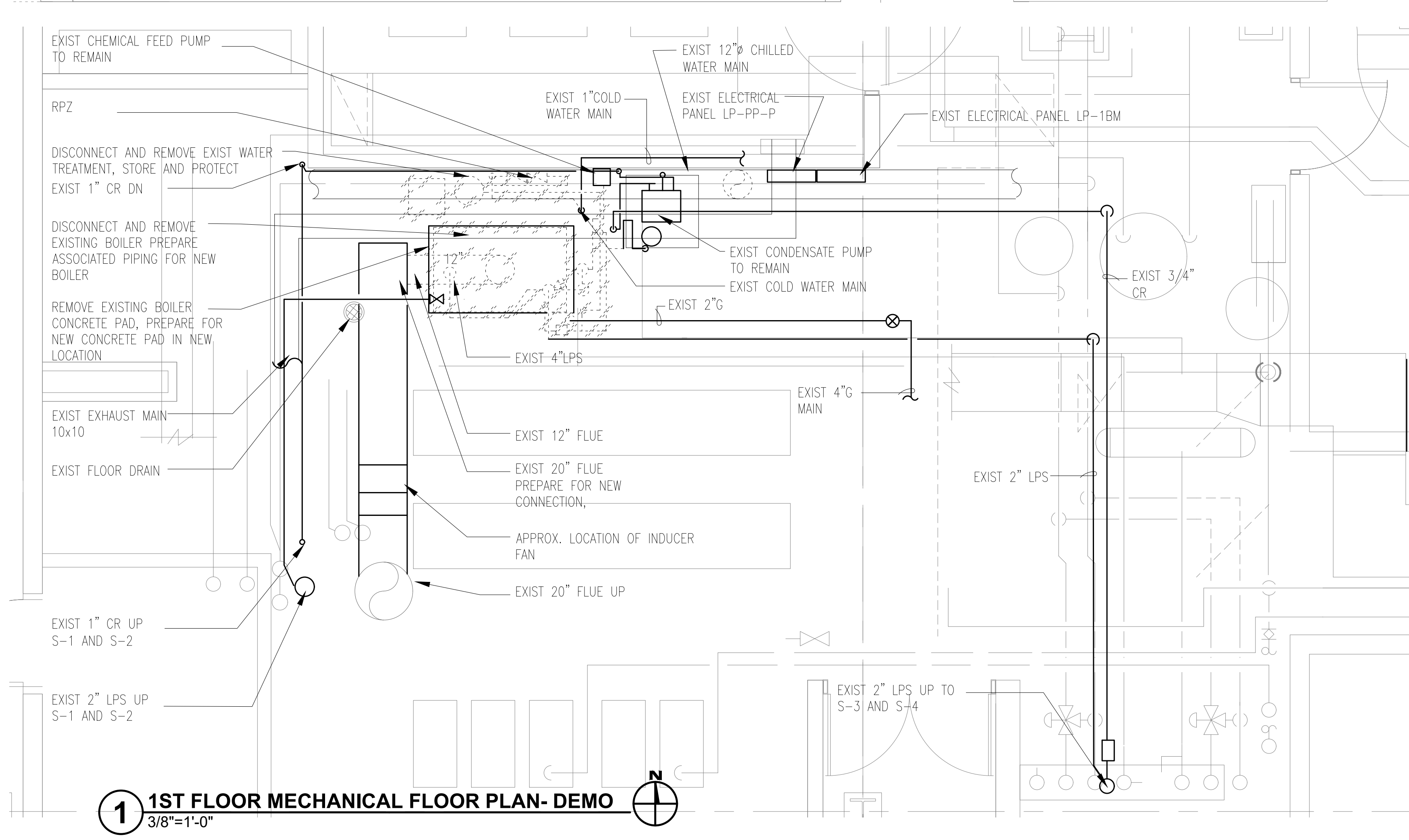
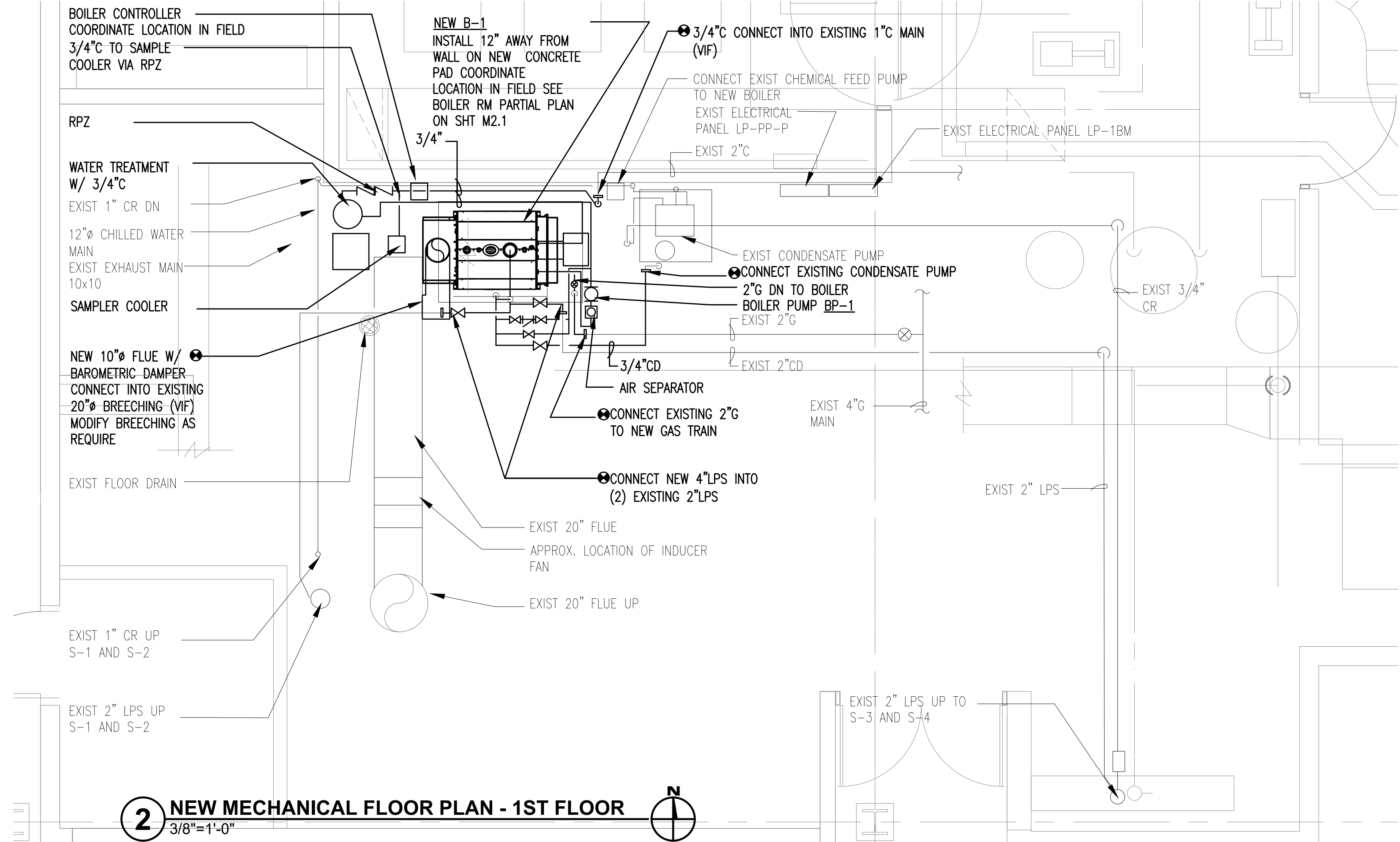


HUMIDIFIER BOILER REPLACEMENT SCOPE NOTES	
1	REMOVE EXISTING STEAM HUMIDIFICATION BOILER, B-1, WITH CONTROLS, SAFETY, POWER AND WATER PIPING CONNECTIONS. PREPARE THE REMAINING CONNECTIONS FOR NEW STEAM HUMIDIFICATION BOILER INSTALLATION.
2	PROVIDE NEW HARTFORD LOOP AND NEW WATER FEED SAFETY VALVE. CODE APPROVED (P AND T) VALVE WITH DISCHARGE TO PLUMBING FLOOR DRAIN. CONNECT INTO EXISTING MAKE-UP WATER FROM CODE APPROVED BACK FLOW PREVENTER.
3	CONNECT NEW UL LISTED FLUE INTO EXISTING BREACHING IN THE MECHANICAL ROOM UPSTREAM OF THE EXISTING INLINE INDUSTRIAL FAN.
