02

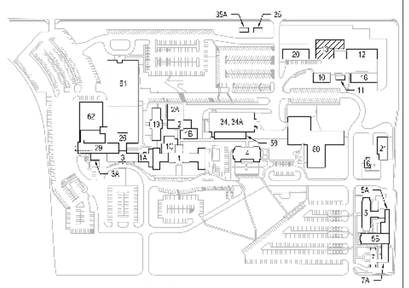


GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM OR EQUIPMENT.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1. NEW PIPING TRENCH. REFER TO ARCHITECTURAL/STRUCTURAL DRAWINGS FOR DETAILS.
2. INSTALL NEW TEMPORARY 4" DIA NATURAL GAS PIPING IN PHASE 1. REFER TO CIVIL DRAWINGS FOR CONTINUATION. NATURAL GAS PIPE TO BE A MINIMUM OF 24" BELOW RAMP FOOTINGS. COORDINATE WITH STRUCTURAL DRAWINGS.
3. CONNECTIONS FOR FUTURE TEMPORARY BOILER. ALL CONNECTIONS SHALL BE PROVIDED WITH ISOLATION VALVE AND BLIND FLANGE. COORDINATE LOCATION WITH ALL TRADES.
4. GAS TRAIN VENTS UP THROUGH ROOF. VENTS MUST BE A MINIMUM OF 10 FEET FROM ANY INTAKES. SIZE VENTS PER SCHEDULE ON DETAIL #2 ON DRAWING MP504.
5. NEW 6" UNDERGROUND NATURAL GAS MAIN. REFER TO CIVIL DRAWINGS FOR CONSTRUCTION.
6. 6" DIA NATURAL GAS UP.
7. 6" DIA MAXON VALVE. REFER TO DRAWING MP604 FOR ADDITIONAL DETAILS.
8. 4" TANK SURGE TANK BYPASS CONNECT TO CONDENSATE TRANSFER PUMP SUCTION HEADER. PROVIDE SEPARATE VALVED PIPE TO DRAIN. REFER TO DRAWING MP603 FOR ADDTIONAL DETAILS.
9. REFER TO DRAWINGS MP604 & MP605 FOR FUEL OIL FLOW DIAGRAMS.
10. PROVIDE DRIP PAN ELBOW PER DETAIL 8 ON DRAWING M-503.
11. BOILER MASTER CONTROL PANEL.
12. FUEL OIL PIPING IN TRENCH. REFER TO DRAWING MP101.02 FOR CONTINUATION.
13. TEMPWATER 4" NATURAL GAS DOWN FROM ABOVE. REFER TO DRAWING MP121.02. PIPING INSTALLED IN PHASE 1.
14. INDICATES BOILER CLEARANCE REQUIREMENTS.
15. FLOOR ACCESS DOOR TO NEW PUMP ROOM BELOW. COORDINATE PIPING BELOW TO PROVIDE CLEAR PATH FOR RIGGING OF EQUIPMENT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS.
16. BOILER SAFETY RELIEF VALVES. REFER TO DRAWING MP601 FOR ADDITIONAL DETAILS.
17. FEEDWATER PIPING UP TO FLUE STACK ECONOMIZER. REFER TO DRAWINGS MP121.02 AND MP601 FOR ADDTIONAL DETAILS.
18. TEMPORARY WATER TREATMENT SKID. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATIONS.
19. 1-1/2"FOS/FOR UP. REFER TO DRAWING MP121.02 FOR CONTINUATION.
20. CONTRACTOR SHALL PROVIDE (N+1) COMPLETE HVAC SYSTEMS FOR SECURITY M-10 AND IT ROOM M-12.
21. REFER TO MH SERIES DRAWINGS FOR GAS DETECTION SENSOR LOCATIONS.