4	CONNECT NEW STEAM HUMIDIFICATION BOILER TO EXISTING NATURAL GAS PIPING, LPS SUPPLY MAINS AND TO EXISTING GRAVITY AND PUMPED CONDENSATE DRAIN LINES.
5	PROVIDE INSULATION ON ALL NEW AND EXISTING PIPING AND FITTINGS CONNECTED TO AND OTHERWISE SERVING THE NEW STEAM HUMIDIFICATION BOILER.
6	PROVIDE NEW POWER WIRING, CONDUIT AND SAFETY SWITCHES AS SHOWN AND REQUIRED FOR THE NEW STEAM HUMIDIFIER BOILER CONTROLS AND OTHER REQUIRED ELECTRICAL CONNECTIONS.
7	PROVIDE NEW TEMPERATURE CONTROLS AND SAFETY CONTROLS REPLACING THE EXISTING CONTROLS TO FULLY FUNCTION FOR THE NEW HUMIDIFIER BOILER.
8	RELOCATE AND REINSTALL THE ENTIRE EXISTING WATER SOFTENER AND TREATMENT SYSTEM.
9	MOUNT NEW STEAM BOILER ON A NEW REINFORCED CONCRETE PAD, FULLY REPLACING THE EXISTING CONCRETE PAD.
10	PROVIDE NEW BOILER AND RELATED EQUIPMENT CONTROLS TO BE MONITORED AND CONTROLLED BY A SINGLE COMPUTER APPLICATION AND BACNET COMMUNICATION WITH THE LIBRARY'S BUILDING AUTOMATION SYSTEM.
11	PROVIDE COMPLETE WATER TESTING, ADJUSTING AND BALANCING (TAB) REPORT FOR NEW PROJECT SYSTEMS.

GENERAL SCOPE OF WORK	
1	WORK SHALL MEAN THE FURNISHING OF ALL LABOR, MATERIAL, EQUIPMENT AND OTHER INCIDENTALS NECESSARY OR CONVENIENT TO THE SUCCESSFUL COMPLETION OF THE IMPROVEMENTS SHOWN ON THIS SET OF PLANS. WORK SHALL ALSO INCLUDE CARRYING OUT OF ALL THE DUTIES AND OBLIGATIONS IMPOSED BY THE AGREEMENT BETWEEN THE OWNER AND THE CONTRACTOR FOR THE PROPER INSTALLATION AND ACCEPTANCE OF THE IMPROVEMENTS SHOWN ON THIS SET OF PLANS.
2	COMPLIANCE WITH LOCAL ORDINANCES ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE VILLAGE OF NORTHBROOK'S AND THE NORTHBROOK PUBLIC LIBRARY'S ORDINANCES AND STANDARDS.
3	ALL WORK PERFORMED BY THE CONTRACTOR AND/OR SUBCONTRACTOR UNDER THIS CONTRACT SHALL BE GUARANTEED TO THE VILLAGE OF NORTHBROOK AND OWNER BY EACH CONTRACTOR AND SUBCONTRACTOR AND HIS SURETY FOR A PERIOD OF 12 MONTHS AFTER FINAL ACCEPTANCE OF THE WORK AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE.
4	EACH CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. EACH CONTRACTOR AND SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY OR LOSS TO: <ul style="list-style-type: none"> A) ALL EMPLOYEES ON THE WORK AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED THEREBY; B) EACH CONTRACTOR AND SUBCONTRACTOR SHALL DESIGNATE A RESPONSIBLE REPRESENTATIVE AT THE SITE WHOSE DUTY SHALL BE THE PREVENTION OF ACCIDENTS. THIS PERSON SHALL BE THE CONTRACTOR'S SUPERINTENDENT UNLESS OTHERWISE DESIGNATED IN WRITING BY THE CONTRACTOR TO OWNER.
5	THE NORTHBROOK PUBLIC LIBRARY SHALL BE NOTIFIED BY EVERY CONTRACTOR AND SUBCONTRACTOR AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6	EVERY CONTRACTOR SHALL COMPLY WITH ALL LOCAL AND STATE SAFETY LAWS, REGULATIONS AND ORDINANCES; AND FEDERAL SAFETY REGULATIONS AS OUTLINED IN THE LATEST REVISIONS OF THE FEDERAL CONSTRUCTION SAFETY STANDARDS AND WITH ALL PROVISIONS AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS. EACH CONTRACTOR AND SUBCONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE WORKING PLACE FOR HIS EMPLOYEES. EACH CONTRACTOR AND SUBCONTRACTOR IS RESPONSIBLE FOR THE SUPERVISION, DIRECTION AND CONDUCT OF THEIR EMPLOYEES, AGENTS, MATERIAL SUPPLIERS AND VENDORS.