KEYPLAN

NORTH

1 PIPING PLAN - SHOP & MAIN LEVELS, PHASE 2

SCALE: 1/4" = 1'-0"

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
PHONE: (314)367-6100

FIRE SUPPRESSION
KOFFEL ASSOCIATES
8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045
PHONE: (410)750-2246

ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786
PHONE: (502)836-4232

ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-5002
MR PROJECT NO: 0499-0121

MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACINO LICENSED 26413 KANSAS PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL PIPING PLAN SHOP & MAIN LEVELS, PHASE 2
Phase	100% BID SET
Approved: Project Director	
	FULLY SPRINKLERED
Project Title	INSTALL NEW BOILERS IN BUILDING 13
Location	ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS
Issue Date	2021-09-03
Checked	AP
Drawn	GDS
Project Number	589A7-18-302
Building Number	13
Drawing Number	13-MP111.02

VA FORM 08 - 6231

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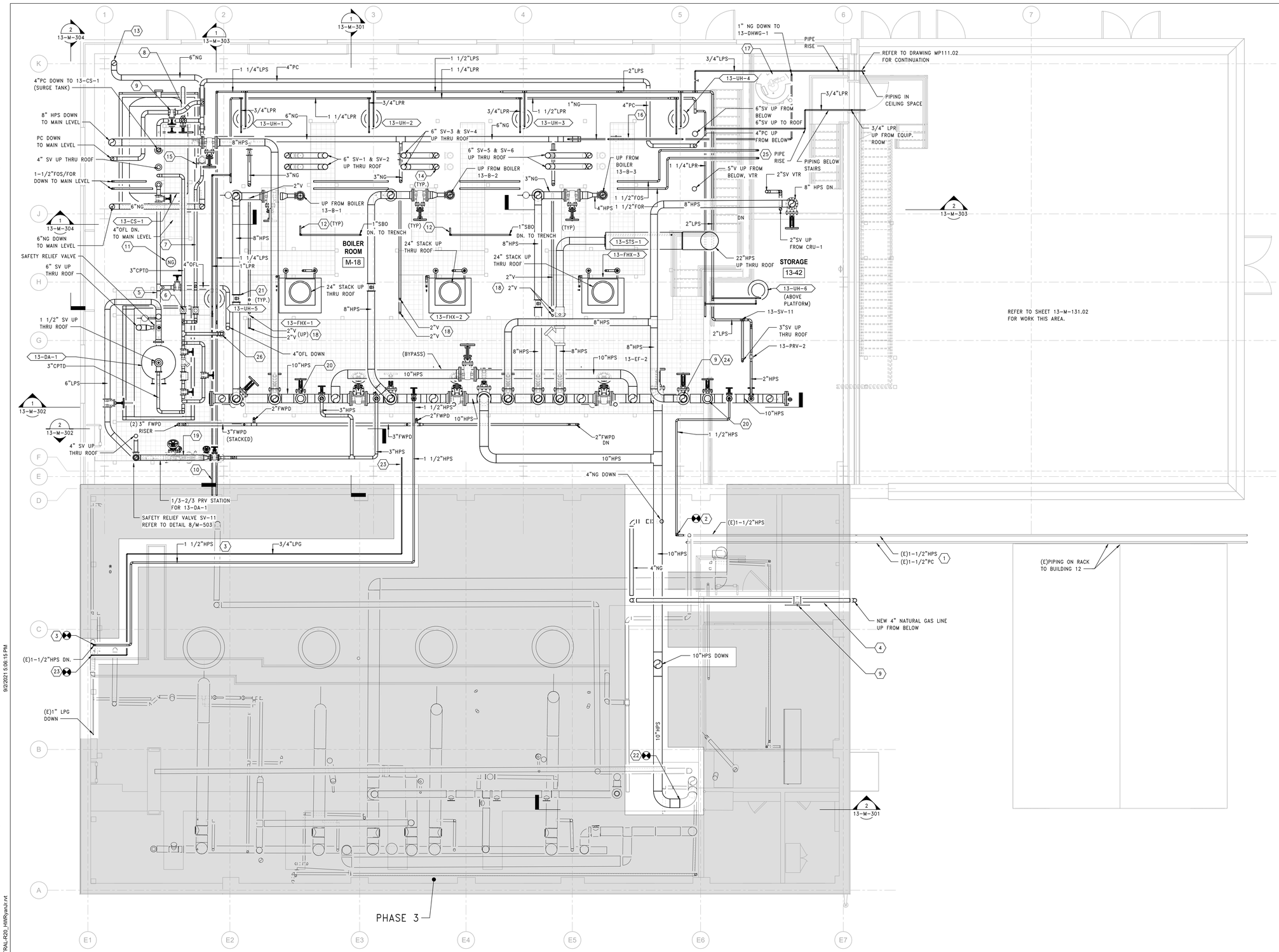
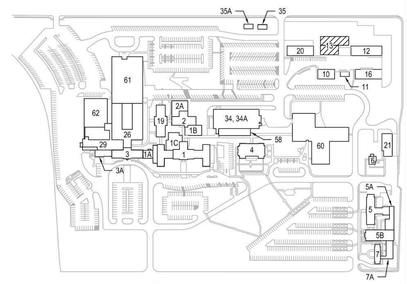


GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1 EXISTING UTILITY RACK TO REMAIN AS IS. PROTECT DURING CONSTRUCTION.
2 CONNECT NEW 1-1/2" DIA HPS TO EXISTING STEAM FEEDING BUILDING 12.
3 CONNECT NEW 1-1/2" HPS TO EXISTING 1-1/2" HPS FEEDING BUILDING 20. COORDINATE ROUTING WITH EXISTING CONDITIONS.
4 COORDINATE ROUTING OF TEMPORARY 4" DIA. GAS LINE THROUGH EXISTING PLANT WITH EXISTING CONDITIONS.
5 SLOPE DEARATOR OVERFLOW TO CONDENSATE SURGE TANK. SLOPE 1/8" PER FT.
6 DOWN TO FEEDWATER PUMP SUCTION HEADER. (DEAERATOR BYPASS). REFER TO DRAWING MP602 FOR ADDITIONAL DETAILS.
7 4"PC (SURGE TANK BYPASS TO DEAERATOR). REFER TO DRAWING MP602 & MP603 FOR ADDITIONAL DETAILS.
8 4" DIA SURGE TANK BYPASS. REFER TO DRAWING MP603 FOR ADDITIONAL DETAILS.
9 ALL ISOLATION VALVES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE.
10 INSTALL PIPE THROUGH THE WALL INTO THE EXISTING PLANT IN PHASE 2. PROVIDE TEMPORARY CAP.
11 MOUNT NATURAL GAS DETECTOR 12" BELOW CEILING. CONFIRM QUANITY AND LOCATION OF SENSORS WITH GAS DECTECTION VENDOR TO ENSURE COMPLETE COVERAGE.
12 1/4" STAINLESS STEEL TUBING CONNECTIONG FOR SAMPLE COOLER LOCATED AT SINK.
13 6" DIA NATURAL GAS PIPE UP FROM BELOW.
14 PROVIDE DRIP PAN ELBOW PER DETAIL 8 ON DRAWING M-503.
15 4" TANK SURGE TANK BYPASS CONNECT TO CONDENSATE TRANSFER PUMP SUCTION HEADER. PROVIDE SEPARATE VALVED PIPE TO DRAIN. REFER TO DRAWING MP603 FOR ADDTIONAL DETAILS.
16 NATURAL GAS PRESSURE REGULATOR 10 PSIG TO 12" W.C. FOR 13-DHWG-01. PROVIDE RELIEF VENT UP THROUGH ROOF.
17 REFER TO PLUMBING DRAWINGS FOR VENTING FOR GAS FIRED DOMESTIC WATER HEATER.
18 GAS TRAIN VENTS UP THROUGH ROOF. VENTS MUST BE A MINIMUM OF 10 FEET FROM ANY INTAKES. SIZE VENTS PER SCHEDULE ON DETAIL #2 ON DRAWING MP504.
19 PRV STATION FOR DEAERATOR. REFER TO DRAWING MP602 FOR FLOW DIAGRAM.
20 6" DIA VALVED SPARE CONNECTION WITH 300# BLIND FLANGE.
21 STEAM FLOW METER. REFER TO DRAWING MP601 FOR PIPING DETAILS. INSTALL SHALL MEET THE MANUFACTURERS REQUIREMENTS FOR UPSTREAM AND DOWNSTREAM STRIAGHT PIPE.
22 CONNECT TO EXISTING 10" DIA HPS LINE AT THE ELBOW AT THE TOP OF RISER. WORK TO BE PERFORMED AFTER THE NORTH LOOP WORK HAS BEEN COMPLETED AND PLACED IN SERVICE.
23 CONTRACTOR SHALL EXTEND THE EXISTING LPG GAS PIPING, AS INDICATED ON THE PLANS IN THE EXISTING BOILER PLANT TO NEW BOILERS. REFER TO DETAIL 2 ON DRAWING MP604 FOR ADDITIONAL DETAILS. ALL LPG PIPING SHALL MEET ALL NFPA 58 REQUIREMENTS. COORDINATE ROUTING WITH EXISTING CONDITIONS.
24 ALL MAIN STEAM VALVES TO HAVE 1" BYPASS LINE WITH GLOBE VALVE FOR WARM-UP. NOT SHOWN FOR CLARITY.
25 1-1/2"FOS/FOR UP. REFER TO DRAWING MP111.02 FOR CONTINUATION.
26 3" CTPD – DA TANK BYPASS DOWN TO FEEDWATER PUMP SUCTION HEADER.