7	CONTRACTOR AGREES TO COMPLY WITH THE INSURANCE AND INDEMNITY REQUIREMENTS INCLUDED IN THE A105-2007, AS MODIFIED BY OWNER.
8	ALL ITEMS THAT ARE NOT SPECIFICALLY SHOWN ON THE PLANS OR IN THE SUMMARY OF QUANTITIES BUT CAN REASONABLY BE INTERPRETED TO BE INCLUDED IN THE WORK DESCRIBED SHALL BE INCIDENTAL TO THE COST OF THE CONTRACT.
9	FOR THE PURPOSES OF THESE SPECIFICATIONS, THE TERMS CONTRACTOR AND SUBCONTRACTOR SHALL MEAN ANY PERSON OR ENTITY THAT PROVIDES WORK FOR THE IMPROVEMENTS AS SHOWN ON THESE PLANS. THE ENGINEER, AND THE OWNER ARE NOT CONSIDERED CONTRACTORS OR SUBCONTRACTORS.

BOILER INSTALLATION NOTES	
BOILER ROOM:	INSTALL THE BOILER LEVEL ON NEW AND OR MODIFIED REINFORCED CONCRETE BASE. MAKE AVAILABLE A CONVENIENT WATER SUPPLY AND ALLOW ADEQUATE DRAINAGE, INCLUDING UNOBSTRUCTED FLOOR DRAINS, FOR FLUSHING AND FILLING THE BOILER. POWER THE BOILER USING A PROPERLY RATED ELECTRICAL SERVICE. INCLUDE FUSED DISCONNECTS FOR CONTROL CIRCUITS, BLOWER MOTOR CIRCUITS, AND FEED PUMP CIRCUITS THAT REQUIRE A MOTOR CONTACTOR OR MOTOR STARTER RELAY. CLEARANCES TO NONCOMBUSTIBLE MATERIALS SHALL BE IN ACCORDANCE WITH STATE AND LOCAL CODES. PROVIDE CLEARANCES OF 36" ON ALL SIDES. PROVIDE WHERE MAINTENANCE, ELECTRICAL, CODE AND WHEN NEAR COMBUSTIBLE SURFACES. ALLOW ADEQUATE CLEARANCE BETWEEN THE BOILER AND ANY WALLS OR OBSTRUCTIONS TO PERMIT INSPECTION AND SERVICE ON BURNER, BOILER PIPING, CONTROLS, OR COMBUSTION VENT.
FLUE PIPING:	LOCATE THE BOILER AS CLOSE AS POSSIBLE TO THE EXISTING EXHAUST VENT. BE CERTAIN THE CHIMNEY IS CLEAN, AND CLEAR OF OBSTRUCTIONS. THE STACK AND CHIMNEY MATERIAL SHALL COMPLY WITH ALL LOCAL CODES. ATTACH THE FLUE PIPING TO THE ROUND FLUE CONNECTION AND MAKE EACH CONNECTION SECURE. THE FLUE PIPE SHOULD BE FITTED UPWARD AT 1/4" PER FOOT OF RUN (MIN). USE ONLY ELBOWS AND STRAIGHT SECTIONS. TEE'S MAY BE USED IN STRAIGHT SECTIONS WITH A BAROMETRIC DRAFT REGULATOR. TEE'S SHALL NOT BE USED FOR A 90-DEGREE TURN. EACH JOINT SHOULD BE SECURELY FASTENED WITH SHEET METAL SCREWS. THE FLUE PIPE MUST NOT BE INSERTED BEYOND THE INSIDE WALL OF THE CHIMNEY. DO NOT REDUCE THE SIZE OF THE FLUE OUTLET OR FLUE PIPING. PROVIDE AS REQUIRED BY MANUFACTURER, A BAROMETRIC DAMPER OR DRAFT REGULATOR IN THE BREACHING TO MAINTAIN A -0.02" TO -0.05" (INCHES WATER COLUMN) DRAFT IN THE BREACH WHEN THE BURNER IS IN OPERATION. THE DRAFT SHOULD BE 0.0" TO SLIGHTLY NEGATIVE WHEN THE BURNER IS OFF.