1 PIPING PLAN - EXISTING CATWALK & CATWALK LEVELS, PHASE 2

SCALE: 1/4" = 1'-0"

PRINTS OF THIS DRAWING SHALL NOT BE USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
PHONE: (314)367-6100

FIRE SUPPRESSION
KOFFEL ASSOCIATES
8815 CENTRE PARK DRIVE, SUITE 200, COLUMBIA, MD 21045
PHONE: (410)750-2246

ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786
PHONE: (502)836-4232

ENGINEER OF RECORD

***Miller-Remick** LLC*
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
SDVOSB

1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-5002

MR PROJECT NO: 0499-0121

MILLER-REMICK LLC PROFESSIONAL ENGINEER

ANTHONY D. PACARO — LICENSED — 26113 — KANSAS — PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL PIPING PLAN EX CATWALK & CATWALK LVLS, PH 2
Phase	100% BID SET
Approved: Project Director	
Project Title	INSTALL NEW BOILERS IN BUILDING 13
Location	ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS
Issue Date	2021-09-03
Checked	AP
Drawn	GDS
Project Number	589A7-18-302
Building Number	13
Drawing Number	13-MP121.02

FULLY SPRINKLERED

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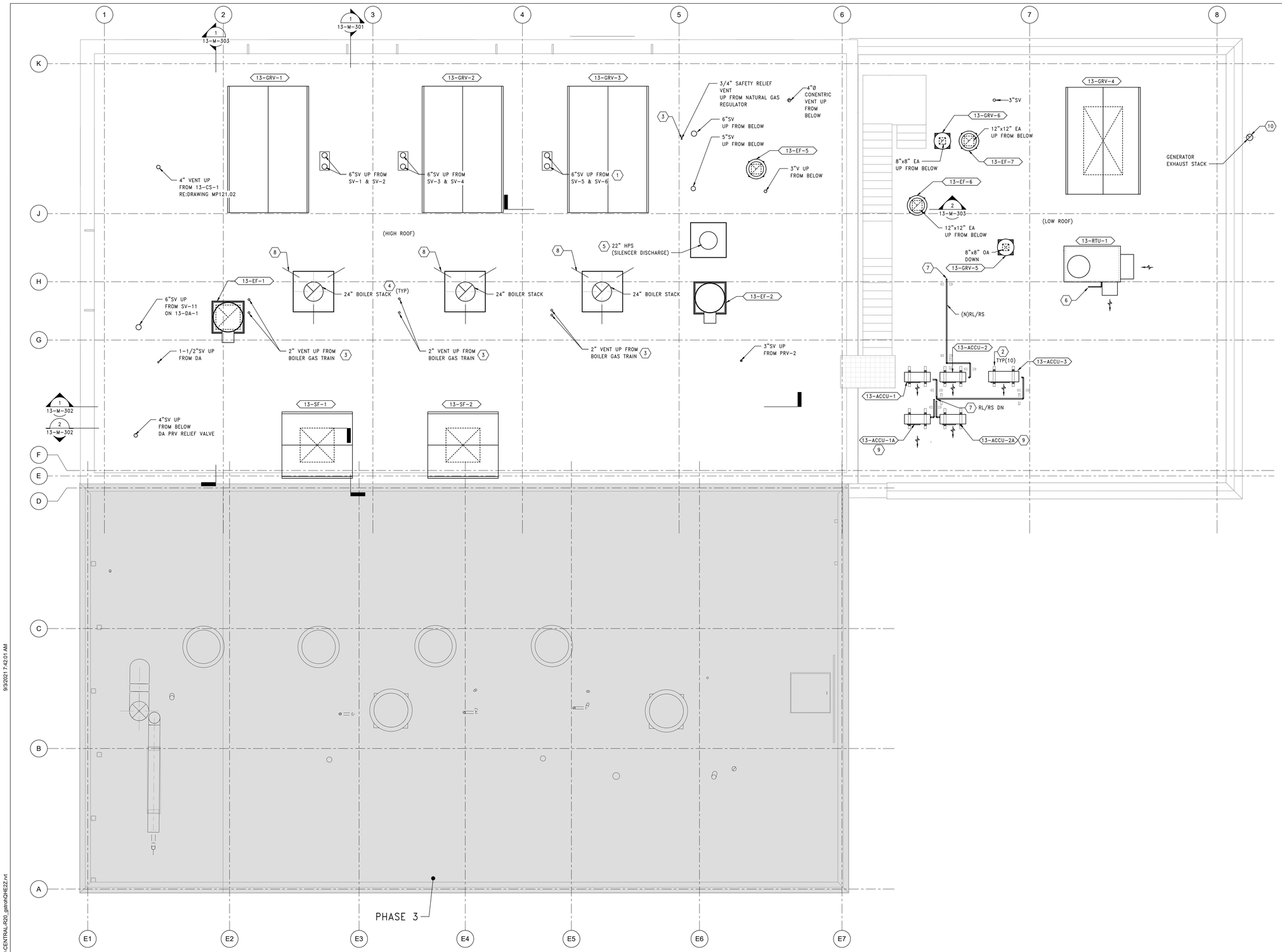
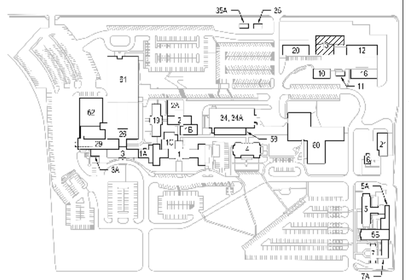


GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWINGS MP601, MP602, MP603 AND MP604 FOR SYSTEM FLOW DIAGRAMS.
3. REFER TO DRAWINGS M-701, M-702, M-703 AND M-704 FOR EQUIPMENT SCHEDULES.
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM OR EQUIPMENT.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

SHEET KEYNOTES:

1 REFER TO DETAIL 8 ON DRAWING M-503 FOR SAFTEY RELIEF VALVE VENT TERMINATION.
2 PROVIDE 18" HIGH WIND RATED EQUIPMENT RAIL.
3 GAS TRAIN VENTS UP THROUGH ROOF. VENTS MUST BE A MINIMUM OF 10 FEET FROM ANY INTAKES. SIZE VENTS PER SCHEDULE ON DETAIL #2 ON DRAWING MP504.
4 REFER TO DETAIL 1 ON DRAWING M-502 FOR ADDITIONAL INFORMATION.
5 REFER TO DETAIL 2 ON DRAWING M-502 FOR ADDITIONAL INFORMATION.
6 PROVIDE CONDENSATE DRAIN PIPING WITH 4" DEEP TRAP. DISCHARGE TO CONCRETE SPLASH BLOCK WITH EPDM SLIP SHEET.
7 REFRIGERANT PIPING (SUCTION & LIQUID) UP THRU ROOF PIPE PORTAL. PROVIDE SEPARATE BOOT FOR EACH PIPE. ROUTE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTS AS REQUIRED.
8 EQUIPMENT HEIGHT SHALL BE ATTACHED TO ROOF STRUCTURE WITH 120 MPH RATED GALVANIZED STEEL CABLE GUY WIRES. ANCHOR AT THREE POINTS.
9 CONTRACTOR SHALL PROVIDE (N+1) COMPLETE HVAC SYSTEMS FOR SECURITY M-10 AND IT ROOM M-12.
10 GENERATOR EXHAUST DISCHARGES UP. REFER TO DETAIL 12 ON DRAWING M-503. REFER TO STRUCTURAL DRAWINGS FOR SUPPORT DETAILS.



KEYPLAN

NORTH

1 MECHANICAL NEW WORK PLAN - ROOF, PHASE 2

SCALE: 1/4" = 1'-0"

PRINTS OF THIS DRAWING SHALL NOT BE USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
PHONE: (314)367-6100

FIRE SUPPRESSION
KOFFEL ASSOCIATES
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PHONE: (410)750-2246

ELECTRONIC SECURITY
MAGNA ENGINEERS
861 CORPORATE DRIVE, SUITE 210, LEXINGTON, KY 40503
PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
3210 GULF BLVD, UNIT 304, BELLEAIR BEACH, FL 33786
PHONE: (502)836-4232

ENGINEER OF RECORD

Miller-Remick LLC
M.E.P. & Structural Engineering
A Service Disabled Veteran Owned Small Business
1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
PHONE: (856)429-4000
FAX: (856)429-8002
MR PROJECT NO: 0499-0121

MILLER-REMICK LLC PROFESSIONAL ENGINEER

ANTHONY D. PACARO LICENSED 26413 KANSAS PROFESSIONAL ENGINEER
9.3.2021

Office of Construction and Facilities Management

U.S. Department of Veterans Affairs

Drawing Title MECHANICAL NEW WORK PLAN ROOF, PHASE 2	**Phase** 100% BID SET	**Project Title** INSTALL NEW BOILERS IN BUILDING 13	**Project Number** 589A7-18-302
Approved: Project Director	FULLY SPRINKLERED	**Location** ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS	**Building Number** 13
		Issue Date 2021-09-03 / **Checked** AP / **Drawn** GDS	**Drawing Number** 13-M-131.02

VA FORM 08 - 6231

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three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

GENERAL SHEET NOTES:

1. REFER TO DRAWING M-001 FOR NOTES, SYMBOLS AND ABBREVIATIONS.
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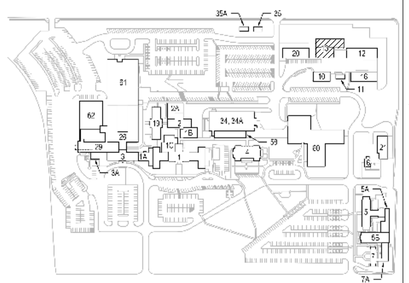
4. CONTRACTOR SHALL SUBMIT A DETAILED LOCKOUT/TAGOUT PROCEDURE TO THE VA A MINIMUM OF 4 WORKING DAYS PRIOR TO PERFORMING ANY WORK ON ANY LIVE STEAM OR STEAM CONDENSATE SYSTEM OR EQUIPMENT.
5. ALL VALVE HANDLES MUST BE ACCESSIBLE FROM A WALKABLE SURFACE. COORDINATE LOCATION WITH ALL TRADES.