BOILER CONNECTIONS:	DRAINS: PROVIDE FOR AT LEAST (2) 1-1/2" DRAINS, AT THE FRONT AND REAR OF THE BOILER. INSTALL A PIPE NIPPLE AND BALL VALVE IN A LEAST ONE FOR USE AS A DRAIN. IF A DRAIN IS NOT NEEDED, PLUG IT BY USING THE PROPER SIZE NIPPLE AND A PIPE CAP. DO NOT USE A PIPE PLUG.
LOW WATER CUT-OFFS:	PROVIDE BOILER WITH AT LEAST ONE LOW WATER CUT-OFF (LWCO). INSTALL STEAM BOILER LOW WATER CUT-OFF/PUMP CONTROL, WITH EQUALIZING PIPING INTO THE 1" NPT WELDED COUPLINGS FOUND ON THE TOP AND EITHER SIDE OF THE BOILER. USE TWO 1" NPT WILL BE USED TO PIPE THE WATER COLUMN ON THE ACCESSIBLE SIDE OF THE BOILER. MOUNT PRIMARY LWCO SO THE LOW WATER CUT-OFF INDICATOR LINE ON THE DEVICE IS APPROXIMATELY 3 INCHES ABOVE THE LOWEST PERMISSIBLE LEVEL PLATE.
SECONDARY LOW WATER CUT-OFFS:	PROVIDE SECONDARY LWCO'S AS REQUIRED TO MEET LOCAL CODES OR CSD-1 REQUIREMENTS. PROVIDE THREADED REMOTE SENSOR INTO THE 1/2" NPT FITTING LOCATED ON TOP OF THE BOILER USING A 1/2" X 3/8" BUSHING.
WATER GAUGE DURING OPERATION:	THE BOILER'S WATER LEVEL SHOULD ALWAYS BE ABOVE THE LOWEST PERMISSIBLE WATER LEVEL.
PRESSURE CONTROLLERS:	PROVIDE LOW PRESSURE, 15 PSI CONTROLS CONSIST OF AN OPERATING CONTROL AND A SAFETY LIMIT AND OPERATING CONTROL FOR BURNERS THAT FUNCTION WITH LOW-HIGH-LOW OPERATION. PIPE THE PRESSURE CONTROLS AND THE 30 PSI STEAM GAUGE USING THE SUPPLIED STEAM SYPHON TO THE 1/2" NPT FITTINGS.
AQUASTAT CONTROLLERS:	PROVIDE OPERATING AQUASTAT FOR BURNERS THAT FUNCTION WITH LOW-HIGH-LOW OPERATION FOR THE STEAM BOILER. OPTIONAL PRE-HEAT COIL, MOUNT AQUASTAT IN THE 3/4" NPT FITTINGS LOCATED ON THE FRONT OF THE BOILER.
SAFETY VALVE / RELIEF VALVE:	PROVIDE 15 PSI STEAM SAFETY VALVE FOR THE STEAM BOILER. ALL SAFETY AND RELIEF VALVES SHOULD BE SAFELY PIPED AWAY FROM THE BOILER WITHOUT REDUCING THE VALVE'S OUTLET PORT SIZE.
STEAM CONNECTION:	PIPE THE STEAM LINES TO THE LARGEST FITTING OR FLANGE LOCATED ON TOP OF THE BOILER.
FEED WATER SUPPLY:	CONNECT NEW FEED WATER SUPPLY TO MANUFACTURER APPROVED PORT ON THE HEAT EXCHANGER. PROVIDE TREATMENT BEFORE IT ENTERS THE BOILER TO PREVENT THE FORMATION OF SCALE, AND TO PROTECT THE BOILER SURFACES FROM THE CORROSIVE EFFECTS OF OXYGENATED WATER. WATER TREATMENT AND A WATER TREATMENT PROGRAM MUST BE ADHERED TO. CONNECT CONDENSATE RETURN FEED WATER TANK CONNECT VIA THE FLOOR T VALVE ON THE TANK.