⬡ SHEET KEYNOTES:

1 EXISTING FUEL OIL PIPING TO EXISTING EXTERIOR GENERATOR SHALL BE DISCONNECTED AND REMOVED. GENERATOR TO BE RELOCATED. REFER TO ELECTRICAL DRAWINGS 13-ED101.01 AND 13-EP111 FOR GENERATOR RELOCATION SCOPE.
2 EXISTING 1-1/2"HPS DOWN FROM ABOVE INTO EXISTING PIPE TRENCH TO BUILDING 20. REFER TO PHASE 2 DRAWING MP101.02 FOR NEW WORK SCOPE.
3 EXISTING 4" DIA HPS SHALL BE DISCONNECTED AND REMOVED. REFER TO DETAIL 9 ON DRAWING M-502 FOR ADDITIONAL DETAILS.
4 AFTER THE NORTH LOOP IS OPERATIONAL FROM THE NEW BOILER PLANT HEADER, DISCONNECT AND REMOVE EXISTING 5"HPS AND ASSOCIATED CONDENSATE PIPING WITHIN THE EXISTING BOILER PLANT TO POINT OF CONNECTION FROM NEW.
5 UNDERGROUND FUEL-OIL PIPING TO BE DOUBLE CONTAINMENT.
6 ONCE NEW BOILER PLANT IS OPERATIONAL AND PRIOR TO INSTALLATION OF NEW RAMP, DISCONNECT AND REMOVE EXISTING 4" DIA NATURAL GAS BACK TO SHUTOFF VALVE AND CAP.REFER TO DRAWING MP101.02 FOR ADDITIONAL DETAILS.
7 EXSTING FUEL OIL PIPING IN LOWER LEVEL INSTALLED IN PHASE 2.
8 DISCONNECT AND REMOVE EXISTING CONDENSATE RECEIVER, PUMPS AND ASSOCIATED PIPING.



KEYPLAN

NORTH

1 MECHANICAL DEMOLITION PLAN - TUNNEL & BASEMENT LEVELS, PHASE 3

SCALE: 1/4" = 1'-0"

NO.	DESCRIPTION	DATE

CONSULTANTS

HAZARDOUS MATERIALS
MABBETT & ASSOCIATES, INC.
105 CENTRAL STREET, STONEHAM, MA 02180
PHONE: (781)275-6050

CIVIL / STRUCTURAL
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA, WICHITA, KS 67202
PHONE: (316)262-2691

ARCHITECTURAL
OCULUS INC.
1 SOUTH MEMORIAL DRIVE, SUITE 1500, SAINT LOUIS, MO 63102
PHONE: (314)367-6100

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PHONE: (410)750-2246

ELECTRONIC SECURITY
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PHONE: (859)309-2990

PHYSICAL SECURITY
FORCE PROTECT
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PHONE: (502)836-4232

ENGINEER OF RECORD

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1010 KINGS HIGHWAY SOUTH
CHERRY HILL, NEW JERSEY 08034
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MILLER-REMICK LLC
PROFESSIONAL ENGINEER

ANTHONY D. PACAIO
LICENSED
26413
KANSAS
PROFESSIONAL ENGINEER
9-9-2021

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL DEMOLITION PLAN TUNNEL & BSMT LEVELS, PHASE 3
Phase	100% BID SET
Approved: Project Director	
	FULLY SPRINKLERED
Project Title	INSTALL NEW BOILERS IN BUILDING 13
Location	ROBERT J. DOLE VA MEDICAL CENTER WICHITA, KANSAS
Issue Date	2021-09-03
Checked	AP
Drawn	GDS
Project Number	589A7-18-302
Building Number	13
Drawing Number	13-MD101.03

VA FORM 08 - 6231

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