BOILER PRE-HEAT COILS:	CONNECT TWIN COIL UNITS, VIA MANIFOLD INDIRECT WATER PIPING USING COPPER TUBING AND FITTINGS CONNECTED IN PARALLEL. PIPE THE OUTSIDE COIL OPENINGS TOGETHER FOR COLD WATER INLETS, AND THE INSIDE COIL OPENINGS FOR HOT WATER OUTLETS. THE PRE-HEAT COILS MUST BE COVERED BY A MINIMUM OF TWO INCHES OF WATER. DURING NORMAL OPERATION, TO ALLOW PROPER HEAT TRANSFER THROUGH THE COIL, ADJUST ALL LWCO PIPING TO KEEP THE COIL(S) SUBMERGED IN THE EVENT OF A LOW WATER SITUATION.
GAS SUPPLY PIPING:	THE MINIMUM GAS SUPPLY PRESSURE REQUIRED BY THE BURNER IS SEVEN INCHES WATER COLUMN FOR ALL POWER BURNERS. THE MAXIMUM GAS SUPPLY PRESSURE TO THE POWER FLAME BURNER IS FOURTEEN INCHES WATER COLUMN. GAS PRESSURE GREATER THAN FOURTEEN INCHES WATER COLUMN PROVIDE AN ADDITIONAL GAS PRESSURE REGULATOR TO PREVENT DAMAGE TO THE PRIMARY GAS REGULATOR. VENT LINES, IF REQUIRED, ARE TO BE RUN OUTSIDE THE BUILDING, STOPPING CLEAR OF WINDOWS OR FRESH AIR INTAKES. THE VENT SHOULD TERMINATE IN A WAY THAT WILL NOT ALLOW THE POSSIBILITY OF WATER, DIRT, INSECTS, ANIMALS, AND OTHER MATTER FROM ENTERING AND CLOGGING THE VENT PIPE.
CLEANING AND FILLING BOILER:	FOLLOW MANUFACTURER'S APPROVED PROCESS.
PRE-START CHECKS AND BOILER START-UP:	FOLLOW MANUFACTURER'S APPROVED PROCESS.

HVAC DEMOLITION NOTES	
1	THE CONTRACTOR(S) SHALL FURNISH ALL MATERIALS, EQUIPMENT, SCAFFOLDING, RIGGING, AND LABOR NECESSARY FOR REQUIRED DEMOLITION OF MECHANICAL SYSTEMS THROUGHOUT, IN ACCORDANCE WITH ALL GOVERNING CODES, THE DRAWINGS, OWNER'S REQUIREMENTS, AND AS SPECIFIED.
2	THE CONTRACTOR(S) SHALL TAKE SUCH PROTECTIVE MEASURES AND PRECAUTIONS AS MAY BE REQUIRED OR NECESSARY TO PREVENT INJURY OR ACCIDENTS TO WORKMEN OR PASSERS-BY. PROVIDE GUARD RAILS, FENCES, PLANKING, LIGHTING, ETC., IN ACCORDANCE WITH THE PARTICULAR CONDITION.
3	ANY DEMOLITION OF CONTROL WIRING, DEVICES, ETC. SHALL BE DONE BY THE CONTRACTOR(S). THIS INCLUDES HVAC SYSTEM, HOODS, FLUES, ETC.
4	REMOVE ALL DEBRIS FROM THE JOB SITE DAILY AND LEAVE ALL WORK AND EQUIPMENT IN A CLEAN WORKING ORDER.
5	LAYOUT IS DIAGRAMMATIC, AND CONTRACTOR(S) SHALL VERIFY ALL EQUIPMENT, PIPING, AND DUCTWORK AS PER FIELD CONDITIONS. EXACT LOCATION OF PIPING, RADIATORS, VALVES, ETC. SHALL ALSO BE VERIFIED IN THE FIELD. VERIFY ALL CONDITIONS, SUCH AS INTERIOR WALL SYSTEM.
6	REMOVE ALL SPECIFIED MECHANICAL EQUIPMENT AND RELATED DUCTWORK AND PIPING. ALL REMOVED IS PROPERTY OF THE OWNER AND IF DIRECTED, SALVAGED EQUIPMENT SHALL BE TURNED OVER THE OWNER, OTHERWISE SHALL BE COMPLETELY REMOVED FROM THE PROJECT SITE.
7	OBTAIN FROM THE OWNER ALL EXISTING DRAWINGS AND EQUIPMENT INFORMATION FOR THE PROJECT. REFER TO THESE DOCUMENTS IN DETERMINING EXISTING CONDITIONS AND REQUIREMENTS FOR RESTORING AND BALANCING MECHANICAL SYSTEMS.



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